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The World Bank
November 1993
WPS 135 (Update)

Policy Research Working Papers

Catalog of Numbers 801-1200

Policy Research

WORKING PAPERS

Catalog

WPS 135 (Update)

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Volume IX

Numbers 801 – 900

801. Unraveling the Mysteries of China's Foreign Trade Regime: A View from Jiangsu Province

Arvind Panagariya
(November 1991)

Proposed reform targets for China's foreign trade.

Panagariya describes briefly the evolution of China's complex foreign trade regime, paying special attention to the implementation of national trade policies at provincial and city levels. This is important for understanding developments in China's external sector because provinces came to enjoy a high degree of autonomy in the 1980s. Jiangsu, one of the fastest growing provinces in China, experienced rapid growth in exports.

Assuming that China will move toward a market economy only gradually, Panagariya proposes piecemeal reform of trade policy as most desirable for improving efficiency and fostering competition. Among reforms he proposes:

• At the national level, liberalizing trade, expanding direct export rights, further rationalizing the foreign exchange retention system, extending the agency system to exports, and eliminating the discrepancy between domestic and export prices.

• More selective targeting of sectors for export and greater willingness to exit when a target sector appears to be the wrong one.

• Allowing town and village enterprises to operate as freely as possible, removing barriers to interprovincial trade and mobility of labor, and encouraging the formation of industry groups only up to the point that they do not acquire monopoly power.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the Bank to understand the international trade regimes of centrally planned economies. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (27 pages).

802. Strengthening the Bank's Population Work in the Nineties

Steven W. Sinding
(November 1991)

These recommendations for the nineties focus on changing Bank strategies, not Bank policy.

In this concise paper, written for Bank management, Sinding briefly reviews the rationale for Bank involvement in population work. He then establishes a conceptual framework for determining appropriate program approaches for reducing fertility. Finally he suggests ways to strengthen the Bank's approach to population analysis and program support in the 1990s. Sinding recommends revising Bank strategy, not Bank policy.

The rationale has shifted somewhat, but the Bank's long-standing concern for population and family planning remains compelling. The distinction between population and family planning is important because the skills needed to deal with the two are different. We now know that in most settings, family planning — while not a substitute for development — is the most cost-effective approach to reducing fertility. Bank support is particularly important in a critical set of countries (for which Sinding provides an analytical matrix). But in any country, access to family planning improves the lives of the poor in many ways.

Certain elements appear to be crucial to the success of Bank programs: government commitment to the program; Bank support of such "software" and recurrent costs as training, transport, management information systems, and contraceptive supplies; strengthening of existing institutions rather than development of new ones; involvement of private and nongovernment organizations in the delivery of services; effective monitoring and evaluation systems (of the latter, the Bank has done little to date).

Sinding draws two main conclusions from reviews of Bank performance: (1) no satisfactory indicators exist to evaluate Bank performance objectively, and (2) there is scope and opportunity for the Bank to build on recent advances to improve its efforts in population work. Sinding recommends the following:

Immediate

• Greater attention to analysis of population issues in appropriate country strategy papers and economic and sector work programs.

• Population action plans where analytical work demonstrates a need; consideration of establishing Population Coordinators in each region to monitor and help in analytical work and preparation of action plans; preparation of regional population overviews.

• High priority to population training for managers and lead and country economists as well as for technical staff.

• Explicit objectives for population impact in freestanding population projects and in population components of Population, Health and Nutrition projects; careful impact studies.

Longer term

• Bank leadership in donor coordination to increase flows and effective use of resources to population activities as part of overall efforts to implement the *World Development Report 1990* strategy for reducing poverty.

• Building a consensus for Bank loans to displace bilateral grants to large, more mature population and family planning programs, freeing up grant funds for newer programs that enjoy less secure political support.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort to reinforce consensus within the Bank about the role of policy dialogue and population lending in the achievement of development objectives. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (34 pages).

803. Financial Regulation: Changing the Rules of the Game

Millard Long and Dimitri Vittas
(November 1991)

Financial regulation in the 1980s was characterized by far-reaching changes in the rules of the game in both developed and developing countries. Three criteria — stability, efficiency, and fairness — can be used to evaluate financial structures and regulation. Tradeoffs between them must be determined on a country-by-country basis.

In a brief history of financial regulation, Long and Vittas note the removal or re-

laxation of controls on credit and interest rates in the 1980s and the growing emphasis on prudential controls.

They argue that the 1980s were not a decade of financial deregulation but a period when the rules of the game were substantially changed. They discuss three criteria for evaluating financial regulation and structure: stability, efficiency, and fairness.

For forty years, financial *stability* was not a significant concern, but today it is, as a result of massive losses suffered by financial institutions. Financial stability can be enhanced by increasing capital requirements and strengthening financial supervision. But the stability of the financial system is also affected by its structure. Systems with "narrow" banks or "nonpar" banks would be exposed to fewer systemic risks.

The relationship between structure and *efficiency* is also complex. In the research literature, the issues of economies of scale and scope in finance remain unresolved. In developed countries, there is growing concentration and a spread of universal banking, suggesting economies of both scale and scope. Moreover, available evidence suggests that concentrated banking systems tend to have lower margins and operating costs as well as higher profits.

But in developing countries, large banks tend to be inefficient. Their size is the result of controls and restrictions on competition and entry rather than superior efficiency. Allowing universal banking might exacerbate the dominant position of large banks, with adverse effects on competition and efficiency.

Fairness covers many issues, such as protecting users of financial systems from abusive behavior by the financial institutions, creating a level playing field for competing institutions, and tackling the problems caused by potential conflicts of interest. Fairness can be more easily achieved in systems with simple structures, but limits on the permissible range of activities of different types of institutions might undermine efficiency and, to a lesser extent, stability.

Clearly there are tradeoffs between these three criteria for evaluating financial regulation and structure. Long and Vittas suggest no general answers to the questions inherent in these tradeoffs. They contend that answers must be sought on a country-by-country basis, although clearly extreme solutions that promote one criterion and disregard the others would not be optimal.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the Bank to study the impact of regulation on financial structure. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (18 pages).

804. Global Trends in Raw Materials Consumption

Boum-Jong Choe
(November 1991)

After the 1973 oil shock, demand for raw materials — especially base metals — declined drastically. The most plausible explanation, supported by statistical evidence, appears to be that materials-saving technological changes have accelerated, probably because of higher energy prices.

In this review of consumption of base metals, steel, and agricultural raw materials, the author focuses on the causes for the drastic slowdown in the consumption growth rate after the first oil price shock. From a range of 4 percent to 10 percent annually for most metals, the growth rates declined to 1 percent to 2 percent. Whether the post-1973 decline in demand for raw materials represents an irreversible structural change is important for developing countries that depend heavily on exports of those commodities. And views on this issue have been divergent.

The fact that the decline started when oil prices increased suggests that the energy-saving drive, through material substitution and technological changes, and the adverse macroeconomic impact of higher energy prices had detrimental effects on consumption of these materials. For agricultural raw materials, the decline has been much less pronounced. Any increase in consumption of cotton and natural rubber that resulted from higher costs of synthetic fibers and rubber must have been relatively small.

Most of the decline in raw materials consumption occurred in the industrial economies. In developing countries, the trend increase in the intensity of raw materials consumption per unit of output continued with only temporary interruptions at times of high oil prices. This was because of relatively rapid expansion of materials-intensive sectors and lags in adapting to the latest materials-efficient technologies. The developing countries — especially the rapidly industrializing countries — will continue to provide the main growth market for raw materials in the 1990s.

Statistical tests of alternative hypotheses suggest that the downturn has been only partly cyclical. There is not strong evidence to support the view that it was a one-time improvement in the efficiency of raw materials use.

The most plausible explanation, supported by statistical evidence, is that materials-saving technological changes have accelerated, probably because of higher energy prices. Whether those changes will continue at the accelerated rate when energy prices are lower remains to be seen. Recent data suggest that the rate may already have slowed down, which supports a more cautiously optimistic outlook for developing countries' exports of raw materials than prevailed in the early 1980s.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the Bank to understand the changes in raw materials consumption in order to better assess the prospects for developing countries' exports of those materials. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sarah Lipscomb, room S7-062, extension 33718 (25 pages).

805. Privatization in the Soviet Union: The Beginnings of a Transition

Sergei Shatalov
(November 1991)

Economic initiative has passed from the center to the republics, some of which have already moved from legislation to implementation of their own republic divestiture policies. In an optimistic scenario, this trend will continue. But even under the most pessimistic scenario, it is unlikely that privatization processes identified in this study will be stopped.

Shatalov, a senior fellow at the USSR Academy of Sciences, completed this pa-

per before the events of August 1991. But his analysis of recent modes of privatization in the Soviet Union is still important for understanding the evolving situation.

The "present" All-Union regime, Shatalov explains, was the first regime to implement wide-scale privatization. The process may take different courses, being initiated from "above" (for example, by ministries) and from "below," by enterprises. Recent measures of the All-Union authorities, he contends, had the effect of restricting any real role in privatization to the social and economic elite because, in early 1991, monetary and price reform wiped out a significant part of household savings.

Leading international corporations are still interested in getting a stake in such top Soviet performers as KAMAZ; in those few cases it will be possible to negotiate terms more advantageous than those dictated by the dwindling value of the ruble. The All-Union government has been anxious to prevent "wild" foreign participation at any cost. That cost may prove excessive, however, as confidence in the ruble and in the Soviet economy weakens.

In the meantime, the economic initiative has passed from the center to the republics. Some republics have already moved from legislation to implementation of their own divestiture policies. This trend appears likely to continue. But one cannot exclude other scenarios, for example, a collapse that provides an opportunity for some political force to try to reverse course and restore authoritarian rule under the slogan of "law and order." Even in such a case, however, it is unlikely that the processes of privatization identified in the study will be stopped.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the Bank to study, in a comparative mode, the reform process under way in socialist and formerly socialist countries. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Angelica Bretana, room N11-029, extension 37176 (28 pages).

806. Measuring Commercial Bank Efficiency: Use and Misuse of Bank Operating Ratios

Dimitri Vittas
(November 1991)

Measuring bank efficiency is difficult because there is no satisfactory definition of bank output. International comparisons based on operating costs and margins are fraught with problems. These stem from substantial differences in capital structure (leverage), business or product mix, range and quality of services, inflation rates, and accounting conventions (especially about the valuation of assets, the level of loan loss provisioning, and the use of hidden reserves). Facile and uncritical use of ratios cannot substitute for detailed knowledge and understanding of banking structure and practice.

Measuring bank efficiency is difficult because there is no satisfactory definition of bank output. Neither the number of accounts nor total assets, total loans, and total deposits provide a good index of output. Moreover, the value added of banks — given by their labor costs and profits — measures both the output and the cost of banking.

Many analysts use accounting data on bank margins, costs, and profits as measures of bank efficiency. But the usefulness of these data is undermined by substantial structural and accounting differences across countries, among individual banks, and over time. Great caution and extensive knowledge of local banking conditions are required to interpret bank ratios.

Vittas uses three sets of operating ratios to discuss the impact of differences in structure and practice on bank performance:

- Operating asset ratios (which relate all revenues and costs to average assets).
- Operating income ratios (which relate revenues and costs to gross income).
- Operating equity ratios (which relate revenues and costs to average equity).

He also uses return-on-equity (ROE) analysis to highlight the effects of differences in banking structure and practice. ROE analysis combines two simple identities between profitability ratios, bank leverage, and gross margins. It copes quite well with the differential impact of capital structure, product mix, and inflation but not with differences in accounting conventions. ROE analysis can also shed light on the relationship between spreads, leverage, and inflation.

Vittas applies his analysis to the performance of banks in OECD countries in the 1980s. He shows that U.K. building societies, German savings banks, and commercial banks in Canada, Germany, and the Netherlands were highly profitable and efficient. American money center banks and foreign banks in Canada were the least profitable.

The data also suggest that banks in consolidated banking systems with high concentration, as in Canada, the Netherlands, and Sweden, have lower operating costs than banks in fragmented systems, as in Italy, Norway, and the United States.

The analysis has major implications for assessing bank performance in developing countries. Given the narrower range and lower quality of their services and the lower level of wages, their cost-asset and cost-income ratios should be smaller than for banks in developed countries. But inflation, higher risk, and operating inefficiencies often cause cost and other bank ratios to be generally higher than in OECD countries.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the Bank to disseminate the results of its research in financial sector development. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (49 pages).

807. Moderate Inflation

Rudiger Dornbusch and Stanley Fischer
(November 1991)

Most episodes of moderate inflation are triggered by commodity price shocks, are brief, and seldom end in higher inflation. Seigniorage plays at most a modest role in the persistence of moderate inflation; such inflations can be reduced only at a substantial short-term cost to growth.

Inflation persists at moderate rates (15-30 percent) in all the countries that successfully reduced triple-digit inflation in the 1980s. Several other countries — for example, Colombia — have experienced moderate inflation for prolonged periods.

Dornbusch and Fischer set out types of theories of persistent inflation: those emphasizing seigniorage as a source of government finance and those emphasizing the costs of ending inflation.

They then examine the sources and persistence of episodes of moderate inflation. Most episodes were triggered by commodity price shocks and were brief. Very few ended in higher inflation.

Dornbusch and Fischer present case studies of eight countries, including three that now suffer from moderate inflation and four that successfully moved down to single-digit inflation rates. They examine the roles of seigniorage, indexation and disindexation, the exchange rate commitment, and monetary and fiscal policy.

The evidence suggests that seigniorage plays at most a modest role in the persistence of moderate inflation and that such inflation can be reduced only at a substantial short-term cost to growth.

This paper — a product of the Office of the Vice President, Development Economics — is part of a larger effort in the Bank to identify factors that inhibit the transformation from stabilization to growth in many countries. This research was funded by the World Bank's Research Support Budget, RPO 675-89, "Stopping 20 Percent Inflation." Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact DECVP, room S9-035, extension 33766 (73 pages).

808. The New Trade Protection: Price Effects of Antidumping and Countervailing Measures in the United States

Ann Harrison
(November 1991)

For some sectors the effect on import prices of investigating antidumping cases and countervailing measures is as great as imposing a duty. And investigations that end in duties have different effects than those resulting in no action.

The frequent application of antidumping and countervailing measures in the United States in the 1980s has been described as a new form of protection.

Harrison measures the effect not only of investigations (to evaluate claims of dumping or subsidies) but of the resulting duties, by measuring their impact on import prices.

The data set combines cross-section and time series data for 1981-86, making it possible to control for differences across industries and separately measure the effects of duties and investigations.

The results suggest that for some sectors the price effect of investigations is as great as imposing a duty. Investigations that end in duties have different effects than those resulting in no action.

This paper is a product of the Trade Policy Division, Policy Research Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (33 pages).

809. Openness and Growth: A Time Series, Cross-Country Analysis for Developing Countries

Ann Harrison
(November 1991)

Correlations across openness measures are sometimes weak, but openness does seem to be positively associated with GDP growth — the more open the economy, the higher the growth.

Harrison draws together a variety of measures of openness to test the association between growth and openness.

Although the correlation across measures is sometimes weak, there is generally a positive association between all these measures and GDP growth. The strength of the association generally depends on whether analysts use cross-section or panel data.

For industrializing countries, trade policies have varied too much over time to make the long-run averages used in cross-section estimates very meaningful.

In many respects, the results are surprisingly robust. When openness *is* statistically significant in the many specifications Harrison explores, she always finds that *greater* openness is associated with higher growth. Tests of the sensitivity of these results to country size do not change the results.

Harrison highlights two issues interesting for future research:

Does openness cause growth? Or is it the other way around?

And is it possible to disentangle short-run from long-run effects without throwing away annual data?

This paper, a background paper for the *1991 World Development Report*, is a product of the Office of the Vice President, Development Economics. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the World Development Report office, room T7-101, extension 31393 (34 pages).

810. Poverty and Income Distribution during Adjustment: Issues and Evidence from the OECD Project

Francois Bourguignon, Jaime de Melo, and Christian Morrisson
(November 1991)

Adjustment programs will fail when they do not recognize the interdependence of the three criteria of efficiency, welfare, and political feasibility. These programs must be tailored to both the political and economic environments of each country.

Drawing lessons from country studies, Bourguignon, de Melo, and Morrisson examine the effects of adjustment policies on the distribution of income in Chile, Côte d'Ivoire, Ecuador, Indonesia, Malaysia, and Morocco. After analyzing the issues that must be confronted in designing adjustment programs with a focus on poverty, they synthesize the main conclusions of the different country studies.

With simulation exercises they explore the effects of the design of the adjustment packages on poverty and on the sustainability of the measures undertaken in these countries. These exercises show considerable diversity in the evolution of income distribution during adjustment. They also expose the fatal flaws of narrowly designed adjustment programs.

Adjustment programs — whether focused on efficiency or on welfare — will fail when they do not recognize the interdependence of the three criteria of efficiency, welfare, and political feasibility. Adjustment programs must be carefully packaged to fit country circumstances, taking into account both the political and economic environments.

This paper — a product of the Trade Policy Division, Policy Research Depart-

ment — is part of a larger effort in the Bank to analyze the effects of alternative adjustment packages on poverty and on the distribution of income. This research was funded by the World Bank's Research Support Budget, "Trade Reforms in SALs: A Positive Analysis of Performance and Sustainability" (RPO 675-32). Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (53 pages).

811. Comparative Resource Allocations to Human Resource Development in Asia, Europe, and Latin America

Peter T. Knight and Sulaiman S. Wasty
(December 1991)

Major increases in attention to and expenditure on education and health systems are needed in many developing countries, especially in Latin America, to improve the coverage and quality of the services they provide. Relying on trends and themes emerging from regional comparisons, the paper identifies an agenda for policy reform in human resource development to improve a country's international competitiveness in the decades ahead.

The quality of a country's human resources will determine its ability to compete in international markets and assure the well-being of its citizens in the next century as it does in this one. Considering rapidly advancing technology, expanding global links, and threats to the ecology, it is clear that whether a society maintains or improves its competitiveness, ensures social equity, "adjusts" — or indeed survives — will ultimately depend on its success in developing its human resources. But in devising their development strategies and public expenditure portfolios, many developing societies — and among them Latin American ones are prominent — have yet to accord due attention to their most vital resource. A major issue is whether Latin American countries will be forced to sell cheap labor and overexploit their natural resources to maintain even current, inadequate living standards. Or will these countries follow the lead of successful European, North American, and new Asian countries that have invested heavily in their human resources?

Reviewing statistics compiled for selected Latin American countries and two reference groups of countries in East Asia and northern/southern Europe, Knight and Wasty emphasize the need to increase attention to and expenditure on education and health systems in many developing countries, especially in Latin America, to improve the coverage and quality of the services they provide.

The paper notes that wider access to secondary education and greater emphasis on the quality of higher education tend to be a distinguishing feature of the better performers (East Asian and northern/southern European countries). Much of East Asia's success can be attributed to the region's consistent efforts to improve technical and higher education — particularly in research and development and in engineering and other technical applications. The Nordic countries, too, have provided thorough on-the-job training and established first-rate educational institutions, led by world-class research scientists in technical fields and social sciences.

In sum, since specialized technical human resources take time to develop, no country today can afford not to provide enough financial resources to develop critical human resources.

This paper — a product of the National Economic Management Division, Economic Development Institute — is a revised version of a paper presented at the Seminar on Planning and Evaluation of Social Sectors in Latin America, held in Rio de Janeiro, Brazil in December 1989, and organized by EDI's Human Resources Division. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dulce Afzal, room M3-045, extension 36335 (20 pages).

812. Alternative Forms of External Finance: A Survey

Stijn Claessens
(December 1991)

Alternative forms of external finance for developing countries have increased in importance in recent years. This paper identifies research that could help official creditors define their role in a world with increased capital mobility — and would be consistent with their increased emphasis on developing the private sector.

Claessens identifies several gaps in the literature on external financing for developing countries. Theoretical and empirical research in three areas could help the World Bank and other official creditors define their role in a world with increased capital mobility — and would be consistent with their increased emphasis on developing the private sector. The three areas are:

- *The differences in country risk between alternative forms of external financing ("alternative financing") and traditional financing.* This research would help assess the type and amounts of alternative financing consistent with an (explicit or implicit) enforcement of contracts and the institutions needed to assure the proper treatment of claims.
- *Incentive structures for, and restrictions on, alternative financing in the host country.* Research could focus on the efficiency of these schemes from the country's perspective, and could identify the best incentive structures for attracting the desired amount and type of foreign capital. This would help countries design better policies on domestic regulations, taxes, accounting, institutions, and performance incentives. Research should address such issues as the appropriateness of ownership and capital controls, the enforcement of private-to-private contracts, the monitoring of external private-to-private contracts, the decision to allow foreign banks to enter a country, the design of appropriate financial instruments, and the appropriateness of investment incentives.
- *Optimal participation modes of international firms in developing countries.* This research could focus on the (optimal) capital structure of a multinational corporation seeking financing from domestic and foreign capital markets, under the constraint that capital in the host country is mobile. Researchers could investigate how international firms should finance (and have been financing) themselves and whether there have been shifts in these patterns; develop contracts that deal with problems of moral hazard and sovereign risk; and discuss the multinational corporation's intermediation role and the possible restrictions a government should impose on private-to-private financing.

Current literature does not offer official creditors much analytical support about the preferred forms of financial intermediation or their possible support role for pri-

vate sector financing (cofinancing, guarantees, privatization, and how to get comfortable adherence to private-to-private claims). Official creditors may have trouble defining their roles when they don't have a clear idea of the differences between alternative financing and traditional financing, don't know when one or the other is called for, or the implicit seniority status of different claims.

Research in these three areas would help improve official creditors' policy advice, their efficiency as intermediators, and any activities associated with private-to-private lending. The World Bank and other creditor institutions are often involved in policy advice on domestic reforms often aimed largely at attracting foreign finance — either by developing appropriate instruments or by providing enough comfort so that countries can adhere to performance requirements on projects. They cannot afford to duplicate systems that already exist and need to take into account specific situations in developing countries.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to analyze alternative forms of financial flows to developing countries to determine ways of enhancing the quantity and quality of external resources in support of development. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (37 pages).

813. Price Stabilization for Raw Jute in Bangladesh

Takamasa Akiyama and Panos Varangis
(December 1991)

The costs of the present system of price stabilization of raw jute by Bangladesh's public sector do not yield the expected benefits. Price stabilization could be better handled by the private sector. In any case, the loss of welfare to jute growers from price fluctuations is small.

Fluctuating prices for raw jute have been viewed as contributing to economic problems in the jute subsector. Price fluctuations were thought to reduce the jute farmers' welfare and there has been concern about the costs of parastatals' stocking operations in attempts to stabilize jute prices and incomes.

Akiyama and Varangis examine the causes and consequences of these fluctuations and analyze policies that might reduce them. They find that price fluctuations for raw jute reduce farmers' welfare only slightly because farmers' activities are typically diversified and jute's share in total income is small.

Although stocking operations by the parastatals contribute to stability in prices and real income, they have been extremely costly and have crowded out private stocking. Akiyama and Varangis contend that if the parastatals had refrained from ad hoc stocking and if the private sector had stocked efficiently, jute prices and incomes would have been just as stable — and at no cost.

They argue that the Bangladeshi jute market should be free of government intervention and that Bangladesh should establish a market-based credit system that allows efficient stockholding behavior by the private sector.

Akiyama and Varangis also found that improving the flow of market information to farmers and greater price responsiveness by jute mills to raw jute purchases would significantly improve the stability of raw jute prices and incomes. Having more information available would also make private stocking operations more efficient.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to address issues of price and income stabilization in primary commodities. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (49 pages).

814. Finance, Growth, and Public Policy

Mark Gertler and Andrew Rose
(December 1991)

A thriving financial market depends not only on a prudent regulatory regime but also on having enough creditworthy borrowers. Policies in the real sector — macroeconomic, public finance, and trade policies — that directly stimulate growth and stability should be pursued in concert with financial reform.

Development economists have long argued that modern financial markets are important to growth and that financial repression is a serious obstacle to progress in many developing countries. But the liberalization of financial markets has been disappointing in many countries — at times appearing to produce chaos rather than growth, and forcing many countries to retreat from deregulation. Now that economic stagnation seems to persist in many developing countries, many policymakers face a dilemma: Should they cling to repressed financial markets or try the road to reform once again?

Gertler and Rose consider the relationship between finance and growth and the appropriate role of government policy. Many economists have stressed how problems of asymmetric information and contract enforcement impede the functioning of financial markets in developing countries. Gertler and Rose flesh these theories out to make them relevant to policymakers.

They explain that information gaps and enforcement frictions introduce a premium in the cost of external funds. Factors such as the borrower's financial health, the efficiency of financial intermediation, and the ease of enforcing private financial contracts govern the size of this premium. How financial factors contribute to development may be understood along these lines. As for financial structure, financial contracts and institutions ought ideally to be designed to minimize this premium.

What are the practical implications for policymakers? The long-term answers are easiest. A largely decentralized capital market is optimal. Incentive problems may inhibit the functioning of financial markets, but the most direct way for the government to mitigate them is to provide an efficient system for enforcing contracts. Publicly managing credit flows is likely only to make investments more efficient, by creating incentive problems. To the extent that some sectors merit public assistance, tax credits or subsidies in conjunction with the private allocation of credit is preferable to directly regulating credit flows. The government should refrain from active involvement in the credit business, except to act as lender of last resort in times of widespread financial crisis.

Liberalization of financial markets alone is not a panacea. Financial and real development must be a joint product. Liberalization can enhance growth but successful liberalization requires a viable borrowing class; governments that slow liberalization when borrower net worth is under pressure and accelerate it when the real economy is thriving are likely to experience more successful financial reforms.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the impact of financial reform. This research, "The Impact of Financial Reform (RPO 676-13), was funded by the World Bank's Research Support Budget. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (48 pages).

815. Governance and Economy: A Review

Deborah Brautigam
(December 1991)

An exploration of the links between development and governance — that is, between development and accountability (including institutional pluralism and participation); openness (including problems such as corruption that result at least partly from lack of openness); and predictability, or the rule of law.

Brautigam reviewed the literature on political science, development management, and institutional economics to give Bank staff a clearer understanding of the links between development and governance — specifically accountability (including institutional pluralism and participation); openness (including problems such as corruption that result at least partly from lack of openness); and predictability, or the rule of law.

She found some support for a positive link between economic performance and these variables of governance (although some correlations appear stronger than others). Among her findings and conclusions:

• Arbitrary law enforcement and failure to uphold the constitution — the law — lead to unpredictability, instability, and a poor climate for growth. Well-specified property rights and enforceable contracts are clearly economic development issues and should be recognized as such. The content and distribution of property rights critically affect how broad-based development will be.

• Lack of accountability — combined with opaque and highly discretionary regulatory procedures — can provide great opportunities for economic corruption and waste. The suppression of political openings may ultimately affect stability, disrupting production and commerce. The failure to encourage grassroots participation reveals itself in comparatively unsustainable projects.

• Research trying to correlate economic performance with governance variables inevitably involves a short time frame. The recent economic performance of Chile, Taiwan (China), and South Korea occurred with little political openness, and their market systems seemed to work without pluralistic political systems.

But in the past few years all three have made significant transitions toward more open, competitive, participatory political systems, which suggests that *sustaining* (as opposed to establishing) market-based growth may require the development of political representation. With renewed interest in open political systems, we can expect a new generation of research on these variables.

• Donors who wish to make "governance" the temporary trend of the 1990s must understand that, as Zafar Ahmed put it, "One cannot make a tree grow faster by pulling it from outside; it has to grow from its roots." It takes generations, perhaps centuries, to build effective bureaucracies. It takes not only skills but volition, which comes from effective social pressure on the state. Donors must ask how best to nurture a social desire for accountability and the rule of law.

• Effective property rights and accountability result from a long-term dialogue between governments and their private sector, not between governments and donors. In Europe, public accountability developed through a state-society struggle about the collection and use of tax revenues. In many of the world's developing countries, tax revenues are disproportionately low as a proportion of GNP, even with low levels of per capita GNP. Thus, much of the dialogue about accountability shifts to one between states and donors. This process of assistance could inadvertently undercut the historical process of rulers first becoming accountable to elites for the use of their tax revenues.

• Donors must become aware of the possible effects of large sums of external assistance. They must push the new concern for "local ownership" toward a deep commitment to develop economic policies together, even if the process is slow and frustrating. This should encourage the development of accountability as a matter primarily between governments and citizens. Only over time can societies push their governments to deliver the accountability, openness, and predictability that sustainable development requires.

This paper is a product of the Policy and Review Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Zeny Kranzer, room N9-051, extension 37494 (48 pages).

816. Economic Consequences of German Reunification: 12 Months After the Big Bang

Gerhard Pohl
(December 1991)

Did the "big bang" approach work or would gradual change have been more appropriate? Which measures have worked and which have not?

Pohl discusses how East Germany is faring 12 months after big bang unification with West Germany. Were there better alternative courses of action on key economic issues? Among Pohl's conclusions:

• The "big bang" approach has worked. In Germany's special situation, more gradual approaches would not have worked because it was politically unthinkable to restrict east-west migration.

• The 1:1 conversion of GDR marks into Deutschemarks was essential to keep migration within reasonable bounds. Using a lower exchange rate (such as 2:1) would have implied a gross salary difference between west and east Germany of 6:1 and a net (after-tax) difference of 4:1. With those ratios, migration would have been heavy, creating a brain drain on east Germany and a housing shortage in west Germany.

• The 1:1 currency conversion is not to blame for the present high wages in east

Germany (about 50 percent of west Germany's); rather, the 1991 collective bargaining agreements set the pace. The high wages are only sustainable with massive financial assistance.

• More gradual unification would not have been an advantage; lower wages would have been desirable only if migration could have been held in check. But the decay of the GDR state and institutions was so advanced that wage restraint would have been impossible.

• Unification has meant importing the Federal Republic's entire economic and legal system to east Germany — and this complex system has not been ideal for solving the problems of a sudden transition from a command to a market economy. Some temporary exemptions and transitional measures were introduced from the start and others were added later, as some provisions proved unworkable (particularly the preference given to reprivatization, or restitution, which was softened in 1991). Similar legal and logistical problems have been encountered with such major public investment projects as highways, rail links, and airports. But the advantages of importing a proven legal system far outweigh the inevitable transition costs.

• Some transition measures — especially labor market adjustment measures and incentives to attract private investment — were insufficient or had to be extended. Some economists have argued that general employment subsidies would have been better than partial unemployment benefits. But Pohl argues that general employment subsidies would have been applied indiscriminately and would have perpetuated old inefficient structures. The investment incentives are far more effective in creating high-productivity jobs rapidly. In the interim, targeted employment programs are a useful transition measure.

• Investment subsidies have been criticized on the grounds that they tend to distort allocation decisions and lead to uneconomically capital-intensive investments. Although possible in theory, Pohl finds this argument doubtful in practice. Investment costs per job are not particularly high in manufacturing, and the design of the assistance program excludes support of inefficient investments.

• Were government spending and private incentives geared to productive rather than social purposes? In the first year of the union, probably not — mostly because of administrative friction in getting investments going. More could perhaps have been done to get infrastructure investments going, which would have improved employment earlier on.

This paper — a product of the Geneva Office — is part of a larger effort in the Bank to analyze the changes in the formerly centrally planned economies. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433, or from the Geneva Office. Please contact Angelica Bretana, room N11-029, extension 37176 (47 pages).

817. How Does Brady-Type Commercial Debt Restructuring Work?

Mohua Mukherjee
(December 1991)

What happens when, in response to a country's request, creditors agree to negotiate to reduce the burden of outstanding commercial debt?

The Brady Plan is a pragmatic approach to debt restructuring that combines the relatively recent feature of debt and debt service reduction and the support of official creditors. The underlying premise of those adopting the Brady Plan is that the existing stock of debt can never be fully serviced, even though the country has embarked on a far-reaching adjustment program.

To date, only a handful of countries (Costa Rica, Mexico, Uruguay, and Venezuela) have successfully concluded their debt reduction negotiations through a Brady Plan with commercial creditors. Others, such as the Philippines, have engaged in Brady-type debt reduction for part of their outstanding commercial debt.

Mukherjee explains what happens when, in response to a country's request, the creditors agree to negotiate to reduce the burden of outstanding commercial debt. She discusses the following questions:

• What factors influence the extent of debt relief that a commercial bank can offer?

• What is a good deal for the country? What is the preferred mix (for the country) between debt reduction and debt rescheduling? What considerations should the country take into account?

• What is a good deal for the banks? How do banks of various nations reconcile their different interests in the country? (Some expect to continue doing business there; others want to cut their losses and exit.) What about a bank's fiduciary responsibility to its depositors and shareholds?

• What about other creditors of the country, such as holders of its sovereign bonds, or other governments or multilateral agencies? Will or should commercial banks be the only ones to offer relief by taking losses?

• What is the country's proposed strategy for seeking future financing from private sources, director foreign investment, and international capital markets? How will a debt reduction operation affect the country's access to commercial and private sector finance in the future?

• How much support can be expected from multilateral and bilateral institutions to finance a debt reduction operation? Mukherjee summarizes broad guidelines used by the IBRD and IMF.

This paper is a product of the Financial Advisory Services Group, Cofinancing and Financial Advisory Services Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kamar Yousus, room H9-055, extension 33102 (22 pages).

818. Do Rules Control Power? GATT Articles and Arrangements in the Uruguay Round

J. Michael Finger and Sumana Dhar
(January 1992)

Do rules control power? Or apply power? Has the elaboration and application of GATT rules been an exercise in the application or the control of economic and political power?

Many complain — and offer evidence — that in recent years the GATT system has become more power-oriented, less stable, and less equitable. A concern to reverse this drift was one of the motives that brought the international community to agree to undertake the Uruguay Round. Rules control power, assumed the signers of the Punte del Este declaration, so elaborating and extending GATT rules would move the international community toward a fairer, more stable international trading system.

Finger and Dhar contend that the opposite is true. Particularly in the 1980s, the elaboration and application of GATT rules has been an exercise in the applica-

tion of economic and political power, not in its control. GATT rules, in theory, are there to limit national trade restrictions. Finger and Dhar contend that in fact things work the other way around: national practice comes first, and determines what the GATT rules mean. Gatt's rules do not put limits on national practices, but provide international sanction for these practices. Such rules are not part of the solution but are part of the problem.

Theirs is a situation-specific argument, say Finger and Dhar, not a generic one. Their target is not "rules," nor is it "GATT." Rather, it is *the* GATT rules.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to understand the economics of the emergence of "fairness" as a standard for regulating international trade, its implications for the continued openness of the international trading system, and its continued functioning as an important vehicle for development. This research was funded by the Bank's Research Support Budget, "Regulations Against Unfair Imports: Effects on Developing Countries" (RPO 675-52). The paper was presented at the Conference on Analytical and Negotiating Issues in the Global Trading System, held October 31-November 1, 1991, at the University of Michigan at Ann Arbor. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nellie Artis, room N10-013, extension 38010 (51 pages).

819. Financial Indicators and Growth in a Cross Section of Countries

Robert G. King and Ross Levine
(January 1992)

Financial indicators may be linked to growth through two "channels" in particular: the share of GDP allocated to investment and the efficiency with which resources are used. It is empirically important to identify which financial intermediaries are doing the intermediation and to whom the financial system is allocating credit rather than simply using proxies for the overall size of the financial system, as has been common in past studies.

King and Levine use existing measures of the financial system — and construct many new measures — to document the relationship between the financial system and long-run growth in a cross section of countries between 1960 and 1989.

They consider various measures of the size of the financial system, the importance of different financial institutions, the financial system's allocation of credit, the financial system's efficiency, and the degree of financial repression.

They use graphs, correlations, and regressions to gauge the robustness of the partial correlation between growth and the financial indicators. They also examine two "channels" through which financial indicators may be linked to growth: the share of GDP allocated to investment and the efficiency with which resources are used.

They find that many of the financial system indicators are significantly correlated with growth through both investment and efficiency. Moreover, many of these partial correlations remain strong after controlling for initial conditions, dummy variables for Africa and Latin America, and measures of monetary, fiscal, and trade performance.

King and Levine's analysis suggests that it is empirically important to identify which financial intermediaries are doing the intermediation and to whom the financial system is allocating credit rather than simply using proxies for the overall size of the financial system, as has been common in past studies.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the relationship between financial and economic development. This research was funded by the Bank's Research Support Budget, "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (50 pages).

820. Taxation in Decentralizing Socialist Economies: The Case of China

Christopher J. Heady and Pradeep K. Mitra
(January 1992)

The nature and pace of tax reform in China depends on progress in price and enterprise reform, highlighting the need to view the problem in a systemwide perspective.

Heady and Mitra analyze the tax system in China, where reforms designed to move the economic system toward a market economy have been occurring for more than a decade.

Heady and Mitra characterize the comprehensive changes in the tax system that could be undertaken in the presence of systemwide reform, especially of prices and enterprises, as well as of more moderate reforms that must suffice in the absence of reforms elsewhere in the economic system. In connection with tax reform per se, they emphasize two important conclusions:

- It is possible to simplify significantly the rate structure for indirect taxes in the presence of price controls, but a unified rate for value-added tax is undesirable without full decontrol of prices.
- The state's role as owner of enterprises must be treated separately from its role as tax collector. All enterprises should pay statutory profits taxes. Negotiation (of the kind that characterizes the contract responsibility system) should be confined to the payments to government from after-tax profits. Those payments could be set to balance incentives to enterprises with the need for the state to earn a return on assets historically provided free to those enterprises.

The mode of analysis that Heady and Mitra develop in this paper can be applied to a wider range of economies — whether emerging from a socialist past or not — that are progressing at varying speeds in the interlinked areas of tax reform, price reform, and enterprise reform.

This paper — a product of the Country Operations Division, Country Department I, Asia Regional Office — is part of a larger Bank study on revenue mobilization in China. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dakshi Sebastian, room D9-073, extension 80423 (33 pages).

821. Wages and Unemployment in Poland: Recent Developments and Policy Issues

Fabrizio Coricelli and Ana Revenga
(January 1992)

Unemployment has increased dramatically with stabilization, mainly because of a generalized contraction in output, rather than a sectoral restructuring or a massive

shedding of labor. Real wages fell sharply, and the wage policy has become a delicate political issue. One prescription for reducing the drawbacks in current wage policy is to replace that policy with a generalized agreement on the wage path, with synchronized six-month contracts. Such an agreement might be seen as a consensual agreement — a "social pact" — rather than as a punitive tax.

Coricelli and Revenga review recent developments in wages, employment, and unemployment in Poland and discuss some of the main risks Poland faces in sustaining its stabilization effort. They find that:

- Unemployment has increased dramatically with stabilization, but this increase cannot be said to reflect widespread economic adjustment and restructuring throughout the Polish economy. Contrary to predictions made prior to the January 1990 program, employment has declined nearly uniformly across all sectors, mainly as a result of a generalized contraction in output, rather than as a result of sectoral restructuring or massive shedding of labor.
- Wages showed a significant degree of downward flexibility — in real terms — at the beginning of the year, when firms faced a severe supply shock coupled with very tight credit. But from March on, wages increased faster than prices, probably contributing to the persistence of inflation.

The wage policy still in force in Poland at the end of 1991 maintains a few undesirable features. The monthly indexation and the possibility of carrying forward the unused margins are among the policy's main drawbacks; another is the link between wages and profitability.

The current wage policy could be replaced by a generalized agreement on the wage path, with synchronized six-month contracts. The wage path should be related to expected inflation and economywide productivity. This scheme would also have the advantage of being based on a consensual agreement — a "social pact" — instead of being perceived as being imposed as a punitive tax.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to analyze macroeconomic developments and policies in transitional economies. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact PRDTM, room N11-021, extension 39175 (45 pages).

822. Paternalism and the Alleviation of Poverty

Nancy Jesurun-Clements
(January 1992)

Part of the reason for using price subsidies to redistribute income to the poor, rather than the more efficient direct cash transfers, is to produce "happier" taxpayers.

Typically the tools available for redistribution are price subsidies (in their extreme form, in-kind transfers) and direct cash transfers. Conventional economic theory indicates that the efficiency loss is minimized if cash transfers are used instead of price subsidies. But in almost all economies, including advanced economies, price subsidies are implemented — and cash transfers, the more efficient alternative, are seldom used.

Jesurun-Clements argues that taxpayers enjoy the poorer citizen's specific consumption package (food, housing, education) more than improving the poorer citizens' general economic welfare. Her objective is to identify the conditions under which price subsidies represent a more efficient way of alleviating poverty than cash payments, given taxpayers' paternalistic preferences.

She concludes that when the taxpayers' prevalent behavior is paternalism, and taxpayers have more weight in society, the option for redistribution would be to target price subsidies to the poor. This brings about a greater improvement in overall social welfare and "happier" taxpayers than any other policy. With this solution, the poor are somewhat better off, even though they would rather receive cash transfers, which would represent the same financial cost to the economy.

When the rich are typically altruistic, there is no distortion in the price system. The preferences of each individual are preserved and the best policy for the economy as a whole and for each individual agency is undoubtedly the use of cash transfers.

Increasing the number of goods, or allowing the rich to enjoy subsidized prices, does not affect the qualitative results. Only the size of the optimum scheme to be used under various circumstances would change.

This paper — a joint product of the Country Operations 2 Division, Country Department II and the Infrastructure and Energy Division, Technical Department, Latin America and the Caribbean Regional Office — is part of a larger effort in the Bank to understand the effectiveness of different poverty alleviation schemes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Fresia Betancourt, room I8-131, extension 37703 (40 pages).

823. How Private Enterprise Organized Agricultural Markets in Kenya

Steven M. Jaffee
(January 1991)

Does the liberalization of African markets increase competition in a private market? Kenya's experience with horticultural exports calls into question the assumption that liberalizing Africa's markets will bring about competitive, decentralized private market structures — or that Africans will benefit from trade when it does expand.

Does liberalization of agricultural markets and an expanded role for the private sector result in a competitive market structure in Africa? Jaffee empirically investigates the organization and development of a dynamic African export-oriented sector — Kenya's horticultural exports — in which the private sector has long had a dominant role.

Jaffee highlights the sector's impressive pattern of growth over the past two decades and examines the (ownership) characteristics of participating private firms, the competitive pattern among those firms, and the institutional means by which they procure raw materials for processing and export.

He finds that despite the Kenyan government's direct investments in processing and trading activities and its application of regulations and targeted support measures to strengthen the role of Kenyan Africans in the horticultural trade, most of this trade remains controlled by

foreign-owned companies or members of Kenya's small minority Asian and European communities.

Various foreign and local investments have incorporated Kenyan Africans (as shareholders, employees, or suppliers of raw materials), or have stimulated the suppliers to invest in horticultural production or trade — but the basic patterns of ownership and control pose potential political problems, as the sector is now the fastest-growing component of Kenyan agriculture and trade. Concerns are growing about who is benefiting from this expanding trade.

Much of Kenya's horticultural trade is based on contracted or vertically integrated supply arrangements for raw materials, rather than open market ties between producers and processors/exporters. Open market procurement of raw materials would probably entail high transaction costs and risk, but the importance of integrated, contract-based links between producers and marketers calls into question the often-expressed assumption that liberalizing Africa's markets will produce competitive, decentralized private market structures.

Various forms of centralized private control may indeed be preferable to centralized public control, but Kenya's experience with horticultural exports suggests that when an African country such as Kenya privatizes agricultural processing and (export) marketing, the government must find a better way to monitor and control dominant firms, to get companies to involve smallholder farmers in raw material procurement operations, and to improve the farmers' bargaining position with centralized contracting firms.

• This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to assess the division of responsibilities between the public sector and the private sector in the provision of agricultural services and in agricultural marketing activities. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116 (44 pages).

824. Back-of-the-Envelope Estimates of Environmental Damage Costs in Mexico

Sergio Margulis
(January 1991)

Developing countries cannot afford an in-depth study of every environmental issue. Policymakers must be given rough, "back-of-the-envelope" estimates of the economic costs of various environmental problems if they are to rank the issues and act. Here is one such estimate — for Mexico.

For developing countries, budget constraints help set the agenda on mitigating environmental damage, one of the indelible marks of our era. And political considerations often dictate the measures taken. There are no firm analytical formulas to help even environmentally conscious policymakers rank needs and remedies.

A developing country such as Mexico — the focus of this paper — cannot afford an in-depth study of every environmental issue. Policymakers need to be provided with rough, "back-of-the-envelope" estimates of the economic costs of various environmental problems. This allows them to rank the issues and act.

In this paper Margulis applied existing methods to estimate the costs stemming from different environmental problems in Mexico. Although the examples are from Mexico, the method can be useful in other developing countries as well.

Margulis shows how creative use of U.S. and other data can help provide simple estimates of the likely costs of soil erosion, air pollution, mining of underground waters, and estimates of the health effects of water and solid waste pollution, lack of sanitation, and the ingestion of food contaminated by polluted irrigation. The assumptions underlying all calculations are conservative. Some environmental damage issues, such as loss of biodiversity, were too complex to permit quantification.

This paper — a product of the Agriculture Operations Division, Country Department II, Latin America and the Caribbean Regional Office — is part of a larger effort in the Bank to define a strategy for the environment in Mexico. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sandra Vallimont, room I8-155, extension 37791 (29 pages).

825. The Empty Opportunity: Local Control of Secondary Schools and Student Achievement in the Philippines

Marlaine E. Lockheed and Qinghua Zhao
(January 1991)

Decentralization alone does not produce local control of schools. Schools must also be given resources, motivated students, educated and experienced teachers, and control over teachers and school management.

Lockheed and Zhao use a multilevel model to examine:

• Differences in achievement and attitudes among grade 9 mathematics and science students in 213 national government, private, and local schools in the Philippines.

• Differences among these types of schools in social composition, available resources, classroom orderliness, academic emphasis, and school decision-making.

• Possible reasons for differences in achievement.

They found that — holding constant for age, gender, and socioeconomic status — students attending the three types of schools differed significantly.

Students in local schools scored lower in achievement (1.25 points lower in science and 1.61 points lower in mathematics) and had less positive attitudes than students in government schools. Students in private schools outperformed students in government schools (0.88 points higher in mathematics). These differences were attributable largely to the effects of student selection.

Lockheed and Zhao found that policies for centrally planned decentralization do not necessarily change what goes on in schools. Local schools were not managed as private schools. Local schools were given an empty opportunity: there was nothing for local control to control. Local schools had few resources — fewer of them had laboratories and their teachers were less educated and experienced than those in private schools.

By contrast, managers of private schools had significant resources over which to exercise control. Teachers were better educated and experienced, and planned their instruction. Students were motivated and completed their homework

and assignments. And managers of private schools exercised significant control over teaching and school management.

This paper — a product of the Education and Social Policy Department — is part of a larger effort in the department to understand the education sector, with particular reference to improving school effectiveness. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (37 pages).

826. Do Workers in the Informal Sector Benefit from Cuts in the Minimum Wage?

Ariel Fiszbein
(January 1992)

The paper analyzes the effect a change in the minimum wage has on the earnings of workers in the informal sector who are supposedly not covered by minimum wage legislation. The standard view is that reducing the minimum wage, which increases employment in the formal sector, reduces the effective supply of labor to the informal sector, increasing the wage in the informal sector.

But Fiszbein argues that the effect of the minimum wage on earnings in the informal sector does not depend exclusively on its effect on labor mobility between the formal and informal sector. Demand for goods also links the two sectors — and this demand is seldom factored into theoretical discussions.

Based on a general equilibrium approach, Fiszbein builds a dual economy model in which the two sectors are linked not only through the labor market but also through the goods market. In this framework, reducing the minimum wage affects informal sector earnings both through changes in labor productivity and changes in relative prices. Once these two factors are considered, a minimum wage cut could result in reducing informal sector wages, even if formal sector employment increases.

If workers in the formal sector are the main buyers of the goods produced in the informal sector, and their income elasticity of demand is relatively large, workers in the informal sector could be hurt by a cut in the minimum wage. They could similarly be hurt if the informal sector employs a large part of the urban labor force, and if demand for the goods produced in the informal sector is price-inelastic.

Fiszbein's model, however, does not affect the case for cuts in minimum wages on the grounds of efficiency. Reducing the minimum wage does increase jobs and output in the formal sector.

This paper — a product of the Population and Human Resources Operations Division, Country Department I, Latin America and the Caribbean Regional Office — was part of Fiszbein's Ph.D. dissertation at the University of California at Berkeley. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Trapani, room I7-183, extension 31947 (46 pages).

827. Free Trade Agreements with the United States: What's in it for Latin America?

Refik Erzan and Alexander Yeats
(January 1992)

Except for Brazil and Mexico, most Latin American countries stand to gain less from free trade agreements (FTAs) with the United States than the United States stands to gain from FTAs with them. The main incentive for the Latin American countries to form FTAs with the United States may be to attract investment or to halt the spread of new trade restrictions. Latin American countries do probably stand to gain significant long-term export benefits from reduced trade barriers among themselves.

Unlike earlier analysts, who have focused on U.S. objectives, Erzan and Yeats focus here on what 11 Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela) stand to gain from a preferential removal of U.S. trade barriers — that is, from the development of a free trade area (FTA) arrangement. (For lack of data, they do not address the consequences of an FTA among Latin America countries.)

They find that the United States is limited in its ability to extend significant FTA preferences to most Latin American countries because of the existing Generalized System of Preferences and the cuts in import duties negotiated in such previous multilateral trade negotiations as the Tokyo Round. In Brazil and Mexico, an FTA would liberalize important trade barriers affecting their exports. But Erzan and Yeats estimate that overall, full FTA preferences would raise Latin American exports only 8 or 9 percent.

Estimates made with a partial equilibrium trade projection model suggest that *a U.S. FTA with Mexico* would greatly influence Mexico's trade with other countries, *even if those countries also have an FTA with the United States*. An exclusive FTA between Mexico and the United States would cause Mexico's exports to increase about $1.6 billion annually and would displace about $28 million in exports from other Latin American countries (and almost half a billion dollars of trade with countries in the rest of the world would be diverted). The number and country composition of FTAs the United States negotiates with Latin America will greatly affect how much these agreements are worth.

Potential trade gains from Latin American FTAs with the United States will be considerably reduced unless parallel action is taken to remove or reduce U.S. nontariff barriers. Nontariff barriers are particularly important for countries such as Uruguay, which have a heavy concentration of textile and clothing exports. Erzan and Yeats estimate that the value of an FTA in such a case might be reduced by as much as a half without liberalization of nontariff barriers.

Still, even a preferential elimination of U.S. nontariff barriers would not induce a dramatic short-run jump in trade, except in Brazil and Mexico. The main incentive for the Latin American countries to form FTAs with the United States may be to attract investment (an issue this study does not address) or possibly to halt the spread of new trade restrictions. This ignores the probably large long-term benefits to be gained in the export sector from reduced trade barriers among the Latin American countries.

Erzan and Yeats do not formally project the potential FTA-induced expansion of U.S. exports, but do make some detailed comparisons of the levels of tariff and nontariff protection in the U.S. and Latin American markets. Those comparisons suggest that the U.S. trade gains — particularly for highly protected transport and machinery products — are likely to be considerably greater than those for Latin America in the U.S. market. Their analysis also accents the potential dan-

gers associated with independent negotiation of FTAs. Agreements that extend preferences to U.S. products below tariffs paid by other countries in the region would have a serious negative impact on trade among Latin American countries.

Finally, Erzan and Yeats note that a successful conclusion of the Uruguay Round could greatly affect their projections. If the Round results in sizable cuts in MFN and applied tariffs, the potential FTA-induced expansion of Latin American exports would be lower than their current estimates. But any such multilaterally negotiated reductions would have the general effect of creating trade in this and other regions.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and predict structural changes in trade and to identify factors affecting developing countries' exports. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-035, extension 33710 (66 pages).

828. How the Macroeconomic Environment Affects Human Resource Development

Arvil Van Adams, Robert Goldfarb, and Terence Kelly
(January 1992)

An outward orientation of the macroeconomic environment encourages more efficient development of human resources. Structural adjustment programs that address distortions in domestic capital and labor markets expand incentives for private training and the more efficient use of public resources in skills development.

Do inward-focused development strategies reduce competition in factor markets and incentives for more efficient skills development? Do outward-focused development strategies improve them?

Adams, Goldfarb, and Kelly compared vocational education and training systems in six developing countries in the 1980s. They found that an outward orientation encourages more efficient development of human resources.

Protectionist trade regimes that shelter producers from global competition produce price distortions in domestic capital and labor markets that affect the efficient use of resources in skills development. Structural adjustment programs that address these distortions expand incentives for private training and for more efficient use of public resources in skills development.

This paper — a product of the Education and Social Policy Department — is part of a larger effort in the department to improve policies for the financing and provision of vocational education and training. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (29 pages).

829. Regulation of Securities Markets: Some Recent Trends and Their Implications for Emerging Markets

Terry M. Chuppe and Michael Atkin
(January 1992)

The trend toward the liberalization of financial markets is part of a general recognition that free markets normally work better than government controls. Regulatory systems should be developed in light of the market failures that make them necessary and should provide the least possible opportunity for rent extraction by any single interest group.

In recent years there has been a trend toward liberalizing financial markets in developed and emerging securities markets. In the United States, the Securities Act Amendments of 1975 emphasized competition in the provision of financial services by deregulating commission rates on stock transactions and by fostering the development of a national market system in securities. London's so-called "big bang" series of major reforms in 1986 deregulated commission rates, put a new trading system on the stock exchange, and allowed foreign financial service firms to participate more in the U.K.'s domestic securities market. Changes in the U.K. were far-reaching in a short period, so Chuppe and Atkin could examine their effects on the market — particularly on competition. They found that the big bang made London more competitive as a global financial center.

After examining trends in U.S., U.K., Japanese, Korean, and several emerging markets, Chuppe and Atkin conclude that securities markets can facilitate the efficient allocation of an economy's resources and can foster competition in the financial sector by providing an alternative to government-directed funding or a supplement to private funding through the banking systems. For securities markets to allocate resources to their most productive uses, they conclude, regulation should be confined to that needed to correct the market failures that arise in unregulated markets. This has several important implications:

- It is more desirable to allow the market to set prices than to have direct government intervention in the pricing and selection of issues. But market-based prices depend on investors having access to reliable financial information, which means standardized accounting rules and clear disclosure requirements must be in place as a market moves from government control to market-based pricing. Market trading systems must be supervised to prevent market manipulations and insider trading based on privileged information. Governments are better employed educating investors about the risks and rewards of owning marketable securities than in trying to determine the prices of those securities.
- Restrictions on entry into the financial services sector are appropriate to the extent that they are concerned with capital adequacy and measurable competence — the goal being to correct possible market failures.
- Restricting foreign ownership of shares is not justified by economic theories of regulation. Markets can develop more easily if foreign institutions are allowed to invest at the same time that domestic institutions are encouraged to develop. The Korean market has developed despite an interventionist regime in charge of stock market development, but there is no evidence that entry barriers faced by new providers of financial services have done more than increase the profits of existing providers.
- Developing countries eager for their developing markets to be a link to the world capital market cannot afford to ignore the trend toward an international harmonizing of regulatory structures. There has been a tendency in recent years to strengthen government oversight of markets, with an appropriate delegation of regulatory responsibility to stock exchanges or other self-regulating organizations.

• In countries moving from centrally planned to market economies, the basic building blocks for a securities markets must be established, along with appropriate regulatory safeguards. Private property rights must be defined, adequate accounting systems established, and specialized institutions developed to act as broker, dealer, and investment banker.

This paper — a product of the Economics Department of the International Finance Corporation — is part of a planned research series on the performance of capital markets and their role in providing risk capital to the corporate sector in India and the Republic of Korea. The research is funded by the World Bank's Research Support Budget, "Stock Market Development and Corporate Finance" (RPO 675-84). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faye Harbottle, room K5-167, extension 39616 (40 pages).

830. Fixed Parity of the Exchange Rate and Economic Performance in the CFA Zone: A Comparative Study

Ibrahim Elbadawi and Nader Majd
(January 1992)

Economic performance in the CFA (franc) zone was weaker than in non-CFA countries in the late 1980s for exports, investment, savings, and output growth. The CFA fared better only in inflation. And in the long run, while it performed better for exports, savings, and investment, it failed to distinguish itself in terms of economic growth.

Elbadawi and Majd compare economic performance in the CFA (franc) zone with the economic performance in similar countries outside the CFA zone in recent years.

The results of their model estimates indicate that the competitive position for CFA members was weaker in the second half of the 1980s than in the first half and weaker than in non-CFA countries — in terms of output growth as well as the performance of exports, investment, and savings. The exception was domestic inflation: the CFA fared better on that front.

Results for a longer-term comparison (of the 1970s and the 1980s) are somewhat mixed. The CFA zone performed better than the others in exports, domestic savings and investment, and inflation — but failed in the long run to distinguish itself in terms of economic growth.

Elbadawi and Majd use a modified-control-group approach to compare changes in macroeconomic indicators in the CFA countries with those in countries elsewhere in Sub-Saharan Africa and similar low-income developing countries. They control for initial conditions, changing exogenous internal and world environment, and policy stance.

Their approach allows for a formal testing of whether zone membership is a random choice. The implication of randomness (that there is no selection bias) is that the CFA-zone economies would have performed the same as the rest of Sub-Saharan Africa, for example, if there had been no zone. Their results show the assumption of randomness to be valid only for GDP growth and inflation. For other indicators (the ratios of savings, investment, and exports to GDP), the decision to participate in the zone is assumed to be endogenous and is related to the expectation of improved economic performance. Therefore, in estimating the zone's effects on those three indicators, Elbadawi and Majd corrected for the ensuing "sample selectivity" bias by estimating the status indicator (participation versus nonparticipation) with a probit model.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to study macroeconomic adjustment and economic performance in the CFA zone. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-042, extension 39074 (46 pages).

831. Real Overvaluation, Terms of Trade Shocks, and the Cost to Agriculture in Sub-Saharan Africa

Ibrahim A. Elbadawi
(January 1992)

The observed decline of agriculture and the general worsening of economic conditions in Sub-Saharan Africa are linked to economic distortions, which limit growth.

Starting from the premise that agriculture should be pivotal in the structural transformation and economic development of Sub-Saharan Africa, Elbadawi addresses two related issues.

The first issue is the extent to which policy-induced distortions influence the structure of incentives for agriculture (with direct distortions induced by policies aimed directly at agriculture distinguished from indirect policies aimed at the economy's macroeconomic management).

The second issue is how these distortions affect agriculture's growth, given other growth fundamentals.

Preliminary analysis of evidence in Sub-Saharan Africa links the observed declines in agriculture and the general worsening of economic conditions to economic distortions. A more rigorous analysis, using data from the Sudan — an African country with a sizable agricultural economy — strongly supports the predictions of Easterly's endogenous growth model (1990), which posits the deleterious effects of economic distortions on growth.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to study the linkages between agriculture and macroeconomic policy in Sub-Saharan Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-042, extension 39074 (66 pages).

832. Sustainability and the Economics of Assuring Assets for Future Generations

Richard B. Norgaard
(January 1992)

Economists can participate more effectively in decisionmaking about future generations' rights to natural and produced assets if they use economic analysis to complement other types of analysis rather than assume that economic reasoning is a sieve through which other forms of reasoning must pass. Emphasis should be placed on how markets would work efficiently if they were striving to meet current preferences where one of those preferences is the collective desire to maintain sufficient natural and human-produced assets, including knowledge, to sustain welfare in the next generation.

Norgaard argues that the discourse on the sustainability of development is about assuring the rights of future generations to sufficient natural and produced assets

through formal and informal institutions. The theoretical models in resource and environmental economics have not explored how different distributions of rights across generations affect the efficient allocation of resources and environmental services. Both in theory and practice, economists have effectively assumed that current generations hold all rights and *should* efficiently exploit them.

Through the use of general equilibrium overlapping generation models developed with Richard Howarth, Norgaard demonstrates how assuring the rights of future generations — or otherwise caring for them through asset transfers — affects the efficient allocation of resources and the price paths of resources over time.

In Norgaard's general equilibrium models, the rate of interest is endogenous, taking on different values with different distributions of rights or levels of caring and showing an intertemporal path rather than a constant rate. He thus supports the position that it is inappropriate to lower the rate of interest in favor of future generations but shows that when the rights of future generations are protected, the rate of interest is lower. It is the protection of the rights of future generations that assures that a lower rate of interest does not result in excessive transformations of natural environments because of the increased availability of capital for development.

Economists may not have formally addressed the rights of future generations because they have tended to assume that technology will offset resource scarcity. Technological optimism may or may not be appropriate: it is certainly contested in the discourse on sustainability, but it is not inherent to economic reasoning.

There has been an implicit assumption that the institutional mechanisms affecting the maintenance of transfer of assets to future generations are working optimally and are unaffected by the general development process or particular development decisions. Analyses to date have only addressed market distortions and the internalization of externalities. New technologies have increased people's ability to use resources and degrade ecosystems. Development entails changing community relations and entering national and international markets. There have only been a few analyses of whether institutions, to protect the rights of future generations, have evolved in consonance with new technologies and social organizations.

Economists' traditional emphasis on efficiency, which takes the existing distribution of assets as a given, has limited their ability to perceive and respond to the challenge of sustainability, contends Norgaard. Accepting the distribution of income also justifies the use of data generated by markets, thereby giving economic reasoning empirical grounding and scaling.

Economists can participate more effectively in the diverse social decisionmaking areas in which intergenerational equity decisions are being made if they use economic analysis to complement other types of analysis rather than assume that economic reasoning is a sieve through which other forms of reasoning must pass.

For the operations of development agencies, addressing issues of sustainability would shift the emphasis from project analysis toward country and policy analysis and toward increased country dialogue. For projects, emphasis should be placed not only on analyzing efficiency but on analyzing how projects affect the formation, maintenance, and transfer of assets to future generations. A more global view of the issues should incorporate knowledge from the natural sciences and more information than is generally provided by markets.

This paper is a product of the Office of the Regional Vice President, Asia Regional Office. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jae Shin Yang, room E10-031, extension 81418 (74 pages).

833. Stabilization and Growth Recovery in Mexico: Lessons and Dilemmas

Daniel F. Oks
(January 1992)

The right combination of orthodox and heterodox policies can bring inflation down and induce sustained economic recovery in Mexico — and has done so. But a few loose ends remain: a sharp decline in private savings and the continuing appreciation of the peso.

Before 1988, "orthodox" policies (fiscal discipline and tight money) failed to bring inflation down and induce a sustained economic recovery. The Mexican stabilization plan announced in December 1987 (the Pact) shows that the right combination of orthodox and "heterodox" policies (for example, income policies) can meet, and has met, both objectives.

Oks shows that although many orthodox adjustments — especially of fiscal policy and domestic debt management — were begun before the Pact, considerable further adjusting was needed before it could succeed. To make the stabilization credible required significantly tighter fiscal policy and a lengthening of the maturities of domestic debt between 1988 and 1990.

A key factor behind high real interest rates during the recent Mexican stabilization plan was the initially low credibility of the fixed — and later the preannounced — exchange rate. While it is difficult to assess what establishes credibility, we can hypothesize about the factors that may hamper it. Crucial among them is the consistency of the macroeconomic policy framework, where fiscal policy plays a key role. Domestic debt management also matters as the probability of a successful run on the peso increases with the amount of government liabilities that could, in a given period, be exchanged for foreign reserves. For example, if the average maturity of domestic debt is low, as it was in Mexico at the beginning of the stabilization plan, this probability is high — and thus also shows up in high interest premia between peso-denominated and dollar-denominated debt.

The Pact succeeded in stabilizing prices without a recession, but a few loose ends remain:

- The sharp decline in private savings which has not been fully offset by higher public saving, causes many to question the sustainability of the recent economic recovery. In particular, it makes Mexico more vulnerable to volatile private capital flows.
- The continued real appreciation of the peso risks bringing a slowdown or recession over the medium term.

In the short term, Mexico may not have other options than further tightening its fiscal and monetary policies. Over the medium term, however, a real peso depreciation appears necessary so that extra output from new investment can be absorbed.

This paper is a product of Country Department II, Country Operations Division 1, Latin America and the Caribbean Regional Office. Copies are available free

from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lily Franchini, room I8-165, extension 38835 (23 pages).

834. Scenarios for Growth in the 1990s

Shahrokh Fardoust and Jian-Ping Zhou
(January 1992)

The long-term economic prospects for developing countries will be affected by changes in the international economic environment but depend ultimately on the success or failure of their domestic policies.

Using two macroeconomic models (the Bank's GEM/CFM and the International Monetary Fund's MULTIMOD) and results from the OECD's INTERLINK model, Fardoust and Zhou simulate global outcomes in the 1990s under several scenarios, allowing for the impact of:

- Changes in industrial countries' financial and macroeconomic conditions.
- Changes in the international oil market.
- Changes in developing countries' domestic policies under varying assumptions about the world economy and trading environment.

They find that an increase in the growth rate in industrial countries has an unambiguously positive effect on the growth rate in developing countries, but that the magnitude of the impact depends largely on the level of real international interest rates. To an extent, low real interest rates together with continuing financial flows to the developing countries could cushion the negative impact on developing countries of the recession in industrial countries.

The authors' simulations reinforce the argument that developing countries' domestic policies play a crucial role in determining long-run growth, inflation, and interest rates. They find, for example, that if external conditions remain unchanged, reasonable improvements in domestic policies (specified in the paper) can increase developing countries' average growth by about 1.5 percentage points a year.

The simulation results show that as world oil prices become more volatile, so do world inflation, interest, and GDP growth rates. The results also show the superiority of non-debt-creating flows (for example, foreign direct investment) to debt-creating, interest-sensitive flows to developing countries, in terms of long-term sustainable growth.

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — was prepared as background to the report, "Global Economic Prospects and the Developing Countries," published in May 1991. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jacquelyn Queen, room S8-035, extension 33740 (39 pages).

835. Commodity Stabilization Funds

Patricio Arrau and Stijn Claessens
(January 1992)

The optimal rule for deposits in and withdrawals from a commodity stabilization fund: keep the fund small — less than one month's exports. For the windfall gain oil exporters received as a result of the Persian Gulf crisis — about four months of average exports — the optional depletion period is about four years. In the long run, the exporter's fund should be small, significantly less than one month of oil exports.

Commodity stabilization funds are hard-currency savings to protect against a fall in income from commodity exports in the presence of borrowing constraints.

Arrau and Claessens develop the optimal rules for deposits in and withdrawals from such a fund by using a benchmark model of precautionary savings with liquidity constraints.

They show that the optimal stabilization fund is small. For the Chilean Copper Stabilization Fund, they show that the actual accumulation of foreign assets has been much larger than the benchmark model requires. Over long periods, the copper fund should contain less than one month's exports.

They also use the model to find the optimal depletion of the windfall gain oil exporters received as a result of the Persian Gulf crisis — amounting to about four months of average exports. They find that such a windfall gain should be depleted in about four years. In the long run, an oil exporter should keep a small fund, significantly less than one month of oil exports. But higher-than-predicted funds can be justified if there are externalities associated with the fund, frictions in the economy, or the borrowing constraint is relaxed.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to contribute to a Bankwide work program on issues related to developing country management of external risk, including currency and exchange rate risk management, currency reserve management, and commodity price risk management. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-072, extension 33722 (36 pages).

836. Sources of Income Inequality in Rural Pakistan: A Decomposition Analysis

Richard H. Adams, Jr. and Harold Alderman
(January 19992)

That some people own more land than others is not the main source of agricultural income inequality in rural Pakistan. That some people receive higher profits and returns to labor on their cultivation than do others is. Reducing inequality might require providing more training in managerial and technical skills.

Using panel data from a three-year study of 727 households, Adams and Alderman identify the sources of income inequality in rural Pakistan.

First, they decompose total rural income among five sources: agricultural, livestock, rental, nonfarm, and transfer income. This decomposition shows that agricultural income contributes most to inequality in total rural income.

Next, they decompose the sources of inequality in agricultural income. This leads to the surprising finding that inequitable ownership of land is *not* the main source of inequality in agricultural income. Income from returns to labor and crop profits contribute most to this area of inequality.

One way to reduce rural income inequality might be to find more ways to narrow the disparities between abilities, perhaps by teaching more managerial and technical skills to agriculturists.

According to Adams and Alderman, policymakers concerned about inequality in rural Pakistan would also be well ad-

vised to pay more attention to livestock. Income from livestock apparently decreases the inequalities in income.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to monitor the impact of agricultural policies on poverty. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116 (34 pages).

837. Manpower Planning In a Market Economy with Labor Market Signals

Arvil Van Adams, John Middleton, and Adrian Ziderman
(January 1992)

As countries move from centrally planned to market economies, manpower planners must abandon old techniques for forecasting manpower requirements and learn to analyze signals from the labor market.

The movement from centrally planned to market economies will not eliminate the need for manpower planning. Rather, it will substantially change the roles manpower planners play and the techniques they use.

Manpower planners must become analysts of the labor market. In a market economy, they will be asked for information:

- To guide private decisions about training.
- To improve the management of training systems.
- To identify impediments to competitive labor markets.
- To help rationalize public investments in education and training.

Adams, Middleton, and Ziderman introduce techniques for manpower planning that acknowledge the dynamic nature of market economies. They reject the idea of forecasting manpower requirements, proposing instead to use signals from the labor market picked up by monitoring movements in wages and employment and evaluating training programs.

This paper — a product of the Education and Social Policy Department — is part of a larger effort in the department to study the operation of labor markets and their impact on human resources development. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Selina Khan, room S6-228, extension 33651 (29 pages).

838. Measuring Trade Policy Intervention: A Cross-Country Index of Relative Price Dispersion

Brian J. Aitken
(January 1992)

Not only is it hazardous to characterize an inward-oriented country as interventionist and an outward-oriented country as liberal, but the characterization is simply wrong for developing countries. Whether a country intervenes does not tell the whole story about its trade policy, and misses an essential aspect of intervention: which goods are favored by subsidies and which are protected by tariffs.

In the debate about the relationship between trade policy and growth, various measures for trade intervention have been used. Aitken presents a new measure based on a country's relative price structure and the structure of relative world prices. This measure, he argues, conforms more closely than existing measures to the concept of trade intervention.

The relationship between "openness" and trade liberalization is more complicated than is often believed. Whether a country intervenes does not tell the whole story about its trade policy, and misses an essential aspect of intervention: which goods are favored by subsidies and which are protected by tariffs. Indonesia and Peru, for example, have comparable measures of intervention, but the relative price of equipment is very high in Peru and very low in Indonesia; consumer nondurables appear to flow freely in Latin America, while prices for these goods in Japan and Korea are inexplicably high. Understanding differences in the growth experience of these countries clearly requires a more subtle view of trade policy than "outward" and "inward" orientation, and a more informed understanding of the nature of intervention.

The debate has been confused by the failure to distinguish between trade intervention and outward orientation. Trade intervention implies policies that distort the flow or pattern of trade; outward orientation implies incentives to export that are greater than incentives for import substitution. The two may be related but a heavily interventionist policy could be outwardly oriented.

And a country could impose trade policies that raise the *average* incentive to export, while increasing the *dispersion* of incentives within the export and import sectors — so that when such a country liberalizes, trade might return to its original pattern but with incentives inwardly oriented.

The index of relative price dispersion that Aitken develops has the advantage that it is objective, measures intervention in both exports and imports, is comparable across countries, and is independent of fluctuations in exchange rates caused by macroeconomic mismanagement. Unlike average tariffs and measures of nontariff barriers and price levels, the relative price dispersion index measures incentive distortions *within* categories of goods.

The Leamer index looks directly at the effects of trade policy intervention, but the theoretical assumptions required to calculate the pattern of trade in the absence of distortion are questionable. Such assumptions are unnecessary when calculating relative price dispersion, as world prices are directly observable.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to estimate policy measures relevant for growth. The research was funded by the Bank's Research Support Budget, "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-053, extension 39065 (48 pages).

839. Regional Integration under VERs: When Trade Diversion Is Unambiguously Beneficial

David G. Tarr
(January 1992)

The creation of a North American free trade area and other trading blocs is likely to result in trade diversion in sectors where protection is exercised through voluntary export restraints (VERs). Such trade diversion will benefit the importing country but will hurt exporting countries outside the trading bloc.

Tarr argues that trade diversion based on tariff preferences can be welfare-reducing because there is a tradeoff between improved resource allocation and a loss in terms of trade — where the latter loss equals the lost tariff revenue of the importing country.

With trade diversion based on rent-transferring quotas such as voluntary export restraints (VERs), however, there is no such tradeoff. On the contrary, not only does the importing country improve its resource allocation but it also improves its terms of trade. So for the importing country, trade diversion under VERs is unambiguously beneficial.

For exporting countries outside the regional trading bloc, however, there is an unambiguous loss. They continue to sell the same VER-constrained quantity in the importing country, but at a reduced price. Therefore they unambiguously lose on their trade in VER-constrained products from the creation of a regional trading bloc.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to assess the effects of regional trade integration. The research was funded by the Bank's Research Support Budget, "The Impact of EC 1992 and Regional Integration on Selected Mediterranean Countries" (RPO 675-64). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (7 pages).

840. Public Sector Debt, Fiscal Deficits, and Economic Adjustment: A Comparative Study of Six EMENA Countries

Alfredo E. Thorne and Azita Dastgheib
(January 1992)

Why did some highly indebted Latin American countries experience high inflation as a result of the external shock of the 1980s, while other countries managed to absorb the shock and resume growth?

Thorne and Dastgheib analyzed the experience of six countries in the EMENA region (Algeria, Morocco, Pakistan, Portugal, Turkey, and Yugoslavia), and compared it with the experiences of Latin American countries.

They conclude that some countries successfully absorbed the external shock of the 1980s by:

- Minimizing the effects of the external shock by combining external and domestic debt strategies.
- Adjusting their fiscal deficits.
- Experiencing a positive external shock.
- Fostering growth by stimulating export growth and developing domestic financial markets.

No single country fully implemented this strategy; those most successful in doing so were Morocco, Portugal, and Turkey.

Their experience contrasts with that of some Latin American countries that experienced a similar external shock but failed to undertake fiscal adjustment and financed most of their deficit through money finance — thus experiencing high inflation levels and overburdening their private sector. In some respects, Yugoslavia had the same experience.

This paper — a product of the Private Sector Development and Finance Group, Technical Department, Europe and Central Asia and Middle East and North Africa Regions — is part of ECA/MNA's regional study on external debt and inflation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Luz Hovsepian, room H9-065, extension 37297 (68 pages).

841. How Access to Contraception Affects Fertility and Contraceptive Use in Tunisia

Susan Cochrane and David K. Guilkey
(January 1992)

What were the important factors in Tunisia's fertility decline? Better education for women and more access to family planning and contraception and to all the things that contribute to mortality decline — including health care facilities (especially clinics) and good water.

To a great extent, fertility decline in Tunisia can be explained by the rise in the age at which women marry, probably because they are better educated and because social legislation has given them more rights. This legislation has ranged from the abolition of polygamy to increased rights in the work force. Before guidance can be given to other countries, more analysis is needed on how changes in marriage behavior were brought about in Tunisia. The cross-sectional analysis used in this paper could not address issues of what determined the age of marriage.

A second major factor in fertility decline in Tunisia was the increased use of contraception. The main focus of this paper is what determines the practice of contraception. The general increase in the use of contraception was the result of a strong family planning program as well as increases in education over time. The family planning program in Tunisia is considered one of the best in the world.

There has been a substantial program to improve the access of the rural, poor, and least educated population groups to family planning. Although in the last 10 years contraceptive use increased the most among the least educated women, these groups are still served less well than the more privileged. We know this because the uneducated women have one child more, on average, than they say they want.

Other countries studying their own demographic transition should study the history of the fertility decline in Tunisia. Cross-sectional analysis of what determines contraceptive use and fertility as carried out in this paper can be used to guide Tunisia itself on where it might most profitably expand its activities to increase contraceptive use and thus fertility decline.

The results in this paper show the central role of mortality decline and access to contraception in this process. Health facilities, especially clinics, and good water are important in reducing mortality, which in turn increases the motivation to restrict fertility and the likelihood that people will act on that motivation.

The effects lag, however. Access to health facilities at age 20 matters more than current access in affecting motivation. Thus, a long-term program to further reduce mortality is important. Hospitals and doctors in rural areas appear to play less clear a role than clinics, but further analysis of what determines mortality — especially in rural areas — would be needed to design a proper health strategy.

The structural model Cochrane and Guilkey use is designed to distinguish exogenous from endogenous variables — to separate such community variables as access to family planning from the channels through which they operate. One of

the most important findings is the importance of access to family planning and health facilities to the motivation to reduce fertility and to act on that motivation by using contraception. Many people in the field have dismissed the measures of motivation used in this study, but the authors found them particularly important.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to study ways to improve family planning. This research was funded by the Bank's Research Support Budget, "Impediments to Contraceptive Use and Fertility Decline" (RPO 675-72). Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (58 pages).

842. Capital Flows to South Asian and ASEAN Countries: Trends, Determinants, and Policy Implications

Ishrat Husain and Kwang W. Jun
(January 1992)

Foreign direct investment has been more influential than other types of resource flows in shaping economic growth in ASEAN countries. South Asian policymakers can also facilitate the infusion of foreign direct investment flows if they pursue policies and nondistortionary incentive systems similar to those of ASEAN countries.

Husain and Jun compare the experiences of selected Asian countries in attracting different forms of external financing and examine how that financing has contributed to growth. They carry out the analysis for two subgroups — South Asian and ASEAN countries — with distinctly different dominant forms of capital flows.

After reviewing recent trends in financial flows to individual countries, Husain and Jun perform a statistical analysis of the effects of foreign capital flows on the macroeconomic performance of developing countries in the region. They find that foreign direct investment has been a more significant positive factor than other types of resource flows in shaping the economic growth of ASEAN countries. Substantial increases in ODA flows are unlikely, and so is the resumption of significant bank lending, so policymakers in South Asia should pursue policies and nondistortionary incentive systems conducive to the infusion of foreign direct investment flows.

Husain and Jun's major findings are consistent with the Bank's emphasis on an increasingly important role for the private sector — and direct investment flows — in development. A focus on foreign direct investment is appropriate, given current constraints on external financing, particularly through traditional bank credits.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to analyze the trends and determinants of capital flows to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (50 pages).

843. How Financial Markets Affect Long-Run Growth: A Cross-Country Study

Ejaz Ghani
(January 1992)

A country with a more developed financial system tends to grow faster because it can make more efficient use of resources. Policy reform that fosters financial development also fosters a better growth rate for real GDP.

Empirical studies on new growth theory have tended to ignore financial policy's role in development. Ghani provides evidence that the initial level of financial development is positively associated with a country's later GDP growth rate, after controlling for the effect of the starting value of human capital and the investment rate.

A country that starts with a more developed financial system tends to grow faster because it can make more efficient use of resources. It can do so through several channels, including better evaluation and monitoring of firms, lower transaction costs for financial intermediation, and externalities generated from information collected and processed in financial markets.

Policy reform that fosters financial development also has a significant positive effect on the growth rate of real GDP. The empirical evidence Ghani presents for 50 developing countries tends to reinforce a classical theme of development economics: the importance of human capital and financial markets.

This paper — a product of the Country Operations Division, Eastern Africa Department, Africa Regional Office and initiated while the author was in Division II, Country Policy, Industry and Finance, Operations Evaluation Department — is part of a review of cross-country experience with long-term growth. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Afsar Nokhostin, room J16-281, extension 34150 (30 pages).

844. Heterogeneity, Distribution, and Cooperation in Common Property Resource Management

Ravi Kanbur
(January 1992)

The more heterogeneous agents are along relevant dimensions, the less likely cooperative agreements are to come about. And existing agreements are more likely to break down as a group becomes more heterogeneous.

Kanbur considers the role of group heterogeneity in the success or failure of common property resource management. He argues that cooperative agreements are less likely to come about when agents are highly heterogeneous along relevant dimensions — and existing agreements are more likely to break down as a group becomes more heterogeneous.

Kanbur crystallizes his argument in simple numerical examples and illustrates by reference to case studies on common property resource management — in particular, cases involving fisheries and irrigation systems. More work is needed to substantiate Kanbur's argument, but his analysis so far supports the argument that equity and efficiency complement rather than oppose each other.

This paper — a product of the Research Advisory Staff, Office of the Vice President, Development Economics — is a background paper for the *World Development Report 1992* on environment. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the World Development Report office, room T7-101, extension 31393 (25 pages).

845. Inflation Stabilization in Turkey: An Application of the RMSM-X Model

Luc Everaert
(January 1992)

Adding estimated behavioral equations to the standard RMSM-X model allows it to simulate the short-run consequences of inflation stabilization.

The model Everaert presents is an extension of the simple RMSM-X model developed to improve the Country Operations Division's macroeconomic monitoring and modeling capabilities. Adding econometrically estimated behavioral equations and the use of lagged relationships makes the model fit for short-run simulations while maintaining an essentially recursive structure and thus keeping computational costs at a minimum.

First, Everaert reviews the theoretical framework of an inflation stabilization program. In the absence of price rigidities, a reduction in inflation simply implies finding a replacement for revenue lost from a decline in the inflation rate. In reality, backward-looking nominal contracts and credibility problems induce short-run costs, making a fall in the economic growth rate an inevitable part of inflation stabilization. The theoretical framework yields the specification of a few key behavioral equations to be implemented in the model.

Next, Everaert shows in detail how this theoretical framework is implemented in the RMSM-X model by specifying demand and supply sides of all markets. An econometrically estimated short-run price equation plays a key role.

Everaert's simulation results show that even if a credible program is implemented, at least two years of negative per capita growth are needed to bring inflation down from its current levels to below 10 percent a year. The accompanying fiscal effort is great: the equivalent of a 40 percent increase in direct tax revenues if no other expenditure or revenue measures are taken. Scenarios that do not incorporate strong fiscal action do not succeed in permanently lowering inflation and lead to lower per capita GDP at the end of the decade than does the scenario of fiscal stabilization. Inflation in the Turkish context is costly because it reduces not only the level of productive investment but also its efficiency.

This paper — a product of the Country Operations Division, Country Department I, Europe and Central Asia Region — is part of a larger effort in the Region to enhance its macroeconomic monitoring capabilities. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Suzanne Zamora, room H5-105, extension 36071 (51 pages).

846. Incorporating Cost and Cost-Effectiveness Analysis into the Development of Safe Motherhood Programs

Larry Forgy, Diana M. Measham, and Anne G. Tinker
January 1992)

A relatively small investment can reduce maternal mortality and morbidity. To achieve the greatest impact on maternal health, resources must be allocated soundly within and to Safe Motherhood programs.

Little information is available on the actual costs of implementing Safe Motherhood programs, or on how these costs vary in different settings. Nor is there a consensus on the precise goal, content, and structure of Safe Motherhood programs — due largely to a paucity of information on the relative effectiveness of individual health interventions; of different levels of the health system; and of non-health sector interventions. It is difficult to measure the impact of interventions on mortality, and debate continues on the appropriateness of various intermediate or process indicators as proxies for maternal outcome measures.

Participants at a recent World Bank workshop on Safe Motherhood agreed that it is essential to develop a better understanding of the cost-effectiveness of Safe Motherhood interventions to design programs and allocate the limited resources available in a way that maximizes their impact on maternal health status.

At its simplest, a costing methodology would provide guidelines for estimating the costs of prospective programs, once designed. When combined with information on effectiveness, it could be used to give planners an indication of the potential results achievable through a variety of program options, subject to the resources at their disposal.

Traditionally, program design decisions have been based on assumptions about the potential impact of alternative strategies, with little explicit consideration of their costs. The workshop aimed to lay the groundwork for incorporating cost data into the program design. But lack of knowledge on the effectiveness of interventions is nearly as great an obstacle to sound program design. A much improved information base in both areas is urgently needed.

Cost-effectiveness information is also essential to ensure that additional resources are allocated to Safe Motherhood by illustrating that a relatively small investment can bring about significant reductions in maternal mortality or improve other key indicators. Safe Motherhood competes with other better established sectoral interests, including Child Survival, which regularly uses cost-effectiveness figures as advocacy and fundraising tools.

This paper — a product of the Population, Health, and Nutrition Department — synthesizes the results of a workshop on the costs and cost-effectiveness of Safe Motherhood programs. The workshop was held at the World Bank, April 8-9, 1991. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (37 pages).

847. Coping with the Legacies of Subsidized Mortgage Credit in Hungary

Silvia B. Sagari and Loic Chiquier
(January 1992)

Like many socialist countries in transition, Hungary must find a way to reduce the fiscal burden implicit in the subsidized housing loan portfolio inherited from the pre-1989 regime. The paper discusses different ways of dealing with this portfolio during the transition toward a more efficient and equitable system.

Sagari and Chiquier examine alternatives for dealing with the initial conditions of housing finance facing countries making the transition to a market economy and moving toward a more efficient and equitable system.

The authors focus on the problem of restructuring the stock of housing loans

that exist at the time a new regime is implemented. Almost without exception the stock of housing loans is yielding heavily subsidized rates, and its market value is significantly below its book value.

Hungary makes an interesting case study. The mortgage portfolio inherited from past regimes — and the nature of the measures adopted to deal with the fiscal and institutional problems resulting from the old regimes — makes especially clear the perverse implications of housing finance systems based on across-the-board subsidized interest rates.

Sagari and Chiquier propose a general approach to finding options to reduce the fiscal burden implicit in the subsidized housing loan portfolio inherited from the pre-1989 regime. They identify mechanisms to reduce the interest subsidy embodied in that portfolio as well as mechanisms to spread the associated losses among those benefiting from the subsidies as well as among other parties. Clearly any "residual" subsidy must be absorbed by the government and ultimately by the population in the form of increased taxation or decreased availability of public services.

The problem is complex and no obvious, easily implementable solutions emerge. But delaying action could hardly improve the situation.

This paper is a product of the Financial Sector Development Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Melakou Guirbo, room J9-235, extension 35015 (26 pages).

848. How EC 1992 and Reforms of the Common Agricultural Policy Would Affect Developing Countries' Grain Trade

Merlinda D. Ingco and Donald O. Mitchell
(February 1992)

How stabilizers, price cuts, and the elimination of border taxes and subsidies would affect EC grain production and developing countries' grain trade.

The European Community (EC) is a major grain producer, accounting for about 12 percent of world production in 1989-90. EC grain exports (mainly lower-quality feed wheat) increased significantly over the last three decades, and grain imports (mainly higher-quality bread wheat) declined. In 1973, the EC shifted from being a net importer to being a net exporter. Developing countries, on the whole, are heavy grain importers.

The EC's Project 1992 will abolish internal trade barriers to facilitate the movement of goods, persons, services, and capital between member countries. One aspect of the program is elimination of border taxes and subsidies (called MCAs) on agricultural commodities. Coupled with internal pressures to reduce agricultural budget expenditures, the EC-1992 program has affected agricultural policy by weakening the role of the price intervention system. An example was the 1988 adoption of a common agricultural policy (CAP) reform package called "stabilizers" to limit market price supports.

Using an econometric model, Ingco and Mitchell show the stabilizers and the elimination of the MCAs to have a limited effect on world grain prices and trade. The stabilizers depress the ECU intervention price, but their effect on production is minimal as cuts in nominal ECU intervention prices are partly offset by adjustments in green exchange rates when MCAs are eliminated. In general, the new arrangements to remove MCAs involve revaluing the green rates in countries with positive MCAs and devaluing them in countries with negative MCAs. The effect would be a gradual increase in grain prices in France, Greece, Ireland, Italy, and the United Kingdom — more so than in countries with strong currencies, such as Germany and the Netherlands.

Baseline projections indicate that total EC10 grain production will continue increasing as average yields increase 2 percent to 2.5 percent a year. Eliminating MCAs and continuing stabilizers (scenario 1) would slightly increase grain production above baseline as member countries' exchange rate policies adjust. Total EC10 grain production will increase 2 percent a year over baseline in 1995-2000, but eliminating the CAP and returning to a pre-CAP growth path for yields (scenario 2) would produce a decline in grain production — with total EC10 wheat production 27 percent below baseline in 2000.

Under scenario 1, eliminating MCAs causes a slight decline in world wheat and coarse grain prices. By 2000, real wheat prices fall 1 percent and corn prices 0.62 percent below baseline. Under scenario 2, prices rise substantially. Wheat prices increase (by 6.49 percent) more than coarse grain prices (2.18 percent) because returning to historical yields would reduce wheat production and exports substantially more than coarse grains.

Under scenario 1, developing countries' net import costs for grains fall slightly and imports rise, in response to lower prices. By 2000, the cost of grain imports for all developing countries falls US$153 (constant 1985 dollars); Asian and Middle Eastern developing countries save the most. Under scenario 2 the return to historical yields increases developing countries' cost for grain imports by an estimated US$906 million (constant 1985 dollars).

Exchange rate variations in member countries have also affected the level of protection of EC agriculture. Under current macroeconomic policies, large price cuts would be necessary to bring production in line with demand. Such price cuts are not politically feasible, so policies designed to remove land and farmers from grain production are likely to be more important. But land set-aside schemes will not significantly affect production without much higher compensation payments than are now contemplated.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to understand how developing countries are affected by policy reforms in the industrial countries. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room S7-040, extension 33716 (37 pages).

849. Financial Structures and Economic Development

Ross Levine
(February 1992)

This paper constructs a model that captures the two-way nature of the relationship between financial and economic development — and allows societies at different levels of economic development and with different policies to choose different financial services.

Levine constructs a model that captures the two-way nature of the relationship between financial and economic development — and allows societies at different levels of economic development and with different policies to choose different financial services.

In this model, various types of financial contracts and institutions arise in response to the economic environment. Incentives for financial structures to emerge are generated by liquidity and productivity risk, the costs of gathering information and mobilizing resources, and the costs of financial transactions. The emergence and development of financial arrangements in response to the economic environment can alter investment decisions and per capita growth rates — while the level of per capita income helps determine the *types* of financial services a particular society chooses to develop and use.

Levine not only reconciles more empirical regularities than past theoretical studies have done, but highlights the role of public policies on financial activities. Policy has important implications for the rate of economic growth, the level of financial development, and the types of institutions providing financial services.

Levine's model also predicts that per capita growth rates should be related to the types of financial services provided by the financial sector. Thus, the most common empirical measure of financial development — the overall size of the financial system — may not appropriately capture fundamental features of financial development.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the relationship between financial and economic development. This research was funded by the Bank's Research Support Budget, "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (39 pages).

850. Fiscal Adjustment and the Real Exchange Rate: The Case of Bangladesh

Kazi M. Matin
(February 1992)

How cuts in government spending affect the real exchange rate depends on whether a government achieves fiscal adjustment through proportionate cuts in capital and current spending or through disproportionate cuts in capital spending. Disproportionate cuts in capital spending may shift the balance of government spending toward nontradables. As a result, the real exchange rate tends to appreciate — which could undermine the effectiveness of simultaneous trade liberalization.

Matin examines the effect of fiscal adjustment on the real exchange rate. He argues that the direction and extent of that effect depend on the way fiscal adjustment is carried out. If a fiscal deficit is reduced mainly by reducing total government spending, the effect on the real exchange rate depends on whether the adjustment is achieved through proportionate cuts in both capital and current spending or through disproportionately greater cuts in capital spending. A disproportionately high cut in capital spending affects the composition of government spending between tradables and nontradables.

Matin extends the dependent-economy model of the real exchange rate, incorporating both the level and composition of government spending. He then estimates the model for Bangladesh, a country that reduced total government spending in the face of growing current expenditures. Bangladesh's fiscal adjustment involved an unsustainably large decline in capital spending as a share of total spending.

Econometric estimates of the model for Bangladesh show that the propensity to spend on nontradables is greater for government spending than for private spending and greater for the government's current spending than for its capital spending. This result is highly robust across different measures of the real exchange rate and across different methods of estimation. Thus as Bangladesh's fiscal adjustment shifted government spending toward nontradables, the real exchange rate tended to appreciate.

Matin emphasizes two important implications of such fiscal adjustment for developing countries like Bangladesh:

- When fiscal adjustment involves unsustainably heavy cuts in capital spending (a trend that is now being reversed in Bangladesh), appreciation of the real exchange rate misaligns that rate, causing a misallocation of resources.
- When disproportionate cuts in capital spending occur at the same time as trade liberalization, appreciation of the real exchange rate undermines the effectiveness of trade liberalization.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger research project on the sustainability of trade reform in structural adjustment loans (RPO 675-32). The paper was presented at Bank seminars held in August and October 1991. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (42 pages).

851. Sources of World Bank Estimates of Current Mortality Rates

Eduard Bos, My T. Vu,
and Patience W. Stephens
(February 1992)

Sources of the infant mortality rate and life expectancy at birth for each of the 186 countries for which the Population and Human Resources Department of the World Bank makes demographic estimates and projections.

Bos, Vu, and Stephens discuss the sources of estimates of the infant mortality rate and life expectancy at birth for each of the 186 countries for which the Population and Human Resources Department of the World Bank makes demographic estimates and projections.

The intention is to give some background on the derivation of mortality estimates and projections used in the Bank's demographic estimates and projections, so people who use the data know how recent and reliable they may be.

Bos, Vu, and Stephens discuss mortality projection methodology and list the sources and assumptions used in constructing estimates for individual countries. They also plan to issue a companion paper on the sources of fertility estimates.

The first section of the paper provides an overview of the sources of data, discusses their nature, and explains the projection methodology used to arrive at current estimates.

In the second section, the authors document mortality data sources for each country, organized by region.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to construct and document indicators of human resources development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact

Otilia Nadora, room S11-219, extension 31091 (23 pages).

852. How Health Insurance Affects the Delivery of Health Care in Developing Countries

Joseph Kutzin and Howard Barnum
(February 1992)

The goal of delivering health services efficiently and equitably can be more effectively promoted by an insurance institution that actively organizes consumers' entry into the health system and removes the financial incentives that encourage providers to increase the volume and cost of services.

To alleviate financial crises, many developing countries are considering health insurance as an option for increasing available resources in the health sector. But besides affecting revenues, insurance also affects how efficiently and equitably health services are delivered.

To understand how insurance affects the delivery of health services, Kutzin and Barnum studied systems in Brazil, China, Korea, and Zaire. They looked at the following characteristics of insurance programs: the system for reimbursing providers, the services covered, the insurer's role, the extent to which beneficiaries help cover costs, and the proportion of the population covered by insurance.

Kutzin and Barnum use the following indicators for efficiency and equity in the delivery of health services: cost escalation, resource allocation, the use of specific medical technologies, and equity of access to services.

They conclude that insurers must take an active role in establishing institutional mechanisms (such as contractual obligations) that encourage health service providers to make efficient and equitable decisions about resource allocation. Incentives to providers are important because they determine the supply of services and can also tremendously affect demand.

As examples from Brazil, China, and Korea show, providers can increase the use of curative services so much that health care costs escalate rapidly, resource allocation in the sector is distorted, medical technologies are inappropriately used, and access to services is inequitable. To correct these distortions, a public insurance institution should create incentives that encourage providers to behave in a manner consistent with social goals. This is achieved most easily with direct insurance, where the goals of the insurer and the provider are identical, but third-party payers can also take an active role.

Problems promoting efficient and equitable delivery of health services are magnified when an insurer serves merely as a financial conduit for reimbursing providers. Goals of efficiency and equity can be more effectively promoted by an insurance institution that actively organizes consumers' entry into the health system and removes the financial incentives that encourage providers to increase the volume and cost of services.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to develop efficient and equitable health sector pricing and insurance strategies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (20 pages).

853. Policy Uncertainty, Information Asymmetries, and Financial Intermediation

Gerard Caprio
(February 1992)

Policy advisors should be circumspect in forecasting rapid post-adjustment recovery, and structural adjustment and financial reform programs should consider the extent to which bank relationships will be disrupted, either by failing banks or by the destruction of information.

Financial reform is often accompanied by other changes, including structural adjustment; the success of the combined experiment depends on the extent and efficiency of subsequent investments. Entrepreneurs' judgments about investing in a post-reform world (often affected by the costs of entry and exit and the probability that a reform will be reversed) are important but so are banks' considerations of the sunk costs of investments in both physical capital and information development.

In industrial economies in normal times, information costs are low, banks have ample information, and information is rarely destroyed (as when a large part of the banking system fails). But in developing economies, banks may possess limited information about only a few large firms, and the potential for destroying much information capital is great. Partly for this reason, some countries — especially very poor ones with undiversified financial systems — have difficulty with financial reform.

Caprio argues that policy advisors should be circumspect in forecasting rapid post-adjustment recovery, and structural adjustment and financial reform programs should consider the extent to which bank relationships are going to be disrupted, either by failing banks or by the destruction of information.

The accepted wisdom is that financial reform should not precede "real" sector adjustment, or banks will get in trouble by lending at disequilibrium prices. But postponing all financial reform until structural adjustment is complete is equally dangerous: unless the financial sector is prepared, investors will not have enough capital to invest, even given credible programs.

One potential form of preparation is an extension service for the financial sector, to give firms accounting training and to help auditing firms get started. Partial guarantees to younger firms in, say, the export sector (after devaluation) might help offset some of the risk associated with lending to new clients. The period of uncertainty should persist for only a limited time — at most, two to three years after structural adjustment; a "sunset" period should be firmly imposed on any subsidies.

Alternatively, governments could give an investment tax credit on information capital. Because information is difficult to measure, the credit would be equal to some small proportion of loans made. In effect, this would amount to the government temporarily buying down the rate for beneficiaries. Even after such a tax credit program expires, bank spreads could be expected to be sizable, since lending to newer firms is more costly than lending to a few large enterprises. But as these new firms grow, spreads should decline.

The best candidates for reform — in both real and financial sectors — are countries with more diversified banking systems. These are more likely in well-diversified economies, with no recent history of severe financial repression. Countries that have tightly limited residents' ability to hold foreign assets may face a portfolio adjustment as they ease capital con-

trols under reform, since they are in effect introducing another potentially lower-risk asset. Countries that have had relatively open capital markets will be better off since they do not have pent-up demand for such assets.

Well-capitalized banking systems will naturally tend to fare better under reform, even though ample financial capital may not lead banks to lend aggressively in the face of greater uncertainty (such as substantially reduced information). Clear signals from reforming governments on where policies are headed will help both entrepreneurs and their financiers. Without these signals, banks will not be sure where to concentrate their investment in gathering information, and periods of loan retrenchment are more likely to be prolonged.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the process of financial reform. This research was funded by the Bank's Research Support Budget, "The Impact of Financial Reform" (RPO 676-13). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (26 pages).

854. Is There a Case for an Optimal Export Tax on Perennial Crops?

Takamasa Akiyama
(February 1992)

In imposing an export tax on perennial crops, a government should give less consideration to the tax's optimality and more to how the tax affects the perennial's long-term production and the distribution of welfare.

The idea of an optimal export tax on a commodity is based on the assumption that by imposing a tax, a country can improve its welfare (the sum of producer surplus and government revenues) when it faces a downward-sloping demand curve for the commodity. The idea is thought to be particularly relevant to producers with large world market shares for primary commodities for which the price-elasticity of demand is low. An export tax is considered necessary because the scattered farmers' expected marginal revenue is higher than the marginal revenue of the country as a whole.

Akiyama uses a model to calculate the optimal tax and to evaluate the effect of the tax and other factors on welfare. Simulation results show that the optimal level of the export tax depends on how farmers and government form their expectations of future prices. He found that the tax is indeterminate when the government does not know how farmers form their expectations and when farmers' expectations are independent of recent prices or taxes. The government can only impose an "estimated" optimal tax because the tax to be imposed depends on the government's expectations of world prices. Whether the tax is optimal or not depends on whether the government's expectations are met by reality. To impose a realistic tax, the government needs to know the farmers' expectations and the prospects for world prices of a particular perennial.

Akiyama's numerical example shows that national welfare is not very sensitive to the tax rate. But the tax does significantly affect the distribution of benefits between farmers and government — and significantly affects long-term production. The numerical example also shows quantitatively how much interest rates, exchange rates, and marketing and production costs affect welfare and, in the long run, the perennial subsector.

Akiyama concludes that in imposing an export tax on perennials, a government should give less consideration to the tax's optimality and more to how the tax affects welfare distribution and long-term production.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and evaluate trade policies in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC, 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (39 pages).

855. Sovereign Debt: A Primer

Jonathan Eaton
(February 1992)

A survey of analyses of Harrod-Domar and two-gap models of debt and growth; optimizing models of borrowing; solvency, debt, and endogenous growth; sovereign risk; incentives to repay; the role of sanctions and reputation in dealing with recalcitrant debtors; debt relief and the "debt Laffer curve"; the role of official lenders; and debt buybacks.

The troublesome debts of many developing countries have spawned much literature on why countries borrow, on what debt contributes to growth, on why countries repay, and on how to deal with existing debt. Eaton provides an analytical primer on the following aspects of sovereign debt:

- The basic accounting concepts associated with debt and some data, particularly about the net resource transfers associated with external borrowing.
- The mechanics of debt and growth implied in the Harrod-Domar and two-gap growth models. Eaton points out how this analysis can yield misleading conclusions about the sustainability of debt and the determinants of solvency.
- Debt as a component of an optimizing model of borrowing in a competitive loan market, when the borrower faces an intertemporal budget constraint.
- Debt as a component of recent models of endogenous growth. Eaton concludes that what debt contributes to growth depends greatly on the source of growth.
- Problems arising from sovereign risk, including problems of liquidity, enforcement, and revenue-raising to finance repayment (and the attendant problem of capital flight).
- Incentives to repay. Maintaining access to credit markets can by itself be a reason to repay enough to sustain substantial debt levels.
- Options available to a creditor whose debtor is unwilling to meet current debt-service obligations.
- Debt buybacks. Eaton concludes that in the absence of any efficiency cost imposed by outstanding debt (so that the only implications of the form and extent of repayment are for the distribution of surplus between borrower and lender), how much a buyback benefits the borrower depends on how much buying back debt reduces what is available for repayment later.

Eaton also concludes that if there are efficiency losses associated with debt (a "debt overhang"), debt forgiveness can benefit both a debtor nation and its creditors. Contrary to claims in the literature, this outcome does not require that a reduction in the face value of debt raise its market value (a "debt Laffer curve"), and the debtor benefits even though the buyback raises the market price of the debt.

The efficiency argument for buybacks is inconsistent with the case for lengthening the debt's maturity.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the relationship of external borrowing to economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (83 pages).

856. Latin American Women's Earnings and Participation in the Labor Force

George Psacharopoulos and Zafiris Tzannatos
(February 1992)

Despite worsened economic conditions since the 1970s, women's participation in the labor force has ir reased significantly since the 1950s — possibly because women have benefited disproportionately from expansion of the public sector. Sound public policy on education, family planning, childcare, and taxes — as well as public efforts to increase women's job opportunities — is most likely to improve women's (and hence children's) welfare.

Using historical census data and the latest household surveys, Psacharopoulos and Tzannatos investigate changes in female employment in Latin America, the factors that determine women's participation in the labor force, and the reasons for the gap between men's and women's earnings.

Psacharopoulos and Tzannatos find, to their surprise, that despite worsened economic conditions since the 1970s, women's participation in the labor force has increased significantly since the 1950s. One explanation may be that women — especially educated urban women, most of whom probably come from the middle and upper classes — benefited disproportionately from expansion of the public sector. The factors that have most affected women's decisions to join the work force have been (after controlling for age) education and family conditions (whether the woman is married, is a head of household, or has children). Creating opportunities for women's education and employment when such factors are absent because of market failures (of which discrimination may be only one cause) will improve efficiency and reduce poverty.

Other policy-based factors that can affect women's participation in the work force include the availability of family planning services and child-care facilities. Women's participation in the labor force can also be affected by improving family law and tax regulations that create hardships for women, especially in the Caribbean, where internal and overseas migration are common (women as urban domestic servants and men as industrial workers abroad), where visiting partnerships are common, and where women are often thrown into a vicious cycle of poverty and an inability to work.

Psacharopoulos and Tzannatos found that the same marginal investment (one additional year of education) yields higher returns for women than for men; and that the most cost-effective approach is to emphasize increased primary education for poorly educated women rather than more public tertiary education for more advantaged women.

In all of the countries studied, women are rewarded less than men and gender differences in human capital endowments account for an average of about a third of the observed difference in earnings — prima facie evidence of discrimination. On the other hand, women appear to be rewarded more proportionate to their human capital endowments than men are. This may be because they benefit disproportionately from expansion of the public sector.

This paper — a product of the Human Resources Division, Latin America Technical Department — is a summary of a larger LAC study funded largely by the Norwegian Trust Fund. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Liliana Longo, room S13-055, extension 37786 (38 pages).

857. The Life Insurance Industry in the United States: An Analysis of Economic and Regulatory Issues

Kenneth M. Wright
(February 1992)

In the complex, highly developed U.S. life insurance industry, regulation emphasizes prudence and solvency and does not inhibit competition and innovation. But because there are no satisfactory measures of efficiency and profitability, it is difficult to assess industry performance.

The U.S. life insurance industry comprises more than 1,200 active companies with an impressive record of innovation. Annual premiums for life insurance and annuity products amount to about 5 percent of GNP and total assets to 26 percent of GNP.

Life insurance companies are major participants in U.S. capital markets. They invest in all types of bonds, mortgage loans and mortgage-backed securities, and corporate equities. They hold about one-third of all corporate bonds and about 15 percent of mortgage-backed securities. Conservative policies and regulations keep their holdings in corporate equities down to only 3 percent of all corporate equities — and to about 9 percent of their total assets (compared with 38 percent for corporate bonds and 13 percent for government bonds).

In describing the characteristics of products that life insurance companies offer, Wright highlights how fiscal incentives promote long-term financial savings. He notes that although federal tax laws are complex, their guiding principle is to favor insurance protection and saving for retirement, while discouraging the abuse of tax privileges for short-term investment.

Insurance regulation is fragmented among state authorities, but coordinated through the National Association of Insurance Commissioners (NAIC). New York state rules are influential because companies based elsewhere that want to operate in New York must comply with New York rules.

Regulation emphasizes prudence and solvency. There are no minimum requirements for investing in government bonds or "high-priority" sectors, but tight maximum limits are often imposed on different assets, especially holdings of corporate equities, and on agents' commissions. In recent years, regulations have emphasized the "prudent man" rule and have relied on solvency monitoring — including the use of valuation reserves for investment assets — to ensure insurance companies' safety.

Wright underscores the lack of satisfactory measures of efficiency and profitability, which is explained by the long-term nature of the contracts, differences in the use of mortality tables and discount rates, and differences in the valuation of assets

and the treatment of unrealized capital gains. This hampers an objective assessment of the industry's performance and raises problems for insurance taxation.

Wright also reviews some public policy issues that affect life insurance companies, including nontaxation of the companies' investment income, life insurer solvency, state versus federal regulation, guarantee funds and moral hazard issues, investment regulation and safety, accounting standards for asset valuation, and links between banks and insurance companies.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study policies that promote financial sector development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (47 pages).

858. Contractual Savings and Emerging Securities Markets

Dimitri Vittas
(February 1992)

Contractual savings institutions — pension funds and life insurance companies — are growing in several developing countries. Their contribution in the 1980s to the impressive performance of emerging stock markets has been limited. But the increasing emphasis on financial liberalization and development of the private sector suggests that their role and impact will increase substantially.

Contractual savings institutions — pension funds and life insurance companies — have long been important institutions in several developing countries. But, with notable exceptions, they have been weak and underdeveloped. Some of this is attributable to low levels of income in developing countries and some of it to the negative impact of repressive regulations and the existence of pay-as-you-go social security systems.

Vittas briefly reviews the size of contractual savings institutions in selected developed and developing countries and assesses their role in the development of the financial sector — especially in the development of securities markets. He stresses five points:

- The structure of a country's financial system depends greatly on the organization of the country's pension system.
- Contractual savings do not increase the rate of saving but shift the composition of total savings toward long-term financial assets.
- The role of contractual savings institutions in securities markets reflects historical traditions and differences in regulation. Despite their great potential, they are important players in the equity markets of only a few — mostly Anglo-American — countries. And they have played only a limited part in stimulating the growth of emerging securities markets, even in countries such as Chile, Korea, Malaysia, and Singapore, where contractual savings institutions have accumulated substantial long-term financial resources.
- Investment regulations must aim at ensuring the safety and profitability of contractual savings. Encouraging investment prudence and developing effective supervision should be basic objectives of public policy.
- Contractual savings institutions can have a great impact on securities markets. They can completely transform the functioning of securities markets, facilitate the privatization process, promote the dispersion of corporate ownership, and improve corporate efficiency.

Pension funds and life insurance companies are growing in several developing countries. Their contribution to the performance of emerging stock markets has been limited because investment regulations have favored government bonds. Their potential impact on equity markets has remained largely unrealized, but the growing emphasis on financial liberalization and development of the private sector suggest that their role and impact will increase substantially.

This paper — a product of the Financial Sector Development Department — was prepared for inclusion in a book on the world's emerging stock markets, edited by Antoine Van Agtmael. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (20 pages).

859. Macroeconomic Management and the Black Market for Foreign Exchange in Sudan

Ibrahim A. Elbadawi
(February 1992)

High exchange rate premiums make controlling inflation more difficult and hurt both official exports and tax revenue from foreign trade. A high premium also accelerates capital flight.

Elbadawi uses a simple general equilibrium model to derive a forward-looking linear solution for the premium on the black market for foreign exchange in Sudan.

His solution accounts for the long-run fundamentals of the premium that operate through the current account balance. It also accounts for the short-run determinants of the asset market. Estimates based on Sudanese data broadly corroborate the model's predictions.

Elbadawi's thesis is that successful exchange rate unification and subsequent integration of the parallel market into Sudan's regular economy will require deep fiscal reform and liberalization of trade and exchange rate policies tailored to the pace of macroeconomic reform.

His results show that controlling inflation becomes more difficult under high-premium regimes and that higher premiums hurt official exports and tax revenue from foreign trade. A high premium also tends to accelerate capital flight.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger departmental research project on the macroeconomic implications of multiple exchange markets in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. (88 pages). Please contact Anna Maranon, room N11-042, extension 39074.

860. The Restrictiveness of the Multi-Fibre Arrangement on Eastern European Trade

Refik Erzan and Christopher Holmes
(February 1992)

Eastern European textile and clothing exports have faced restrictive MFA quotas in the European Community and excessive

tariffs in the United States. Eastern European exports in this sector seem to be too diversified and capital-intensive. This situation should improve with preferential treatment in OECD markets or the relaxation of MFA quotas.

Erzan and Holmes found that the Multi-Fibre Arrangement (MFA) restrained the trade of Eastern European countries as much as it restrained the trade of other suppliers, such as the East Asians. In the United States, the MFA quotas were rarely an effective restraint; there, the high non-MFN (most-favored nation) tariffs were considerably more important barriers than the MFA quotas.

Historically, Eastern Europe has not been favorably treated in terms of quota growth in the EC and U.S. markets — often quite the contrary. But EC and U.S. treatment of these countries has already changed since their reform and can be expected to become even more favorable.

Eastern Europe's exports of textiles and clothing have tended to be more capital-intensive and less specialized than those of other major suppliers, including Asia's newly industrialized economies. Erzan and Holmes argue that Eastern Europe's expansion of relatively labor-intensive products has probably been inhibited by quotas and by the weak adjustment mechanisms inherent in a centrally planned economic system.

If so, given market reforms in Eastern Europe, exports of labor-intensive textiles and clothing should expand more than proportionately and the degree of specialization should increase if the MFA is abolished or its grip on Eastern Europe's exports is relaxed in the EC.

Putting aside questions of the composition of exports, Erzan and Holmes expect considerable expansion of textile and clothing exports because they make up a large part of labor-intensive manufactures, where Eastern Europe's comparative advantage lies in the near future.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to assess the impact of the Multi-Fibre Arrangement on developing countries and to evaluate the effects of changes in Eastern Europe. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (33 pages).

861. Private Saving in Mexico, 1980-90

Patricio Arrau and Daniel Oks
(February 1992)

By conventional measures, private saving declined sharply in Mexico in 1987-90. The picture changes when data are corrected. The smaller decline in private saving that results is due mostly to a reduction in private interest income from domestic and foreign assets.

Between 1987 and 1990, Mexico's current account and trade balance deteriorated by more than US$10 billion. Higher investment accounts only partly for this deterioration; nor can it be attributed to the public sector. By conventional (unadjusted) measures of private saving — the total investment not financed by public or foreign savings — private saving did decline sharply between 1987 and 1990.

But that diagnosis does not hold true when private, public, and foreign savings are corrected (as they are here) to account for shifts in portfolio composition from foreign to domestic assets, for the effects of inflation on foreign and domestic interest income (the inflation tax), for fluctuations in the real exchange rate, and for other factors.

Arrau and Oks provide more information about the components of private saving than most studies do, addressing such questions as the following: Is consumption more important than disposable income in explaining changes in private saving? What components of consumption and disposable income matter the most? If, for example, the bulk of consumption growth is accounted for by durable consumption in the wake of trade liberalization, the measured decline in private saving need not be cause for concern as it would be for a once-and-for-all stock adjustment in durable goods. On the other hand, if the main factor behind the recent decline in private saving is disposable income (rather than consumption), it is useful to identify which component of disposable income accounts for the decline. If, for example, the decline in disposable income stems from a reduction in the domestic public debt service, there may be less cause for concern than if it stems from non-interest income.

The following are among the conclusions of Arrau and Oks:

- When conventional measures of private saving are corrected, the recent decline in private saving appears less important than it did before.
- Most variations in private saving between 1980 and 1990 are ascribable to fluctuations in disposable income. Disposable income fluctuated considerably more than did private consumption.
- The sharp drop in private saving in 1990 was prompted primarily by a decline in disposable income and, less so, by fast-growing consumption.
- Only a quarter of the increase in consumption in 1988-90 was attributable to increased consumption of durables — which grew almost three times faster than consumption of other items but represents only a small share (about 11 percent) of total consumption.
- Fluctuations in the real exchange rate played an important role in the evolution of public saving because that exchange rate influences the real interest service on foreign debt. Real peso devaluations in 1982 and 1985-86 hurt public finances and real peso appreciation later helped them. Strong real peso appreciation in 1988 and, to a lesser extent, in 1990 reduced real income from private foreign assets, reducing private saving in those years.

This paper — a joint product of the Debt and International Finance Division, International Economics Department, and Country Operations Division, Country Department I, Latin America and the Caribbean — is part of a larger effort in the Bank to identify external and internal factors that affect savings and investment in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (47 pages).

862. Higher Education in Egypt

Alan Richards
(February 1992)

Education in Egypt must increase people's ability to respond quickly and effectively to changing technological and market opportunities. Egypt is therefore stabilizing university enrollment, boosting non-university technical institutes, and promoting interdisciplinary programs that stress problem-solving and applied work.

Egypt's policy on higher education, Richards argues, must take account of the

realities of declining government budgets and employment and increasing reliance on the private sector, which must become more competitive internationally. Education in Egypt must increase Egyptians' ability to cope with economic disequilibria: to respond quickly and effectively to changing technological and market opportunities.

The Government of Egypt's strategy for achieving this goal is to stabilize the number of university students and raise the quality of instruction. This fundamentally sound strategy, pursued since the mid-1980s, has required considerable courage of policymakers.

Policymakers are struggling to correct a longtime, inequitable misallocation of educational resources — including an overenrolled university system combined with a persistently high rate of illiteracy.

The Nasser regime greatly expanded higher education and guaranteed jobs to university graduates. As a result of rapidly growing enrollment in the 1970s and 1980s, the quality of education deteriorated seriously. Classes are too big and resources are scarce for anything but professorial salaries (which remain low), so learning amounts to little more than memorization and repetition. The system does not foster the development of synthesizing, problem-solving, or creative thinking abilities. And with tertiary institutions overenrolled, academic success requires the use of tutors, whose fees are beyond the reach of students of modest means.

The Government is trying to improve conditions by stabilizing university enrollments, expanding the role of two- and four-year technical institutes, increasing the use of pedagogical materials in university instruction, and promoting several innovative interdisciplinary programs that stress problem-solving and applied work.

The job guarantee has effectively been suspended since the early 1980s, but students have responded slowly to changing signals from the labor market, because being a university graduate is socially prestigious and presumed to increase one's chances of marrying well.

This paper — a product of the Education and Social Policy Department — is part of a larger effort in the department to build a knowledge base on higher education issues and reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (40 pages).

863. Intergovernmental Fiscal Relations in China

Roy Bahl and Christine Wallich
(February 1992)

Is there a "best" way to divide fiscal responsibilities between China's central and local governments in China's three-tiered fiscal system?

The choice of the "right" fiscal relationship between central, provincial, and local governments depends on how a government weighs the benefits of decentralized economic development policies against the costs of having less effective central fiscal management.

Three strong forces justify more fiscal centralization in China's highly decentralized fiscal system at the present time:

- Bouts of inflation and recurrent fiscal deficits can be seen as calling for more central control over the budget.
- Reform of an economic system relies heavily on the use of tax policy as an allocative instrument to influence economic decisions. Local control of the implementation of the tax system can and probably has compromised some objectives of the central government's tax policy. Gaining tighter control over the revenue system will probably require reducing if not eliminating local government discretion in providing special tax concessions.
- If the center wants to move ahead with price reform and to encourage enterprise reform, it needs a more centrally controlled revenue sharing or assignment system that reduces the dislocating effects of such reforms.

Centralizing the fiscal system nevertheless reduces the potential for vesting more budgetary decisionmaking powers in local governments and can erode local and provincial governments' incentives for raising revenues, another goal of system reform. Moreover, there are major problems with introducing fiscal centralization in a country with a heterogeneous population of 1 billion and relatively little tradition of central government fiscal administration.

Bahl and Wallich conclude that a reformed system of intergovernmental finance must meet the center's needs for stabilization and the provinces' needs for revenue and equalized spending capacity. They argue that such equalization should be based on objective indicators of need and that a formula-based grant system best meets this latter objective. A reformed system must also underpin price and enterprise reform — and should be designed so as not to require major recalibration or adjustments while such reforms are taking place.

Bahl and Wallich also conclude that reform of the relationship of central and local governments should be supplemented by an improved system of financing local capital expenditures through borrowing, a system of benefit charges, and improved financial planning and tax administration.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to explore intergovernmental fiscal relations in developing and formerly socialist economies. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (February 1992, 58 pages).

864. Privatization of Natural Monopoly Public Enterprises: The Regulation Issue

Ralph Bradburd
(April 1992)

On balance, it is not obvious that developing countries will obtain any significant improvements in allocative efficiency from regulating natural monopolies after privatization. This suggests that greater consideration must be given to other objectives of regulation including distributional concerns and the creation of confidence in the stability of the environment for business.

Many developing countries are considering the privatization of public enterprise natural monopolies — monopolies in charge of electricity, natural gas, water and sewer, and telephone services.

If there is not already an apparatus for regulating private monopolies, these countries face a difficult choice: whether to continue letting inefficient public enterprises operate, to create a regulatory apparatus, or to replace public monopolies with unregulated private monopolies.

Improving allocative efficiency, though not the only objective of regulation, is certainly an important one, and one that has received a great deal of attention from economists. In theory, regulating private natural monopolies can improve allocative

efficiency. In practice, sometimes it does, and sometimes it does not. So Bradburd tried to answer two questions:

- How great would the efficiency losses be, if any, if a public natural monopoly were privatized and allowed to function as an unregulated entity?
- How much could performance be expected to improve if the privatized natural monopoly operated as a regulated firm?

Bradburd argues that the deadweight losses from monopoly pricing by unregulated privatized natural monopolies are likely to be modest and may well be outweighed by improvements in technical efficiency. He also argues that regulation is not costless and may well foster static and dynamic efficiency losses greater than the deadweight monopoly losses it is intended to prevent.

But Bradburd also notes that reduction of allocative inefficiency is only one of several objectives of regulation. If the case for regulation on efficiency grounds is weak, then much greater attention must be paid to how these other objectives can best be achieved.

Historically, achieving distributional equity has been an important objective of regulation. We have very little systematic knowledge about the actual distributional consequences of privatization and deregulation, so more research is needed.

Another objective of regulation can be to help create confidence in the stability of the environment in which business activities take place. If enterprises are privatized and unregulated in an environment in which property rights are not secure, management is likely to take an extremely short-run view of profit maximization. The implicit "take the money and run" policies will yield all the undesirable deadweight losses of monopoly and none of the benefit of efficiency and improved service.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to analyze the relations between privatization and regulation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (44 pages).

865. Food Security and Health Security: Explaining the Levels of Nutrition in Pakistan

Harold Alderman and Marito Garcia
(February 1992)

Nutrition depends on good health, including reduced infection, as well as on adequate food supplies. Giving mothers a primary education may be a more important factor in nutrition than raising household food intake.

Most influential studies of malnutrition and public policy have focused on energy availability and consumption, tending to equate hunger with malnutrition. But recent studies have explored how other factors — notably infection and levels of maternal education — affect nutrition.

Alderman and Garcia's study of nutrition levels in Pakistan shows that raising household food consumption, for example, has less impact on nutritional levels than raising a mother's education does. They found that educating mothers to at least the primary level tends to reduce the level of child stunting (a long-term indicator of child nutrition) 16.5 percent, or roughly 10 times the impact achieved by increasing per capita income 10 percent. (The impact of education is not immediately realized; the diffusion of knowledge about good hygiene and child care associated with learning has a cumulative effect.)

Alderman and Garcia found that in Pakistan, food security alone is not enough to improve children's nutritional status. There may be welfare justifications for various food policies, but in rural Pakistan, especially, it is equally important to improve health and reduce infection.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to study the impacts of food security policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 30464 (48 pages).

866. Regulatory and Institutional Impacts of Securities Market Computerization

Robert Pardy
(February 1992)

A guide to regulatory best practice in the computerization of securities markets.

Advances in information technology have brought new ways of structuring, operating, and supervising securities markets. The Bank's policy advice in institutional reform of securities markets should reflect awareness of the opportunities and problems this presents.

As a guide to best practice, Pardy provides basic operational and policy tools that take account of the importance of information technology in two securities market functions — trading and clearance and settlement.

Pardy suggests that information technology systems — even though they may not differ greatly from manual systems in their performance of securities market functions — pose new technical problems for market supervisors and can affect the rights and obligations of market participants.

He provides policy principles that take these factors into account, to guide the planning, evaluation, and supervision of trading and clearance and settlement systems that include an information technology component.

Pardy explains how the processes and functions of a securities market can be performed in a variety of ways, including hybrid and tandem systems, using both manual and information technology approaches. Information technology, especially in hybrid and tandem systems, has already spread far in emerging markets and its spread is likely to accelerate in the 1990s.

He gives examples from emerging markets (some of which have world-class systems) and from developed markets (in some of which the systems are not as advanced).

Highly sophisticated information technology systems are not always necessary or desirable, but the well-planned use of information technology can improve a security market's efficiency, fairness, and stability. Clarity of objectives, good planning, and a clear grasp of operational implications are important in effectively evaluating proposals for developing secu-

rities markets with an information technology component.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to explore ways to promote the development of sound securities markets. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact FSD, room N6-037, extension 37664 (69 pages.)

867. The Rationale and Performance of Personal Pension Plans in Chile

Dimitri Vittas and Augusto Iglesias
(February 1992)

The Chilean personal pension plans introduced in 1981 represent a successful reform of a financially insolvent public pension system. They show that radical pension reform is feasible and can overcome adverse initial conditions such as high fiscal costs of transition, the absence of well-developed financial markets, and weak regulation and supervision.

Many developing countries, especially in Latin America and Eastern Europe, have unfunded pay-as-you-go public pension systems that face growing financial pressures. These emanate from a weak link between contributions and benefits, from widespread evasion, and from an aging population.

Proposals for radical pension reform are often inhibited by concerns about the fiscal cost of transition from an unfunded to a funded system, the absence of well-developed financial systems, and weak regulation and supervision.

Chile successfully reformed its public pension system in 1981 when it introduced a government mandated and regulated, but privately managed system. Based on individual capitalization accounts operated by specialized financial institutions — known as Administradoras de Fondos de Pensiones or AFPs — the system has provided considerable scope for competition and efficiency within a well-regulated environment.

Vittas and Iglesias analyze the rationale of the Chilean pension system and examine in detail the rules and provisions regarding coverage, contribution rates, pension benefits, and investment regulations.

They also provide a detailed assessment of the structure and performance of the system, its impact on financial sector development, and the role of regulation and supervision.

Vittas and Iglesias emphasize the draconian rules that have been imposed to protect the interests of pension fund members. These include such rules as "one account per worker" and "one pension fund per AFP," as well as tight limits on investment assets. The main objective of investment rules has been to ensure that pension funds are invested safely and profitably. As the system has matured, some rules have been relaxed. The rules have also provided for effective supervision and for information disclosure both to the authorities and to members.

Pension funds have proved major sources of long-term finance and have made a significant contribution to the privatization of public utilities. But their role in encouraging a dispersion of corporate ownership has been more limited because of the reluctance of corporations to abide by the strict governance rules that aim to protect the interests of pension funds as minority shareholders.

The Chilean experience shows that there is a positive dynamic interaction between pension funds and securities markets so long as a strong regulatory and supervisory mechanism is in place. It has also shown that it is feasible to finance the costs of transition from an unfunded to a funded system.

But the prospects of personal pension plans in different countries must be assessed case-by-case to ensure that their introduction does not undermine programs of macroeconomic stabilization and is accompanied by extensive regulatory reform.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study contractual savings institutions. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (38 pages).

868. Mortality Reductions from Measles and Tetanus Immunization: A Review of the Evidence

Michael Koenig
(March 1991)

Tetanus and measles account for more than 2.5 million childhood deaths annually — and immunization programs could significantly reduce those numbers. With tetanus vaccinations, two doses may be necessary.

In recent years, tetanus and measles are estimated to account for more than 2.5 million childhood deaths annually; measles alone may account for more than 2 million such deaths. Koenig reviews empirical evidence on the most effective and feasible strategies for measles and tetanus vaccination programs.

Koenig found that tetanus and measles immunization programs could significantly reduce deaths among children up to the age of 4 in many developing settings. Vaccinations had a pronounced effect in reducing childhood deaths from measles — with benefits sustained over time, and with the greatest benefits accruing to the most disadvantaged children. He found little support for the existence of a replacement mortality effect.

Studies on maternal immunization against tetanus showed a great reduction in the number of neonatal deaths, but considerable uncertainty about the number of doses needed and how long the immunity lasted. Recent evidence suggests that giving the mother two doses of tetanus toxoid may confer significant levels of protection against neonatal death from tetanus for 15 years or more. Evidence on the impact of a single dose is less conclusive.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to assess disease control priorities in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (35 pages).

869. Financing Local Government in Hungary

Richard Bird and Christine Wallich
(March 1992)

Further reform of Hungary's new system for financing local government should strengthen local own-source revenues and should revise the normative grant, simplifying it and making allowances for local governments' revenue-raising capacity.

Hungary has undertaken bold, far-ranging reform of its system of financing local government. This reform, in the context of national fiscal reform, implies significant shifts in the spending responsibilities and revenue authorities of local governments as well as in their political relations with the central government.

The new system of local government has both political and economic merit: it involves Hungarians with their local governments in a positive way and can make government more efficient by subjecting it to the scrutiny of local officials and voters. But because the system is new, there are still lessons to be learned and some serious decisions to be made.

The new system of local government finance tries both to free local authorities from the heavy hand of central control (by ending central control over local spending, whether from central or local revenues) and to make them more responsible (by providing new sources of locally controlled revenues). But new local taxes are so inadequate that this well-intentioned experiment could end in disaster. Some regions may fail to provide adequate basic services (especially to the poor). Some may make increased demands on an already hard-pressed central government. And local governments might feel increased pressure to exploit enterprise and housing ownership and to engage in unwise entrepreneurial activities to raise revenues.

Bird and Wallich outline changes made in the system of local finance, assess their implications, and identify areas that need further reform. They describe the so-called normative grant from the central to local governments, for example, as being largely discretionary, completely unconditional, and calculated according to a distribution formula geared to both "equalization" and "need."

Bird and Wallich argue that local governments can budget with more certainty if the grant is fixed to some national tax source and distributed in accord with a known formula so they are not totally at the mercy of a discretionary central policy.

They make a case for at least limited conditionality — for requiring that grant funds should be spent, for example, on a special priority area such as education or health, or by requiring that local governments receiving such grants should provide basic services at a minimum level of quality. And they insist on the importance of changing the formula for distribution of the normative grant — adding a third element to those of per capita equalization and need: that some explicit allowance be made for the revenue-raising capacity of local governments.

The options they recommend have three important effects. First, to varying degrees, grant funds will be shifted from high-tax capacity to low-tax capacity recipients. Second, all recipients, whatever their tax capacity, will be stimulated to tax that capacity at the assumed rate because if they do not do so the grant they receive will be reduced precisely by the amount they fall below the assumed rate. And finally, any recipient that levies higher taxes than assumed by the tax capacity element gets to keep all the extra revenues — that is, is not "taxed" by having its grant reduced. (In other words, the marginal tax rate is zero.)

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to deepen analysis of local government finance and intergovernmental relations. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37754 (87 pages).

870. Economic Shocks and the Global Environment

F. Desmond McCarthy
and Ashok Dhareshwar
(March 1992)

Countries tend to react as though favorable external shocks are permanent and unfavorable external shocks are temporary. This tendency — together with the magnitude and diversity in effect of external shocks — complicates attempts to get prices right and to determine what right prices should be. It might also help explain why growth rates differ among countries.

Policy formulation in most countries is complicated by the role of the external economic environment, especially during periods of great external shocks. McCarthy and Dhareshwar examine how individual countries were affected by, and responded to, external shocks. They apply an enhanced version of an earlier methodology for estimating the effect of three kinds of shock: terms of trade, variations in global demand, and changes in the interest rate. They discuss the magnitude of these shocks and country responses to them in Brazil, Ireland, and Korea and present numerical results for some other countries.

McCarthy and Dhareshwar find that the magnitude of external shocks may be greater than previously recognized. For large industrial OECD countries, such as Germany, it is not unusual for external shocks to equal 2 percent of GDP in any one year. And such shocks range as high as 10 percent or more in some developing countries, particularly those that depend heavily on a large trade share in commodities. The size and components of the shock depend on such factors as the country's openness to trade, the composition of its imports and exports, and its level of external debt.

The authors also found that countries differed greatly in their responses to external shocks. Some rely on additional external financing, some place more emphasis on export promotion, and others favor import substitution. Among industrial OECD countries, for example, Germany addressed unfavorable external shocks by combining a pro-export bias with tightening of domestic demand; its balance of payments soon began to improve. The United States, on the other hand, allowed its export share to deteriorate and relied more on external financing — with unfavorable consequences for its current account.

Among developing countries, easy access to external financing often provided an easy short-term option for policymakers — especially in countries with a strong anti-export bias where political expediency precluded any significant curtailment of domestic spending. A policy of leaning on external financing often created external balance problems in the medium term.

McCarthy and Dhareshwar conclude that the magnitude and composition of external shocks should be part of any explanation of why growth rates differ among countries. Some countries tend to view favorable shocks as permanent and unfavorable shocks as temporary. This asymmetry of response, together with the magnitude of the shocks, complicates attempts to get the prices right — and even to determine what the right price is.

In formulating economic policy, McCarthy and Dhareshwar argue, policymakers must adequately consider external shocks, because of their major impact on economies. They do not answer the question: Which policy instruments are the correct response in which situations? But they do offer insights that may be of use to policymakers facing these issues.

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — is part of a larger effort in the department to analyze global linkages. An earlier version of this paper was presented at the Global Economic Prospects Seminar Series at the World Bank in November 1991. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mila Divino, room S8-037, extension 33739 (55 pages).

871. The Distribution of the Benefits from Social Services in Indonesia, 1978-87

Dominique van de Walle
(March 1992)

Changes in the patterns of use and in the incidence of subsidies in the health and education sectors since the late 1970s have been markedly pro-poor. In the late 1980s, public spending in education was generally well-targeted; health sector subsidies were not.

Indonesia has made great progress in the past 15 years in giving the poor more access to privately provided goods such as food, clothing, and housing. Van de Walle analyzes how much progress has been made in improving their access to two publicly provided social services, education and health care.

She finds that given existing patterns of use, education spending is more efficient at directly reaching the poor than is health spending. In the education sector, subsidies to primary and to a lesser extent lower secondary education are most likely to reach poorer households and raise their living standards. Education is a potentially important conduit for reaching relatively isolated rural households.

In the late 1980s, enrollments remained higher for urban than for rural areas, for male than for female children, and for the Outer Islands than for Java. But rates of improvement in enrollments during the last decade have been higher for rural, female, and poorer children than for their urban, male, and richer counterparts. The results indicate that rising living standards played a part in raising enrollment (especially for boys and in higher education). But other factors were substantially more important — notably public policy aimed at increasing the number of primary schools and teachers and at lowering the costs of having children attend elementary school. Education subsidies effectively reach the poor for two reasons: poor families have more children, and richer families self-select their children into private schools.

In the health sector, subsidies to basic primary health care provide the best avenue for reaching the poor, but they are far from ideal as an instrument for doing so. Although primary health care centers were more widely used in rural areas and by poorer groups in 1987 than they were in 1978, rich and poor now appear equally likely to seek treatment in these facilities. So, public subsidies to primary health care centers are not as pro-poor as is generally believed, although they are more so in urban than in rural areas. Making them more pro-poor would require price discrimination, and it is unclear how feasible that is in rural areas.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to understand and improve the relationship between public expenditures and poverty alleviation. It is a product of research project "The Analysis of Public Expenditures Incidence: Understanding and Characterizing Incidence at One Point in Time and Over Time" (RPO 676-42) funded by the Bank's Research Support Budget. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37754 (67 pages).

872. Romania's Evolving Legal Framework for Private Sector Development

Cheryl W. Gray, Rebecca J. Hanson, and Peter G. Ianachkov
(March 1992)

Romania started almost from scratch in 1990 to build a legal framework for a market economy and has made substantial progress. To bring that framework to life, institutions must enforce the laws and be able to resolve any disputes that arise, the public must accept that the laws are binding, and the laws must be filled in with detailed regulations and individual case practice. This takes time.

As the economies of Central and Eastern Europe move from central planning and state ownership to market-driven development of private sector activity, they are undertaking comprehensive change in the "rules of the game" — the legal framework for economic activity.

At a minimum, markets require a system of property rights and rules for exchanging those rights. In practice, property rights in most countries are defined by the constitution and by-laws regulating the ownership and use of real, personal, and intangible property, as well as shares in going concerns. Company, foreign investment, and bankruptcy laws, among others, govern entry into and exit from productive activities. General rules of market exchange are laid out in contract and competition law, while more specific rules of market exchange in particular sectors may be governed by more detailed sector-specific laws and regulations.

Gray, Hanson, and Ianachkov analyze the evolving legal framework for private sector development in Romania. The Romanian government has worked intensively in the last two years to create a legal framework for a market economy. Many gaps remain in current laws, and problems still exist, but the effort has been impressive given the starting point. In some Central and Eastern European countries (including Hungary and Poland), private property and private markets were suppressed but not extinguished during 40 years of socialism. But Romania started virtually from scratch in 1990 to build a market economy and the legal framework required for it. It has adopted not only a new constitution but also extensive new legislation covering

...l and intellectual property, companies, ...l foreign investment. It has revived the ...e-war civil code as a basis for contract ..., and is moving to modernize its bank-...ptcy code. The only area surveyed in ...ich little legal reform has occurred is ...imonopoly law.

Challenges remain in both law and prac-... The broad principles of private own-...hip, free market exchange, and equal ...atment of public and private firms are ...ll recognized and have been largely ...ieved, at least on paper. But a tendency ...ard centralized, bureaucratic control ...ains — for example, in excessive re-...rements for approval and uneconomic ...its on certain activities. Moreover, ...lementation will clearly take a long ...e — probably considerably longer than ...he other reforming countries — because ...re is little or no institutional framework ...enforcement and dispute resolution.

By themselves, laws are merely paper: ...gal framework comes to life only when ...l and administrative institutions can ...orce the laws and readily resolve the ...utes they inevitably spur — and when ... public accepts that the laws are bind-... Moreover, the laws are by nature only ...neworks. Their content must be filled ...with detailed regulations and indi-...ial case practice. Developing a body of ...lation and case practice takes time. ...rowing concepts from industrial mar-... economies — helped by legal exchange ...grams and legal technical assistance ...n abroad — could speed the process.

This paper — a product of the Transition ... Macro-Adjustment Division, Policy ...earch Department, and the Europe and ...tral Asia Division, Legal Department ...is part of a larger effort in the Bank to ...erstand the process of legal reform in ...nsitional economies. Copies are avail-...e free from the World Bank, 1818 H ...eet NW, Washington, DC 20433. Please ...act Angelica Bretana, room N11-029, ...nsion 37176 (27 pages).

...3. Measure and Interpretation ...Effective Protection ...he Presence of High Capital ...sts: Evidence from India

...cois M. Ettori
...rch 1992)

...traditional measure of effective pro-...on based on gross value added does not ...y reflect the incentives of the protection structure when the domestic price of capital goods differs substantially from the international price. In particular, reforming India's trade policies and reducing its protection rates would be meaningless — even damaging — if India does not first reduce its high protection on capital goods.

A striking feature of India's protective structure has been high tariffs and protection on capital goods, which limit industrial competitiveness and export potential, and distort industrial incentives as indicated in "effective protection rates" (EPRs).

The distortions introduced by high capital and investment costs resulting from high levels of protection were corrected in India's analysis by introducing the notion of "corrected effective protection rates" (CEPRs). In theory, EPRs computed on the basis of value added *net* of depreciation could be made immune from capital cost distortions, provided that depreciation allowances are computed on economically meaningful grounds and that EPRs based on net value added are available. But in India as in many developing countries, available EPRs are based on gross value added. The need to account for the substantial capital cost distortions led to the use of a substitute tool, the CEPR.

The paper provides a brief refresher, and geometrical interpretations, on the definition of EPR and its limited interpretation as a measure of the scope for inefficiency or extra profit resulting from protection. It introduces the notions and formulae for the CEPR and the "net effective protection rate" (NEPR). The relevance of these notions and their magnitude are tested on a sample of 60 industrial projects in India.

The paper confirms the finding in a previous Bank review of India's industrial sector that effective protective rates averaged about 40 percent in the sector, with large variations between the industrial subsectors and within each subsector.

Using NEPRs, the paper shows that on *average* the amount of effective protection available from India's protective structure is just enough to compensate for the high cost of investment that results from heavy protection of capital goods. Most projects have, in effect, negative NEPRs, so they are at a disadvantage compared to foreign competitors.

Finally, the paper argues that reforming India's trade policies and reducing its protection rates would be meaningless — even damaging — if India does not first reduce protection on capital goods. When warranted, the nominal protection rate for capital goods should be slashed to the lowest possible level above the shadow premium for foreign exchange.

This paper — a product of the Industry and Finance Operations Division, Country Department IV (India), Asia Regional Office — is derived from Policy Research Working Paper 433 (August 1990), which was part of a larger effort in the department to undertake a comprehensive review of India's trade regime and policies and to make recommendations for liberalization of its trade policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Francois Ettori, room H4-085, extension 32340 (24 pages).

874. The Trade Restrictiveness Index: An Application to Mexican Agriculture

James E. Anderson and Geoffrey Bannister
(March 1992)

Applying a new trade restrictiveness index to policy reform in Mexican agriculture shows substantial trade liberalization between 1987 and 1989, attributable mainly to changes in maize policy.

To measure domestic distortions in agriculture, analysts have used producer and consumer subsidy equivalents (PSEs and CSEs), as well as the familiar trade-weighted averages of tariffs and tariff equivalents of quotas. All these indices lack a theoretical foundation.

Anderson and Bannister apply a new concept, the trade restrictiveness index, to an evaluation of Mexican agricultural reform. They assess a significant reform episode to demonstrate the feasibility of the method and its advantages over standard techniques.

Anderson and Bannister set out the theoretical structure of index numbers for distorted trading economies in earlier papers. They develop an index number for trade distortions: the uniform tariff, which is equivalent in trade restrictiveness to the actual differentiated structure of tariffs and quotas. To extend the index to domestic distortions, they draw on the well-known equivalence between a tariff and an equal level of producer subsidy and consumer tax (when imported and domes-

tically produced goods are perfect substitutes).

The trade restrictiveness index for domestic distortions is defined as the uniform tariff equivalent of the consumption and production distortions. It is, in turn, a combination of two subindices: the consistent producer subsidy equivalent (CPSE) and the consistent consumer subsidy equivalent (CCSE). These are defined as the uniform subsidy rates that are equivalent in trade restrictiveness to the actual differentiated subsidy or tax structure. They are counterparts to the PSE and CSE. The difference between the consistent and conventional subindices is in the method of aggregation. Consistent aggregation is based on the use of "marginal welfare weights" as opposed to production and consumption share weights.

In Mexico, from 1985 to 1989, the target producer and consumer price policies for major crops reveal many simultaneous increases and decreases in implicit subsidies or taxes. The trade restrictiveness index provides a consistent aggregation of these policies. From 1985 to 1987, domestic policy on the whole was equivalent to an increase in trade restrictiveness. In the next two years, trade loosened.

The net effect of policies in tradable agricultural goods over the five-year period is a significant reduction in trade restrictiveness. Restoring the trade restrictiveness to its 1985 level requires a uniform 31-percent trade tax surcharge on 1989 prices. Moreover, the restrictiveness implied by the 1989 levels, compared with free trade, was equivalent to a 17 percent ad valorem trade tax. Thus, the liberalization of the 1985-89 period carried Mexican agriculture more than halfway to free trade.

One virtue of the index is that the sources of liberalization can be detailed. Liberalization is attributable mainly to changes in maize policy, despite substantial changes in other producer and consumer price policies. Reducing the subsidy for fertilizer use was relatively unimportant.

The standard PSE and CSE index methods are not directly comparable to the trade restrictiveness index, as they do not aggregate consumer and producer distortions. The PSE and CSE indices are, however, comparable to the consistent subindices CPSE and CCSE. The rates of change of these two types of indices are only weakly positively associated, differ in sign in a quarter of the cases, and in most cases differ widely in magnitude.

The implications of the consistent index of the change in consumer policy are diametrically opposed to the implications of the CSE over the five-year period. Using the trade restrictiveness index thus makes a great practical and a theoretical difference.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to contribute to the analysis of trade policies. It is funded by the Bank's Research Support Budget, "The Cost-of-Protection Index," RPO 676-49. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (51 pages).

875. Rural Finance in Developing Countries

Jacob Yaron
(March 1992)

Targeted credit without institution-building in rural financial institutions is almost always a recipe for prolonged dependence on donor or state funds and bailouts.

The establishment of formal agricultural credit systems in most developing countries in recent decades has been motivated by the belief that widespread shortages of short- and long-term finance have arrested agricultural growth and development. The lack of affordable formal credit has been blamed for delaying, if not preventing, the timely adoption of new production technology and intensive nonlabor inputs.

Commercial lending institutions generally focus on large-scale farmers and ignore small-scale farmers because of the significant cost of processing and servicing unsecured small loans and the prevalent belief that small entrepreneurs represent a greater risk than large ones. The shortage of strong formal credit markets has caused informal credit institutions to flourish in many developing countries. These informal institutions disburse funds rapidly, and the transaction costs for borrowers are low.

Many specialized agricultural credit institutions have suffered from design deficiencies. They often were not expected to function as true financial intermediaries that mobilize deposits to make loans. Instead, they have merely channeled government-supplied funds to rural borrowers. Making external funds continuously available at below-market interest rates has not obliged rural financial institutions to operate under constraints of financial viability. That — together with the lack of competition and limited accountability — has led to bad loans, inefficient operations, patronage, and irregularities.

Arrangements such as lending groups and credit cooperatives could reduce both transaction costs and the risks involved in lending to small farmers. Successful group lending programs have shown the importance of such factors as homogeneous borrowing groups that are jointly liable and themselves assume some of the managerial and supervisory responsibilities. Factors attributed to the success of credit cooperatives include bottom-up institutional development, extensive training at all levels, reliance on mobilized savings and equity contributions rather than external funds, prudent expansion of cooperative activities, strict monitoring and auditing, and adequate incentives to staff and clients.

For a rural financial institution to become viable, state or donor support should focus on institution-building and development. Targeted credit without institution-building is almost always a recipe for prolonged dependence on donor or state funds and bailouts. Attention to institution-building often makes the difference between a rural financial institution that can be self-sustaining after a few years of support during its startup period and one that continues to depend on public support.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to define appropriate modes of Bank activities in the area of rural finance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116, or through electronic mail (25 pages).

876. Old Debts and New Beginnings: A Policy Choice in Transitional Socialist Economies

Ross Levine and David Scott
(March 1992)

Should enterprises that received bank loans under socialism retain those liabili-

ties when the government privatizes them? Or should the government take responsibility for the debts of formerly state-owned enterprises?

Governments should seriously consider assuming these enterprise debts because of the potentially great gains in efficiency that will result and the relatively low fiscal costs.

Levine and Scott examine the decision policymakers in transitional socialist economies must make: how to define the asset and liability structure of state-owned enterprises and banks as they are privatized.

They conclude that the many loans issued by state-owned banks to state-owned enterprises under socialism are impeding the transition to thriving market economies. The heavy stock of debts is slowing the privatization of enterprises and banks, hindering the efficient operation of firms and the financial sector, encouraging ad government intervention, and reducing government credibility.

In practice, governments often assume enterprise debts to banks on a case-by-case basis so they can sell enterprises to private sector. Levine and Scott argue that a more comprehensive, explicit application of such a policy would improve efficiency by depoliticizing and speeding up privatization process, improving the bility and profitability of newly privatd enterprises, increase government dibility, and improving the efficiency the financial sector.

Transitional socialist economies have yet privatized major banks. Levine d Scott explain that privatizing banks l tend to make financial intermediation re efficient and speed up the economic nsition. They contend that governnts are unlikely to succeed in privatizing major banks unless the government umes responsibility for a significant t of bank claims on enterprises. They ue that the operation and restructuring of state-owned banks will also be imved if the government assumes enterse debts.

They find that the fiscal implications of government explicitly assuming enterse debts to state-owned banks are likely e small. Governments should seriously sider assuming enterprise debts to te-owned banks as they privatize enprises because of the potentially great ns in efficiency that will ensue and the atively low fiscal costs.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study financial reform in transitional socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (27 pages).

877. Assessing Gains in Efficient Production Among China's Industrial Enterprises

Gary H. Jefferson and Wenyi Xu
(March 1992)

China's program of gradual and partial reform has substantially improved economic performance. Despite lingering market rigidities, bargaining, patronage, soft budget constraints, and other phenomena that shield state-owned industrial enterprises from external pressure, industrial managers are economizing more on labor, capital, and materials.

A central objective of economic reform is to reduce the productive inefficiency — both technical and allocative — that arose under regimes in which markets and material incentives played a limited role. Jefferson and Xu formulate an approach for measuring gains in productive efficiency.

Applying that approach to Chinese industry, they evaluate the progress between 1980 and 1989 among China's large and medium-size state-owned enterprises in equalizing factor productivity across enterprises. In the early stages of reform, returns on factor investments varied greatly. Estimated to returns on investments in equipment in 120 state-owned steel enterprises varied from a low of 6 percent in 1985 to a high of 162 percent, for example. Total factor productivity in the most efficient mill was 37 times greater than in the least efficient mill.

The differences were partly the result of central planning — including administered prices, restrictions on the flow of resources from low-return to high-return activities, and the lack of market discipline, which protects the least efficient enterprises from bankruptcy. One objective of economic return is to create the conditions — the profit-seeking motive and market mechanisms — that motivate enterprises to improve efficiency and that permit the owners of individual factors to seek the highest returns.

Using panel data for 226 industrial enterprises, Jefferson and Xu report evidence that returns on investments in labor, capital, and materials became more equal between 1980 and 1989. Such a pattern of convergence can be the product of different factors, but the consistency of the pattern — even among large and medium-size enterprises at the heart of state planning — suggests that greater exposure to markets and stronger profit-seeking behavior are motivating gains in productive efficiency.

This paper — a product of the Socialist Economies Reform Unit, Policy Research Department — is an output of a joint research project on "Industrial Reform and Productivity in Chinese Enterprises" (RPO 675-38), undertaken by the World Bank, Brandeis University, and the University of Pittsburgh, in collaboration with the Institute of Economics (CASS), the Economic Management Research Institute (System Reform Commission), the Rural Economic Research Center (Ministry of Agriculture) and the Institute of Quantitative and Technical Economics (CASS).

The project — which is part of a larger investigation of the relationship between industrial reform and productivity in formerly socialist economies under the direction of I. J. Singh, principal economist in the Transition and Macro-Adjustment Division — is supported with funds provided by the World Bank, the Henry Luce Foundation, and the National Science Foundation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Angelica Bretana, room N11-029, extension 37176 (21 pages).

878. Adjustment and Private Investment in Kenya

Kazi M. Matin and Bernard Wasow
(March 1992)

Kenya's failure to implement adjustment policies after the collapse of the coffee boom and the breakup of the East African common market reduced private investment sharply in the 1980s. Efficient fiscal adjustment and more liberal imports will be critical to increasing private investment.

Matin and Wasow use an eclectic version of the basic accelerator model to assess the determinants of private investment and to analyze how adjustment policies (or their absence) affect those determinants. Their model emphasizes the effect of resource constraints on private investment behavior, including that arising from foreign exchange rationing.

Econometric estimation of the investment model with Kenyan data for 1968-88 suggests that Kenya's failure to implement adjustment policies after the collapse of the coffee boom and the breakup of the East African common market reduced private investment sharply in the 1980s. Declining real credit to private sector, falling stocks of public infrastructure capital, and lower availability of imports were the main causes of reduced private investment.

Matin and Wasow argue that inadequate fiscal adjustment was a key failure of policy. With direct competition between public and private sectors for limited financial resources, fiscal deficits preempted funds and restricted private investors' access to them. In addition, when cuts in government spending were undertaken to contain deficits, they fell disproportionately on capital expenditure, especially that on physical infrastructure. And liberalization of foreign exchange rationing, impeded by the exogenous fall in export receipts, could not be implemented because of inadequate fiscal adjustment. Thus insufficient and uncertain access to imports was a major factor behind the decline in private investment.

Though real depreciation is found to have a direct negative impact on investment, the authors use simulations to show that it has a positive indirect effect on private investment in the medium term because such depreciation relaxes the foreign exchange constraint on imports.

Matin and Wasow conclude that efficient fiscal adjustment and liberalization of imports will be critical for the recovery of private investment in Kenya. Efficient fiscal adjustment should reduce fiscal deficits so that expenditure cuts are structured to protect and even expand expenditure on physical infrastructure. This would require substantial reduction and rationalization of current expenditure. Import liberalization will also have the expected favorable impact on investment because such liberalization will be perceived as credible and sustainable when accompanied by efficient fiscal adjustment.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a research project funded by the Bank's Research Support Budget, "Sustainability of Trade Reforms in Structural Adjustment Loans," (RPO 675-32). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (45 pages).

879. Comprehensive Water Resources Management: A Concept Paper

Peter Rogers
(March 1992)

Issues that should be covered in the formulation of comprehensive water resources management policies.

The world is entering a period of intense competition for limited supplies of water for alternative uses — in agriculture, in urban and industrial supplies, for recreation, by wildlife, for human consumption, and to maintain environmental quality.

Manifestations of this competition and our current ability to deal with it can be observed in many parts of the world. A large irrigation project in India does not operate because water has been diverted to the rapidly growing city of Pune. In China, industries are reducing their production because of water shortages, even though they are surrounded by paddy fields. In California, selenium salts leached by irrigation are killing wildlife. Bank irrigation projects in Algeria are now competing with Bank urban water supply projects for the same water — and many proposed irrigation projects and most hydro project proposals are on hold because of environmental concerns.

Until recently, the approaches taken to water planning management by planners in the developing countries and by analysts at the funding agencies were, by and large, appropriate and adequate to the task at hand. The increased competition for water, however, makes most of the project-by-project planning methods inadequate.

Rogers discusses new approaches that are needed to integrate water resource use among different users and across different economic sectors.

This paper — a joint product of the Water and Sanitation Division, Transport, Water, and Urban Development Department, and the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort to define a Bank water resources management policy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mari Dhokia, room S12-005, extension 33970 (18 pages).

880. Exchange Rate Policy, the Real Exchange Rate, and Inflation: Lessons from Latin America

Miguel A. Kiguel
(April 1992)

Attempts to achieve real depreciation through continuous devaluation or by accelerating the rate of crawl — when not supported by changes in other policies and in the underlying conditions — usually end up increasing inflation, yet remain ineffective in changing the real exchange rate.

Exchange rate policy is usually driven by two different, often conflicting, objectives: to support a competitive real exchange rate and to serve as a nominal anchor for low inflation.

A competitive real exchange rate is pursued to support expansion of the exportable and import-competing sectors — and to ensure a strong balance of payments position. Using the exchange rate as a nominal anchor for low inflation is important to the extent that low inflation and macroeconomic stability create a favorable environment for long-term growth.

Kiguel focuses on whether exchange rate policy can affect the real exchange rate in the longer run, and he examines the trade-offs that typically arise between real depreciation and inflation.

He argues that exchange rate policy has only a limited ability to achieve durable real depreciation. Devaluation can be effective in the short run (because prices and wages do not adjust as quickly), but have a limited impact in the longer run (once prices and wages adjust), when the underlying factors affecting demand and the supply of foreign exchange dominate. Attempts to achieve real depreciation through continuous devaluations, or by accelerating the rate of crawl — when not supported by changes in other policies and

in the underlying conditions — usually end up increasing inflation, yet remain ineffective in changing the real exchange rate.

As a rule of thumb, Kiguel argues that maxi-devaluations are most effective in economies with low and moderate inflation (below 20 percent a year), especially when the underlying causes call for real depreciation. In these circumstances, a devaluation can reduce the costs in terms of the unemployment and lower growth associated with achieving the desired real depreciation through deflation.

Latin America is a rich laboratory in which to study different exchange rate regimes. The real exchange rate varies over time in countries that have adopted the crawling peg (such as Colombia and Brazil) and in those that use the exchange rate more actively for disinflation.

Colombia in the mid-1980s is an example of successful real depreciation. Colombia achieved a 40 percent real depreciation in two years with no significant increase in inflation. It achieved this by avoiding maxi-devaluations (instead it accelerated the rate of crawl) and by limiting the size of the desired real depreciation.

In Mexico in 1987, by contrast, aggressive exchange rate policies backfired in the sense that they led to an acceleration of inflation while failing to achieve a sustained real depreciation.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to study the macroeconomic implications of exchange rate policies. This paper was prepared for the Conference on "La dinamica de los mercados internacionales y politicas comerciales para el desarrollo," El Escorial, Spain, July 1991. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (22 pages).

1. Dual and Multiple Exchange Rate Systems in Developing Countries: Some Empirical Evidence

Ghei and Miguel A. Kiguel
(April 1992)

The parallel exchange rate (whether official or unofficial) and the resulting spread over the official exchange rate are primarily determined by macroeconomic policies. Policymakers should be cautious in adopting dual (or multiple) exchange rate systems, as they provide less insulation for domestic prices than most analysts assume.

Ghei and Kiguel empirically examine the determinants of the parallel exchange rate for a cross-country sample of developing countries. The sample includes countries in which the parallel exchange rate is official (dual exchange rate systems) as well as those in which it is unofficial (black market).

In the typical exchange rate arrangements considered, the central bank fixes or pegs one rate (the commercial rate), used primarily for current account transactions, and allows the parallel exchange rate, used for capital account transactions, to be market-determined.

They base their empirical analysis on a portfolio macroeconomic model in which the parallel exchange rate is determined by expectations and equilibrium asset considerations in the short run — but depends on the evolution of key policy variables (such as the stock of money, budget deficits, and trade policy) in the long run.

The results indicate that macroeconomic variables explain more than 70 percent (on average) of the variation in the spread between the official and parallel exchange rates. The results are stronger for countries where the spread is large (above 35 percent), somewhat weaker in countries with moderate spreads (between 10 and 35 percent), and poor when the spread is below 10 percent.

They cannot reject the hypothesis that there are no differences in the determinants of the spread when the parallel rate is official and unofficial. This is not entirely surprising, as in most cases where the parallel rate is unofficial, it is largely tolerated by the authorities.

In addition, although they cannot reject the hypothesis that restrictions on the capital account affect the spread, they find that restrictions on the current account have no affect on it. These results are consistent with their prior finding that portfolio considerations dominate the determination of the parallel rate in the short run.

They find evidence that the adoption of dual exchange rate systems at best only partly insulates domestic prices. This insulation may be limited by three factors:

- There may be a leakage of transactions from the official to the parallel market.
- Depreciation of the parallel exchange rate can enter inflationary expectations.
- The spread might be an important factor when the central bank determines the rate of devaluation of the official exchange rate. Ghei and Kiguel find empirical evidence supporting this factor.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of the department's project, Macroeconomic Implications of Multiple Exchange Markets in Developing Countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (31 pages).

882. Issues in Reforming Financial Systems in Eastern Europe: The Case of Bulgaria

Alfredo Thorne
(April 1992)

Authorities in Eastern European countries should encourage their reformed financial systems to stimulate the supply response by linking the reform of the financial system to the privatization of banks and enterprises.

What difficulties do Eastern European countries face in reforming their financial systems? What should their reform priorities be? Can financial reform make the supply response more positive?

Thorne addresses these questions using the situation in Bulgaria to illustrate the financial system most Eastern European countries have inherited. Reforming these financial systems is especially difficult because of the problems inherited from a centrally planned economy (CPE). The financial system in a CPE is completely different from the financial system in a market economy. It is only a slight exaggeration to say that reforming the financial systems in these countries means creating a financial system from scratch.

Thorne illustrates the types of problems Eastern European countries face in reforming their financial systems. He argues that these countries can stimulate the supply response by giving the emerging private sector more access to credit

and by increasing the savings deposited in the financial system. He argues that the authorities should:

- Link reform of the financial sector to the privatization of banks and enterprises.
- Quickly privatize a group of banks.
- Encourage privatized banks to lend exclusively to the emerging private sector.
- Turn the rest of the banks into investment banks and make them participate in the restructuring and privatization of state-owned enterprises.

This paper — a product of the Private Sector Development and Finance Group, Technical Department, Europe and Central Asia and Middle East and North Africa Regions — is part of the department's regional study on financial sector reform in Eastern European countries. This paper was presented at a conference on Creating Capital Markets in Eastern Europe, organized by the Woodrow Wilson Center in Sofia, Bulgaria, in September 1991. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Luz Hovsepian, room H9-065, extension 37297 (42 pages).

883. Malaria: The Impact of Treated Bed-Nets on Childhood Mortality in the Gambia

Pedro L. Alonso, Allan G. Hill, Patricia H. David, Greg Fegan, Joanna R. M. Armstrong, Andreas Francisco, K. Cham, and Brian M. Greenwood
(April 1992)

In rural Gambia, as in many parts of Sub-Saharan Africa, malaria remains a major cause of death for children below the age of five — indeed, the principal cause of death when vaccination coverage rates are high and death rates from common infectious diseases of childhood are reduced. In recent years, concern has grown about the development of drug-resistant strains of malaria — provoking renewed interest in vector control and the reduction of man-vector transmission rates.

The effectiveness of insecticide-treated materials had been unclear, as earlier studies had based their results on the effects on vectors rather than on human morbidity and mortality rates from malaria. So in 1988 the UK Medical Research Council began a systematic trial of a combined intervention for controlling malaria around the small town of Farafenni, in central Gambia. Two interventions — bed-nets treated with Permethrin and chemoprophylaxis with Maloprim (dapsone = pyrimethamine) — were conducted in "primary-health-care" villages, with non-PHC villages serving as controls.

The study showed that general and malaria-specific mortality in young children was sharply reduced by introducing Permethrin-treated bed-nets. The effects of using treated bed-nets were clear, because many children had been sleeping in bed-nets before the intervention began without the same strong effects.

The treated bed-net intervention had the additional effect of reducing other causes of death. This "frailty protection" effect was substantial but is largely unexplained — more basic research is needed.

Also, not all children have to be sleeping in bed-nets for the benefits of the treatment to be felt. Small rates of noncompliance need not invalidate the effectiveness of the intervention.

The nets were dipped by village women, supervised by the village health worker and the traditional birth attendant, with the support of the women's association. It appears that the washing and dipping process can be undertaken successfully by local people with a minimum of supervision, at a cost for the solution of a few US cents per net dipped.

The extra reduction in mortality attributable to the use of Maloprim as a prophylactic was probably slight and difficult to detect in this study because of the strong effect of sleeping under a treated bed-net.

This paper — a product of the Population, Health, and Nutrition Department — emanated from the Bank's support of Johns Hopkins University for a child survival workshop focused on the department's Health Sector Priorities Review. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (30 pages).

884. Intercommodity Price Transmittal: Analysis of Food Markets in Ghana

Harold Alderman
(April 1992)

This dynamic model of price integration indicates functional — if not perfect — efficiency in Ghana's coarse grain markets.

Alderman expands on a dynamic model of market integration, first introduced by Ravallion (1986) to Ghana's principal maize markets, to investigate how information is transmitted across commodities. He investigates one property of an efficient market: the full use of available information.

Studies of spatial price integration simultaneously investigate the flow of information and commodities, but it is often difficult to distinguish between the two. A low correlation of prices between two markets may indicate either a poor flow of information or economic inefficiency, for example — but could also indicate competitive trade and linked markets that are seasonally separated because of high transport costs.

So Alderman also investigates the flow of information within a single spatial market and the relationship between prices in spatially separate markets.

He studies intercommodity price transmittal from two perspectives. First, he asks whether the government can concentrate on a single commodity price, yet achieve price policy objectives in a broader arena. This is important in Ghana because no single commodity dominates consumers' food budgets, although for administrative and logistical reasons, direct intervention in all commodity markets is not feasible. He finds that price movements for the main cereal consumed in the country (maize) are fully transmitted to other grains and to other regions. This simplifies any stabilization programs. (However, it takes three months for the price shock to be fully transmitted. In the long run, this indicates market integration, but it is puzzling that it takes so long to move commodities between markets.)

Second, he investigates the working of commodity markets in developing countries. He notes imperfections in the way markets process information: the lagged price of maize conveys information that is not contained in the past price of sorghum or millet.

There are several possible explanations for this market inefficiency. For example, traders may set prices for other coarse grains in response to information about maize prices — requiring supply changes (especially storage buildup and drawdown) to bring markets into equilibrium. Another possibility is that some traders may not deal in all grains and may there-

fore have different costs for acquiring information — especially for sorghum, which is both eaten and used for making beer. Brewers, most of whom operate on a small scale, may trade and store only sorghum, which may thus be a conceptually separate (although physically contiguous) market. But even for speculative markets in industrial countries, in which information is generally available electronically and trade rarely requires the physical exchange of goods, perfect price transmittal is often rejected.

In short, from a practical viewpoint, Alderman's dynamic model of price integration indicates functional — if not perfect — efficiency in Ghana's coarse grain markets.

This paper — a product of the Agriculture Operations Division, Western Africa Department, and the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger departmental study of food security in Ghana. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116, or by electronic mail (36 pages).

885. The Impact of EC-92 on Developing Countries' Trade: A Dissenting View

A. J. Hughes Hallett
(April 1992)

The trade creation and the trade diversion effects of EC-92 on developing countries may cancel each other out. But important adverse effects may come from diversion of investment from developing countries to the EC.

Most benefits of the EC-92 program, and the greatest impact on developing countries, will probably not come from marginal changes in trade flows dependent on relatively small changes in prices and incomes. Nor will they come from cuts in average costs, from changes in market structure, from the removal of internal barriers on trade and on the free movement of factors, or from a 5 percent increase in EC output.

Those changes may be important to European policymakers, but they are of only remote interest to developing countries. The main threats to developing countries are the diversion of investment funds to EC countries and continued external barriers — especially administrative, nontariff barriers.

The EC expects higher growth and lower prices as a result of EC-92, as firms will be able to exploit comparative advantages and economies of scale more effectively — and as competition between firms will increase (although the last two effects may nullify each other). The net effect on developing countries of the removal of internal trade barriers depends on developing countries' income and price elasticities with the EC. Current estimates suggest that the effect will be small.

Competition among European firms is likely to increase if the removal of bureaucratic and trade barriers reduces collaborative agreements between firms. Those gains may not materialize if firms merge or cooperate to increase their market share and compete better against U.S. or Japanese firms. If new external barriers emerge, or if EC-wide barriers replace national barriers, EC firms may collaborate more with the large U.S. or Japanese firms, just as they have done in Europe to circumvent trade restrictions. None of these developments will improve developing countries' trade in manufactures or services.

Investment in EC countries may increase to meet the extra demand, growth, or trade diversion resulting from EC-92. That investment could lead to increased investments in developing countries, but — given limited financial resources, tight monetary policies, and heavy indebtedness in developing countries — is more likely to divert investment funds from developing countries, thus limiting their future production growth. And U.S. and Japanese firms, fearing greater EC barriers and local-content rules, may decide to establish bases in the EC.

Technical standards in EC-92 may be tougher than national standards in member countries, which could hurt developing country exporters. An increase in voluntary export restraints, a tightening of local-content rules or reciprocity agreements, and subsidies for public sector enterprises or agriculture could also make life more difficult for them.

Is "Fortress Europe" likely? The EC Commission says no, but the Community's record so far is not good. The CAP is the most blatant example of protectionism. Another example is the local-content requirement. Others are the "pyramid" of preferential trading agreements and the increasing use of nontariff barriers against low-tech, labor-intensive developing country exports and against high-tech U.S. and Japanese exports.

These barriers are likely to remain, as there has been no official commitment to their removal. The question is, will the (average) barriers be raised to protect the least efficient producers in the EC? And to the level of the highest preferential trading agreements? If national barriers are converted to EC-wide protection, there is a good chance that external barriers will increase. If so, they may do so by only a small amount, since a single market will force Article 115 (which limits the movement of restricted goods between member countries) to be abandoned. An external tariff that allows efficient producers to profit from the protection of those less efficient would conflict too obviously with the stated objective of greater internal competition.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze structural changes in world trade and to identify their impact on developing countries' exports. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Audrey Kitson-Walters, room S7-053, extension 33712 (41 pages).

886. Factors That Affect Short-Term Commercial Bank Lending to Developing Countries

Sudarshan Gooptu
and Maria Soledad Martinez Peria
(April 1992)

A preliminary look at factors that affect the flow of short-term commercial bank loans to developing countries.

Developing countries rely on short-term trade credits for imports of several essential consumer goods, including medicines and basic food supplies. The credits also facilitate export-related transactions.

The mechanisms commercial banks use to provide trade credits to developing countries are complex and costly. Even a temporary break in the flow of short-term credit can seriously hurt a country's business. But since short-term trade credits can be structured so that they involve few

risks to a bank and at the same time are very costly to the debtor, they are generally the last forms of credit to be cut and the first to be reestablished in debt-distressed developing countries.

To gauge the likelihood of continued short-term trade-related financial flows to developing countries, Gooptu and Peria examined the factors that affect such short-term commercial bank loans. Little literature was available on the subject. Only recently have relevant data become available, and further analysis would be facilitated by more useful disaggregation of the data that are made available.

Gooptu and Peria studied relevant data over time for seven countries for which data were available: Argentina, Brazil, Egypt, India, Kenya, Mexico, and Turkey. They found that:

- Countries with greater growth prospects (higher investment-to-GNP ratios) get more short-term credit.
- Short-term credits are usually meant to finance countries with significant trade deficits.
- Higher levels of external indebtedness (as a ratio of total debt outstanding to GNP) are generally coupled with higher levels of short-term external indebtedness to commercial banks (a high ratio of short-term debt to GNP).
- Country-specific factors affect the volume of short-term lending available to a country. If all else is equal, some countries (such as Kenya) find it harder to get short-term commercial bank financing than others (such as Mexico). Further analysis is needed to determine which factors account for these differences, but possibilities to be explored include a country's track record in implementing World Bank/IMF structural adjustment programs; the existence of domestic financial markets; and orderly resolution of the country's external debt burden in line with a thoughtful strategy for managing external debt.

This paper — a product of the Financial Advisory Service Unit, Office of the Vice President, Cofinancing and Financial Advisory Services — is part of a larger Bank effort to understand the attributes of alternative types of financial flows to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (41 pages).

887. Power Sharing and Pollution Control: Coordinating Policies Among Levels of Government

William Jack
(April 1992)

Most policy decisions about targets and instruments of pollution control should probably be made at the highest level of government involved. But effective implementation — including inspection, enforcement, and prosecution — may require involving all levels of government. Coordination is then necessary, with substantive implications for choices of policy tools and the assignment of responsibilities.

Traditional approaches to pollution control emphasize the "government's" role in providing incentives to alter the behavior of relevant economic agents. But to exploit cost advantages at different levels of government, pollution control policies typically involve assigning a variety of responsibilities to different public agencies.

These responsibilities can include choosing policy targets, controlling instruments, and developing and implementing strategies for monitoring and enforcement.

A hierarchically decentralized management structure introduces problems of coordination because different agencies may have different objectives. These problems can be alleviated — and the efficiency gains from decentralized control retained — by modifying intergovernmental relations, particularly by using implicit and explicit financial transfers and by dividing initial property rights equally among local authorities to ensure that they will all want to participate in the negotiating process Jack describes in this paper. Among Jack's conclusions:

- No single level of government should be responsible for all environmental policy. Policy decisions about targets and instruments should be based on the most complete and accurate data available and should encompass all aspects of the problem. But effective implementation — including inspection, enforcement, and prosecution — may require involving all levels of government.
- Coordination of government policies — between levels of government (vertical coordination) or between administrative bodies in the same tier (horizontal) — may be improved by using intergovernmental incentive schemes.
- One device is to grant the local government financial autonomy, in the sense that any taxes or fines it collects from enforcement are retained locally. There are substantive implications in the choice of control instrument. For example, if local governments maximize revenue and an emission *tax* is used, firms with high costs of abatement could be forced to bear most of the cost of reducing emissions. It may be more efficient for the local government to enforce a *standard*, because then most abatement is carried out by low-cost abaters.
- A more subtle incentive is to explicitly affect the enforcement budget of a local regulator. By controlling the size of the budget through lump-sum transfers, and indirectly through fine rebates, the central government can modify the inspection activities of a local regulatory agency in a way that improves welfare.
- Under decentralized control, command and control policies may be implemented more efficiently than market-based instruments. And uniform national or regional standards may improve the efficiency of interjurisdictional negotiations.

This paper — a product of the Public Economics Division, Policy Research Department — is part of CECPE's work program on evaluating economic policy instruments for pollution control, and part of the research project "Pollution and the Choice of Economic Policy Instruments in Developing Countries" (RPO 676-48), funded by the Bank's Research Support Budget. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Peggy Pender, room N10-067, extension 37699 (53 pages).

888. Transformation of Agriculture in Central Eastern Europe and the Former USSR: Major Policy Issues and Perspectives

Csaba Csáki
(April 1992)

The former USSR could become self-sufficient in food, but in the medium term will probably remain a net agricultural importer — if it can persuade exporters to extend credit. But Central Eastern European agricultural exports are likely to expand. Central Eastern Europe could become a tougher, more aggressive player in

agriculture, principally in the markets for more demanding food products — especially pork, poultry, and fruits and vegetables.

Csáki surveys agricultural reform to date, identifies key policy issues, and outlines potential scenarios for the transformation of agriculture in Bulgaria, Czechoslovakia, the former GDR, Hungary, Poland, Romania, and — to a lesser extent — the former USSR.

After decades of socialism, these countries' agricultural sectors are characterized by large, inefficient farms with high production costs; heavier food consumption than in market economies of comparable prosperity, and excess demand for food, at subsidized food prices; macroeconomic imbalances, including inflation, budget deficits, and foreign debt; and a monopoly in food processing and distribution.

Central Eastern Europe is beginning to create a new agricultural structure based on private ownership, real cooperatives, and a market economy. The former USSR is also striving to overcome serious economic difficulty with comprehensive economic and political reform but is in a far earlier stage of agrarian reform. To develop a market-oriented, competitive agricultural structure, these countries need to:

- Create marketable landed property (Csáki discusses several ways to do this).
- Change agriculture's structure to emphasize medium-size private agricultural ventures and various cooperatives (whose future is a heavily debated issue), together with state or communal farms.
- Change government's role, reassessing the agricultural sector as part of the macroeconomic framework. This involves liberalizing consumer and producer food prices, eliminating food subsidies, and providing an extension service and network.
- Create a government environment supportive of private ventures and the transformation of the cooperative sector. The government's role should be to create physical facilities for farmers' markets and a wholesaling network for private farming.
- Create a real agricultural market that encourages fair competition. This means fully eliminating food subsidies within a few years and eliminating the state monopoly on foreign trade.
- Develop agricultural policy that emphasizes efficient production and income parity among agricultural producers. This means developing a new legal framework, including, among other things, a land law that defines ownership and land use rights and defines the processes for distributing ownership titles, handling former owners' claims, and transferring land and other assets of cooperatives to private ownership.
- Support environmentally sustainable agricultural production technologies and better environmental protection.

In analyzing future possibilities for, and influences on, the region's agricultural markets, Csáki focuses on these questions: What will the trend in food production be, particularly for grain and meat? Will food consumption increase, and how will that affect domestic markets? How will the international market change? How much will conditions of trade policy improve for agricultural exports, and how will relations among countries change?

This paper — a joint product of the Agricultural Policies Division, Agriculture and Rural Development Department, and the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the Bank to analyze the transformation of agriculture in the former socialist countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116, or by electronic mail (32 pages).

889. On-the-Job Improvements in Teacher Competence: Policy Options and Their Effects on Teaching and Learning in Thailand

Stephen W. Raudenbush, Suwanna Eamsukkawat, Ikechuku Di-Ibor, Mohamed Kamali, and Wimol Taoklam
(April 1992)

Teacher supervision by effective principals is critical to improved teaching and learning in developing countries. Both teacher supervision and preservice training are far more important than inservice teacher training.

Teachers must hone their teaching skills on the job if the quality of primary education is to improve in developing countries. The five authors of this paper use a multilevel modeling procedure to examine two policy options for improving the competence of teachers already in the system: providing inservice training and encouraging regular classroom supervision.

After examining a nationwide sample of small rural primary schools in Thailand, they found that a teacher's experience in inservice training courses predicts neither instructional quality nor student achievement. In sharp contrast, intensity of supervision within a school significantly predicts both instructional quality and student achievement, after controlling for a variety of school, teacher, and classroom variables.

The effect of supervision is significant — roughly the same as the effect of preservice education. Intensive field work in carefully selected rural schools suggests that supervision by effective principals is a critical component in a larger strategy to create and sustain an "ethos of improvement" in school teaching and learning.

This paper — a joint product of the World Bank and Michigan State University — is part of a larger effort in the Bank to understand differences in educational effectiveness. Support for this analysis was provided by the Bank's Research Support Budget for the research project On-the-Job Improvements in Teacher Competence: Policy Options and Their Effects on Teaching and Learning (RPO 676-36C). Support for data collection was provided by Project BRIDGES under a cooperative agreement between Harvard University and S&T ED, United States Agency for International Development (DPE 5824-A00-5076-00). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (45 pages).

890. Population, Health, and Nutrition: Fiscal 1991 Sector Review

Denise Vaillancourt, Janet Nassim, and Stacye Brown
(April 1992)

To strengthen efforts to alleviate poverty and to develop management and institutional capacity, the Bank should improve the skills mix of its population, health, and nutrition staff, provide better standards and guidelines for analyzing and addressing institutional and management issues, and ensure that enough time is spent on institutional and management issues.

Growth in both number of projects and amount of lending has been a notable feature of the Bank's support to the population, health, and nutrition (PHN) sector since fiscal 1981, when the Bank first began lending for health. The proportion of total Bank lending to the sector increased from 4.5 percent in fiscal 1990 to 6.9 percent in fiscal 1991 (from 4.1 percent to 5.8 percent, if lending to non-PHN components is excluded), surpassing targets set by the Bank's senior management for growth in the sector.

In September 1990, President Conable expressed the Bank's determination to provide greater support for primary health care — and set a goal of increasing lending for primary health care from about 3 percent to about 5 percent of total Bank lending in the next three to four years. This goal was exceeded in fiscal 1991: lending to primary health care for that year amounted to US$1,220 million, or 5.4 percent of total Bank lending.

The momentum in actual and forecasted growth in PHN lending is attributable to several factors, including the high priority assigned to human resource development (as a key component of economic reform and development objectives) and the Bank's strong commitment to the alleviation of poverty, which requires providing basic social services to the poor.

The theme of this year's annual sector review blends two special topics: poverty alleviation and the development of management and institutional capacity. Based on a review of project experience, both within and outside of the PHN sector, this report distills lessons that should assist task managers in the design and implementation of interventions to develop poverty-sensitive management and institutional capacity in the PHN sector.

The Bank's ability to strengthen institutions, especially those needed to alleviate poverty, are constrained by the number and the skills mix of PHN staff, by the absence of standards and guidelines for analyzing and addressing institutional and management issues, and by too little time to spend on institutional and management issues. Therefore, the sector review recommends:

- Improving the sector staff not only in numbers but in access to guidelines and training; making more use of in-house management and institutional development expertise; using more consulting specialists; and increasing the number of management and institutional development experts in divisions working on the PHN sector.
- Revising Bank priorities and practices to ensure that enough time is spent on supervision and on upstream diagnostic work, and that management rigorously reviews the management and institutional development content of lending and sector work.
- Grounding PHN policies in a macroeconomic and multisectoral framework oriented toward growth with poverty reduction, together with a sound strategy for building institutions and the capacity to implement and manage policy. This means country operations divisions have a critical role in helping key national decisionmakers understand and internalize objectives of poverty alleviation and institution building.
- Seeking more creative use of Bank instruments through a review and assessment of the best use of lending instruments for PHN sector interventions; more innovative identification and financing of local expertise; and greater effort to encourage the exchange of experience and ideas among developing countries.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to address management and institutional issues in the PHN sector. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (65 pages).

891. Public Institutions and Private Transactions: The Legal and Regulatory Environment for Business Transactions in Brazil and Chile

Andrew Stone, Brian Levy, and Ricardo Paredes
(April 1992)

Chile enjoys a better formal legal and regulatory environment than Brazil. But differences are reduced by Brazil's effective informal substitutes. In fact, Brazilian entrepreneurs rank macroeconomic and political stability as a higher priority than legal and regulatory reform.

Drawing on the new institutional economics, Stone, Levy, and Paredes examine the impact on businesses of Brazil's relatively complex, nontransparent legal and regulatory institutions and compare their costs with those of Chile's institutions, which are relatively simple.

They examine four basic areas where legal and regulatory institutions could create critical obstacles to efficiency in the garment industries of Sao Paulo and Santiago:

- The start-up of a new business (entry).
- The regulation of business.
- Orders by customers of garment firms.
- Sales with credit.

They find that Chilean business transactions benefit from legal simplicity and more consistent enforcement than in Brazil, but that these perceived advantages are offset because of the differences between formal law and practice in Brazil. In two of these areas, Brazil has evolved some effective institutional substitutes to reduce the costs that would otherwise have been imposed by inefficient formal institutions.

In the entry of new businesses, professions have evolved to transform the process of registering a new business from a potentially torturous obstacle path into a fairly affordable one-stop process. In debt collection, information systems limit the need to resort to the formal legal system.

Nonetheless, regulation — in the form of complex and resource-intensive tax rules, regulatory processes, and conflict-resolution mechanisms — raises the cost of transactions for Brazilian businesses. Costs are further raised by greater uncertainty and frequent renegotiation of orders. So, overall, the environment for business in Brazil is less favorable than that in Chile.

But the authors warn against a preoccupation with formal legal and regulatory reform as a short-term means of promoting economic development. In the eyes of Brazilian entrepreneurs, macroeconomic and political instability are far more important problems.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to promote realistic assessment of obstacles to private sector development through firm-level surveys. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (30 pages).

892. Evaluating the Asset-Based Minimum Tax on Corporations: An Option-Pricing Approach

Antonio Estache and Sweder van Wijnbergen
(April 1992)

The minimum asset tax, with its simple tax code and marginal impact on the marginal effective tax rate, is an appealing short cut to comprehensive tax reform — and in Brazil it could substantially improve revenue.

In many countries, well-meant ad hoc tax incentives proliferate over time, creating an opaque corporate tax structure and many unanticipated tax loopholes. Tax authorities in several countries have considered and sometimes introduced minimum corporate taxes. These are designed to reduce losses in revenues and distortions in the allocation of resources that result from the interaction of various credits, exemptions, and so on.

Liability under such a tax is sometimes linked to profits but more often to assets, as these are harder to manipulate. Estache and van Wijnbergen refer to such a tax as a minimum asset tax (MAT).

The assessment of a minimum tax is usually based on the computation of the changes the minimum tax will introduce in marginal effective tax rates, using the standard King-Fullerton methodology. This methodology has great limitations as it does not deal with the revenue effects of the loopholes and cannot handle uncertainty. This is a serious shortcoming as the impact of the MAT depends on the stochastic characteristics of the link between assessed asset value and asset income in each period.

Estache and van Wijnbergen suggest an alternative approach based on option pricing, an approach designed to incorporate the impact of rate-of-return uncertainty on the burden a MAT will impose. This approach allows the assessment of the minimum's tax's expected tax burden. It also yields a measure of the value of a minimum tax to a government faced with great uncertainty about revenue prospects because of the proliferation of tax incentives. They use their methodology to assess a recent Brazilian MAT proposal using sectoral data on corporate income tax revenue and asset value. They conclude:

- Uncertainty should play an explicit role in evaluations of MAT proposals and corporate taxes generally. The option characteristics of the corporate tax completely dominate the impact of various tax provisions on the marginal effective tax rate (MERT) under full certainty.
- The MAT, with its simple tax code and marginal impact on the MERT, is an appealing short cut to comprehensive tax reform — and the revenue effects in Brazil could be substantial. In countries like Brazil — where rate-of-return uncertainty is more likely to be increased by macroeconomic uncertainty than by introduction of a MAT — if a MAT could reduce fiscal imbalances and thus macroeconomic uncertainty, it might also indirectly help lower the MERT more than it would raise it directly.

Two common assumptions turned out not to be true. First, because capital intensity varies greatly across sectors, the MAT does *not* reduce sectoral distortions. The standard deviation of the MERT is higher with MAT than without.

Second, although that variation gives the MAT a higher marginal impact, it is not true that high-risk firms are hardest hit by the MAT. High-risk firms tend to be high-rate-of-return firms, which reduces MAT's impact. Concern that the MAT would discriminate between the most innovative but riskiest firms seems to be unwarranted.

This paper — a product of the Country Operations Division, Country Department I, Latin America and the Caribbean Region — is part of a larger effort in the region to assist the government of Brazil in reforming its tax system. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Antonio Estache, room E10-081, extension 81442 (28 pages).

893. The Evolving Legal Framework for Private Sector Activity in Slovenia

Cheryl W. Gray and Franjo D. Stibla
(April 1992)

In moving toward a market economy, Slovenia is working hard to create a legal framework that can foster the growth of the private sector.

The government of Slovenia is moving rapidly to promote the growth of an efficient market economy. One of the most important tasks it faces is the development of a legal framework that can act as a decentralized "invisible hand" to replace previous administrative controls and steer the private market in an efficient direction.

Gray and Stiblar describe the current legal framework in Slovenia in several areas — including contract, company, bankruptcy, constitutional, real property, intellectual property, foreign investment, and antimonopoly law. These areas of law define (1) property rights, (2) the means to exchange them, and (3) the rules for competitive market behavior. They form the bedrock of a legal system for a market economy.

The situation that Slovenia faces in undertaking legal reforms differs from that for other Central and Eastern European (CEE) countries for three reasons. First, Yugoslavia took an independent course and began experimenting with the introduction of market forces soon after World War II. As a result, Slovenia — which was the richest of the Yugoslav republics — leads other CEE countries in standard of living, experience with markets, and openness to influences from abroad (particularly from Western Europe). Second, unlike other CEE countries, the federal structure of Yugoslavia over the past 40 years has granted considerable law-making powers to the republics. The issue of federal-republic legal relations and "conflicts of laws" has thus always been central. Third, Slovenia is trying to resolve the question of which Yugoslav laws to adopt and which to replace with wholly new Slovene legislation. Legal "succession" has become a major issue.

Slovenia has progressed steadily toward creating a basic legal framework in which the private sector can grow and develop. It benefits from the efforts that Yugoslav economic and legal reformers have made since mid-1988, and from its willingness to adopt many of the Yugoslav solutions upon independence rather than trying to start again from scratch.

Few changes appear to be needed in some areas of law — including company, foreign investment, and intellectual property law. But in others, such as bankruptcy and antimonopoly law, both the legal framework and the legal institutions to interpret and implement the law still lack an adequate structure and sufficient credibility to support a private market economy. As in other post-socialist economies, real property rights is an area of tremendous uncertainty, both because of

Slovenia's determination to reverse the past through reprivatization and because of the limits it places on foreign ownership.

Finally, true legal reform — not just on paper — cannot move more quickly than political and economic reform. If Slovenia can advance on the political and economic fronts as well in 1992, it can create an attractive setting for new private investment.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger research effort on legal reform in Central and Eastern Europe. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maxine Berg, room N11-054, extension 36969 (35 pages).

894. Social Indicators and Productivity Convergence in Developing Countries

Gregory Ingram
(April 1992)

If the goal of economic development is to promote human welfare, the most efficient focus of development efforts is in very low-income developing countries. There the payoff in improved social indicators that measure human welfare is higher than it would be for similar efforts in middle-income countries.

Most analysis of the convergence of productivity addresses industrial countries. Ingram takes a broader approach to measures of performance.

For one thing, he analyzes some measures of productivity but focuses far more on social indicators that are not narrowly economic, including:

- Indices of outcome, such as life expectancy.
- Indices of the availability of inputs, such as doctors per capita.
- Indices that can be either inputs or outcomes, such as per capita caloric intake of food.
- Measures of government spending patterns.

Moreover, he examines a large universe of countries: 21 high-income or industrial countries and up to 88 developing countries (depending on the availability of data). Some data cover the entire period, 1960-85; some cover only a few years in that period.

According to Ingram, gaps in per capita GDP have increased among low-, middle-, and high-income countries. The range of per capita GDP growth rates in developing countries has widened as well.

Ingram finds that evidence does not indicate a convergence of productivity levels across the sample of countries. Differences in absolute levels of productivity are increasing, not decreasing — among the developing countries, and between developing and industrial countries.

There is some convergence in average productivity growth rates between developing and industrial countries, but modest disaggregation by income level and region reveals a divergence in growth rates among developing country groups and between those groups and high-income countries.

However, the evidence shows strong convergence across the sample for several social indicators that are good measures of human welfare. Four social indicators — life expectancy, caloric intake, primary enrollment ratios, and urbanization — show evidence of convergence for every convergence index used. Two social indicators — labor force participation rates and defense spending as a share of GNP — show no evidence of convergence by any index used. The other 10 social indicators show some evidence of convergence; social spending as a percentage of GNP is the next most convergent of the remaining indicators.

Social indicator levels are often closely related to GDP levels, but other factors are also clearly at work, including the transmission of knowledge, information, and new technologies across national borders.

Ingram's main conclusion: a given absolute or proportional increase in per capita GDP in very low-income developing countries is generally associated with greater improvements in the social indicators that measure human welfare than is a similar increase in middle-income developing countries.

To the extent that improving welfare is the objective of development efforts, it is most efficient to focus such efforts on low-income developing countries.

This paper — a product of the Research Advisory Staff, Office of the Vice President, Development Economics — was prepared for the Conference on Historical Perspectives on the International Convergence of Productivity held in April 1992. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Gray Ponchamni, room S3-032, extension 31022 (40 pages, including tables).

895. How Can Debt Swaps Be Used for Development?

Mohua Mukherjee
(April 1992)

In addition to financial benefits, debt conversion projects initiated by debtors provide a valuable opportunity for strengthening institutions.

The idea behind debt conversion is that instead of continuing to make payments on outstanding loans in hard currency in the face of debt servicing difficulties, the debtors find some other way to settle debts that is satisfactory to themselves and the creditor. In particular, debt for development can be a useful way to stabilize a growing debt stock, for example, by converting amounts which are already in arrears.

Mukherjee discusses the relative importance of debt conversion as a development tool, contrasts conversion of debt owed to public and private creditors, touches on the issue of its impact on inflation, and examines criteria for deciding which types of debt are suitable for conversion. She contends that the principle of debt conversion could be applied in many situations, provides examples, and describes the mechanics of debt conversion for development purposes as part of an overall sectoral strategy.

She concludes by discussing two ways to strengthen institutions for carrying out debt conversions.

Large, unanticipated inflows of resources can create difficult relationships in traditionally underfunded activities. Creditors often have little confidence that debtors will be able to fulfill project-related obligations because they have inadequate absorptive capacity, weak institutions, inadequate sources of information in the decisionmaking machinery, and inadequate managerial and administrative skills.

Debt conversion projects may be a useful, noncontroversial vehicle for bringing in domestic managerial talent from local nongovernment organizations on contract (for example, to a ministry) to be responsible for implementation — to make the project "deliverable."

One instrument for allowing this to happen is a trust fund. The trustee has legal title over the fund and a fiduciary responsibility to the beneficiaries to follow the terms and comply with applicable laws. National environmental trust funds have been established in several countries in connection with debt-for-nature swaps.

Another is for sector policymakers to approach international counterpart nongovernment organizations directly to find out if there is interest in funding specific development activities (especially those which are not eligible for multilateral financing) through debt conversions to support a well-defined sectoral program. The lesson from debt-for-nature conversions may be that the development community and banks must work together closely, combining their expertise to provide long-term resources for development.

This paper is a product of the Project Financing Group, Cofinancing and Financial Advisory Services Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kamar Yousus, room H9-055, extension 33102 (24 pages).

896. Achievement Evaluation of Colombia's *Escuela Nueva*: Is Multigrade the Answer?

George Psacharopoulos, Carlos Rojas, and Eduardo Velez
(April 1992)

Other things being equal, students in Colombia's innovative multigrade rural school program achieve higher achievement scores than their counterparts in traditional schools — at unit costs that appear to be only 5 to 10 percent higher.

In the mid-1980s, half of Colombia's rural schools did not offer complete primary education and more than half of rural children between the ages of 7 and 9 had never attended school. Unitary schools — multigrade classrooms taught by one teacher — were established in the early 1960s in isolated rural areas with few students, but when efforts were made to expand the program nationally several problems became apparent — with teacher training, with the automatic promotion system, and with the relevance of course content to rural life.

Escuela Nueva was created in the 1976 as an official improvement on the unitary school. By 1978, more than 500 schools were involved; another 1,500 were added by 1982. Further expansion, partially financed by the World Bank, increased enrollment to 17,948 schools by 1989, serving 800,000 students.

Escuela Nueva is a rural school in which one or two teachers offer all five years of primary education in one or two multigrade classrooms. Promotion is flexible, but not automatic; the student is promoted to the next level once s/he accomplishes the minimum educational objectives, which could take more than one academic year. (This system alters the system of automatic promotion to which there were objections.)

Special instructional materials are used, including manuals for teachers and supervisors and student guides that facilitate individual and group work. Curriculum and materials encourage the practical application of what is learned to life in a rural community. Teachers and supervisors get special training in how to involve the community and how to use the new educational materials, student guides, and the student library. Each educational district has a demonstration school.

The system supports peer instruction, with older students coaching younger ones. The schools have study corners focused on different subject areas and a small library that also functions as a community information center. Many activities — such as an agricultural calendar and a county monograph — are designed to involve parents in support of their children's learning.

A self-monitoring mechanism allows students to monitor their own attendance records; they can communicate concerns and problems through a suggestion box. Student progress is monitored in a progress control book, geared to mastery of activities and the flexible promotion concept.

A traditional school follows a national curriculum, does not give slow learners special attention, and does not stimulate students with special materials.

Psacharopoulos, Rojas, and Velez evaluated a 1987 sample of more than 3,000 third and fifth graders from 168 *Escuela Nueva* and 60 traditional schools (a control group). They found that *Escuela Nueva* had significantly improved student outcomes and student and community participation, as well as reducing dropout rates.

And their preliminary findings suggest that this was done at a unit cost only 5 to 10 percent higher than unit costs in traditional schools. The extra costs of providing special study guides, a library, and teachers with extra training — three times the amount of teacher training required for traditional classes — are offset by the fact that the schools have only one or two teachers for five grades.

Is *Escuela Nueva* replicable? People worry about this. It took more than 15 years for it to become a formal program, and the support it gets depends largely on the personal preferences of local administrators. Some also fear that expansion of this innovative program might lessen officials' control of the quality of its implementation, including the quality of teacher training, of delivery of materials, and of school follow-up.

This paper — a product of the Human Resources Division, Technical Department, Latin America and the Caribbean — is part of a larger effort in to assess the quality of primary education in the region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Malca, room S13-139, extension 37720 (21 pages).

897. Unemployment Insurance for Developing Countries

Daniel S. Hamermesh
(May 1992)

What structure of taxes and benefits is appropriate for an unemployment insurance program? Can the same principles be applied in developing as in developed countries?

Unemployment insurance, contends Hamermesh, provides compensation for lost income by requiring individuals or employers, or both, to pay taxes into a common fund. It is part of a general safety net constructed by citizens of developed countries. It is unique among social insurance programs in that it offers payment for an event that is partly preventable and that is not physically painful. Thus, it differs from old-age and disability insurance, from compensation for work-related injury and illness, and others. This exposes it to greater criticism from citizens op-

posed to any social insurance, criticism that planners who build unemployment insurance programs must take into account.

Hamermesh analyzes the various goals that have been adduced for unemployment insurance and decides which ones make sense. Sometimes the supposed goals run counter to what unemployment insurance programs actually do, but one goal — providing consumption insurance — is at least partly met by typical unemployment insurance programs in developed countries.

Hamermesh lists the parameters of typical unemployment insurance programs and their ranges in industrial countries. Evidence about the economic impact of these parameters provides planners with a basis for choice that can guide them in constructing unemployment insurance programs elsewhere.

Experience and evidence in developed economies may carry over into developing economies, Hamermesh concludes, but this is unclear. Several characteristics of developing economies, particularly the possibility that a dual labor market exists, are important. This suggests the need for care in introducing unemployment insurance programs in these economies. Hamermesh suggests several lines of research to answer questions about the validity of the consumption-insurance goal in developing countries, and about appropriate structures of taxes and benefits.

Hamermesh's discussions of dual labor markets and the size of the modern sector do not apply to the formerly planned economies of Eastern Europe, but his discussion of program parameters and goals may be useful for policymakers there who must analyze expectations about any unemployment insurance program that is proposed.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of the department's program of studies on employment and labor market issues. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Selina Khan, room S6-228, extension 33651 (44 pages).

898. Reforming Finance in Transitional Socialist Economies: Avoiding the Path from Shell Money to Shell Games

Gerard Caprio, Jr. and Ross Levine
(April 1992)

In several transitional socialist economies the financial system is in danger of becoming part of a shell game to hide the losses of the "real" economy. Rapid, successful economic reform requires putting the shell game to an end.

In the late 1980s, transitional socialist economies (TSEs) in Central and Eastern Europe were only somewhat more sophisticated than shell money systems: savings books or currency had to be used for most transactions and there was no risk assessment, information monitoring and acquisition, or portfolio management. The TSEs have moved toward a two-tiered banking system (at different speeds), but they lag in the development of competitive, market-based financial systems. In several TSEs the financial system seems to be part of a shell game to hide the losses of the "real" economy.

Caprio and Levine argue that rapid, successful economic reform requires putting the shell game to an end. They review several contentious issues of financial reform in the TSEs, especially issues involving macrofinance, corporate finance, the internal debt problem, and the need to build efficient banks.

Key problems in the financial sector are achieving some flexibility with interest rates, making the financial system competitive and efficient, helping in the retooling of existing firms and the construction of new ones, building the banks' institutional capability for commercial lending (including improving the banks' monitoring capability and skills in assessing risk and credit), and cleaning up the heavy arrears in debts between enterprises.

Caprio and Levine contend that the banks should be "cleaned up" when they are privatized, to prevent the quick reemergence of debt problems. They believe that either of the proposed alternatives for shaping financial systems in the TSEs — very highly capitalized banking or narrow banking — would minimize the need for future support. Either alternative would reduce leverage in the TSEs and provide more financial stability.

But taking concerns about moral hazard to an extreme — prohibiting debt finance — could starve new firms for credit and limit economic growth. And without healthy growth, the reform-oriented resolve of TSEs resolve may wane.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study financial reform in transitional socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (37 pages).

899. The Financing of Small Firms in Germany

Christian Harm
(May 1992)

In Germany, small banks finance small firms. Active government support and a sophisticated refinancing network effectively overcome financial market imperfections.

In Germany, small firms are financed chiefly by small banks, which are grouped into two systems: the savings banks (Sparkassen) and the credit cooperatives. The government actively supports the financing of investments in small industry — especially business start-ups. Harm explains how small firms are financed in Germany.

Harm contends that small and medium-size firms contribute a lot to the German economy. Small firms are not subject to the control institutions — such as supervisory board seats, proxy voting, and equity holdings — that shape the relationships between large firms and large banks.

Government programs — whether loans from government banks or credit insurance from subsidized credit-guarantee institutions — are all administered through the banking system. The government funds or insures selected projects, but the banks assume the role of the monitor and credit analyst in return for compensation.

The operations of government banks do not have a subsidy component beyond profits forgone. Their loans carry low interest rates but not to the extent that they

allow profitable arbitrage with financial investments. The subsidy associated with the credit-guarantee institutions benefits almost exclusively the entrepreneur who would otherwise have been rationed out of the market. Banks benefit only to the extent that overcoming such rationing brings them new business. Therefore, subsidies are not exploited beyond an intended level.

Harm points out that small banks, which are part of a decentralized market structure, overcome imperfections in the financial market by building institutions that supersede the market mechanism. The savings bank and credit cooperative systems have each developed an internal capital market, not unlike those within large banks operating nationwide. Only central institutions participate in the domestic money market, to place the system's excess liquidity or to raise funds to cover the system's deficits. Also, the funding programs of the government banks can be seen as a refinancing mechanism that especially helps small banks. The same is true for rediscountable trade bills.

Harm stresses that the nonmarket means for allocating funds have developed only to counter market imperfections. Market incentives provide the framework for economic decisions. The system is balanced to the extent that the scope for perverse allocation of funds is minimized by mandating joint decisions of potentially conflicting parties.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the role and functions of financial institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (35 pages).

900. The Relationship between German Banks and Large German Firms

Christian Harm
(May 1992)

Large German banks provide all kinds of financial services to large industrial companies and participate in an effective system of corporate governance. But contrary to widely-held views, they do not own German industry.

German banks are often criticized, or praised, depending on a person's viewpoint, for owning German industry and for playing an active part in corporate control.

Harm argues that this misrepresents German banking. First, the number of German firms a bank can own or control, although significant, is limited.

Some very large firms are predominantly privately owned, or are not chartered as joint-stock companies that could potentially be listed on an exchange. Most small firms, and even some large firms, do not even have a supervisory board — which is the most important forum through which bankers can represent their interests in a firm.

Second, although most of the largest 100 firms have a bank member on their supervisory board, this does not imply effective bank control. Many companies have two bankers from different institutions on their board.

Third, the role of the banker in the supervisory board has to be viewed in the light of the rigorous standards of corporate governance imposed on German public firms. The Codetermination Law of 1976 mandates that labor be represented on the supervisory board of the largest firms as well as all joint-stock companies.

This stresses the role of the supervisory board as a negotiating forum for all interested parties. It leaves little room for the interpretation that the bankers are exclusively in control.

Fourth, bank ownership of industry is not pervasive, but is in fact limited to a few special cases. Ownership of significant stakes has further decreased during the last decade.

Fifth, proxy voting is more important than stock ownership as a potential means of control. Harm notes that it is generally agreed in Germany that banks provide a useful service to small shareholders. Although more than half of the largest 100 firms are not affected by proxy voting, the continued attractiveness of corporate equities for the general public suggests that the control issues associated with proxy voting will become increasingly important.

Harm argues that the German system of corporate governance represents an efficient attempt to minimize socially wasteful behavior. The negotiated consensus achieved in the boardroom provides better incentives to management to maximize firm value and social welfare than the factionalized U.S. system.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the role and functions of financial institutions. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (32 pages).

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901. Opening the Capital Account: A Survey of Issues and Results

James A. Hanson
(May 1992)

Opening the capital account allows individuals to diversify and protect themselves better against risks, as well as increasing the economy's access to foreign saving. But it also limits the country's ability to make monetary policy and tax capital.

Increased trade, improved communications, growing internationalization of production, and legalization of foreign currency instruments have increased access to international capital markets. Developing country governments are beginning to consider complementing increasingly open goods markets with de jure capital account liberalization. To assist this analysis, Hanson surveys the costs and benefits of opening domestic capital markets and including some practical issues.

Capital account liberalization provides greater access to foreign financing for aggregate investment. It also allows individuals to diversify and protect themselves against risks more easily. But individuals often seek to protect themselves against actual and potential government policies. This may lead to reduced domestic saving when the capital account is opened, particularly in an unstable policy environment.

Open capital accounts reduce the ability to tax capital and to conduct monetary policy (under a fixed exchange rate). They also increase a country's exposure to external monetary shocks. But the loss of tax and monetary independence brings an offsetting benefit: the government's incentive to undertake such policies is reduced, which lessens the risk of policy instability. An open capital account also may enhance the ability to conduct fiscal policy, depending on how international investors respond to variations in fiscal deficits. Finally, in evaluating the costs and benefits of legally opening the capital account, it is important to consider just how open the capital account really is and to what extent existing regulations merely shift the burden of implicit taxes onto those with less access to foreign exchange.

Most evidence about the impact of capital account liberalization comes from industrial countries. Available evidence suggests that developing countries with stable policy environments could benefit from opening the capital account: domestic real interest rates would decline, and there might be a 10 to 15 percent increase in investment, which also might bring better technology and management with it.

Reasonable fiscal balance and a sound domestic financial system are preconditions to successfully opening the capital account. Without these preconditions, capital flight may occur or the government may have to bail out domestic banks. Capital account liberalization can, to some extent, be phased with current account liberalization by legalizing and limiting different instruments and institutions to varying degrees. Finally, trade liberalization programs and exchange rate policy need to be viewed not only in terms of maintaining current account balance but also how they affect the real interest rate and investment, through the capital account.

This paper — a joint product of the Office of the Director, Country Department IV, Latin America and the Caribbean Region, and the Financial Policy and Systems Division, Country Economics Department — is part of a larger research effort to understand financial reform. It was funded by the Bank's Research Support Budget for research project "The Impact of Financial Reform" (RPO 676-13). The paper focuses on the debate about the sequencing of reform — which should come first: the liberalization of capital or current accounts? Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Diane Bouvet, room I6-061, extension 36783 (43 pages).

902. Public Sector "Debt Distress" in Argentina, 1988-89

Paul Beckerman
(May 1992)

Efforts to control Argentina's inflation in 1988 and 1989 failed, generating episodes of hyperinflation, largely because the stabilization programs drove the public sector into debt "distress."

Under the August 1988 "Primavera" Plan and the July 1989 "Bunge y Born" Plan stabilization programs, the Argentine authorities sought to anchor the price level through an appreciated real exchange rate, which they sustained through policies that maintained high domestic interest rates. The public sector's domestic debt was substantial, however, and the high interest rates drove the public sector's interest bill considerably above its non-interest surplus. The public sector could therefore cover its interest bill only by taking on additional debt. Because the interest bill was so large, domestic debt grew rapidly. Hyperinflation resulted when the outstanding debt became larger than domestic financial markets could be persuaded to hold.

The Central Bank played a focal role in these processes. It issued interest-bearing debt in the forms of remunerated bank reserves, "inaccessible deposits," and Central Bank bills, to absorb money. The interest bill on these liabilities generated mounting "quasi-fiscal" borrowing requirements, which the Central Bank financed through additional debt issues. This debt was held mainly by commercial banks who financed themselves through high-yielding short-term deposits. Hyperinflationary pressure developed when depositors, perceiving that the Central Bank's debt accumulation was becoming excessive, withdrew and moved rapidly into foreign exchange, engendering heavy devaluation pressure.

Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Alexandra Blackhurst, room I6-018, extension 37897 (53 pages). An earlier version of this paper — a product of the Country Operations Division, Country Department IV, Latin America and the Caribbean Region — was published as the Region's Internal Discussion Paper 66, "Public Sector 'Debt Distress' in Argentina's Recent Stabilization Efforts."

903. The Economic Effects of Minimum Import Prices (With an Application to Uruguay)

Federico Changanaquí
and Patrick Messerlin
(May 1992)

By imposing floor prices on imports, the procedures for reference and minimum export prices jeopardize trade liberalization efforts by creating the impression that tariff cuts are greater than they are. Reference prices add to the distortions created by a pure tariff system, by distorting relative domestic prices — by promoting the domestic consumption of higher-quality

goods and the domestic production of lower-quality goods.

By increasing the cost of imports, minimum unit import reference prices not only generate the usual distortions one expects from tariff protection but add new ones that a pure tariff system would not generate.

Reference prices substantially reduce the price gap between imports with prices above and below the reference price. By making "cheap" imports relatively more expensive than "expensive" imports, reference prices affect quality in three ways that appear not to have been analyzed before:

- They can induce foreign firms to shift toward more expensive exports to the country with reference prices.
- They can induce domestic producers in that country to shift production toward lower-quality, cheaper goods.
- Because this decreases the *relative* price of the expensive varieties, domestic consumers may lean toward buying more expensive goods.

In other words, this system of administered protection distorts domestic consumption and production.

Using the case of Uruguay, Changanaquí and Messerlin estimate what protection the reference price procedures provide for Uruguayan industries and analyze how this protection affects Uruguay's economy.

They show that the reference and minimum export price procedures impose floor prices on imports that cover more than a third of value added in Uruguayan manufacturing. The minimum export price system boosts published tariff rates for covered goods by 7 percent (probably an underestimate) and the reference system boosts them 18 percent.

These systems jeopardize trade liberalization efforts by creating the impression that tariff cuts are greater than they really are. These systems also create massive distortions (from 15 to 30 percent) between the relative domestic prices of imported goods above and below the floor prices.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to monitor and improve the effectiveness of trade policy reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-039, extension 37947 (23 pages).

904. Economic Growth and Environmental Quality: Time-Series and Cross-Country Evidence

Nemat Shafik and Sushenjit Bandyopadhyay
(June 1992)

It is possible to "grow out of" some environmental problems, but there is nothing automatic about doing so. Action tends to be taken where there are generalized local costs and substantial private and social benefits. Where the costs of environmental degradation are borne by others (by the poor or by other countries), there are few incentives to alter damaging behavior. Trade, debt, and other macroeconomic policy variables seem to have little generalized effect on the environment.

Shafik and Bandyopadhyay explore the relationship between economic growth and environmental quality by analyzing patterns of environmental transformation for countries at different income levels. They look at how eight indicators of environmental quality evolve in response to economic growth and policies across a large number of countries and across time.

Has past economic growth been associated with the accumulation of natural capital or the drawing down of natural resource stocks? Is the accumulation of physical and human capital a complement to or a substitute for the accumulation of natural capital? How do these relationships vary across different environmental resources? And how have macroeconomic policies affected the evolution of environmental quality? Among their conclusions:

- Income has the most consistently significant effect on all indicators of environmental quality. But the relationship between environmental quality and economic growth is far from simple. As incomes rise, most environmental indicators deteriorate initially, except for access to safe water and urban sanitation — problems that higher incomes help resolve.
- Many indicators tend to improve as countries approach middle-income levels. There is some evidence that countries with high investment rates and rapid economic growth put greater pressure on natural resources, particularly in terms of pollution. But some indicators that worsen with high investment rates, such as deforestation and sulfur oxides, tend to improve with higher incomes.
- The main exceptions to this pattern are dissolved oxygen in rivers, municipal waste, and carbon emissions — all of which have negative effects that can be externalized.
- Technology seems to work in favor of improved environmental quality. Except for fecal coliform, all environmental indicators improve or do not worsen over time, controlling for the effect of income.
- The econometric evidence suggests that trade, debt, and other macroeconomic policy variables seem to have little generalized effect on the environment, although some policies can be linked to specific environmental problems.
- The evidence suggests that it is possible to "grow out of" some environmental problems, but there is nothing automatic about doing so — policies and investments to reduce degradation are necessary. The evidence shows that most countries find such environmental policies and investments worthwhile.
- Action tends to be taken where there are generalized local costs and substantial private and social benefits. Where the costs of environmental degradation are borne by others (by the poor or by other countries), there are few incentives to alter damaging behavior.

This paper — a product of the Office of the Vice President, Development Economics — was produced as a background paper for *World Development Report 1992*, which focuses on the environment. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the World Development Report office, room T7-101, extension 31393 (50 pages).

905. Investing in *All* the People

Lawrence H. Summers
(May 1992)

Money spent increasing the education of girls is not only more socially productive than military outlays. It is also far more productive than other social sector outlays — and than the vastly larger physical capital outlays projected for the next decade.

Recent research has convinced Summers that once all the benefits are recognized, investment in the education of girls may

be the highest return investment available in the developing world — and it is an especially high priority for Pakistan. Summers stresses five points to make his case for action:

- Tens of millions of women (perhaps as many as 100 million) are missing worldwide mainly because of higher death rates for young girls than boys. Higher death rates are symptomatic of the more general pattern of female deprivation in the developing world, especially in South Asia.
- Underinvestment in girls is an economic problem resulting from a vicious cycle caused by distorted incentives. Parents don't invest in their daughters because they expect them to grow up to serve only their husbands; uneducated women have few alternatives, so the expectation becomes self-fulfilling.
- Increasing educational opportunities for girls offers the best chance of breaking this vicious cycle. Considering both private benefits and returns to other family members, it is perhaps the best yielding return of all investments available in developing countries. Among other things, women spend more of their income on children than their husbands do, and educated women are more likely to seek medical care and to improve sanitation practices. Educated women choose to have fewer children and can provide more for those they do have.
- Giving an extra 100 girls an additional year of education in 1990 would have cost approximately $30,000. This investment would prevent roughly 60 infant deaths and three maternal deaths — and avert 500 births. Summers concludes that the social benefits alone of increased female education are more than sufficient to cover its costs.
- Programs to increase female education are less expensive than other development investments and could quickly increase female enrollment rates. Priorities should be to reduce the cost of schooling for girls and to make special efforts to accommodate parents's practical needs.
- Major initiatives to increase female education can transform society over time. If more girls had gone to school a generation ago, millions of infant deaths could have been averted each year, and tens of millions of families could have been healthier and happier.

This paper, by the Vice President, Development Economics, and Chief Economist, World Bank, was prepared for the Quad-i-Azam Lecture at the Eighth Annual General Meeting of the Pakistan Society of Development Economists in Islamabad, Pakistan, in January 1992. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Fernandez, room S9-035, extension 33766 (26 pages, including tables).

906. Bulgaria's Evolving Legal Framework for Private Sector Development

Cheryl W. Gray and Peter Ianachkov
(May 1992)

The administrative and judicial machinery for implementing new laws is slower to develop than the new laws themselves. The challenge of legal development is as immense as that of economic reform — and the two are inexorably intertwined.

Bulgaria is in the midst of a historic transformation from a planned to a market economy. The Bulgarian government is working steadily to create a legal framework in which the private sector can develop. Many new laws — including a new constitution and new laws on companies, foreign investment, and competition — have been adopted over the past two years, and more are now being drafted and debated. Bulgaria's pre-war legal framework was quite modern for its time, and most of these new laws draw on pre-war Bulgarian tradition.

Gray and Ianachkov describe the current legal framework in Bulgaria in the areas of constitutional, real property, intellectual property, company, foreign investment, bankruptcy, contract, and antimonopoly law. These areas of law define property rights, the means for exchanging property rights, and the rules for competitive market behavior — the bedrock of a legal system for a market economy.

In Bulgaria as in the other countries of Central and Eastern Europe, defining real property rights and creating the conditions for free and fair competition are the most contentious and confused legal areas because they tred so heavily on vested interests. Other areas of law are less of a problem.

But the administrative and judicial machinery for implementing those laws is slower to develop. Laws by themselves are only paper; the legal framework comes to life only when legal and administrative institutions can enforce the laws and readily resolve the disputes they inevitably spur, and only when the public accepts that the laws are binding. Moreover, the laws by necessity provide only a general framework. Their content must be filled by more detailed regulations and practice in individual cases, a process that takes time. The challenge of legal development is as immense as that of economic reform, and the two are inexorably intertwined.

This paper — a product of the Socialist Economies Reform Unit, Country Economics Department, and the Europe and Central Asia Division, Legal Department — is part of a larger effort in the Bank to study evolving legal frameworks in Eastern Europe. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maxine Berg, room N11-054, extension 36969 (34 pages).

907. Institutional Reform in Emerging Securities Markets

Robert Pardy
(May 1992)

Developing a securities market is a long-term, multifaceted task that requires extensive institutional development, for which there are few shortcuts. And many of the changes required have both positive and negative ramifications in other parts of the financial system and the economy.

In the long run, sound, efficient securities markets can contribute to economic growth; in the short run, they play an important role in financial liberalization and deepening. They do so principally by providing a means for both capital raisers and investors to diversify risk.

Pardy provides a guide to issues involved in institutional and regulatory reform of securities markets — and a discussion of the practical implications of different policy options and sequencing decisions.

Pardy argues that establishing sound securities markets requires institutional development that is a substantial task for many developing countries. Prerequisites for the development of securities markets include:

- A macroeconomic and fiscal environment conducive to the supply of quality

securities — as well as sufficient demand for them.

• A legal, regulatory, and institutional infrastructure that can support efficient operation of the securities market.

Pardy discusses the second of these in detail, providing guidelines for basic infrastructural requirements. Essentially such an infrastructure must provide four things:

• Certainty about property rights and contracts.

• Transparent trading and other procedures and public disclosure by companies of all information relevant to the value of their securities.

• Protection against unfair practices by insiders and intermediaries.

• Protection against the financial failure of intermediaries and market institutions such as clearinghouses.

Pardy also provides examples of the policy conflicts and uncertainties that are routine in securities market reform and development, and suggests approaches to managing them.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to explore ways to promote the development of sound securities markets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact FSD, room N9-005, extension 37664 (32 pages).

908. Tax Incentives, Market Power, and Corporate Investment: A Rational Expectations Model Applied to Pakistani and Turkish Industries

Dagmar Rajagopal and Anwar Shah
(May 1992)

A production structure model incorporating rational expectations and market power is used to derive important insights on the effectiveness of tax incentives on industrial production and investment decisions in developing countries.

Only recently has empirical research been used to evaluate tax and industrial policy in developing countries using a framework that incorporates the cost of capital and the production structure. Recent applications of dynamic duality and computable general equilibrium analyses of this question by the Tax Incentives Evaluation Project of the Public Economics Division constitute interesting new work for developing countries.

Rajagopal and Shah argue that analyses of such questions can be considerably enriched by explicitly incorporating into the analysis the industrial market structure of the industry at hand and proposing an empirical procedure to test the market power hypothesis. Such a test has important implications for the effectiveness of fiscal incentives for investment. If the producers in an industry have market power, they may be able to shift taxes forward completely so that any tax incentives would simply result in windfall gains for the firms in that industry. But in a competitive industry, producers are not able to shift taxes forward completely so that tax incentives can stimulate investment.

Rajagopal and Shah test the market power hypothesis empirically using data for selected industries: in Turkey, chemicals and petroleum derivatives; in Pakistan, textiles as well as chemicals and pharmaceuticals. In addition, they also examine the impact of investment tax credits (credits against tax liability), investment allowances (deductions against taxable income), and research and development expensing on production and investment decisions and government revenues.

They introduce three empirical innovations in this study. First, they specify an expression for the rental price of capital, consistent with rational rather than static expectations. Second, instead of assuming perfect competition, they implement an empirical test of market power. Third, they empirically derive an incremental benefit-cost ratio for the incentives evaluated in the study.

They conclude that firms in those industries had limited market power and were thus able to shift taxes forward only partially. Thus, tax incentives did have an impact on production and investment decisions in firms in those industries. But these impacts varied greatly across different industries, and in three of five cases, tax incentives resulted in higher revenue losses compared with their stimulative impact on investment in physical or knowledge capital.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to evaluate fiscal incentives for domestic and foreign investment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (70 pages, with tables).

909. Parallel Markets, the Foreign Exchange Auction, and Exchange Rate Unification in Zambia

Janine Aron and Ibrahim A. Elbadawi
(May 1992)

Zambia's failure with macroeconomic reform — including exchange-rate reform — is the result of macroeconomic (especially fiscal) laxity. And the exchange-rate premium is likely to rise as terms of trade worsen, foreign aid declines, and expectations of devaluations rise.

Since Zambia's independence in 1964, a large, thriving parallel market for foreign exchange has coexisted with a rich menu of official exchange rate policies aimed at achieving a more flexible exchange rate and price system as well as financial and trade liberalization. Despite aggressive policies in these areas, particularly for the exchange rate, the black market premium (defined as the ratio of the black market rate to the official rate) remains high — averaging 100 percent for 1970-88 and more than 400 percent in recent years.

Aron and Elbadawi examine the origins of the parallel market, the statistical properties of the parallel premium, and the shocks and macroeconomic policy changes that influence its evolution. Using annual data, they specify and estimate an eclectic error-correction model for the premium.

They find that the large parallel market might have caused problems in macroeconomic management and economic reform. A large exchange rate premium as an indication of foreign exchange shortages will have direct deleterious impact on copper production and export. It can also indirectly hurt copper exports through its negative effect on domestic incentives for the officially sanctioned copper economy. A high premium was also found to encourage overimporting (and probably overinvoicing) of officially traded imports.

Aron and Elbadawi find that foreign inflation and depreciation of the black market rate (in a cost-push manner) directly increase domestic inflation. Depreciation of the black market rate also sig-

nals indirectly that economic reform lacks credibility and that macroeconomic policy is unsustainable. Short-term changes in the premium reflect expected changes in policy and politics.

The major factor behind the failure of unification and economic reform is the fundamental endogeniety of the parallel premium in macroeconomic and trade policy — as well as in exogenous terms-of-trade and foreign aid shocks. Improving the terms of trade or increasing foreign aid leads to a decline in the premium. This effect dominates the indirect effects of real wealth and real appreciation, which work to increase the premium. Expansive fiscal and monetary policy cause the premium to rise.

Of all the factors that influence the premium and have caused exchange rate unification to fail, terms-of-trade shocks dominate. But the driving force behind persistence of the premium was outright laxity in fiscal and monetary policy — especially in 1985 and the following two years of the exchange rate auctions, and during the collapse of economic reform in 1987.

Aron and Elbadawi conclude that exchange rate reform without fiscal reform may be futile. Fiscal retrenchment for the first two years of the crawling peg was influenced by political considerations. Zambia is one of the most urbanized countries in Africa: about half the people live in urban areas, and the urban middle class wields considerable influence. This explains the pervasive ensemble of price control and subsidy schemes that have survived reform attempts. But the ratio of government revenue to GDP has never been below 20 percent (one of the highest rates in Africa) despite sharp declines in terms of trade. More emphasis should be given to the political economy and distributional consequences (especially the rural-urban nexus) in the early stages of economic reform.

Zambia's economy, heavily dependent on copper exports, is particularly susceptible to external shocks. It is important to liberalize major trade and financial markets in such a way as to compress the parallel market and prevent the premium from serving as a major signal to the economy.

Increased foreign aid could help mitigate the destabilizing effects of terms-of-trade shocks. This is likely to be most helpful in the early stages of reform, when it can foster credibility and stabilize the free rate — before the foreign sector can begin to respond to real depreciation. Then there will be less need for aid flows to continue at their initial levels.

This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in the department to study the macroeconomic implications of multiple exchange markets in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-042, extension 39074 (115 pages).

910. Policy Issues in Financial Regulation

Dimitri Vittas
(May 1992)

The 1980s were a decade of extensive regulatory reform. Macroeconomic and allocative controls that inhibit competition, innovation, and efficiency were "out." Prudential and other controls that promote stability and fairness were "in." The relative costs and benefits of universal banks and financial groups remain a subject of controversy.

Dimitri Vittas summarizes the findings of a forthcoming book on financial regulation that examines the policy issues of financial regulation and reviews the experiences of both developed and developing countries. He stresses the following ten points:

- The 1980s were not a decade of deregulation, but a period of extensive regulatory reform. There was decreased reliance on economic regulations that inhibit competition, innovation, and efficiency — but increased emphasis on prudential and other regulations that promote stability and fairness.
- There is now widespread consensus on the need for market mechanisms for monetary and credit control and for allocating scarce financial resources.
- What the best speed and sequence of financial reform are remains an open question. The contrasting experiences of Japan and Chile support a cautious, gradual approach; Indonesia's experience suggests that several paths of reform may work.
- There is strong consensus on the importance of prudential, organizational, and protective controls, and especially on the need for capital adequacy and for strong banking supervision.
- There is ample recognition of the importance of speedy and decisive intervention to prevent insolvent institutions from magnifying losses and infecting the rest of the financial system.
- The role of deposit insurance is still unclear. It is instrumental in protecting small savers, but otherwise its role in preventing bank runs, promoting competition, or stimulating better regulatory mechanisms is open to serious objections.
- The regulatory issues of nonbank financial intermediaries are similar to those of banks. For life insurance companies, price and product controls — which inhibit competition — are being replaced by solvency controls. In addition, the use of insurance (and pension) funds for financing large public sector debts at below-market yields is being replaced by investment rules that emphasize safety and profitability.
- The most controversial type of control is still structural controls that impose geographic or functional limits on the activities of financial institutions. There is a worldwide trend in favor of universal banking and even in favor of close links between banks and insurance, but less support for close links between banks and industrial companies.
- Universal institutions pose a serious challenge to regulators and supervisors. Countries with weak supervisory agencies would be well advised to promote simpler and more transparent structures.
- There is considerable controversy about the desirability and benefits of universal banking. Many analysts emphasize the difficulties of regulation by function and of relying on rules of conduct for overcoming excessive risk taking, conflicts of interest, and the abuse of privileged information. These analysts favor structural controls that limit the scope for fraud and mismanagement. But other analysts argue that the threat of regulation, considerations of reputation, and provisions for legal redress against offending institutions would be effective in policing universal institutions.

Vittas concludes by noting that most Anglo-American and Scandinavian countries currently suffer from the consequences of excessive and uncritical expansion of credit as well as from widespread mismanagement and a significant amount of fraud. He argues that if financial prob-

lems were to persist, the case for imposing portfolio and growth limits for prudential purposes might merit detailed consideration.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is the introductory chapter of a forthcoming Economic Development Institute book on financial regulation. It reviews and summarizes several papers that have already been issued as World Bank Policy Research Working Papers. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (38 pages).

911. Does Exchange Rate Volatility Hinder Export Growth? Additional Evidence

Ying Qian and Panos Varangis
(May 1992)

Inconsistency in the relationship between exchange rate volatility and export growth reflects differences among countries in the currency in which trade is invoiced. Also, exchange rate volatility may affect the allocation of trade more than its level.

Qian and Varangis examine the impact of exchange rate volatility on trade, using an ARCH-in-mean model. The advantages of this statistical approach over earlier approaches are that it provides more efficient coefficient estimates and it prevents the problem of spurious regressions. They applied the model to six countries, estimating both bilateral and aggregate exports.

They found exchange rate volatility to have a negative, statistically significant impact in two cases: Canadian and Japanese exports to the United States. In terms of aggregate exports, the relationship was negative but statistically insignificant for Japan and Australia; positive and statistically significant for Sweden and, to some extent, the United Kingdom; but statistically insignificant for the Netherlands. The magnitude of the impact of exchange rate volatility varied greatly — from a reduction in exports of 7.4 percent (Canada) to an increase of 5 percent (Sweden), following a 10 percent increase in volatility.

These results led to the hypothesis that the impact of exchange rate volatility may be influenced by the invoicing of exports. Exports from Canada and Japan to the United States are invoiced primarily in U.S. dollars. The same can be said of Japan's and Australia's total exports. The exports of the other countries are priced mostly in their own currency. If exports are invoiced in the exporters' currency, as is common in industrial countries, exchange rate volatility does not matter. Exporters pass price changes due to exchange rate fluctuations on to importers, who in turn pass them on to consumers. There are several reasons why consumers may be indifferent to the exchange rate risk, especially for manufactured products.

But if exports are priced in the importers' currency or a third currency, volatility matters — because both the exporter and the importer must take into account how their profits vary when considering the currency risk they face. For the exporter, the covariance between costs and revenues is likely to be smaller than for the importer. That means that while the importer or final consumer has a "natural" hedge available, the exporter does not.

Finally, one can argue that the effect of exchange rate volatility on trade is overstated, for the following reasons. Exchange rate volatility does not measure the added riskiness of a firm's portfolio. Exchange rates can provide a natural hedge in a firm's portfolio. Exchange rates may be negatively correlated with each other or with the firm's other assets. And finally, the use of forward markets can provide a useful short-term hedge.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of the exchange rate on trade. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (42 pages).

912. Understanding the Investment Cycle in Adjustment Programs: Evidence from Reforming Economies

Andrés Solimano
(May 1992)

Private investment often goes through three phases under adjustment programs: initial contraction (a period of one to two years), a long pause (for three to five years), and sustained recovery. The length of the investment pause is longer for low-income countries, and the cycle of public investment is of greater amplitude than the cycle of private investment. The paper discusses the roles of macroeconomic restraint, coordination failures, value of waiting, and lack of supportive infrastructure in generating these cycles of investment.

Solimano reviews recent literature on capital formation and economic reform and looks at the cycle of private investment that occurs during adjustment. He identifies three phases in the response of private investment to adjustment programs: initial contraction, a long pause, and sustained recovery.

The empirical evidence for Chile, Mexico, and Thailand shows that the initial contraction lasts from one to two years and the pause for three to five years. Moreover, the length of the investment pause is longer for low-income countries such as Bolivia and Ghana. And the cycle of public investment is of greater amplitude than the cycle of private investment.

In characterizing the cycles of investment, Solimano assesses the role of such factors as demand restraint, currency depreciation, the value of waiting, credibility failures, and the lack of supportive infrastructure.

This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in the department to study the role of capital formation in the transition from adjustment to growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (43 pages).

913. The Women's Development Program in Rajasthan: A Case Study in Group Formation for Women's Development

Maitreyi Das
(May 1992)

Through awareness-building and group formation, rural women in several districts in India have realized that deprivation is not unchangeable, that alternatives exist, that they are competent enough to choose

between alternatives, and that they are not alone.

Das presents the Women's Development Program (WDP) — launched in six districts in Rajasthan, India in 1984, and now extending to nine — as a case study in awareness-building and group formation among rural women.

A departure from the traditional pattern of viewing women as the objects of welfare, WDP has been a distinct success. Rural women have realized that their deprivation is not unchangeable, that alternatives exist, that they are competent enough to choose between alternatives, and that they are not alone.

One important feature of the project document was that it was provisional and tentative, essentially a guide to structure and financial patterns. Other programs focus on strengthening delivery systems; WDP's sole aim was to form groups that would consolidate themselves for their own development — these groups, once formed, would initiate any action they needed and decided upon.

The second important element of the project document was the degree of freedom visualized for women's groups and nongovernment organizations. WDP stressed the need to build awareness and confidence among women as essential to integrating them into the development process.

The institutional perspective of a *place* or center where women can be offered continuing education and training gave way to the concept of an *informal network* of women's groups. Education was defined as the acquisition of knowledge, which may not necessarily mean literacy. It could even mean the acquisition of skills for generating or controlling resources.

WDP has demonstrated that illiterate women can be effective group organizers. The question this project opens up is this: organize women for what? Too much focus on training in communication and group interaction could become an end in itself. Mahila Samakhya, a program to organize women for education, used the process of WDP but changed its aims and emphasis.

What emerges from the WDP experience is the *process* it unleashed: the organization, interaction, and participation of women.

This paper — a product of the Women in Development Division, Population and Human Resources Department — was prepared as a background paper for the report on Gender and Poverty in India. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Stella David, room S2-264, extension 33752 (94 pages).

914. Health Personnel Development in Sub-Saharan Africa

J. Patrick Vaughan
(May 1992)

Sub-Saharan Africa needs regional training facilities in public health and management, in-depth studies on the cost implications of different training and staffing options, guidelines for spending on health personnel, and new methods for monitoring and projecting personnel needs.

Despite a significant growth in the total number of trained health workers, the Africa region is still poorly staffed. It was the only World Health Organization region that showed a decline in the doctor-to-population ratio from 1980 to 1986.

Emigration of trained health workers—particularly physicians—exacerbates the problem. Basic training for health workers is reasonably well established, but advanced and in-service training have been widely neglected. There remains a serious shortage of senior staff with training in public health and management.

Sub-Saharan Africa has not a single school of public health, and it also lacks adequate regional training centers in public health and management. Planning for health workers has been based largely on simple projections of the number of workers required — without much regard for the economic costs or the availability of financial resources.

Most countries in Sub-Saharan Africa have undertaken structural adjustment programs that, together with world economic conditions, have led to declining financial allocations to ministries of health. As spending cuts have been made for such items as drugs, maintenance, and transport, the proportion spent on health personnel has risen. There are now strong pressures on ministries to reduce the number of health workers they employ and to encourage more private health services. Vaughan concludes that:

- Health personnel policies must become truly national, taking into account all personnel in the country, not just those employed by the ministry of health.
- Some countries need support to develop policies that will help them make the best use of regional training facilities (in public health and management) in nearby countries. More support should be given to regional centers that offer management training for health workers and to initiatives for improving in-service and on-the-job training in management skills.
- Guidelines are urgently needed on how to rationalize spending on health personnel.
- There is an urgent need to update methods for monitoring health workers and for providing the basic numerical projections needed for planning.
- In-depth studies are needed on the cost implications of training and employing various types and numbers of health workers, to give more insight into the options in national health personnel policies.

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — is part of a larger study of African health policy by the Sector Operations and Policy Vice Presidency. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (19 pages).

915. Trade Policy and Exchange Rate Issues in the Former Soviet Union

W. Max Corden
(May 1992)

One approach to trade policy among the former Soviet republics is to have no trade policy—to have completely free trade with convertibility for current account transactions. Trade policy should be transparent. Any tariff and export tax structures should be simple. Quantitative controls should be avoided. And no barriers to existing trade between the republics should be introduced.

Taking the long view (assuming prices have been liberalized), Corden reviews possible trade and exchange rate policies of the republics of the former Soviet Union.

He considers alternative exchange-rate regimes, including a monetary union. For

Russia, a fixed but adjustable regime is most realistic. Frequent adjustment may be desirable, to prevent the use of trade restrictions to achieve balance of payments objectives.

Trade intervention policies, if needed, should not weaken the fiscal situation. There may be a case for export taxes or for a uniform revenue tariff, for example, but subsidies and quantitative restrictions should be avoided. If some domestic price controls remain, export taxes are needed.

Corden examines the need for transitional tariffs, including the argument for a temporary uniform tariff that is higher than the long-run revenue tariff. The temporary uniform tariff would be designed to prevent temporary overshooting of the exchange rate — but the argument is subject to important qualifications. If there is any protection of infant industries, there must be a "hard tariff" path — the gradual decline of the tariff rate should be firmly provided for in advance.

The case for a free trade area is strong because the republics of the former Soviet Union are so highly specialized, but there will be problems if price controls remain and differ among the republics. There could be a free trade area even if there is no monetary union. A customs union, involving a common external tariff, would prevent border controls and trade deflection but would make a common tariff policy (and hence a joint tariff commission) necessary.

One approach to trade policy, Corden concludes, is in effect to have no trade policy — to have completely free trade with convertibility for current account transactions. Some tariffs and export taxes may be justified, at least as second-best policies. If so, however, Corden stresses that four principles be observed:

- Barriers to existing trade between the republics should not be set up.
- All quantitative control measures should be avoided.
- Tariff and export tax structures should be very simple.
- Trade policy should be transparent.

This paper — a product of the Trade Policy Division, Country Economics Department — was prepared under the auspices of the UNDP/World Bank Trade Expansion Program. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact PRDTP, room N10-023, extension 38004 (53 pages).

916. Measuring the Risk of Default in Six Highly Indebted Countries

Marc Chesney and Jacques Morisset
(June 1992)

The risk that the debtor country will default on its external debt may be significantly decreased by a debt-reduction operation, by a reduction in international interest rates, and by changes in the country's willingness to pay.

The price of debt on the secondary market reflects the risk that the debtor country might default on its external debt.

Using the option-pricing theory, Chesney and Morisset identify the factors that influenced the risk of default in six highly indebted countries from 1986 to 1990.

In particular, they provide a measure of the debtor countries' willingness to pay. They identify the parameters of the stochastic process followed by this variable, so this approach can be used to predict the future price of debt.

Their model also emphasizes that a debt-reduction operation may lead to a significant increase in the price of debt on the secondary market. This effect appears to be linked to the initial stock of external debt, as suggested by the "debt overhang" hypothesis.

Finally, Chesney and Morisset show empirically that a country's *willingness* to pay is significantly influenced by changes in indicators of the country's *ability* to pay (for example, by an increase in reserves or in GDP growth), and by exogenous events such as the increase in commercial banks' loan reserves in mid-1987 or the Brady Plan announcement in 1989.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to investigate the benefits and costs to debtor countries and creditors of voluntary, market-based debt and debt service reduction arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (21 pages).

917. Creditor Country Regulations and Commercial Bank Lending to Developing Countries

Asli Demirgüç-Kunt
(June 1992)

The Bank for International Settlement's capital adequacy regulations may be somewhat less effective than they appear in accomplishing their main goal of controlling the overall riskiness of the international banking system. But they may be quite effective (probably unintentionally) in decreasing commercial bank lending to developing countries.

Demirgüç-Kunt discusses the possible impact of creditor country regulatory developments on the asset choice and portfolio riskiness of commercial banks. She focuses particularly on the effect of the Bank for International Settlement's (BIS's) risk-related capital adequacy regulations and country risk provisioning practices.

She concludes that BIS regulations may be less effective than they appear on the surface in accomplishing their main goal — controlling overall riskiness of the international banking system — but quite effective (probably unintentionally) in decreasing commercial bank lending to developing countries.

She adds that mandated provisioning rules also deter increased bank lending to developing countries.

Risk-related capital adequacy requirements pose two main problems for developing country lending. First, by focusing on individual asset risk and assigning a high risk weight to assets with high return variance, the regulation skews banks' asset choices away from assets with high risk weights. To decrease the insolvency risk of banks, what should be controlled is the portfolio risk, not the choice of individual assets. Taking into account asset-return correlations, it is possible to construct low-risk portfolios that include loans to developing countries due to diversification benefits.

Second, the assigned risk weights do not measure asset risk properly. By assigning very broad risk weights, the regulation lumps together assets with very different risks. It is important to realize that developing countries are not a homogeneous group. Not distinguishing countries in assigning risk weights unjustly punishes low-risk countries, possibly retarding

improved access to financial markets. Also, by assigning a lower risk weight to developing country bank loans of short maturity, the regulation encourages creditor banks to lend short term. This may increase risks, especially if countries fund long-term projects by rolling over short-term loans.

One stated objective of BIS guidelines is to harmonize bank regulations across countries. This is largely true of capital and capital adequacy definitions. But for developing countries, loan loss reserves — especially mandated provisions — are also important, as they discourage lending. These provisioning practices still vary widely across countries and are slow to adjust to improvements in developing country performance.

At a time when commercial banks remain reluctant to lend to developing countries, BIS capital adequacy regulations, coupled with country risk provisioning practices, appear to reinforce this tendency.

An international risk rating committee could correct the biases against lending to developing countries by determining sufficiently detailed country risk weights, as well as a unified guideline for country provisions. This committee could also reflect improvements in country creditworthiness in their risk weights and could suggest provisioning levels in a timely manner so developing countries do not suffer unnecessarily.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to analyze commercial bank lending to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (37 pages).

918. Tax Evasion and Tax Reform in a Low-Income Economy: General Equilibrium Estimates for Madagascar

Jaime de Melo, David Roland-Holst, and Mona Haddad
(June 1992)

If Madagascar moved toward a simpler, uniform tax structure, it could raise the same revenues it now raises — with less incentive for the tax evasion and smuggling now prevalent.

Madagascar's weak administrative system and complex tax structure (with many exemptions) have led to tax evasion and smuggling. De Melo, Roland-Holst, and Haddad compare Madagascar's fiscal system with that of other low-income countries, noting its greater reliance on distortionary taxes.

Using a 10-sector model and general-equilibrium calculations, they estimate revenue losses from exemptions, tax evasion, and smuggling for three important tax instruments: import duties, value-added taxes, and excise taxes. Allowing for the agricultural and informal sectors to remain exempt from taxation, they estimate that applying published tax rates to the nonexempt sectors would raise tax revenue (from these three instruments alone) from 6.4 percent to 15.1 percent of GDP at a relatively low welfare cost (0.4 percent of GDP), because such a move would reduce dispersion across instruments and within the import tariff structure.

Next they calculate the welfare gain that would result from less distortionary tax structures. Simulation results suggest that the excess burden of taxes would be greatly reduced if Madagascar moved closer to a tax system with uniform rates across sectors and instruments. Relatively low uniform taxes would raise the same revenue as the structure prevailing in 1988, and would reduce incentives for tax evasion and smuggling.

Assuming that the uniform tax (for import and export duties, VAT, and excise taxes) would be imposed only in sectors in which tax collection is now positive, simulations suggest that a uniform tax rate of 6 percent across instruments would be enough to raise the same revenues collected under the current structure. Moreover, lower bound estimates indicate that the excess burden of taxation would be reduced by moving toward uniformity of about 5 percent of the tax base.

This paper — a product of the Trade Policy Division, Country Economics Department — is the product of a follow-up activity from a technical assistance mission to Madagascar in February 1989, carried out under the auspices of the joint UNDP/World Bank Trade Expansion Program. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 38004 (34 pages).

919. Fiscal and Quasi-Fiscal Deficits, Nominal and Real: Measurement and Policy Issues

Roberto de Rezende Rocha and Fernando Saldanha
(June 1992)

When foreign exchange losses systematically accumulate, the interest rates on domestic credits should be adjusted and the central bank's cash profits should stop being transferred to the government. These losses may reflect the central bank's implicit financing of imbalances in other areas of the economy. Eliminating losses at their source often requires a fiscal adjustment, the need for which may not be apparent.

In many developing countries, the central bank assumes an active role in mobilizing domestic and foreign exchange and allocating it to the public and private sectors. In these countries, central bank operations may create imbalances between costs and revenues, usually called quasi-fiscal deficits. Sometimes these can be as large as, or larger than, deficits of the nonfinancial public sector. Failure to consider these operations may give rise to the puzzling simultaneous occurrence of low fiscal deficits and high inflation.

There have been few attempts to formally integrate the accounts of the central bank and the nonfinancial public sector. Rocha and Saldanha examine the interactions between (nominal and real) government and central bank accounts, analyze the problem of systematic foreign exchange losses in the central bank, and identify policy issues associated with quasi-fiscal deficits.

Despite their limits, real measures of the deficit are less distorted than nominal measures, especially for the central bank's quasi-fiscal deficit. Central banks rarely spell out losses in their income statements, which often show sizable nominal surpluses — even where there is a real deficit in operations of the private domestic and foreign sectors.

The accumulation of foreign exchange losses imposes a burden on the consolidated public sector's finances. This burden — especially the central bank's foreign exchange losses — is transferred in part to future periods, so policymakers often overlook its consequences. It is not uncommon for these losses to be allowed to accumulate in large amounts, while domestic

interest rates are kept low and the central bank keeps transferring its declining cash profits to the nonfinancial public sector. The mounting burden of net interest expenditures may then contribute significantly to monetary expansion — a situation that worsens when the central bank must repay its net foreign liabilities.

Rocha and Saldanha argue that foreign exchange losses must be considered in evaluating fiscal policy, even where losses seem to be largely unrealized — as over time all losses are "realized" through interest flows. When foreign exchange losses systematically accumulate, the interest rates on domestic credits need to be adjusted and the central bank's cash profits should stop being transferred to the government. Otherwise, a large quasi-fiscal deficit can lead to monetary expansion and spiraling inflation, as happened in Yugoslavia in the 1980s. In certain circumstances, subsidies implicit in public sector credits should also be part of deficit calculations.

Real quasi-fiscal deficits usually reflect losses in other sectors of the economy and the need for a resource transfer. So correcting these deficits may require more than simply eliminating credit subsidies by increasing real interest rates to positive levels. Eliminating losses at their source often requires a fiscal adjustment, the need for which may not be apparent.

This paper — a product of the Trade and Finance Division, Europe, Middle East, and North Africa Technical Department — is part of a larger effort in the Bank to investigate the issues of inflation and stabilization in EMENA countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Luz Hovsepian, room H9-065, extension 37297 (59 pages).

920. Economic Incentives and Point Source Emissions: Choice of Modeling Platform

Raymond J. Kopp
(June 1992)

A modeling platform for quantifying information about alternative regulations for controlling point source emission — that is, for choosing among incentive-based, market-oriented, and command-and-control regulatory policies that might adopt rapidly developing and transitional economies.

Among economists, it is generally taken as given that environmental regulation based on the use of economic incentives and the competitive market will be more efficient (attain the same environmental goal at lower social cost) than traditional command-and-control approaches represented by environmental regulations in the United States and to a lesser extent the European Community. The sulfur trading provision of the recent amendments to the U.S. Clean Air Act suggests that some attention is being paid to economists' claims, but it would be unrealistic to assume that the command-and-control structure of U.S. environmental policy will be displaced by economic incentives any time soon.

While incentive- and market-based regulation may have penetrated very little in the United States, their potential use for environmental improvement in the rapidly developing countries of the Pacific Rim and the transitional economies of Eastern Europe and the Commonwealth may be great. These countries have no history of command-and-control regulation of the environment and the relative efficiency of regulation may be important to their capital-constrained economies.

The relative efficiency of incentive- and market-based regulation depends on the specific nature of the activity to be regulated. In some cases it may be greatly superior to command-and-control regulation; in others, only marginally so. Moreover, to be effective, incentive-based regulation may require greater effort for monitoring and enforcement — effort that offsets gains in efficiency. So the choice of regulatory approach is not always clear cut, and some analytical means of distinguishing between options is required.

Kopp reviews and recommends a modeling platform for analyzing regulations designed to control point source emissions. The platform is intended to provide quantitative information on the efficiency of several alternative incentive-based, market-oriented, and command-and-control regulatory policies might adopt rapidly developing and transitional economies. In addition to discussing the model, Kopp pays considerable attention to such a model's informational requirements and to techniques for dealing with inadequate data.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to assess alternative instruments for controlling pollution in developing countries. This research was funded by the World Bank's Research Support Budget under research project "Pollution and the Choice of Policy Instruments (RPO 678-48)." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37754 (46 pages).

921. Road Infrastructure and Economic Development: Some Diagnostic Indicators

Cesar Queiroz and Surhid Gautam
(June 1992)

The average stock of paved roads per million inhabitants in high-income economies is 59 times that in low-income economies. And those roads are in better condition than the ones in low-income economies.

Queiroz and Gautam investigate the association between per capita income and the magnitude and quality of road infrastructure. They adopt an empirical approach, directly comparing or correlating a country's income with selected variables associated with existing road networks.

Cross-section analysis of data from 98 countries, and time-series analysis of U.S. data since 1950, show consistent and significant associations between economic development (per capita GNP) and road infrastructure (per capita length of paved road network).

The data show that the per capita stock of road infrastructure in high-income economies is dramatically greater than in middle- and low-income economies. For instance, the average density of paved roads (km/million inhabitants) varies from 170 in low-income economies to 1,660 in middle-income and 10,110 in high-income economies. That is, the average density of paved roads in high-income economies is 59 times that in the low-income group.

Road conditions also seem to be associated with economic development: The average density of paved roads in good condition varies from 40 km/million inhabitants in low-income economies to 470 in middle-income and 8,550 in high-income economies.

The empirical information presented can be used as indicators of areas of weakness or strength in a country's stock of road infrastructure.

This paper — a joint product of the Infrastructure Operations Division, Western Africa Department, and the Transport Division, Infrastructure and Urban Development Department — is part of a larger effort to define the macroeconomic linkages and impact of infrastructure. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact TWUTD, room S10-027, extension 31005 (35 pages).

922. Central America at a Crossroads

Sylvia Saborio and Constantine Michalopoulos
(June 1992)

Steps the Central American governments must take for fuller integration into the international economy.

In the last few years, the countries of Central America have taken steps to stabilize their economies and to introduce domestic and trade reform aimed at improving resource allocation and making domestic markets more competitive. As the Central American governments move toward integrating their economies into the world market, Saborio and Michalopoulos suggest that they:

- Continue to participate fully in the multilateral round of trade negotiations, because as small, open economies they have a great stake in the health of the international trading system.
- Revitalize the Central American Common Market, not as a sheltered regional market for inefficient domestic firms but as an expanded base for regional competitiveness and for coordinating policy with the rest of the world.
- Seek preferential trade arrangements with the United States and possibly other countries in the context of the Enterprise for the Americas Initiative (EAI), if it serves the larger purpose of liberalizing trade — but be leery of partial, isolated agreements that may divert more trade than they create.

Mexico's entry into the North American Free Trade Area (NAFTA) could seriously harm Central American interests by diverting trade and investment from the region. To temporarily protect the Central American countries from the unintended fallout of Mexico's entry into NAFTA, Saborio and Michalopoulos recommend the adoption of an interim provision that would extend to Central America any preferences the U.S. grants to others (beyond those already provided by the Caribbean Basin Initiative). Such a provision, effective between now and, say, 1995, would provide a mechanism for the transition from unilateralism to some type of reciprocity in U.S. commercial relations with these countries. During this period, the countries of Central America would continue to undertake the necessary economic and institutional reforms to enable them to meet international competition more effectively.

While Central America should do all it can to get greater, preferential, and more secure access for its products — particularly in the main, most dynamic market for its nontraditional exports — it must recognize that current obstacles to export growth are related not only to external market opportunities, but also to internal problems that inhibit export supply.

This paper was prepared for the Meeting of the Inter-American Dialogue's Project on Latin America's Integration into the World Economy, held in Washington, DC on December 18-20, 1991. It is to be formally published by the Inter-American Dialogue in a volume edited by Winston Fritsch, later in 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maureen Colinet, room H3-063, extension 37044 (31 pages).

923. Listening to Firms: How to Use Firm-Level Surveys to Assess Constraints on Private Sector Development

Andrew H. W. Stone
(June 1992)

Firm-level surveys reveal information central to formulating policy advice and projects to promote private sector development, often challenging conventional wisdom. This common sense guide suggests how to do surveys well.

Firm-level surveys elicit information important to formulating sound policy advice and designing projects to promote private sector development. Drawing on recent World Bank experience in eight countries, Stone advises why and how to implement targeted field surveys. He answers six questions:

- Why use targeted field surveys?
- How should surveys be focused and designed?
- What types of questions work best in surveys?
- How can surveys be oriented toward their target population?
- How should surveys be implemented?
- How should responses be analyzed and used?

In this common sense guide, Stone emphasizes how a carefully designed and implemented survey helps you get the most from a brief session with an entrepreneur or senior manager. Stone gives examples of questions that have been useful in eliciting analytically tractable responses relevant for policy formulation. He gives special emphasis to ranked questions, which have proven valuable in focusing attention on the constraints on operations and growth that firms find most binding.

He also identifies pitfalls that diminish the value of surveys and bias their results. And he discusses such practical necessities as training and supervising local surveyors, identifying firms, and entering data into an appropriate software package.

Finally, Stone cautions against two extremes: omitting assessments of the private sector (thus ignoring the views and experiences of firms) or using survey results out of context, and failing to weigh them against other sources of information. Omission is the more serious of the two problems.

The firm-level survey is based on the premise that firms have unique insights into the problems of private enterprise because of their daily encounters with their country's policies and institutional environment. Surprises found in recent work suggest the importance of these surveys in focusing a strategy for private sector development on the most constraining features of that environment.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — was prepared for the Department's training seminar on Tools for Private Sector Assessment. Portions of the paper have appeared in other CECPS work. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (19 pages plus 9 pages of an annex).

924. How Reduced Demand for Children and Access to Family Planning Accelerated the Fertility Decline in Colombia

Rafael Rofman
(June 1992)

What happened in Colombia shows how a well-managed family planning program is more likely to succeed when the women in a country already want fewer children — so that women are motivated to control fertility. In such a country, introducing family planning services simply facilitates and speeds up a fertility decline that would tend to occur anyway, albeit more slowly.

By the early 1960s, Colombia was one of the fastest growing countries in the world. With a total fertility rate of seven children per woman and rapidly declining mortality, its population was growing 3.2 percent a year, a rate that would double the population every 22 years.

But that population growth rate slowed down dramatically in the years 1973-85: to 1.7 percent, or a doubling time of 41 years. This slowdown, caused by a dramatic decline in fertility, was one of the most rapid fertility transitions in the world. The causes and mechanisms for this phenomenon deserve to be carefully studied if the experience is to be replicated in other countries.

To analyze the fertility change in Colombia, Rofman uses a framework developed by Richard Easterlin — which considers how socioeconomic changes affect the supply of and demand for children and the costs of regulation.

Rofman concludes that family planning succeeded in Colombia chiefly because there was already relatively low demand for children when family planning was introduced — the average desired family size was already 11 percent below the fertility rate in the early 1970s. Surveys showed that urban women wanted fewer children than rural women, and more educated women wanted fewer children than less educated women.

So the psychic costs of fertility decline were already low — perhaps because the Catholic church did not have as much influence on personal behavior as expected. And cultural patterns did not oppose changing and modernizing behavior, but actually encouraged them. Whether or not the media promoted changes in social attitudes — Merrick proposes that soap operas promoted small families and women with fewer children — Colombian women's ideal number of children decreased rapidly.

Market costs, which were high in the early 1960s, decreased rapidly when Profamilia was created. Colombian women already wanted to limit the number of children they had, so psychic costs for family planning were low. The only thing needed to produce a rapid decline in fertility was inexpensive, easily available contraceptive devices. Profamilia and the government took responsibility for supplying the family planning services and did it efficiently.

Social processes are rarely created by policy, Rofman concludes. Profamilia's activities facilitated Colombia's fertility transition, but did not create the social, economic, and cultural forces behind the fertility decline. Governments or nongovernment organizations can encourage or slow down social processes, but if the social climate is unsupportive, individual behavior will not change.

The rates of urbanization and educational improvement have been similar in most other Latin American countries so Rofman concludes that there is no reason to expect other Latin American countries to resist family planning more than Colombia. Indeed, the Catholic church, a bastion of resistance to family planning, is generally stronger in Colombia than elsewhere. What places Colombia apart from the other Latin American countries is Profamilia and the attitude of the Colombian government, which — while not encouraging the use of contraceptives — did not obstruct the efforts of private organizations to do so.

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — was research funded by the World Bank's Research Support Budget under research project "Impediments to Contraceptive Use in Different Environments" (RPO 675-72). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (69 pages).

925. A General-Equilibrium-Based Social Policy Model for Côte d'Ivoire

Ngee-Choon Chia, Sadek Wahba, and John Whalley
(June 1992)

A useful social policy framework that can generate rich inputs to the Ivorian policy process.

This paper reports on a general-equilibrium-based social policy model for Côte d'Ivoire — its structure, the data used in its implementation, and its application to the analysis of tax incidence and antipoverty programs.

The authors emphasize that special features of the Ivorian economy and tax system are central to any assessment of the distribution consequences of tax policies and other social policies in Côte d'Ivoire. Because the bases of individual taxes tend to be narrow — the incidence effects by socioeconomic group are pronounced, while those by income range are milder. Urban employees are largely affected by income taxes (through withholding). Export food croppers are affected by the stabilization fund and export taxes. In addition, large interhousehold transfers in Côte d'Ivoire give incidence profiles that differ from conventional analysis. The reason: the taxes seemingly borne by one household group have second-round effects on other household groups through changed interhousehold transfers.

For the targeted antipoverty programs, the authors show that when general equilibrium effects are taken into account, it is impossible under a budget-neutral targeting program to completely eliminate poverty (as traditional analysis would suggest). At the same time, small transfers generally have a greater relative effect than larger targeting programs. This has several policy implications for the cost of the programs and the choice of groups that should benefit. As in the tax incidence analysis, the authors show that such domestic features as interhousehold transfers play an important role in determining the final outcome of the targeting program.

The model should be seen as an instrument that helps in developing capacities for macroanalysis and in generally enhancing the economic debate. It should be transparent enough to enable policymakers to use it efficiently — and at the

same time answer some key questions of relevance to the Ivorian economy.

This paper — a product of the Poverty and Social Policy Division — Africa Technical Department — is part of a larger effort in the region to develop poverty-conscious macroeconomic frameworks in Sub-Saharan Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Karol Brown, room J4-285, extension 35073 (88 pages).

926. Options for Reshaping the Railway

Neil E. Moyer and Louis S. Thompson
(June 1992)

Changing transport demands and growing competition from trucks, autos, and air transport are forcing the monolithic railway to change. Options for change must be adapted to different national and other circumstances, with a suitable tradeoff between efficiency of production and effectiveness in meeting market needs.

In many countries, the mismatch between what the railways offer and what customers want has caused significant economic inefficiency and severe financial strains for the railways and their government owners. The concept of the railway as a monolithic entity is so strong in many countries as to be a roadblock against reshaping the railway. Yet such reshaping *has already taken place* successfully in such countries as Canada, Japan, New Zealand, Spain, Sweden, the United Kingdom, and the United States — and shows promise elsewhere.

Where incremental approaches are feasible, a useful first step in bringing the market to the railway is a transition to some form of *lines-of-business* strategy, which, like British Rail, could be intensified in stages. Where incremental approaches have not worked, cannot work, or have reached the limits of their effectiveness, a country should consider the full range of options Moyer and Thompson explore in this paper.

The *monolithic railway* rates high on apparent technical efficiency (conflicts are decided by executive fiat and transaction costs are minimized) but low on marketing effectiveness. A monolithic railway might be an appropriate choice for a fully planned, command economy (or for a true single-purpose operator such as a mining evacuation railway) — although a desire for better measurement of performance might still lead to a line-of-business organization.

The *lines-of-business* option improves accountability and responsiveness to markets but operating conflicts and transaction costs increase as the monolith becomes divided. Economies in transition, small railways with a restricted number of customers, or larger railways seeking to depart incrementally from a monolithic framework will probably find the line-of-business approach the best first step.

The *competitive access* option introduces intramodal competition in selected markets, while maintaining unitary control over most railway operations. Unless the distribution of "franchises" is self-balancing — providing clear benefits to all participants — the owning railways are unlikely to permit a serious level of competition in markets they have traditionally controlled. A need for *intramodal* rail competition — either in large countries with well-developed rail systems or in adjacent countries with integrated economies, as in the European Community — could promote greater use of competitive access solutions.

The "wholesaler" option should accomplish an excellent marketing job, but the actual operation would remain in monolithic hands. When the quality of customer service is paramount (as in container landbridge services or in certain unit train applications) or when the rail service is driven by external requirements (as in container dry ports), it may be best if the railway is a "wholesaler" selling to a "retailer" who relates directly (and more effectively) with the customer.

The "toll rail enterprise" might come closest to reflecting a theoretical model of marketing effectiveness, yet it would generate potential operating conflicts and higher transaction costs — and would also call for the greatest administrative capability in the owning government. Where a rail service is easily separable from other services, or where the service does not conflict heavily with other services, a "toll rail enterprise" solution may be desirable — as with Amtrak, VIA (the Canadian Amtrak), and the Japanese Rail Freight Corporation. Situations in which this approach might work best: granting trackage rights to Zimbabwe to serve the port of Beira in Mozambique and to Russian Railways to serve the port of Tallinn in Estonia.

One generalization holds true in all circumstances: a monolithic railway does not function well in a market economy in competition with privately owned, properly (lightly) regulated competitors — especially trucking. *All* attempts to commercialize, corporatize, or increase the role of the private sector in railway activities have started with one or another form of reshaping the railway entity. Solutions will vary, but the universal objective as an economy becomes more market-driven is to make the railway more market-sensitive.

This paper — a product of the Transport Division, Infrastructure and Urban Development Department — is part of a larger effort in the Department to analyze and improve the effectiveness of transport enterprises. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Barbara Gregory, room S10-049, extension 33744 (59 pages).

927. General Equilibrium Effects of Investment Incentives in Mexico

Andrew Feltenstein and Anwar Shah
(June 1992)

In Mexico, reducing corporate taxes stimulates investment more than increasing the investment tax credit or the employment tax credit does.

Mexico has experimented with several tax instruments designed to promote private capital formation. Among such initiatives were general and industry-specific tax credits, employment tax credits, and corporate tax reductions.

Feltenstein and Shah examine the relative efficacy of such instruments using a dynamic computable general equilibrium model. They carry out model simulations using three equal-yield investment incentive scenarios: increases in investment tax credits, increases in employment tax credits, and an equivalent reduction in the corporate tax rate.

Of the three, they find that reducing corporate taxes is most effective at stimulating investment in Mexico.

Various explanations are plausible for why reducing tax rates is superior to providing investment tax credits in Mexico. Mexico had high inflation and high nominal interest rates, with real interest rates negative for certain years — so firms faced

severe financing constraints. In such a macroeconomic climate, firms see reduced tax rates as improving their cash flow and a signal of an improved public policy climate.

In a period of economic uncertainty and decline, nonrefundable, unindexed tax credits on new investments are less valuable than an immediate reduction in tax liability from both old and new capital.

Finally, in an open economy, reducing the tax rate increases the demand for all capital rather than new capital alone — so the relative value of domestic capital rises. Accordingly, the public increases its holdings of domestic debt, causing the price of domestic bonds to rise and real interest rates to fall, stimulating investment.

This paper — a product of the Public Economics Division, Country Economics Department — is one of a series of discussion papers prepared for the research project "An Evaluation of Tax Incentives for Industrial and Technological Development" (RPO 675-10), funded by the Bank's Research Support Budget. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (44 pages).

928. Pesticide Externalities, Comparative Advantage, and Commodity Trade: Cotton in Andhra Pradesh, India

Nalin M. Kishor
(July 1992)

Implementing integrated pest management in coastal Andhra Pradesh, India, would reduce not only the external costs but also the private costs of cotton cultivation.

Because the cotton bollworm is migratory, a farmer who controls the pest in his own field creates a positive externality for other farmers. But because pesticide use leads to the development of pesticide-resistant strains, he also creates a negative externality. These externalities affect a wide range of food crops (notably, coarse grains, pulses, vegetables, and spices) as well as cotton. Because of their extensive (and poorly understood) migratory patterns, pesticide-resistant bollworms are attacking food crops situated hundreds of kilometers from the cotton tracts in coastal Andhra Pradesh, India.

Kishor develops a theoretical model that incorporates these externalities and examines the conditions needed for economically optimal use of pesticides — as well as of other agricultural inputs in cotton cultivation.

Using field data, Kishor tries to quantify the losses in cotton and other crops due to the development of resistant pests. Under one scenario, the costs of externalities could raise the economic cost of cotton cultivation 50 to 60 percent.

After empirically evaluating the taxation of inputs (fertilizer and pesticides) and the implementation of integrated pest management (IPM) practices to address the pest problem, Kishor concludes that IPM (which emphasizes reduced use of pesticides) offers the most feasible and environmentally benign way to achieve Pareto optimality, especially in the long term.

He addresses some problems in making IPM operational, such as providing efficient scouting services. He conjectures that heavy government intervention will be needed if IPM practices are to be successfully adopted by farmers.

Even without IPM, long staple cotton is likely to remain an efficient Indian export. But implementing IPM would substantially reduce not only the external costs but also the private costs of cotton cultivation.

This paper is a product of the Trade Policy Division, Country Economics Department. It was funded by the World Bank's Research Support Budget under research project "The Impact of Pesticide Immunity on the Production and Trade of Agricultural Commodities: Cotton Cultivation in Coastal Andhra Pradesh" (RPO 676-92). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 38004 (112 pages).

929. Managing Pollution Control in Brazil: The Potential Use of Taxes and Fines by Federal and State Governments

Antonio Estache and Kangbin Zheng
(July 1992)

Federal monitoring of decentralized (state) environmental management — through a system of pollution-based fines and taxes assigned respectively to the federal and state governments — can improve firms' compliance and environmental agency performance without damaging state revenue, and perhaps even improve it.

Estache and Zheng make a case for federal monitoring of state environmental agencies' (SEPAs') performance — because of the tradeoff for the states between the need to raise revenue from taxes on local output and the need to limit pollution.

They also show that fines and taxes assigned respectively to the federal and state governments can improve firms' compliance and SEPA's performance — and hence environmental quality — without damaging state revenue, and perhaps even improving it.

They rely for their analysis on numerical policy simulations based on an analytical framework designed as a multilevel Stackelberg game. This framework reproduces the hierarchical structure of pollution control policies in Brazil, where the federal environmental protection agency relies on SEPAs to ensure that federally defined minimum ambient standards are met locally.

The numerical simulations are based on a case study of the food and the printing and publishing industries.

This paper — a product of the Infrastructure Division, Country Department I, Latin America and the Caribbean — is part of a larger effort in the region to design specific reforms that can assist governments in decentralized economies, such as Brazil or Venezuela, in dealing with unusual sources of policy failures in the area of pollution control. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Antonio Estache, room E10-081, extension 81442 (46 pages).

930. Participatory Development: Myths and Dilemmas

Robert Picciotto
(July 1992)

Participatory development has potential as a unifying framework for the development inquiry. But more examples of success are needed to beef up the theory, and more theory is needed to illuminate an elusive development reality.

ne recent evolution of development hinking has highlighted popular involve- nt in decisionmaking. Yet policy ollock and stop-and-go implementation ve been associated with "excessive" re- nsiveness to interest groups.

The paper argues that the success with ticipatory development projects re- ains spotty:

- Communication between develop- nt policy professionals and grassroots titioners leaves much to be desired.
- The discourse of development eco- nics remains dominated by roeconomists, while institutional eco- nics remains at the margin of develop- nt research.
- The very concept of participation has been subject to rigorous scrutiny, and ore systematic approach to participa- appears desirable.

The focus on participatory development ifies an opening of development eco- nics to disciplines other than roeconomics. In particular, roeconomics and business administra- must join forces under the umbrella institutional economics, political nomy should be rediscovered by devel- ent economists, and development tice should be shaped by all the social nce disciplines.

To accelerate this process, Picciotto puts ard a transaction-based definition of icipation and proposes a cost-benefit roach to the design of participation esses. He links participation to insti- onal development and suggests that spread of constructive change from t to project to programs will not take e without the design of realistic whole- ng programs combined with policy and itutional reform at the macro level. y then will individual development ations find their ultimate justification sector and country. Strategic alliances ng development agencies — global local, governmental and nongovern- ntal — have to be strengthened to fa- ate dissemination and to achieve re- s on a larger scale. Visible results in roved living standards, expanded eco- nic opportunity for the world's poor, a protected environment will be the test of global participation.

Four main recommendations for devel- ent policy flow from Picciotto's review articipatory development:

First, participation should be viewed as tal complement to macroeconomic stment.

Second, institutional development is enhanced by policy reform and should be pursued in its own right as part of a country's development strategy. Achieving an adequate legal framework, civil service reform, and public information dissemination should have priority — as these elements help reduce societal transaction costs and risks.

Third, the institutional aspects of development projects and programs should be given appropriate weight. In this context, priority should be given to the full use of market mechanisms to concentrate scarce participation skills and resources where they have the greatest impact — on the creation and maintenance of public goods.

Fourth, special emphasis should be placed on the efficient production and dissemination of knowledge, as well as on telecommunications and transportation infrastructure, since these investments also facilitate efficient social and economic interaction.

Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anne Muhtasib, room F13-035, extension 84573 (22 pages).

931. How Much to Commit to an Exchange Rate Rule: Balancing Credibility and Flexibility

Alex Cukierman, Miguel A. Kiguel, and Nissan Liviatan
(July 1992)

The cost of reneging is a key reason policymakers hold back from strong commitments in their exchange rate policy. The stronger the commitment to an exchange rate rule, the more costly it is to deviate from it.

Policymakers can support a fixed exchange rate with various degrees of commitment. A regime in which countries can devalue unilaterally represents a weaker commitment than one in which devaluation must be agreed upon with other parties (as in the European monetary system). Full dollarization, understood here as full replacement of the domestic currency by the U.S. dollar, is an extreme commitment to a fixed exchanged rate — is indeed a special case of a fixed exchange rate.

Cukierman, Kiguel, and Liviatan argue that the cost of reneging is a key reason policymakers hold back from strong commitments in their exchange rate policy. The stronger the commitment to an exchange rate rule, the more costly it is to deviate from it. They develop a Barro-Gordon type of model in which the policymaker has to decide the degree of commitment under uncertainty.

They show that, even for policymakers with a strong preference for maintaining the fixed exchange rate, there are circumstances under which they will choose to devalue. They may choose to do so, for example, when the economy is hit by an adverse shock and the costs of adhering to the fixed exchange rate are greater than those associated with devaluing.

Their model makes it possible to understand why many high inflation economies have not adopted full dollarization as a way to stabilize prices. In emphasizing the cost of reneging, they differ from analysts who single out the desire to rely on seigniorage as the main motive for stopping short of full dollarization.

They argue that strong commitments will be made only once there is a good chance the policymaker will not renege, and by then they might not be necessary — a point they illustrate with examples from Latin American countries.

This paper — a product of the Macroeconomic Adjustment and Growth Division, Country Economics Department — is part of a larger effort in the department to understand macroeconomic adjustment and financial policies. It was prepared for a special issue of Revista de Análisis Económico on Dollarization. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (32 pages).

932. Interest Rates, Official Lending, and the Debt Crisis: A Reassessment

Asli Demirgüç-Kunt and Enrica Detragiache
(July 1992)

Studies of economic performance among the highly indebted countries during the debt crisis should control for cross-country differences in the burden of interest payments. Some countries had better access to highly subsidized interest rates.

Demirgüç-Kunt and Detragiache document and try to explain the sizable cross-

country differences in interest rates on external debt paid by a group of highly indebted developing countries in 1973-89.

They find that Indonesia and Turkey, which are often praised for not rescheduling in the 1980s, paid interest rates substantially below LIBOR — and avoided the interest rate shock of the early 1980s.

Differences in the default-risk premium explain some of the variation among countries, but different degrees of access to official loans carrying highly subsidized interest rates played the major role.

In the sample they studied, they found no evidence that debt at floating interest rates was more expensive than debt at fixed rates.

For the period 1981-89, it is possible to control for differences in the currency composition of debt, and the results are essentially unchanged.

These results suggest that studies of economic performance among the highly indebted countries during the debt crisis should control for cross-country differences in the burden of interest payments.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the economic relationships between developing countries and external creditors in regard to credit rationing and debt negotiations. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (33 pages).

933. Developing Country Capital Structures and Emerging Stock Markets

Asli Demirgüç-Kunt
(July 1992)

Are debt and equity finance complements or substitutes? Probably complements, which means that the existence of active stock markets should increase the volume of business for financial intermediaries.

Demirgüç-Kunt investigates the relationship between stock market development and the financing patterns of corporations in developing countries. With an increasing number of stock markets emerging, the increased market activity could have an important impact on the capital structure of developing country corporations.

Demirgüç-Kunt poses the question: are debt and equity finance complements or substitutes? The answer also has a bearing on the banking systems in developing countries, as the bulk of debt financing is provided through financial intermediaries.

Whether financing in developing countries should be provided through capital markets or financial intermediaries is the subject of research addressing the optimal structure of financial contracts.

If debt and equity finance are substitutes, the cost of equity would decline with the emergence of an active securities market, and banks would face additional competition for their corporate customers. But debt and equity finance can also be complements since an equity market would allow the owner of a closely-held company to readily diversify risk by transferring some of the equity to other individuals. Then the firm would be able to also increase its borrowing. Also from the lending side, an active stock market would increase the debt of firms, allowing them to borrow more by improving the quality of information available to the banks.

Demirgüç-Kunt tests which of these scenarios is more likely by analyzing the capital structures of corporations for a sample of countries with stock markets at different stages of development. Although the data used in this study are limited and the results are preliminary, a positive and very significant correlation exists between firm leverage and the extent of stock market development.

This result supports the view that equity and debt finance are complementary. Thus, equity markets and financial markets are also complementary — so the existence of active stock markets should increase the volume of business for financial intermediaries.

Further research is needed to determine if these results hold for individual countries over time. Such research would use firm-level data, additional explanatory variables, and different definitions of leverage.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to understand the impact of emerging stock markets in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 37664 (40 pages).

934. Public Hospital Costs and Quality in the Dominican Republic

Maureen A. Lewis, Margaret B. Sulvetta, and Gerard M. LaForgia
(July 1992)

Dominican public hospitals provide health care inefficiently, with enormous shortages of goods and functioning equipment, with excessive personnel, especially physicians, and with few incentives for, or controls on, quality performance. The organization and delivery of health care require basic reform, with more accountability and quality control and better physician payment practices.

Measuring costs in public hospitals in developing countries is hampered by the lack of an appropriate costing system, or of any systematic cost accounting. Invoices for goods and services, prices for inputs, and patient records are generally absent. As a result, "cost measures" have historically been based on budget figures — the only available financial data. But budget allocations bear little relationship to the resources actually required to provide services to hospital patients.

The patient-based methodology described by Lewis, Sulvetta, and LaForgia circumvents this problem by measuring actual hospital resources allocated to patients. Their study was conducted in a single Dominican hospital during a one-week period in April 1989. Their approach documents and gives prices for goods, services, and personnel time provided by the hospital to emergency patients, inpatients, and outpatients.

They used the following to measure quality and efficiency:

- The qualifications and relative costs of medical manpower delivering services.
- The extent and nature of shortages.
- Comparisons of physician orders and actual services provided.
- (For selected diagnoses) the specifics of clinical practices in the hospital, compared with accepted clinical norms for the Dominican Republic.

They found that average and total costs of services understate the true costs — because of shortages, inappropriate and underused personnel, and nonfunctioning equipment. Quality of care measures suggest low quality and poor efficiency. Norms of medical practice were not followed in more than 80 percent of the cases examined. Rates of completion for diag-

-tic tests were below 50 percent for -patient services and between 60 and 0 percent for inpatient and emergency -vices. The study registered significant nthly "savings" of $641 for noncomple- of tests and $824 for nonavailability -rugs.

Policy recommendations of Lewis, -etta, and LaForgia center on the need -eform the organization and delivery of -lth care as well as physician payment -ctices — and to giving more authority -ospital administrators. To make Do- -ican hospitals more efficient, there -t be greater authority and account- -ity for hospital directors and better -ntives for improving medical and -agement performance. Quality assur- -e needs great improvement if the Do- -ican system is to ensure a basic stan- -d of care.

This paper is a product of the Popula- and Human Resources Operations -ision, Country Department I, Latin -erican and the Caribbean. Support for -project was provided by USAID, -ugh the REACH Project, and by The -an Institute. Copies of the paper are -ilable free from the World Bank, 1818 -Street NW, Washington, DC 20433. -ase contact Patricia Trapani, room I7- , extension 31947 (21 pages).

-. The Precautionary Demand Commodity Stocks

-m-Jong Choe
-y 1992)

-ducers' stockholding and hedging de- -ons are a precautionary behavior -inst output and price risks. Commod- -exporting developing countries that -these risks should typically hold small -ks and hedge a large part of their ex- -ed supplies.

-e shows producers' stockholding and -ging decisions as a precautionary be- -ior against output and price risks. The -litional view is that producer stocks -held for their *convenience yield*. Choe's -roach explains recent just-in-time in- -tory management and allows unified -tment of the precautionary and specu- -ve demands for stocks and the use of -ures contracts.

-hoe also assumes a more sensible pref- -ce function so that demand functions -stocks and futures are nonlinear. Stocking and hedging decisions, which are interdependent, are solved simultaneously. As a result of these refinements, the optimal decision rules are significantly different.

Several useful results emerge from Choe's analysis:

- When both output and price risks exist, stocks and futures can be combined to reduce the overall exposure to risks (measured by the precautionary premium or units of output the producer is willing to pay for eliminating risks).

In an unbiased futures market (futures price equals expected spot price at the maturity of the futures contract), commodity producers should short-hedge (sell futures contracts) less than the expected available supplies, if output and price risks are negatively correlated. And they should short-hedge more than the expected available supplies, if those risks are positively correlated. When the futures price deviates from the expected spot price (futures price bias), speculative trading dominates producers' futures positions. The demand for futures is highly sensitive to the futures price bias, while the demand for stocks is not.

- It is well-known that commodity-exporting developing countries face great price risk and — particularly with agricultural commodities — uncertain output as well. The optimal stocking and hedging rules Choe derives could have practical applications for these countries.

Earlier analyses that considered only the hedging problem typically suggest relatively low optimal hedge ratios (the proportion of expected available supplies that is short-hedged); this ratio was also insensitive to expected available supplies and to the degree of risk aversion.

The optimal decision rules Choe derives suggest that the optimal hedge ratio is likely to be much higher than ratios given in earlier studies. It depends on initial endowments, output and price expectations, and the degree of absolute risk aversion.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to explain commodity price behavior and model the global markets for primary commodities. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sarah Lipscomb, room S7-062, extension 33718 (38 pages).

936. Taxation, Information Asymmetries, and a Firm's Financing Choices

Andrew Lyon
(July 1992)

How the effects of taxation and information asymmetries influence the firm's financial decisions, and how public policy may affect all three.

Lyon surveys the effects of taxation and asymmetric information on the financing of investment. In the absence of these two factors, traditional economic models predict that funds for investment flow to projects with the highest expected return. The form of the investment (for example, whether by equity, bank loan, or another form of debt finance) is irrelevant.

In the presence of either taxation or information asymmetries, however, neither of these predictions necessarily holds. Financing may not go toward those projects with the highest expected return and the form in which the financing is conveyed can affect the profitability of the project to both the provider of funds and the recipient.

What are the policy implications of the effects of these factors on the financing of investment?

- Depending on technological characteristics, informational asymmetries can result in either overinvestment or underinvestment in an economy. Clearly, depending on which outcome occurs, policy recommendations to correct the inefficiency differ. While persistent overinvestment is unlikely to characterize most developing economies, there are certainly many occasions when funds are applied to projects with low expected returns.
- Increases in the level of wealth and collateral in an economy can greatly reduce the costs of asymmetric information. Increases in collateral reduce the risks faced by lenders. Entrepreneurs with poor projects are less likely to undertake them when they must risk more of their own wealth. Government policies that increase the ability of individuals to collateralize wealth — for example, by promoting property rights and the establishment of a legal system that allows the low-cost transfer of collateral — can increase the ability of potentially successful projects to receive financing. Policies that facilitate the ability of individuals to accumulate savings

play a related role. In addition to increasing the collateral of an entrepreneur, the ability to earn high rates of return increases the opportunity cost of undertaking projects with low expected returns.

• Creating decentralized securities markets is likely to be less advantageous where information asymmetries are great. Individual providers of funds have an incentive to free-ride on the information and monitoring of entrepreneurs provided by others. Only firms with established reputations may be able to obtain funds in these markets.

• Similarly, while competition among lenders is generally promoted, such competition can also reduce the incentive for individual lenders to lend to entrepreneurs where information and monitoring costs are large. Competitors would attempt to "steal" these borrowers away after they were certified as creditworthy. Further, limited competition allows a lender to use the sanction of denying credit as an instrument to influence borrowers to act responsibly in order to obtain future financing.

• As the result of information asymmetries, certain types of projects are more likely to obtain financing at a lower cost using equity finance rather than debt. If the tax costs of equity are higher than those of debt, however, these projects may be relatively underfinanced. Tax policy might wish to consider whether the tax treatment of equity and debt should be equalized or whether tax costs of these projects can be reduced in other ways.

• Government may feel an obligation to intervene directly in credit allocation, but should do so only where it has a greater ability to identify creditworthy recipients than other lenders do. In the absence of any comparative advantage, government attention to the basic infrastructure that reduces the costs of obtaining information and enforcing contracts is likely to better assist the efficient allocation of credit.

This paper — a product of the Public Economics Division, Country Economics Department — is one of a series of papers commissioned for the research project, "An Evaluation of Tax Incentives for Industrial and Technological Development," (RPO 675-10), funded by the Bank's Research Support Budget. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (46 pages).

937. How Soft is the Budget Constraint for Yugoslav Firms?

Evan Kraft and Milan Vodopivec
(July 1992)

Despite the virtual absence of direct government subsidies to firms, and the existence of open unemployment, Yugoslav firms were subjected to massive, pervasive redistribution through a soft budget constraint. Yugoslavia's channels of redistribution differed significantly from those in other socialist economies, but the redistribution shared a common driving force — the pursuit of job and wage security.

Do Yugoslavia's channels and pattern of "soft budget" redistribution differ from those documented for other Eastern European economies? After all, Yugoslavia's self-management system has been regarded as a "third way," a system fundamentally different from those of other socialist economies. The workers' roles as decisionmakers and as claimants of firms' residual income are inconsistent with the concept of state paternalism implied in soft budget redistribution.

Kraft and Vodopivec show that Yugoslav firms have also been subjected to massive, pervasive redistribution through a soft budget constraint; in 1986, gross subsidies in manufacturing amounted to 50 percent, and net subsidies to 15.6 percent of GDP. In a new approach to quantifying such redistribution, Kraft and Vodopivec focus particularly on the redistribution flows produced by holding financial assets and liabilities in an inflationary environment in which financial claims are generally not indexed. Analyzing firm-level data for Yugoslavia's entire manufacturing sector for 1986 show that such flows — in contrast with those of other Eastern European economies — have been a far more important source of redistribution than formal taxes and subsidies. Although Yugoslavia's channels of redistribution differ significantly from those in other socialist economies, the redistribution shares a common driving force — the pursuit of job and wage security. Producers of energy, food, and heavy manufactures, as well as less developed regions, have especially benefited from the redistribution.

This analysis for Yugoslavia suggests an important lesson for the process of transition in Eastern European economies. As the economy decentralizes (with decision-making shifting to local governments and enterprises), powerful coalitions emerge that represent special interests, and many new channels of redistribution may open. Where multiparty democracy is still developing and property rights are ill designed, decentralization may thus increase, not decrease, redistribution.

The authors question the appropriateness of many analyses of, and conclusions drawn from, the "Yugoslav experiment." Most studies of the Yugoslav economy take for granted that any residual surplus of a firm accrues to those who currently work for the firm. But evidence that income is massively redistributed among firms casts doubts on the validity of such an assumption and thus on the results of studies based on it.

This paper — a product of the Socialist Economies Reform Unit, Country Economics Department — is part of a larger effort in the department to investigate the behavior of firms in socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (31 pages).

938. Health, Government, and the Poor: The Case for the Private Sector

Nancy Birdsall and Estelle James
(July 1992)

Selective user fees and privatization could be used to reduce government spending on health care for the rich and middle classes, permitting redirection of government spending to programs that would benefit the poor, thus producing the highest mortality gains.

Birdsall and James present a case for (limited and selective) user charges and some privatization of health care in developing countries.

They demonstrate that — consistent with public choice theory — government actions in the health sector are neither equitable nor efficient in developing countries. In general, they increase the real income of influential middle and upper income groups — despite the fact that the greatest mortality gains would come from directing health spending to the poor.

Then they discuss why — if this implicit 'el of government behavior is correct government health interventions will me less effective than they have been. They point out that high mortality in loping countries is related more to rty than it used to be, while pressure overnments to finance health care for middle class and the rich is increas- because the population is aging and costs of handling adult chronic dis- s are rising.

The inequity and inefficiency of govern- t health programs reflect the current ical equilibrium which, unfortu- ly, cannot be easily changed. Oppor- ties for change, including marginal ges in the distribution of political er, must be recognized and exploited never they arise. Information that eases public awareness of current in- ties, fiscal stress, and tactical use of ly available resources may also create rtunities to alter the equilibrium.

This paper — a product of the Country nomics Department — is part of a er effort in the department to assess mplications of greater involvement of private sector in the delivery of social ices. It will be included in the forth- ing Policy and Planning Implications e Epidemiological Transition (pro- ings of a November 1991 workshop), ed by James Gribble and Samuel ton. Copies of this paper are available from the World Bank, 1818 H Street , Washington, DC 20433. Please con- PRDDR, room N11-051, extension 0 (31 pages).

. How Macroeconomic Policies ct Project Performance e Social Sectors

el Kaufmann and Yan Wang 1992)

ntry's economic policies significantly t the performance of investment cts in the social sectors, especially ation.

fmann and Wang find that a country's omic policies significantly affect the rmance of investment projects in the l sectors, especially education. Their ngs underscore the need to link strat- in the social sectors — even at the ct level — to a country's structural adjustment and broad economic policies.

It is important, they say, to fully integrate existing and expected economic policy into project preparation and project appraisal documents in the social sector.

The paucity of robust quantitative information on the costs and benefits of social projects may have perpetuated the false notion that social projects, unlike other types of projects, may be insulated from the effects of general economic policy.

Kaufmann and Wang present an analytical framework to suggest the mechanisms through which such policies affect each stage of a project cycle. They use statistical analysis and case studies from a broad range of sector reports and project documents.

Bivariate statistical analysis of the incidence of *unsatisfactory* projects shows that social projects are two to three times as likely to be rated unsatisfactory where there is restrictive trade, overvalued currency, a fiscal deficit, and relative price distortions. The evidence is even stronger when data only for education projects are examined.

This paper — a product of the Country Operations Division III, Country Department III, Europe and Central Asia region — was initiated during preparations for the *World Development Report 1991* on development. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Frances Rosenthal, room H2-041, extension 37257 (40 pages).

940. Private Sector Approaches to Effective Family Planning

Karen G. Foreit
(August 1992)

Supporting the participation of the private sector in family planning is beneficial because it can (1) expand the total family planning market to help satisfy existing and future unmet needs for contraception and (2) shift current users from subsidized to more nearly self-supporting outlets — without compromising coverage, equity, or quality of care.

Even if per-user costs are controlled or reduced, the rising demand for family planning services will far outstrip governments' and donors' financial resources in most parts of the developing world. This "resource gap" lies at the heart of donor-sponsored initiatives to involve the private sector in family planning, but there are other equally good arguments for doing so. Governments and donors are often unaware of how much the private sector (especially the commercial sector) already participates — and could participate — in family planning.

Foreit discusses why the private sector should be involved in planning, how the private sector should be defined, what the experience has been so far with private sector involvement, and what might be expected in the future.

To support family planning in the private sector, she recommends that donors (1) expand the total family planning market to help satisfy existing and future unmet needs for contraception and (2) shift current users from subsidized to more nearly self-supporting outlets — without compromising coverage, equity, or quality of care.

The kinds of private sector activities that donors should support depend in part on which contraceptive methods are to be emphasized. Nonclinical systems, for example, are the most efficient way to distribute supply methods (for example, oral contraceptives and condoms), as long as medical backup is available for women who suffer side effects or who wish to switch to another method. These systems of distribution free up scarce resources in clinical facilities and the time of limited medical personnel for the resupply of contraceptives. However, if sterilization is to be emphasized, a close link with existing hospital infrastructure is necessary.

Nonclinical distribution favors commercial systems in urban and periurban settings and community-based distribution systems (either public or private) where commercial networks break down. Price subsidies might be considered in areas served by commercial systems, but where consumers cannot afford prevailing commercial prices.

Foreit discusses a wide range of experiences in providing both "supply" methods and clinical methods, such as sterilization (including tubal ligation). Roving sterilization camps have proved effective in Nepal and Thailand, for example, where demand for the procedure was high; they may have backfired in other areas, such as India. Mobile clinic vans have been tried in such countries as Colombia and Guatemala, but their effectiveness and

cost-efficiency have not been carefully analyzed.

Among the topics Foreit covers: when to subsidize goods and services, when to introduce new subsidized nongovernmental organization outlets, which regulations may inhibit the expansion of private family planning efforts, how to foster demand for private sector family planning goods and services, and how to promote the private supply of such goods and services.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is part of a larger effort in the department to review effective family planning program approaches. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (49 pages).

941. Projecting the Demographic Impact of AIDS

Rodolfo A. Bulatao and Eduard Bos
(August 1992)

A simple model that simulates the spread of AIDS is used to generate estimates of deaths from AIDS.

A simple model that simulates the spread of AIDS is used to generate estimates of deaths from AIDS, which are incorporated into population projections covering 20 years. Preliminary results for one country are shown — not firm estimates, as the model has several arbitrarily set parameters.

The results suggest that the number of infections and deaths could be extremely large, even if transmission of the human immunodeficiency virus (HIV) is substantially reduced. In five years, deaths in a single country will be in the tens of thousands, and after 20 years could be in hundreds of thousands and still rising. Nevertheless, the impact on population size appears small. Bulatao and Bos discuss why these results should not be entirely trusted, and what work remains to be done.

Where HIV is relatively widespread, changes in sexual behavior, particularly increases in condom use, are essential to reduce the scale of the epidemic. Earlier changes are more effective than later changes. But across countries with different levels of prevalence and sexual activity, changes in sexual behavior produce similar effects.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is part of a continuing effort in the department to produce up-to-date population estimates and long-run population projections. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (57 pages).

942. Efficient Environmental Regulation: Case Studies of Urban Air Pollution (Los Angeles, Mexico City, Cubatao, and Ankara)

Arik Levinson and Sudhir Shetty
(August 1992)

Once decisions are made — to concentrate industry, to rely on private vehicles for transportation, to subsidize a particular energy source, or to use a certain environmental policy — they acquire a certain permanence. For this reason, it is important to design policy with an eye toward longer-run concerns. In addressing urban air pollution cost-effectively, it is also important not to wait until the problem assumes crisis proportions. By closing options, delays in implementing corrective measures will raise the eventual cost of environmental protection.

Levinson and Shetty review the economic principles that should guide the efficient choice of targeted policies for environmental protection. They recommend policy instruments along three dimensions: (1) whether they use economic incentives, (2) whether they target environmental damage directly, and (3) whether they specify prices, quantities, or technologies. This distinction is helpful in guiding policy choices because many discussions in the economics literature on environmental policies mistakenly claim advantages for incentive-based instruments by showing, for instance, that direct policies of this sort are less costly than indirect non-incentive measures.

After analyzing efficient responses to the air pollution problem, Levinson and Shetty come up with somewhat surprising results. For three of the cities (Ankara, Los Angeles, and Mexico City), the efficient instruments selected by this (admittedly limited) exercise are similar: indirect incentive-based policies. Only Cubatao differs in that direct non-incentive regulations are the efficient policy choice.

But choosing indirect policy instruments is not without its problems. This category is the broadest one. For instance, while there is only a single direct incentive-based price instrument (emissions taxes), several indirect incentive-based price policies exist including taxes on inputs and on complementary and substitute products. Indirect policies also cannot simultaneously target the incentives to reduce waste generation, increase production efficiency, and reduce output to reduce pollution. A combination of indirect policies will then be required to control pollution. But if the regulatory costs of controlling additional variables are high they may outweigh the cost of monitoring and enforcing a single direct policy. Finally, indirect regulations may be accompanied by perverse incentives, such as new source bias or reduced marginal costs of polluting. Efforts to offset these perverse incentives by regulating additional variables may be subject to second-best problems: two regulations with opposite results can be costlier than no regulation at all.

The main lesson Levinson and Shetty draw from the cases examined: Once decisions are made — whether to concentrate industry, to rely on private vehicles for transportation, to subsidize a particular energy source, or to use a certain environmental policy — they acquire a certain permanence. Capital is invested and workers are trained under the prevailing laws, and these are costly to change. Los Angeles cannot reverse its emphasis on the automobile; Brazil cannot easily move its industrial center away from Cubatao; Mexico cannot quickly reduce the concentration in its capital city; and Turkey's development would suffer if energy subsidies were removed abruptly.

For this reason, it is important to design policy with an eye toward longer-run concerns. It makes sense, for example, for cities such as Ankara to begin to enact policies to prevent mobile source air pollution from worsening over the next decades.

Levinson and Shetty also point out the dangers of ignoring intermediate substitution of pollutants. In places such as Cubatao, where air quality has been cleaned up, the improvement may have

come at the expense of water quality or the accumulation of hazardous wastes.

This paper — a product of the Office of the Vice President, Development Economics — was prepared as a background paper for the *World Development Report 1992* on the environment. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the World Development Report Office, room T7-101, extension 31393 (56 pages).

943. Burden-sharing Among Official and Private Creditors

Asli Demirgüç-Kunt and Eduardo Fernández-Arias
(August 1992)

Official creditors — especially multilaterals — have absorbed more of the burden of the debt crisis than private creditors have. Official creditors are not necessarily weaker or less senior, but for the sake of nonfinancial objectives, they may be unwilling (rather than unable) to exercise their substantial enforcement power.

Demirgüç-Kunt and Fernández-Arias analyze how the burden of the debt crisis has been shared by various classes of creditors. Given the rising share of official debt in the total debt of developing countries, official creditors have a growing need to develop a burden-sharing indicator.

This paper represents the very first step in this direction. So, its analysis narrowly focuses only on financial profits. No inference should be made regarding the overall performance of official creditors, whose evaluation requires the assessment of their nonfinancial objectives. Similarly, no inference should be drawn regarding the solvency of multilaterals, which is essentially determined by external guarantees. Extensive further research is required to shed light on these areas and to eventually derive the relevant policy conclusions.

The authors briefly review the relative performance of external creditors during the debt crisis in terms of exposure, net transfers, and arrears. They argue, however, that a meaningful measure of burden-sharing needs to go beyond those observations and consider the capital losses that creditors have made on outstanding debt stocks. So, they develop a financially sound measure of rate of return — incorporating repayment flows and capital losses — and derive a financially sound definition of burden-sharing. This definition is then applied to a group of severely indebted countries for which secondary market prices are available. The finding: private creditors made a loss of about 30 percent during the debt crisis, and official creditors avoided absorbing a comparable burden only if, on average, the implied prices of their debt stocks were significantly higher than market prices.

To assess burden-sharing, the unobservable implied prices of official debt need to be estimated. The authors first analyze how, in a seniority-based corporate debt model, information on these implied prices can be recovered by looking at the differential impact of various stocks of debt on the market price. They analyze the validity and drawbacks of this model for the sovereign debt case and conclude that seniority sharing rules are probably not appropriate. They then show that implied prices are still identified under more general sharing rules, which allows us to relax that assumption and still be able to derive relevant inferences. A suitable multicreditor debt valuation model, dependent on the stock of private debt and the debt shares of various creditors, is then derived and estimated.

The empirical estimations show weak effects of the official debt stocks on the market price and suggest that the implied prices of official creditors are lower than the market price, especially for multilateral creditors. This finding implies that official creditors have, relative to private creditors, absorbed a larger burden, especially multilaterals. But it does not imply that official creditors are weaker or less senior: official creditors may be unwilling, rather than unable, to exercise their substantial enforcement power for the sake of nonfinancial objectives. Two qualifications to the findings on implied prices: First, the "single collateral" assumption of corporate debt may not be applicable to sovereign debt. The evidence may also be consistent with undiscounted official implied prices if official creditors have independent enforcement mechanisms not available to private creditors. Second, the class of admissible sharing rules used for identification generalizes the seniority rules but may still exclude the relevant sharing rule.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the economic relationships between developing countries and external creditors regarding credit rationing and debt negotiations. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (31 pages).

944. How Public Sector Pay and Employment Affect Labor Markets: Research Issues

Gail Stevenson
(August 1992)

Policy reform has focused on the reform of large, inefficient public sectors because of their cumulative negative effects on economic growth and competitiveness. The slow progress in restructuring the public sector in many countries highlights the need to address — more forcefully and more subtly — how public sector policies affect the labor market.

Structurally, the public sector has a more important economic role to play in developing countries than in industrial countries, particularly in how it affects labor markets.

Evidence from many developing countries shows that public sector pay, employment, and performance are hurting the labor markets' ability to allocate workers among sectors and skill requirements. In many countries, the civil service and the public sector wage bill have grown to unsustainably high levels. The public sector is so big that interventions in the sector — with or without spillover effects into the nonpublic sector — make it more difficult for wages and employment to respond to shifts in demand and supply.

Nonwage benefits are seldom related to productivity, so they can be particularly distorting. At the same time, a long-term drop in real civil service wages and the compression of wage ranges have caused critical shortages of managerial and technical workers in the civil service. The resulting skill imbalances in the rest of the domestic economy reduce international competitiveness in some countries.

Policy reform has focused on the reform of large, inefficient public sectors because of their cumulative negative effects on

economic growth and competitiveness. Policies to adjust relative prices from nontradables toward tradables have led to some movement of employment out of the public sector, but significant rigidities remain

Workers are attracted to the public sector because of complex economic and social incentives that are difficult to change — and the relationship between public sector interventions and the underlying political and economic forces is an important area for research. The slow progress in restructuring the public sector in many countries highlights the need to address more forcefully *and* more subtly how public sector policies affect the labor market.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a series of state-of-the-art studies of employment and labor market issues and reform programs. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (33 pages).

945. Managing the Civil Service: What LDCs Can Learn from Developed Country Reforms

Barbara Nunberg
(August 1992)

Centralized civil service management models provide the best starting point for most developing countries because decentralized agency systems require technological and human resources beyond their capabilities. Some better-endowed countries could use certain agency-type features selectively, moving toward an agency system as their institutional capabilities increase.

Nunberg examines current civil service management (CSM) practices in advanced countries to provide guidance for developing country governments that face the dilemma of how to recruit, retain, and motivate appropriately skilled staff at affordable costs, given a limited human resource base.

Advanced country administrations are following two distinct paths to improving CSM. Some countries, such as the United Kingdom, are engaged in sweeping "managerialist" reforms to decentralize civil service functions and make them more responsive to the client public. By introducing complex financial reporting systems, managers have increased autonomy; some functions are spun off into semi-autonomous *agencies* operating on an increasingly commercial basis.

By contrast, other industrialized countries, such as Singapore, have retained more traditional, largely centralized civil service structures, pursuing only incremental improvements in specific aspects of CSM.

Nunberg speculates about what is likely to work best in developing country administrations:

- Centralized civil service management models provide the best starting point for most developing countries because decentralized agency systems require technological and human resources beyond their capabilities. Some better-endowed countries could use certain agency-type features selectively. Such administrations could establish strategic plans to move toward a fuller agency system as their institutional capabilities increase.
- Developing countries face trade-offs in choosing which CSM functions should be strengthened first. Two functions — personnel establishment control and staff recruitment — are essential for civil service performance and should get top priority.
- Senior Executive Services have proved difficult to design and implement in advanced countries, but many flaws can be corrected in adapting them to developing countries, where there is often an urgent need to groom higher-level staff.
- Assuming minimal, essential levels of personnel establishment and budgetary control, unified pay and classification could be relaxed in developing countries, following the lead of increasing numbers of advanced countries that have done this.
- Given the urgency of other CSM tasks, lower priority should be assigned to reform involving performance pay, the benefits of which have yet to be demonstrated in the public sectors of developed countries. The management requirements and costs of installing performance pay systems can be considerable and employee resistance may subvert such efforts. But performance-related promotion systems, even if imperfectly implemented, can help move developing country civil service values toward standards of competence and merit.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — is part of a larger effort in the department to help countries develop sound practice for civil service reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 38526 (53 pages).

946. Retraining Displaced Workers: What Can Developing Countries Learn from OECD Nations?

Duane E. Leigh
(August 1992)

Job retraining programs should be independent of the formal educational system, should be linked to employers (so trainees get marketable skills), should be short-term and job-oriented, and should be institutionalized, not temporary.

The governments of most industrial countries provide financial support for adult training programs intended to retrain displaced workers. Leigh draws lessons from the experience of six industrial countries (Australia, Britain, Canada, Japan, Sweden, and the United States) on how to design and implement such retraining programs in low-income developing nations and middle-income countries.

By retraining, he means both improving job skills and remediating deficiencies in basic education. These are the lessons he emphasizes:

- Training programs should be independent of the educational system, with its rigid ties to degree requirements and academic schedules.
- Links to employers must be developed and maintained so that trainees have marketable skills on completing the program.
- Training programs should be designed to minimize trainees' forgone earnings; basic education should be relevant to the jobs the trainees might seek.
- External providers of education must be made accountable — but with care; the system of accountability should also ensure that the needs of displaced workers most likely to suffer long-term unemployment are met.
- Not all displaced workers require relatively expensive retraining; some may need only inexpensive job-search assistance services.
- A permanent, institutionalized training system is preferable to short-term intervention.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a larger effort in the department to improve labor policies for managing the social cost of economic adjustment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (52 pages).

947. Strategies for Creating Transitional Jobs during Structural Adjustment

Stephen L. Mangum, Garth L. Mangum, and Janine Bowen
(August 1992)

Work relief is critical to any structural adjustment program, so long as the skills needed to provide public works match the skills held by the (mainly) manual workers needed. Women and displaced white-collar workers may be better served by public service employment or subsidized private employment.

Mangum, Mangum, and Bowen review world experience with creating transitional jobs through public work relief, public service employment, and subsidized private employment.

They argue that work relief is a critical component of any structural adjustment program, so long as the work relief projects are consistent with the capabilities of the targeted workforce. The effectiveness of public works depends on timeliness, financing, providing good managers, choosing high-priority projects, and matching the skill needs of the project with the skills of the targeted workers.

Public works and work relief tend to provide transitional jobs mainly for male manual workers. Women and displaced white-collar workers may be better served by public service employment or subsidized private employment.

Public service employment is relatively easy to administer and quick to implement and disband, but it is difficult to focus geographically, rarely leaves anything permanent behind, and expands the public payroll — at least temporarily.

Subsidized private employment is easy to targeted and is compatible with efforts at privatization. Its chief weakness is that success, both quantitatively (in number of jobs placed) and qualitatively (how good they are), depends on the private sector's willingness to increase hiring.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a series of state-of-the-art studies of employment and labor market issues and reform programs in the department. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (31 pages).

948. Factors Affecting Private Financial Flows to Eastern Europe, 1989-91

Mohua Mukherjee
(July 1992)

Data and factors that influence market perceptions of the relative creditworthiness of the different countries participating in Eastern Europe's economic transformation.

Despite a common heritage of institutions and arrangements for economic planning and trade clearing, and their almost simultaneous adoption of reform, the countries participating in Eastern Europe's economic transformation differ greatly in economic performance and market expectations of performance.

Mukherjee examines those differences as the region's economic transformation nears its third anniversary, focusing on the underlying factors that drive private capital flows — from both commercial lenders and foreign investors.

Improved creditworthiness — or the ability to attract voluntary private-sector finance for successively longer periods, with fewer guarantees required — is a major signal that the economic reforms are beginning to take hold.

Mukherjee examines the different stages on the road to creditworthiness at which she finds the Eastern European countries. Hungary and Czechoslovakia (CSFR) are the only countries that can issue medium- to long-term sovereign bonds held by private investors (the ultimate test of creditworthiness, by some standards). In Hungary, maturities on the most recently issued deutschemark bonds now extend as long as seven years; private placements of yen are even more favorable — extending to ten years.

Mukherjee identifies and compares cross-country information about some of the factors that influence differing market perceptions of Bulgaria, Czechoslovakia, Hungary, Poland, and Romania. Among factors discussed:

- The importance of the former Soviet umbrella.
- Indicators of relative indebtedness.
- The flow of funds to the region, by source, from 1989 on.
- The maturity of commercial debt and especially the magnitude of short-term debt.
- The identity of "other private creditors," and factors that affect the amount of project finance and foreign direct investment available.
- The setup of emerging financial institutions.
- Long-term commercial flows — especially bond finance (access to the Eurobond market for medium- and long-term funds).

The region is not well known to lenders that might be able to meet its many emerging needs for financing. And the few statistics available may be doubtful or misleading in the context of a market economy. Mukherjee bases her observations largely on interviews with people in commercial banks and investors active in Central and Eastern Europe. All data have been provided by those sources and by country reports issued by the Institute of International Finance. The latter is a major source of figures used by private lenders when they assess a borrower's prospects.

This paper is a product of the former Financial Advisory Services group in the Cofinancing and Financial Advisory Services Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Kamar Yousus, room H9-055, extension 33102 (26 pages).

949. The Impact of Formal Finance on the Rural Economy of India

Hans Binswanger and Shahidur Khandker
(August 1992)

India's supply-led approach to agricultural credit paid off in nonfarm growth, employment, and rural wages. The impact of expanded credit on agricultural output has been modest, and the benefits of agri-

cultural income exceed the costs of the program only if optimistic assumptions are made about repayment rates on farm credit.

India has systematically pursued a supply-led approach to increasing agricultural credit. Its objectives have been to replace moneylenders, to relieve farmers of indebtedness, and to achieve higher levels of agricultural credit, investment, and output.

India's success in replacing moneylenders has been outstanding. Between 1951 and 1971 their share of rural credit appears to have dropped from more than 80 percent to 36 percent. (It may have dropped to as low as 16 percent by 1981, but that estimate is disputed.)

Still, institutional credit is far from reaching all farmers. Only about a quarter of cultivators borrow, and no more than 2 percent take out long-term loans. Most small farmers have little access to credit, and long-term credit goes mostly to large farmers.

Overall, farm debt has probably not increased sharply in real terms, as formal credit has primarily substituted for credit from other sources. Moreover, with the rapid growth of commercial banks in the 1970s, the system mobilized more deposits than it lent in rural areas in 1981. Of course, enhanced deposit services are a useful service for the rural population, but one must ask what has been the impact of heavy rural credit and better financial services on agricultural investment, production, and rural incomes.

Binswanger and Khandker's econometric results suggest that the rapid expansion of commercial banks in rural areas has had a substantially positive effect on rural nonfarm employment and output. The availability of better banking facilities appears to have overcome one of the obstacles to locating nonfarm activities in rural areas.

Expanded rural finance has had less of an effect on output and employment in agriculture than in the nonfarm sector. The effect on crop output has not been great, despite the fact that credit to agriculture has greatly increased the use of fertilizer and private investment in machines and livestock. There has been more impact on inputs than on output, so the additional capital investment has been more important in substituting for agricultural labor than in increasing crop output.

But overall, rural credit and expansion of the rural financial system have had a positive effect on rural wages. Creating nonfarm jobs has apparently added more to total employment than the substitution of capital for labor has subtracted it in agriculture. So, wages have risen even for agricultural workers, albeit modestly.

The supply-led approach to agricultural credit that has been pursued for three decades has clearly benefited current borrowers and farm households formerly indebted to moneylenders. It has also spurred fertilizer use and investment in agriculture. It has been less successful in generating viable institutions — and has failed to generate agricultural employment.

The policy's costs to India's government have been high as portfolio losses associated with poor repayment ultimately have to be borne by the government or one of its institutions under optimistic assumptions. The benefits of the agricultural income are at best no more than 13 percent higher than the cost to the government of the extra agricultural credit. If assumptions about the cost of supplying the credit and about repayment rates are less optimistic, the social costs — and the costs to the government of providing the credit — would have exceeded the benefits in agricultural income.

The expansion of commercial banks to rural areas paid off in nonfarm growth, employment, and rural wages. The question is: Could these benefits have been achieved without imposing agricultural credit targets on the commercial banks and credit cooperatives? Or did the commercial banks expand only because they were forced to lend to agriculture? The authors could not answer these questions with the data at hand.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to analyze rural credit policy. The research was funded by the Research Support Budget under research project "Agricultural Investment, Financial Intermediation, and Socioeconomic Mobility" (RPO 673-35). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hans Binswanger, room I4-049, extension 31871 (53 pages).

950. Service: The New Focus in International Manufacturing and Trade

Hans Jürgen Peters
(August 1992)

Logistics management (to improve asset productivity and respond more quickly to volatile changes in customer preferences) enables many organizations to conduct their business with minimal inventories — by outsourcing intermediate production to enterprises in countries where factor costs are lower. Developing countries can capitalize on these trends only if they substantially improve their infrastructure, liberalize their regulations, and master modern logistics management techniques.

Major breakthroughs in communications technologies in the 1980s made it possible to monitor all phases of moving a product from raw material sourcing through processing through delivery to the customer. Close monitoring revealed major inefficiencies in the traditional set-up of materials acquisition, production, and distribution — especially large inventory holdings. At the same time, patterns of customer demand began to shift more rapidly, partly because of better communication networks.

The need to reduce costs and become responsive to volatile changes in customer preferences forced businesses to substantially restructure their corporate practices. With domestic factor costs rising, manufacturers outsourced intermediate production to foreign enterprises in countries with lower wages and merchants sought cheaper supply sources — developments that held promise for developing countries.

Many developing countries have been unable to take advantage of structural changes in world manufacturing and trade because they have been unable to deliver the quality of production, fast turnaround, and reliability of delivery manufacturing businesses need to keep up with changing market demand.

A new management approach — logistics management — is needed to cut business costs and to be responsive to rapidly changing markets. Logistics management orchestrates materials acquisition, production, and marketing to reduce inventories (the heaviest burden on corporate performance) to a minimum. Effective logistics management enables many orga-

nizations to conduct their business with less than a week's worth of supplies.

Such a radical change requires major corporate restructuring and the development of strategic alliances with service providers. Outsourcing of production is projected to continue growing, and the search for less costly supply sources will continue.

Developing countries can capitalize on those trends — but only if they substantially improve their infrastructure, liberalize their regulations, and begin to apply modern logistics management techniques. If they don't, their outlook is not promising.

This paper — a product of the Transport Division, Infrastructure and Urban Development Department — is part of a larger effort in the Department to establish an effective framework for helping developing countries adjust to changing logistics management practices in international markets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact TWUTD, room S10-027, extension 31005 (28 pages).

951. Piecemeal Trade Reform in Partially Liberalized Economies: An Evaluation for Turkey

Glenn W. Harrison, Thomas F. Rutherford, and David G. Tarr
(August 1992)

Given Turkey's already extensive trade liberalization, a move to uniform external incentives would bring most of the benefits of full trade liberalization. Moreover, it is not enough to have piecemeal reform of tariffs or export subsidies alone. Harmonizing Turkey's already low tariffs to the European Community's tariff structure will improve Turkey's welfare only if Turkey at the same time removes or reduces its export subsidies.

Turkey undertook a major liberalization of trade policy in the 1980s. Import quotas have virtually disappeared, the Turkish lira was made convertible, and tariffs are generally lower. Those changes and the export subsidies that remain have, on the whole, removed the anti-export bias from Turkey's external incentive regime.

Using a 40-sector computable general equilibrium model, Harrison, Rutherford, and Tarr consider several more trade liberalization options available to the Turkish government. They conclude that uniformity of tariffs and export subsidies would substantially improve Turkey's welfare.

Although the "Ramsey" optimal import taxation would call for non-uniform import taxes inversely proportional to the elasticity of import demand in each sector, the *observed* dispersion of the tariff structure in Turkey is inconsistent with optimal departures from uniform protection. In fact, in Turkey uniformity achieves an extremely high proportion of the benefits of full trade liberalization because, in the absence of a general anti-export bias, the principal distortion remain-ing in the trade regime derives from *dispersion* of the tariff and (especially the) export subsidy structure.

Like Turkey, an increasing number of developing countries — including Chile, Indonesia, Mexico, and Poland — have in recent years undertaken extensive trade liberalization. It is no longer clear that these economies retain an anti-export bias in their trade regime. Perhaps the most important policy conclusion the authors reach is that one must be wary of advocating piecemeal reform of tariffs *or* export subsidies alone. In Turkey, piecemeal across-the-board tariff reductions do not always improve welfare; they must generally be coordinated with reductions in export subsidies to ensure improved welfare. The authors counterfactually assume that Turkey's tariffs are at the 1985 level (about twice the 1989 level of the authors' benchmark model) — which reintroduces an anti-export bias. In this case, piecemeal tariff reduction to the 1989 level is beneficial.

In Turkey, even small export subsidies are not always beneficial, despite the rule of thumb that small export subsidies are a welfare-enhancing offset to the anti-export bias of import tariffs. Why? Because export subsidies in Turkey are highly dispersed, and piecemeal reductions in the export subsidies reduce that dispersion. When the authors counterfactually impose uniformity of tariffs and export subsidies, they resurrect the rule of thumb that small export subsidies are beneficial as a piecemeal policy for offsetting the anti-export bias.

Policymakers in developing countries have occasionally applied export subsidies in individual sectors with high tariffs as a means of encouraging exports in a sector that may otherwise rely only on the highly protected domestic market. The authors show that in Turkey high export subsidies in sectors with high tariffs are particularly counterproductive — because at the multisector level the distortion introduced by the export subsidy (by encouraging too many resources into the protected sector) dominates the reduction in the overall anti-export bias.

Turkey's proposed policy of harmonizing its tariff to the European Community's common external tariff would yield only small welfare changes, which would be small losses as the European Community interprets harmonization. Why? Because harmonizing to EC tariffs will require lowering Turkish tariffs from already low levels, in the presence of export subsidies almost as large as the existing average effective tariff rate. But harmonizing to the EC tariff structure can be beneficial if at the same time export subsidies are removed or reduced.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of the Bank's research on "The Impact of EC 1992 and Trade Integration in Selected Mediterranean Countries (RPO 675-64)," funded by the Research Support Budget. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 38004 (34 pages text plus 34 pages appendices).

952. Unit Costs, Cost-Effectiveness, and Financing of Nutrition Interventions

Susan Horton
(August 1992)

Relative unit costs and cost-effectiveness for different nutrition interventions are reported here. The main impact of nutrition interventions assessed is not the reduction of mortality but the improvement in quality of life for survivors.

Horton summarizes what is known about unit costs, the cost structure, cost-effectiveness, and financing of eight nutrition interventions: maternal and child health (MCH) feeding, school feeding, nutrition education, the promotion of breastfeeding, targeted food subsidies, micronutrient

supplementation, micronutrient fortification, and growth monitoring. Among items that she reports:

- Mass media nutrition education campaigns and the promotion of breastfeeding cost about $1-$5 per beneficiary; face-to-face nutrition programs cost more ($23 per beneficiary in the Dominican Republic).
- Food distribution programs of different types have fairly similar costs. For distributing about 1,000 calories a day per beneficiary per year: $75 for untargeted food rations, $64 for targeted food rations, $74 for MCH and school feeding programs, and $134 for highly targeted feeding programs. Micronutrient interventions cost from $0.04 to $4 per person-year of protection; supplementation is more expensive than fortification.
- Medium-sized feeding programs (100,000 to 500,000 beneficiaries) are the least expensive. There is little difference in cost between programs operated by nongovernment organizations and those operated by governments. The more expensive programs are not necessarily less cost-effective, but may include more complementary inputs.
- The cost per death averted was about $1,500 for both a targeted supplementary feeding program in Tamil Nadu and a vitamin A capsule distribution scheme in Bangladesh.
- The cost per child removed from moderate and severe malnutrition ranged from $33 (Tamil Nadu) to $331 (targeted food subsidy, Philippines) to $493 (face-to-face nutrition program, Dominican Republic).
- Nutrition expenditures seem to account for about 10 percent of health spending, both for donors and for individual countries (Chile is an outlier with 35 percent).

Impact data on these topics are scarce, and these estimates should be interpreted cautiously.

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — is part of a larger effort in the department to quantify the costs of malnutrition and its alleviation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (66 pages).

953. The "Pedigree" of IEC Conversion Factors for Per Capita GNP Computations for the World Bank's Operational Guidelines and *Atlas*

Michael Hee
(August 1992)

Overview of sources, methods, adjustments, and manipulations of alternative conversion factors for the Bank's Atlas *per capita income calculations.*

Per capita GNP — calculated according to the Bank's *Atlas* method — is the Bank's main criterion for classifying countries to determine their eligibility for various beneficial borrowing terms. It is also a broad criterion for distinguishing countries by income group (low, middle, lower-middle, upper-middle, and high).

In principle, the Bank adopts the official annual average exchange rate (line *rf* in the Fund's *International Financial Statistics*) as the preferred source for exchange rates for calculating per capita GNP. But where this rate is clearly inappropriate — when the calendar year rate does not coincide with the fiscal year national accounts data, for example, when countries' maintain dual or multiple exchange practices, or when distortions in the trade and payments system make the official rate an unreliable link between relative prices of traded goods — the Bank's International Economics Department (IEC) uses an alternative exchange rate (conversion factor).

Hee briefly explains how these alternative exchange rates are calculated, the rationale behind them, and the footnoting features of the Bank's Economic and Social Database that make these calculations more transparent to users of the data.

He finds that the single most often used source is the official annual average exchange rate — for about 85 percent of the cases in 1990. Fiscal year conversion factors are used in about 10 percent of cases.

Technically, fiscal year conversion factors are official quarterly exchange rates recast to the fiscal year timeframe. Thus, official exchange rates shown in the *International Financial Statistics* account for 95 percent of the countries for which IEC prepares comparable per capita estimates. As trade and exchange systems become more liberal, and as multiple exchange systems have been unified in recent years, fewer and fewer official exchange rates have diverged significantly from the rate at which transactions take place.

Hee's analysis underscores the direct implications for Bank operations and analysis of a systematic and documented approach to the choice of conversion factors that underpin the Bank's *Atlas* per capita income estimates — which can affect eligibility for borrowing and country ranking by income group.

The use of alternative conversion factors is thus of some practical importance, both to the Bank and to other international organizations considering the use of Bank classifications in allocating concessional assistance.

This paper — a product of the Socioeconomic Data Division, International Economics Department — is part of a larger effort in the department to systematize the use of official and other exchange rates for calculating per capita income. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Estela Zamora, room S7-136, extension 33706 (47 pages, including appendix tables).

954. How OECD Policies Affected Latin America in the 1980s

Chris Allen, David Currie, T. G. Srinivasan, and David Vines
(August 1992)

Latin America's adjustment problems in the late 1980s cannot be attributed to failures of G-3 (U.S., German, and Japanese) fiscal coordination because G-3 fiscal imbalances imposed little cost on Latin America. But concerted G-3 monetary contraction in response to the second oil shock imposed heavy costs on Latin America; without it, Latin American GDP would have been 5 percent higher in the 1980s.

Allen, Currie, Srinivasan, and Vines assess the effects of OECD monetary and fiscal policies on Latin America by means of simulation studies using the LBS/NIESR Global Econometric Model and a new empirical model of Latin America. The Latin American model pays special attention to the supply-side determination of natural rate of output and to the effects of asset accumulation. The Latin American model and its properties are presented

by both empirical simulations and by means of a simple analytical representation. This model of Latin America is used in conjunction with the Global Econometric Model to study the macroeconomic interactions between Latin America and the rest of the world.

The assumption in policy simulations is that G-3 exchange rates are forward-looking while Latin America pegs its currency to the U.S. dollar. It is postulated that Latin American fiscal policy adjustments target a baseline current account balance, in the face of external shocks. The simulation results reflect a number of important international links, which can be quantified as multiplier properties of the linked system of models.

A permanent 5 percent contraction in the U.S. money supply induces a contraction of about the same order in Latin American GDP and capital stock. This is caused by higher U.S. interest rates and diminished Latin American competitiveness in third markets, reinforcing the fall in U.S. demand.

Similarly, a combined monetary contraction in G-3 countries on a permanent footing — a contraction like the one in 1978-80 (U.S., 5.2 percent, German, 11.9 percent, and Japanese, 1.7 percent) hurts Latin America. Latin American GDP remains depressed by 4 percent and capital stock by 5 percent even after 10 years. The effects of negative income and interest rates emanating from G-3 countries are mutually reinforcing.

U.S. fiscal expansion equal to 1 percent of baseline GDP, sustained over five years, transmits negatively to Latin America, where GDP falls 0.6 percent in the short run and remains depressed by 0.3 percent even after 10 years. The negative effects of higher interest rates and diminished competitiveness dominate the positive effects (which are short-lived) of expanded U.S. demand for Latin American exports.

Similarly, G-3 fiscal spending shocks, which are gradually built up over five years, then reversed the next two years, have a mild negative effect on Latin American GDP. The G-3 fiscal shocks administered were set to their actual magnitudes relative to baseline GDP, as observed in 1980-85 (U.S. expansion of 3.5 percent but contraction in German and Japanese spending of 4.4 percent and 3.5 percent, respectively). Latin American GDP is lower than baseline GDP by 0.5 percent when the shocks peak at the end of five years, but continues to remain depressed 0.3 percent by the end of 10 years.

The simulated effects of G-3 monetary and fiscal policies, with the shocks constructed to reflect their actual sizes in the early 1980s, suggest that Latin America's adjustment problems in that period cannot be attributed to G-3 fiscal imbalances that arose because of failures of G-3 fiscal policy coordination. But concerted G-3 monetary contraction in response to the second oil shock imposed heavy costs on Latin America; without it, Latin American GDP would have been 5 percent higher in the 1980s.

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — is part of a larger effort in the department to trace international linkages from policies in the industrial countries to growth performance in the developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jacquelyn Queen, room S8-035, extension 33740 (25 pages).

955. OECD Fiscal Policies and the Relative Prices of Primary Commodities

George Alogoskoufis and Panos Varangis (August 1992)

Here is evidence that macroeconomic policies in the OECD countries have been responsible for at least part of the little-understood decline in primary commodity prices over the past decade. Higher fiscal deficits seem to be associated with lower commodity prices.

Nonfuel primary commodity prices fell more than 30 percent in real terms between 1984 and 1990, even though global economic growth was reasonably strong. The collapse of international commodity agreements, rapid increases in supply for some crops, and agricultural policies in industrial countries have been responsible for some of the price decline. But all nonfuel primaries — agricultural and nonagricultural — experienced a sharp decline in real prices. That calls for a more general explanation.

Alogoskoufis and Varangis investigate how the relative price of (nonenergy) primary commodities and manufactures depend on fiscal policies in the OECD countries. It has been argued, for example, that expansionary policies in the OECD countries lead to increases in commodity prices. Alogoskoufis and Varangis show that it is not sufficient to establish whether policies are expansionary or contractionary; one must define the policy mix to know what impact it has.

Previous studies have used partial equilibrium models to examine the link between macroeconomic policies and commodity prices. In those studies as in this one, the main channel of transmission of monetary and fiscal shocks is the interest rate.

Alogoskoufis and Varangis use a general equilibrium model of the simultaneous determination of the relative price of commodities and the real world interest rate. The model's logic suggests that OECD fiscal expansion increases the real interest rate and reduces the relative price of commodities to equilibrate world labor, product, and asset markets.

Econometric estimates based on reduced form equations, using annual data since the 1950s, cannot reject the hypothesis that higher fiscal deficits are associated with a lower relative price of commodities. The estimates suggest that when the fiscal deficit of the G-5 rises one percentage point of GDP, the relative price of commodities drops about 2 percent. When the U.S. deficit rises by one percentage point of GNP, the relative price of primary commodities drops about 3 percent.

This evidence provides good reason to believe that macroeconomic policies have been responsible for at least part of the little-understood decline in primary commodity prices over the past decade.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of macroeconomic policies on commodity markets. The study was funded by the Bank's Research Support Budget under research project "Commodity Prices and the Macroeconomic Policy Mix in Industrial Countries" (RPO 676-76). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-047, extension 33714 (31 pages).

956. Regression Estimates of Per Capita GDP Based on Purchasing Power Parities

Sultan Ahmad
(August 1992)

How the Bank uses regressions to fill gaps in purchasing power parity based on estimates of per capita income.

The estimates of gross national product (GNP) per capita in U.S. dollars published in the *World Bank Atlas* are used throughout the world for comparing relative levels of income across countries. The *Atlas* method of calculating per capita GNP is designed to smooth the effects of fluctuations in prices and exchange rates. With this method, local currency values are converted to U.S. dollars by a form of average exchange rates.

Since exchange rates do not measure relative purchasing powers of currencies in domestic markets, the *Atlas* estimates can often show changes in the relative ranking of two countries from one year to the next even if there are no changes in real growth rates but if there are changes in exchange rates that are not in line with relative price changes.

Improved estimates can be obtained if purchasing power parities (PPP) rather than exchange rates are used as conversion factors. But PPP-based estimates of per capita income — usually associated with Irving Kravis of the University of Pennsylvania and with the UN's International Comparison Program — have yet to cover all countries and all years needed in the *Atlas*.

Attempts have been made to fill the gaps by short-cut estimates using regression techniques or by using a reduced set of information. In an attempt to fill these gaps, the World Bank has used regression estimates of its own and published them in the *World Development Indicators*.

Ahmad describes how the Bank makes these estimates.

This paper — a product of the Socioeconomic Data Division, International Economics Department — is part of a larger effort in the Department to improve international comparability of national account aggregates and price structures. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elfrida O'Reilly-Campbell, room S7-125, extension 33707 (22 pages).

957. Carbon Taxes, the Greenhouse Effect, and Developing Countries

Anwar Shah and Bjorn Larsen
(August 1992)

A universal case cannot be made for national carbon taxes. Nevertheless, such taxes make eminent sense for many developing countries — on the grounds of equity, efficiency, ease of tax administration, and an improved local environment, even ignoring the potential benefits from controlling global carbon emissions.

Shah and Larsen evaluate the case for carbon taxes in terms of national interests. They reach the following conclusions:

- A global carbon tax involves issues of international resource transfers and would be difficult to administer and enforce. It is thus unlikely to be implemented in the near future.
- National carbon taxes can raise significant revenues cost-effectively in developing countries and are not likely to be as regressive in their impact as commonly perceived. Such taxes can also enhance economic efficiency if introduced as a revenue-neutral partial replacement for corporate income taxes or in cases where subsidies are prevalent. The welfare costs of carbon taxes generally vary directly with the existing level of energy taxes, so a carbon tax should be an instrument of choice for countries such as India and Indonesia, which have few or no energy tax.
- A carbon tax can significantly reduce local pollution and carbon dioxide emissions. Cost-benefit analysis shows countries with few or no energy taxes substantially gaining from carbon taxes in terms of an improved local environment.
- A carbon tax of $10 a ton produces very small output losses for Pakistani industries analyzed in this paper, and the output losses are fully offset by health benefits from reduced emissions of local pollutants — even ignoring the global implications of a reduced greenhouse effect.
- Tradable permits are preferable to carbon taxes where the critical threshold of the stock of carbon emission beyond which temperatures would rise exponentially is known. Given our current ignorance on the costs of reducing carbon emissions and the threshold effect, a carbon tax appears to be a better and more flexible instrument for avoiding large unexpected costs.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (68 pages).

958. EC Bananarama 1992: The Sequel — The EC Commission Proposal

Brent Borrell and Maw-Cheng Yang
(August 1992)

The Commission's proposal for unification of the banana market would impose big costs on EC consumers and banana producers in a number of developing countries. Alternative options exist that would allow the Community and suppliers in all developing countries to benefit from unification. Vested interests in marketing are blocking consideration of sensible policies.

Some EC countries give preferred market access and high prices to bananas from selected developing countries or EC regional suppliers. This preferential status is regarded as a form of aid to these countries, most of which are developing small island economies. EC marketers of bananas from these preferred suppliers also benefit because of the high retail prices. Nonpreferred suppliers — mainly developing countries of Latin America — are hurt by the policies because access is denied or restricted and the lower demand depresses the world price for bananas.

The Community's commitment to establish a single unified EC banana market on December 31, 1992 provides a timely opportunity to reform existing distortionary trade policies. The recently announced proposal of the Commission of European Communities to regulate banana trade within a unified market relies on quotas to control imports. The proposal is extremely complicated. It is designed to se-

verely restrict competition and to maintain the advantages of selected groups.

Borrell and Yang update their earlier analysis of world banana trade to reflect the market in 1993. They evaluate the implications of the Commission's proposal alongside existing and alternative policies. They find that current policies cost EC consumers about $1.6 billion annually to transfer a net benefit of $0.3 billion a year to preferred suppliers. So, it costs EC consumers about $5.30 to transfer $1.00 of aid to select developing countries or regions. Additionally, every dollar of aid reaching preferred suppliers costs other developing country suppliers $0.32. EC marketers are the main beneficiaries. Of the $5.30 cost to EC consumers, over $3.00 is collected as excessive marketing margins by protected importers and wholesalers. About $1.00 is lost in outright waste.

Several plausible versions of the Commission's proposal are modelled. At best they are found to be slightly less costly than existing policies and at worst, considerably more costly. A 3.5 percent reduction in the quota allocation is estimated to lead to a 30 percent increase in the cost of the proposal.

Borrell and Yang conclude that the Commission's proposal for a unified EC banana policy appears to be little more than a way of replacing existing distortionary national policies with an almost equally distortionary single policy and market. The only difference: the costs would be borne by consumers in all EC countries rather than consumers in only some countries. Worse still, costs could increase. Markets that now gain the benefits of mostly open and competitive marketing such as Germany would face closed and uncompetitive conditions.

For developing countries exporting bananas, the proposal offers little. At best conditions may be no worse than they are now. At worst the policy could hurt Latin American suppliers even more than current policies and introduce considerable confusion about the level of support to preferred suppliers. Under the Commission's proposed quota system aid will not be well targeted. A more efficient way of achieving the EC's aid commitment is through a small tariff of about 17 percent, used to fund a system of well-targeted deficiency payments or direct aid.

The only reason for choosing the Commission's proposal over simpler, tariff-based options seems to be to maintain the vested interests of protected EC marketers. But this is contrary to the objectives of unification, which are to seek gains from increased competition and trade.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to understand the implications for developing countries of changes in the industrial countries' trade policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Audrey Kitson-Walters, room S7-053, extension 33712 (22 pages).

959. Waterborne Diseases in Peru

Sheila Webb and Associates
(August 1992)

The cost of constructing easy-access water facilities (a standpipe less than 1,000 meters from each house) and latrines is an estimated $30 per capita. In Lima's peri-urban areas the cost of not providing them is about $40 per capita. Providing those facilities would relieve the urban poor of devoting (directly and indirectly) an average 23 percent of their income to meeting their water needs.

The cholera epidemic in Peru brought to light the miserable state of local water and sanitation conditions. Webb discusses the relationship between waterborne diseases and water and sewerage conditions in Peruvian peri-urban areas, or *pueblos jovenes*.

These diseases are associated with poor living conditions. In 1989, only 52 percent of the population had access to piped water, and only 39 percent to sewerage. About 52 percent of schools lack light, water, and sewerage. In Lima, 2 million people daily eat meals from street vendors who lack access to fresh water or toilet facilities — 90 percent of a sample of their food was fecally contaminated

Webb estimates the per capita costs of providing in-house water and sewerage facilities in urban areas to be $150 in urban areas and $180 in rural areas. The cost of constructing easy-access water facilities (a standpipe less than 1,000 meters from each house) and latrines in urban and rural areas is an estimated $30 per capita.

In contrast, she estimates the annual per capita cost borne by urban households without in-house continuous water connections (that is, households that buy water from vendors) to be $40.

In short, the total cost borne by the urban poor over four years is equivalent to the cost of providing them with permanent water and sewerage facilities. Providing those facilities would relieve the urban poor of devoting (directly and indirectly) an average 23 percent of their income to meeting their water needs.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (17 pages).

960. Agricultural Pricing and Environmental Degradation

Edward B. Barbier and Joanne C. Burgess
(August 1992)

Changes in pricing policies are not enough to encourage poor farmers to reduce resource degradation. Other approaches are also needed, such as providing better research and extension advice, improving property rights and management, and establishing more secure tenure or access rights. Just because we do not always understand the economic and social factors determining incentive effects does not mean they do not exist.

The link between agricultural pricing and land degradation is often difficult to analyze empirically. Our understanding of how agricultural supply responds to changing prices in developing countries is incomplete. Even more incomplete is our analysis of subsequent impacts on the resource base sustaining agricultural production. Yet available evidence suggests that some important effects do exist, and much further analysis of them is warranted.

The social, economic, and environmental relationships that determine the often countervailing effects of price changes on

land use and management are extremely complex. Not enough is know about:

- Farming systems in developing countries.
- Open-access use and common property resource rights.
- Land tenure regimes and security.
- Access to technology and other farming systems information.
- The distribution of wealth and income.
- Coping strategies for variable climatic, economic, and social conditions.

All these factors influence how rural households respond to price changes in terms of managing land and natural resources, and often they may override the incentive effects of price changes. Changes in pricing policies will then be less effective in "correcting" resource degradation than other approaches to dealing with its underlying causes. Such approaches include providing better research and extension advice, improving property rights and management, and establishing more secure tenure or access rights.

At the same time, it is wrong to assume that poor farmers — even those in resource-poor regions far from major markets — are totally isolated from agricultural markets. Virtually all subsistence households require some regular market income for cash purchases of agricultural inputs and basic necessities; many small farmers provide important cash and export crops. So changes in market prices often significantly affect the livelihoods of rural groups.

Clearly, the economic incentives emerging from these impacts will affect farmers' decisions to invest in land management and improvements. Just because we do not always understand the economic and social factors determining these incentive effects does not mean they do not exist. Nor should the complexity of the links between price changes and resource management — which sometimes appear counterintuitive — deter further analysis of the role of agricultural pricing in land degradation.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (17 pages).

961. Economic Development and the Environment: Conflict or Complementarity?

Wilfred Beckerman
(August 1992)

On the whole, there is a strong positive relationship between income level and environmental quality, and developing countries may be expected to improve environmental quality as their income rises. But new factors may change the usual pattern: new pollutants, cross-border environmental effects, "trade" in polluting activities, and the growth of automobile traffic. Consequently, developing countries are unlikely to replicate precisely the environmental histories of developed countries.

Although, in the course of development some features of the environment in developing countries may get worse, in the longer run they will be able to reverse trends in more common forms of air pollution and to attain levels of water supply and sanitation essential to an acceptable, healthy standard of living. On the whole, says Beckerman, there is a strong positive relationship between income level and environmental quality.

In the developed countries, effective measures to combat urban air pollution were introduced only when it had reached almost intolerable levels in many cities. This does not mean that as countries develop they will replicate precisely the environmental histories of developed countries. The path of environmental pollution in the developing world today will probably differ from that of the past in at least four respects:

- Changes in technology, relative prices, patterns of output, and policies mean that although traditional pollutants have been brought under control in many (mainly developed) countries, the world is faced with newer pollutants, or with "old" pollutants that, on account of their scale or accumulation, have acquired new significance.
- The global character of many pollutants is becoming more serious. Today, even leaving aside the issues of global warming and ozone depletion, there is evidence of serious regional environmental effects of acid rain and of marine or riverine pollution.
- "International trade" in polluting activities adds a relatively new element. Developing countries may suffer not only from their own pollution but also from "imported" pollution, as enterprises shift their more polluting activities from countries with strict controls to countries in which environmental considerations do not have a high priority.
- Today, the fast growth of automobile traffic means that emissions of carbon monoxide or nitrous oxides have become a serious problem; in the past, the chief form of urban pollution was dense sulfur dioxide, or smoke.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (42 pages).

962. Do Markets Underprice Natural-Resource Commodities?

Margaret E. Slade
(August 1992)

Not systematically, except for the environmental externalities associated with the production and use of natural-resource commodities — especially mineral commodities, which cause the most pollution.

Slade examines the efficiency and equity of a market allocation of exhaustible resources and assesses the behavior of scarcity measures, such as relative price and rental rates. She finds little evidence of scarcity or impending shortage. Indeed, the evidence points to falling prices and rents for many commodities.

Do markets send the wrong signals? Are resource commodities systematically underpriced? Her conclusions are not completely optimistic.

Slade's analysis reveals many market failures, any of which would result in inappropriate resource commodity pricing. But, with one exception, she finds no systematic tendency to underprice. The exception concerns the environmental externalities associated with the production and use of natural-resource commodities. Similar externalities lead to underpricing and overuse of all commodities. Mineral commodities, however, are responsible for a large fraction of the pollution that is currently generated, so their underpricing is particularly significant.

The market failures associated with common-property and environmental resources can cause market prices to be lower than shadow prices or marginal values. They cannot, however, cause relative resource prices to fall, Slade argues. Falling prices would be associated with a relaxation of environmental standards and a move away from full-social-cost pricing. The tendency, however, is toward increased awareness of environmental damage and increased willingness to pay for its associated costs.

Nevertheless, the prices of many natural-resource commodities have fallen in real terms. Factors causing prices to decrease are not associated with market failure, and therefore do not support interference with the market mechanism. Indeed, says Slade, innovations that lower mining and processing costs, discoveries that increase resource stocks, and the provision of lower-cost substitutes are all features of efficiently operating markets.

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963. Growth and Welfare Losses from Carbon Emissions Restrictions: A General Equilibrium Analysis for Egypt

Charles R. Blitzer, R. S. Eckaus, Supriya Lahiri, and Alexander Meeraus
(August 1992)

To achieve a specified reduction in the accumulation of greenhouses gases in the atmosphere, it is far better to allow for flexibility in the timing of adjustment policies than to impose a particular deadline. This lesson applies to all countries: rigidly imposed limits on emissions controls entail unnecessary economic costs.

Blitzer, Eckaus, Lahiri, and Meeraus assess the economic effects on Egypt, under various conditions, of restricting carbon dioxide emissions. They use their model to assess the sensitivity of these effects to alternative specifications: changes in the level or timing of restrictions, changes in the rate of discount of future welfare, and the presence or absence of alternative technologies for generating power.

They also analyze a constraint on accumulated emissions of carbon dioxide. Their model has a time horizon of 100 years, with detailed accounting for every five years, so they can be specific about differences between short- and long-run effects and their implications.

However, the results reported here cover only a 60-year period — and are intended only to compare the results of generic, "what if?" questions, not as forecasts. In that 60-year period, the model economy substantially depletes its hydrocarbon reserves, which are the only nonproduced resource.

The authors find that welfare losses due to the imposition of annual restrictions on the rate of carbon dioxide emissions are substantial — ranging from 4.5 percent for a 20 percent reduction in annual carbon dioxide emissions to 22 percent for a 40 percent reduction. The effects of the annual emissions restrictions are relatively nonlinear.

The timing of the restrictions is significant. Postponing them provides a longer period for adjustment and makes it possible to continue delivering consumption goods in a relatively unconstrained manner.

The form of the emissions restrictions is also important. Welfare losses are much higher when constraints are imposed on annual emissions rates rather than on total additions to the accumulation of greenhouse gases.

Conventional backstop technologies for maintaining output and consumption — cogeneration, nuclear power, and gas-powered transport — are more significant than unconventional "renewable" technologies, which cannot compete for cost.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (40 pages).

964. Toxic Releases by Manufacturing: World Patterns and Trade Policies

Robert E. B. Lucas
(August 1992)

Would free trade result in greater and more rapid environmental degradation for developing countries? Less protection of their domestic industrial chemical industries would reduce the pollution-intensity of their manufacturing sector — but merely relocating firms that emit globally damaging toxins clearly misses the point.

Little evidence exists on the distribution across countries of toxic releases by manufacturing, or on how those patterns change through time.

A number of studies have asked whether environmental controls imposed in the industrialized economies are diverting investments in pollution-intensive activities offshore. These studies reach a broad negative conclusion: direct investment does not appear to be stimulated by such regulation, in part because the cost of emission controls is generally a tiny fraction of operating costs.

But direct investment reflects only part of what may be happening to world pro-

duction patterns. Technology transfers may occur with no simultaneous direct investment, and production may readily shift toward a different global distribution without either direct investment or technology transfer.

Lucas presents the evidence on the world distribution of manufacturing production according to pollution density — using data from the World Bank Industrial Pollution Projections Team. He then examines the validity of the claim that free trade would result in greater and more rapid environmental degradation for developing countries. He finds that:

- The onus is on the higher-income countries to contain the emissions of their increasingly pollution-oriented mix of manufacturing industries.
- The global trend has been toward an increasingly emission-intensive pattern of production, in relation to both manufacturing and to GDP. This trend has been remarkably constant over three decades and shows no signs of slowing.
- The upward trend in emission-intensity of manufacturing production has been faster among lower-income nations. If pollution restraints on given industries are progressing more rapidly among the wealthier countries, this disparity would be even sharper than the Bank data suggest.
- Developing countries that produce coal, crude oil, or natural gas also have more pollution-intensive manufacturing sectors, based on the availability of those raw materials. It may be doubted that fostering such industries always reflects a comparative advantage. Petrochemical industries in the coal-oil-gas-producing countries are often substantially protected or subsidized.
- Among all developing countries, import protection stimulates a larger chemicals industry and thus more emission-intensive manufacturing. One might guess that less protection of local industrial chemical industries would decrease the pollution-intensity of the developing countries' industry. But merely relocating firms that emit globally damaging toxins clearly misses the point.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (25 pages).

965. Coping with the Disappointing Rates of Return on Development Projects That Affect the Environment

William Ascher
(August 1992)

The fundamental political economy of early commitment to grandiose projects of uncertain environmental consequence has not been overtur ·ed. Projects with environmental impacts often have unacceptably low rates of return; governments and international agencies frequently fail to reject projects of this type. More realistic evaluations will help. It is important to hold those responsible for appraising a project accountable for their appraisals.

Lending institutions' initial appraisals often ignore the true costs of environmental impacts, and many development projects are launched despite returns that are often below the cost of capital and all too often actually negative.

Most environmental impacts are negative, so approving a project with a low true rate of return is not only a financial waste but a gratuitous stress on the ecosystem. Ecosystems typically have a low tolerance for such impacts, so low-yielding projects entail serious ecosystem opportunity costs.

Ascher explores why projects with environmental impacts so often have lower-than-anticipated rates of return, and what can be done to remedy the situation.

Many observers are optimistic because there is more environmental awareness than there was in the 1970s and early 1980s and environmental screening is more a part of project evaluation. But, says Ascher, attention to environmental risk has not yet provoked the structural changes in government institutions that would allow for the development of incentives that give proper weight to environmental risks. The fundamental political economy of early commitment to grandiose projects of uncertain environmental consequences has not been overturned.

It is also important to develop better appraisal methodologies and to hold those preparing initial project appraisals accountable for their appraisals. If post-project evaluations do not capture the most significant environmental costs, analysts conducting appraisals early in the project's life are unlikely to worry about being caught out by their unfounded optimism or their disregard for environmental consequences.

The good news is that in policy reform and structural adjustment the movement is toward eliminating blatant risk-seeking and making government institutions accountable for the results of their own actions. Although the conditionalities imposed by international funding institutions can be helpful, the primary responsibility for designing and selecting appropriate projects that have an environmental impact still lies with the governments of the developing world.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (23 pages).

966. Trade and the Environment: A Survey of the Literature

Judith M. Dean
(August 1992)

At best, trade barriers are a second-best means of reducing environmental damage. Any case for more gradual liberalization of trade should be based on estimates of the costs of maintaining barriers versus the benefits of delayed environmental damage.

The recent revitalization of concern for environmental quality has generated many questions about the interaction between trade and the environment. Most of these questions have to do with the impact of environmental regulation on trade patterns and gains from trade. If a

tradeoff is perceived, it is often argued that some intervention becomes appropriate: either a specific trade policy or the establishment of an international environmental standard.

Present GATT policy then becomes an issue of debate. Should GATT revise its rules to accommodate the specific trade measures suggested? How can GATT ensure that the environmental objective is not a disguise for a trade barrier? Should GATT establish some international environmental standard with procedures to ensure compliance?

The importance given to trade liberalization and exchange rate policy reform as part of adjustment for development has raised another set of questions: Is there a direct link between the removal of trade barriers and environmental degradation? If so, how should liberalization strategies incorporate this cost? Should trade policy be used to meet environmental objectives?

Dean surveys the literature on the main questions being debated in both of these areas. Among her conclusions:

- More stringent regulations in one country are thought to result in reduced competitiveness and perhaps industrial flight and the development of pollution havens. The many empirical studies that have tried to test these hypotheses have shown no evidence to support them.
- Countervailing duties or an international environmental standard have no place here. Both concepts ignore the reallocation of resources that must occur if externalities are to be efficiently incorporated into costs. They also ignore the fact that standards should be based on local calculations of marginal costs and benefits. Only if an exporter's standards are below what is locally optimal would a countervailing duty be justified.
- Subsidies are likely to be trade barriers in disguise and should generally not be accommodated. They are not usually an efficient means of achieving an environmental objective and may hinder the efficient allocation of resources away from pollution-intensive industries.
- Imposing a tariff when pollution spills over national boundaries can be no more than a second-best policy. If the tariff is based on damage to the victim country alone, it will not reduce trade in the polluting product enough; if it maximizes the welfare of the victim, it may reduce trade in the product too much.
- There seems to be a case for establishing some international code of product standards, to prevent the use of such standards as nontariff barriers.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (27 pages).

967. Transition Problems in Economic Reform: Agriculture in the Mexico-U.S. Free Trade Agreement

Santiago Levy and Sweder van Wijnbergen
(August 1992)

How fast should Mexican agriculture be incorporated into the North American Free Trade Agreement? What policies should characterize the transition?

Levy and van Wijnbergen use Mexican agriculture as a case study to analyze the transition problems that arise in most major economic reforms. They focus on the implications for policy design of the absence of efficient capital markets; on the welfare costs of reforming only gradually; on incentive problems created by trade adjustment policies; and on the redistributive aspects of policy reform in the presence of realistic limits on available intervention instruments.

They emphasize that adjustment should focus on increasing the value of assets owned by the groups affected, and not on direct income transfers or programs targeted to output or other characteristics controlled by the beneficiaries. That is, they contend that adjustment should be targeted to improving what people have, as opposed to what people do.

This paper — a product of the Country Operations Division 1, Country Department II, Latin America and the Caribbean — was partially financed by the OECD Development Center as part of their research project on Developing Country Agriculture and International Economic Trends, and by the World Bank under grant no. BB676-65M. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Margaret Stroude, room I8-159, extension 38831 (34 pages plus 19 pages of appendix).

968. Biomass

David O. Hall
(August 1992)

Local involvement and control is a prerequisite for the success of biomass programs, and there is no short-cut to their long-term planning and development.

In the last century, biomass fuels — mostly wood — provided most of the world's energy. Today biomass in all its forms (wood, dung, and agricultural and forest residues) supplies about 14 percent of our energy — most of it in developing countries, where biomass is the most common energy source. Biomass provides more than a quarter of China's energy, for example.

Rural areas in most developing countries depend heavily on biomass for energy. A dearth of biomass energy usually indicates other developmental and environmental problems. The difficulty in trying to ameliorate such problems is that bioenergy may not be a priority for local communities, which have more pressing problems or are unable to take the longer-term view toward rehabilitating their biomass resources.

But outside energy experts tend to focus on one aspect of biomass use to the exclusion of all others, and therefore many biomass energy projects and programs fail. Hall presents case studies showing that local involvement and control is a prerequisite for the success of such programs.

There is an enormous untapped potential for biomass, and bioenergy systems may be less irreversibly damaging to the environment than conventional fossil fuels. Bioenergy systems produce many but mostly local and relatively small impacts on the environment and their impact is more controllable.

There is no short-cut, however, to long-term planning and development of biomass energy systems. And the barriers are many: economic, social, and technological. Modernizing biomass technologies, for

example — so biomass can be used for liquid fuel, electricity, and gas (in addition to its traditional use as a heat source) — involves land use issues that make implementation of biomass projects more difficult than projects involving more centralized energy resources

But both traditional and modernized biomass energy systems need developing to produce preferred forms such as heat, electricity, and liquids. Biomass energy should be modernized more rapidly, and at the same time traditional biomass fuels should be produced and used as efficiently as possible — both in a sustainable manner.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (31 pages).

969. Imports, Exports, and Industrial Performance in India, 1970-88

M. Ataman Aksoy and Helena Tang
(August 1992)

Macroeconomic and trade policies must change significantly to shift India's economy to a more export-oriented path — both to overcome foreign exchange shortages and to rely more on external demand for industrial output. High elasticities in the manufacturing sector indicate that the economy would also respond favorably to changes in incentives.

In the 1960s and 1970s, India's policy of encouraging self-sufficiency by restricting imports was complemented by regulation of all facets of the industrial environment. Still, India developed a large, diversified manufacturing sector. In 1977-78, the policy environment began to change — with a relaxing of import controls and restrictions that has continued until now. With reform of industrial policies and a more expansionary macroeconomic policy, the value added in manufacturing grew from 4.5 percent a year in the 1970s to 7.9 percent a year in the 1980s. Meanwhile, gradual depreciation of the currency since 1985 has encouraged exports and brought prices in India closer to world levels.

The faster growth of output and productivity in the 1980s is a welcome change from India's earlier stagnation. But deteriorating macroeconomic balances have brought India to a balance of payments crisis.

Changes in tariffs and other instruments have more than compensated for relaxation of the import regime. Foreign trade has contracted relative to domestic output, despite some relaxation of quantity restrictions and attempts to increase exports. The main reason for this decline has been the increase in import prices relative to domestic output because of increasing tariffs, large real devaluations (especially after 1986), and rapidly expanding domestic demand, which have made the domestic market more attractive than exports.

Policy reform has led to faster growth of manufacturing output and productivity, but the main force behind faster growth has been increased public spending fueled by growing fiscal deficits. Another important variable has been a more accommodating import policy sustained by large external borrowings. This pattern of growth is not sustainable because of significant internal and external debt stocks that have accumulated over the last decade. Macroeconomic and trade policy must change significantly to shift the economy to a more export-oriented path — both to overcome the foreign exchange shortages and to rely more on external demand for industrial output.

Aksoy and Tang argue that the manufacturing sector is highly responsive to relative price changes. Pessimism about elasticity has pervaded Indian policymaking but they show high elasticities, indicating that the economy would respond favorably to changes in incentives.

This paper — a joint product of the Southern Africa Department, Country Operations Division and South Asia Country Department II (India), Country Operations, Industry and Finance Division — is part of a larger study of India's trade regime undertaken by the South Asia Regional Office. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Matenda, room J11-217, extension 35055 (41 pages).

970. Political Models of Macroeconomic Policy and Fiscal Reform

Alberto Alesina
(August 1992)

Two forces affect the success of stabilization in both democratic and dictatorial systems: (1) the policymakers' incentive to retain power and (2) society's polarization and the degree of social conflict.

Alesina explains how recent developments in political economics improve our understanding of macroeconomic policy — especially the timing, design, and likelihood of stabilization's success through monetary and fiscal reform.

Alesina reviews the literature on political business cycles and emphasizes several issues involving the relationship between the timing of elections and the timing of macroeconomic policies and outcomes.

He also addresses how models can be useful in studying nondemocratic systems. Two forces are crucial factors in both democratic and dictatorial systems, although they may manifest themselves differently: (1) the policymakers' incentive to retain power and (2) society's polarization and the degree of social conflict.

Alesina then analyzes why economic stabilization is delayed, even when it is obvious that sooner or later a stabilization program will have to be adopted. Some points made in the paper follow:

Certain institutional characteristics make quick and successful stabilization more or less likely. The more unequal the distribution of stabilization's costs, the more likely that stabilization will be delayed. An increase in the cost of postponing stabilization reduces the delay. Political institutions that make it easier for small interest groups to "veto" legislation make delay more likely.

If political and economic resources are unequally distributed, and it is obvious which group is stronger and has resources to wait longer, a "war of attrition" ends immediately, as there is no uncertainty about who will win it. Delay is more likely when information about who will bear the cost of delays is uncertain or unevenly distributed.

Delay is also more likely when there is agreement about the need for fiscal change but a political stalemate about distribution — about how the burden of higher taxes or spending cuts should be allocated.

Stabilization usually occurs when there is political consolidation. The burden of stabilization is sometimes unequal, with the politically weaker group (often the lower classes) bearing a larger burden (often regressive measures).

If it is in the interest of the current government to do nothing for fear of failure because of government incompetence, the public may have no incentive to vote for the opposition because the opposition may also do nothing; the crucial factor here is how aware the government is of its own incompetence and thus its reasons for not attempting reform.

Successful stabilization usually comes after several failed attempts, and the successful program is often very much like one that failed.

Research for this paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — was funded by the World Bank's Research Support Budget for the research project "Political Economy of Structural Adjustment in New Democracies" (RPO 676-37). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (36 pages).

971. The Effects of Democratic Determination of Wages: Theory and Evidence from Self-Managed Firms

Milan Vodopivec
(August 1992)

Should workers participate in decisionmaking about pay? Democratic decisionmaking about pay — if divorced from substantive participation of workers in other areas — decreases productivity.

Some assert that when efficiency requires cooperation, effectiveness is increased by an egalitarian pay structure resulting from workers' participation in decisionmaking about pay. But it can also be argued that equalizing pay reduces the morale of highly productive workers, and thus more than offsets the positive effects of cooperation.

To shed light on this controversy, Vodopivec explores both theoretically and empirically how productivity is affected when workers determine relative pay differences democratically (by referendum). The median voter model suggests that this kind of decisionmaking process produces an egalitarian wage structure. Using alternative assumptions about worker incentives, Vodopivec formalizes and empirically tests two competing views about how an egalitarian wage structure affects productivity in a sample of Yugoslav firms. He finds that democratic decisionmaking about pay — if divorced from substantive participation of workers in other areas — decreases productivity.

One implication of this finding for policymakers, particularly in Eastern Europe and the former Soviet republics, is that programs designed to allow workers to participate in pay decisions must be consistent with the workers' general involvement in decisionmaking. If participation is limited to decisions about pay, or if external control is imposed on intrafirm wage differentials (which has effects on wage distribution similar to those of worker participation), the resulting compressed wage structure is likely to produce negative effects on productivity.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to investigate the labor market in transitional economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (26 pages).

972. Commercial Energy Efficiency and the Environment

Robin W. Bates and Edwin A. Moore
(September 1992)

Greater energy efficiency in developing countries and Eastern Europe is a high-priority way to mitigate the harm to the environment of growing energy consumption. Any strategy to make energy use and production more efficient must rely more extensively than before on markets that are allowed to function with less government interference.

The production and use of energy create serious, extensive environmental affects at every level, in every country, argue Bates and Moore. That impact may be more serious in developing than in developed countries as developing countries depend more on natural resources and lack the economic strength to withstand environmental consequences.

At the same time, a reliable energy supply is vital to economic growth and development. Energy consumption and economic growth have been somewhat delinked at high income levels, but increased energy consumption (especially of electricity) is inevitable with higher GDP.

Greater energy efficiency in developing countries and Eastern Europe is a high-priority way to mitigate the harm to the environment of growing energy consumption, say Bates and Moore. They outline four advantages of greater energy efficiency:

- It requires measures that are in the economic self-interest of those regions. Political obstacles make these measures difficult, but there are well-established techniques for addressing concerns about low-income consumers (such as direct income support or "lifeline" rates).
- It will help conserve the world supply of nonrenewable (especially fossil) fuels.
- It will encourage appropriate fuel switching.
- It addresses every level of concern, up to the global effects of global warming.

Any strategy to make energy use and production more efficient must rely more extensively than before on markets that are allowed to function with less government interference. The crucial components of such a strategy (also crucial to economic development generally) are:

- More domestic and external competition.
- The gradual elimination of energy pricing distortions.
- The reduction of macroeconomic and sectoral distortions (for example, in foreign exchange and credit markets).
- The reform of energy supply enterprises — reducing state interference, providing more financial autonomy and a greater role for the private sector.
- Consumer incentives to select more efficient lights, space heating, and so on.

Bates and Moore are not convinced of the need for nonmarket approaches beyond those geared to correct externalities, provide essential information, support basic research and development, and possibly promote pilot projects.

They also conclude that a government is far more likely to take action to reduce an environmental externality if it captures benefits within its own national boundaries that exceed the cost of the action. Reducing the large difference between energy prices and economic costs in developing countries and Eastern Europe is a more immediate issue than carbon taxes.

The developed countries, say Bates and Moore, have an indispensable role to play in improving energy efficiency in the developing countries and Eastern Europe. They can encourage the flow of efficient technology, they can increase conventional aid, and they must accept a greater share of the burden of protecting the global commons.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (59 pages).

973. How Changes in the Former CMEA Area May Affect International Trade in Manufactures

Refik Erzan, Christopher Holmes, and Raed Safadi
(September 1992)

Western Europe will be the major trading partner of the Eastern European and former Soviet economies, but their trade with Japan, North America, and developing countries will also expand. Eastern Europe's greater access to Western markets may conflict with the export interests of other developing countries.

Erzan, Holmes, and Safadi give a long-term perspective on how changes in the former CMEA area will affect international trade in manufactures. They show that expanding Eastern European exports to the West should be viewed as a step toward normalizing the Eastern European countries' trade patterns

First, proportionally less of the Eastern European economies' trade will be with each other, especially with the former Soviet Union. Second, Western Europe will be their major trading partner but their trade with (especially imports from) Japan and North America may increase dramatically (from a small base). Their exports to and imports from developing countries may also change dramatically.

The volume of Eastern European trade is in line with the low income of these economies. In the long run manufactures trade will increase four- to sixfold, once Eastern European income levels catch up with industrial country levels. Until incomes in Eastern European and former Soviet economies increase significantly, labor-intensive goods are likely to dominate their exports to market economies, and sophisticated goods their imports.

Erzan, Holmes, and Safadi contend that, since the end of the Cold War, the West has successfully improved the Eastern European countries' access to Western trade, and that the Eastern European countries should now enjoy equal or favorable treatment. Czechoslovakia, Hungary, and Poland, in particular, may become the "most favored outsiders" in the European Economic Space, the largest single market in the world.

One short-term effect of the Eastern European countries' improved outlook may be that developing countries that rely on manufactures for export revenues may have tougher times in major Western markets. But the emancipation of Eastern European and former Soviet economies — and the pent-up demand for consumer goods likely from deprived populations — should provide important opportunities for the dynamic developing countries.

The former Soviet Union was not a large market for developing countries — except for India and Yugoslavia and to a lesser extent Algeria and Egypt. Countries such as India that did supply the former Soviet Union with manufactures may soon have to seek alternative markets.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the impact of EC92 and changes in Eastern Europe on global trade patterns. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (51 pages).

974. How Minilateral Trading Arrangements May Affect the Post-Uruguay Round World

C. A. Primo Braga and Alexander Yeats
(September 1992)

Fears about how the further spread of free trade areas will affect world trade volumes may be exaggerated — while the dangers of these blocs becoming hostile to each other may have been underestimated. "Managed" trade is a far more likely outcome.

One issue dominating recent discussions on free trade areas and other minilateral associations (preferential trade arrangements) is whether such arrangements will detract from further multilateral trade liberalization on a most-favored-nation basis. But for much of this debate empirical information has been lacking on:

- The global importance of minilateral arrangements that have been, or are being, concluded.
- The relative size of other major bilateral trade flows *not* affected by minilateral arrangements, and their suitability for such arrangements.
- The global importance of Europe in this process.
- The possibility that other sorts of arrangements — such as "managed" trade initiatives (arrangements specifying quantitative trade targets) — are a more likely threat as far as trade flows not presently covered by free trade area arrangements are concerned.

Braga and Yeats argue that this lack of relevant data has led to several misconceptions about the movement toward minilateralism. In particular, their statistics suggest that fears about how the further spread of free trade areas will affect world trade volumes may be exaggerated — while the dangers of these blocs becoming hostile to each other may have been underestimated.

Using data recently compiled by the United Nations, Braga and Yeats show that the global importance of minilateral arrangements is now far greater than is often recognized. Almost half of world trade is affected by these arrangements.

But major trade flows not covered by minilateral arrangements are dominated by important country-specific problems.

In particular, problems relating to high-technology trade between Asian newly industrialized countries (NICs), Japan, and the United States, as well as between Asian NICs, Japan, and Western Europe, are sufficiently important to hinder the formation of additional free trade areas. This suggests that fears about the spread of such arrangements may have been exaggerated.

Braga and Yeats's tabulations and analysis of the "discriminatory" trade barriers applied to these flows indicate that "managed" trade is a far more likely outcome.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to evaluate the influence of changes in external conditions on developing countries' trade and growth prospects. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-035, extension 33710 (31 pages).

975. Techniques for Improving Client Relations in Family Planning Programs

George B. Simmons, Sara Koerber, and Ruth Simmons
(September 1992)

Four techniques for improving client relations that should be part of systemic change — not applied like bandaids — to make family planning services more effective.

Demand for children and demand for contraceptives are not independent of the system of supply. And client transactions are the major means for lowering costs. Family planning workers, providers of services and mass media campaigns, are the harbingers of new ideas and new delivery systems that could modify the demand for fertility regulation and patterns of contraceptive use.

Simmons, Koerber, and Simmons describe four broad techniques for improving client relations, emphasizing their potential as entry points into program development (systemic change). These techniques are presented as a sampling of experience that can be brought to bear on dysfunctional client relations. Among examples described:

Patient flow analysis (PFA). A self-administered time-and-motion diagnosis that allows computerized documentation of patient flow and personnel use in health service clinics. Using relatively unobtrusive data collection, PFA seeks to get a representative snapshot of a program and its dysfunctions, replicating a "typical" clinic session. Data are later diagnosed and remedies proposed for bottlenecks and inefficiencies.

Training and visit (T&V). A managerial approach for dealing with geographically scattered outreach programs. The four main principles of T&V: focus on a few key tasks, frequent in-service training and supervision, regularity and predictability, and face-to-face communication. The T&V model focuses on what workers should be doing with their time in the field to meet client needs. A goal of T&V: to enable all clients to name their worker and the day of the week s/he visits, and identify a few themes from their most recent encounter.

Activity planning. The antithesis of T&V, activity planning calls for abandoning rigid time-place-movement schedules and specific messages and replacing them with a fluid work scheduled adapted to local conditions. Workers must be well-trained in collecting data, listening and building rapport, and communicating with conviction. The quality of the worker-client relationship is all-important. A weakness is that if the workers have no objective they lose control of the exchange with clients.

Training and worker empowerment. Training by itself is not enough for systemic change — training for what? But training can serve as an entry point into organizational development when it is rooted in methodologies that help to develop the participant's technical and interpersonal skills and ability to innovate. But training must be accompanied by changes in the system of supply that supports and facilitates innovation and quality of care.

Techniques to improve client relations can address either the client-provider interface directly or the system of underlying determinants. It is important to ask basic questions: Is the idea to "fix" a single worker-client dysfunction or is it to provide a continuous program for modification and growth? Who will be affected by the change? Who or what will be responsible for initiating and overseeing the course of action? What are the short- and long-run goals of intervention?

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is a background paper produced for the "best practice" paper on effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (32 pages).

976. Strategic Management of Family Planning Programs

Cynthia P. Green
(September 1992)

Program management — especially logistics management — remains the Achilles heel of family planning programs.

Program management has received insufficient attention among family planning leaders, possibly because of the medical/demographic background of many leaders, a focus on other program priorities (such as sheer survival), the pressure to expand programs rapidly, and limited donor interest in the subject.

As programs grow in complexity, the problems resulting from weak management systems become more obvious, and organizations are compelled to introduce rational systems. The more successful family planning programs have paid close attention to key aspects of management and have striven to continually improve their systems.

According to the principles of strategic management, there is no single "best" solution to the various problems organizations face. Each organization must work out a response appropriate to a given situation. But managers should know more about possible options and their effectiveness in other settings. In family planning, a dearth of research on options — compounded by the fact that many programs do not collect basic information about program inputs and outputs — makes it difficult to analyze which programs work and why.

Logistics management is the Achilles heel of family planning programs. Many programs experience depleted supplies of contraceptives in demand and oversupplies of others. Lack of contraceptives not only leads to pregnancies but erodes client trust in the service provider and undermines staff morale. Measures to im-

prove logistics management are readily accessible. What is lacking is a commitment from high-level managers to introduce the needed changes.

Staff development also merits more attention from managers, as high-caliber staff can make a big difference in program performance. Managers do not always have flexibility about staff recruitment, promotion, and retention, but they should strive for as much leverage as possible. Little research has been done on the impact of training, so managers should assess the relative effectiveness and costs of different approaches. The key factor seems to be the relevance of the training content to the individual's job responsibilities.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is a background paper prepared for a review of effective family planning programs. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (46 pages).

977. Income Security for Old Age: Conceptual Background and Major Issues

Estelle James
(September 1992)

A system for old-age security should probably combine different approaches: mandated savings and annuities; a redistribution of income to old people who did not earn enough when they were young to build an adequate cushion of savings; fiscal incentives for nonmandatory savings and annuities (including tax incentives for job-based pension plans); and an informal system of purely voluntary personal savings and family arrangements.

A large and growing proportion of the world's population is old; the elderly are often poor; and many countries face huge fiscal burdens because of promises they have made to give their older citizens income security.

These government old-age security policies have been debated in developed countries for years; more recently they have also become a matter of concern in developing countries. James identifies the issues countries should consider as they reevaluate their old policies and formulate new ones.

The structural differences among available models for providing old-age security involve:

- The link between benefits and costs to each individual, which is closely tied to the plan's objectives (for example, savings and insurance versus redistribution).
- Whether the scheme is funded largely in advance or whether it is financed on a pay-as-you-go basis.
- How much the scheme relies on private or public management.

The choice between these models has broad implications for the operation of labor and capital markets, the fiscal system, and thus the level, growth, and distribution of GNP.

James examines her working hypothesis, that a system built on several pillars is preferable to any single method for providing old-age security — a mixed strategy is the best way to accomplish many goals with minimum costs, including evasionary, distortionary, and uncertainty costs. Of four pillars,

- One mandates savings and annuities, so that people are required to set aside resources during their working years to take care of their needs when they are older. This pillar also ensures against such individual risks as uncertain longevity.
- One redistributes income to old people who did not earn enough when they were young to build an adequate cushion of savings. This pillar may also ensure more broadly against such group risks as unexpectedly high inflation or unexpectedly low rates of return in the economy.
- One provides fiscal incentives for nonmandatory savings and annuities, such as tax incentives for job-based pension plans.
- One consists of purely voluntary personal savings and family arrangements, a continuation of the informal system of old-age security that remains important in most countries even after formal systems are in place.

The mix of these pillars will vary from country to country, depending on their objectives and economic conditions. James evaluates the impact of different mixes on the distribution of costs and benefits and discusses the difficulties of making the transition from one system to another.

She outlines a forthcoming study that will analyze important design features of each system, such as conditions for eligibility and coverage, methods of financing, formulas for benefits and contributions, and provisions for indexing and early retirement. The study will also propose reforms for existing public plans that have become financially nonviable.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — is part of a larger effort in the department to investigate the complex issues related to old age security arrangements. The research was funded by the Bank's Research Support Budget under research project "Income Security for Old Age" (RPO 677-45). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (56 pages).

978. How Restricting Carbon Dioxide and Methane Emissions Would Affect the Indian Economy

Charles R. Blitzer, R. S. Eckaus, Supriya Lahiri, and Alexander Meeraus
(September 1992)

The economic effects on India of restricting carbon dioxide and methane emissions would be profound. Would compliance with international agreements for emission restrictions be more likely if they required annual, rather than cumulative, reductions?

India and China between them contain about 40 percent of the earth's people. They are at an early stage of economic development, and their increasingly massive energy requirements will depend heavily on coal, a potent source of carbon dioxide, a powerful and long-lasting greenhouse gas.

India also has important sources and uses of hydroelectric and nuclear power, petroleum, and natural gas. Agriculture still produces about 30 percent of its gross domestic product, and about 72 percent of the population lives in rural areas — with their large animal populations and substantial forest acreage. India has vast cities and an industrial sector that is large in absolute terms, although it represents only 30 percent of the economy.

The model developed to analyze the economic effects of constraints on green-

house gas emissions is a multisectoral, intertemporal linear programming model, driven by the optimization of the welfare of a representative consumer. A comprehensive model was built not to project the future at a single stroke but to begin to answer questions of a "What if?" form.

The results strongly suggest that the economic effects on India of such constraints would be profound.

The implications of different forms of emissions restrictions — annual, cumulative, and radiative forcing — deserve more attention. Cumulative restrictions — or better still, restrictions on radiative forcing — are closely related to public policy on greenhouse effects. Such restrictions also provide significant additional degrees of freedom for the economic adjustments required. They do this, in part, by allowing the postponement of emissions restrictions, which is not permitted by annual constraints. Of course, the question arises whether a country, having benefited from postponing a required reduction in emissions, would then be willing to face the consequences in economic losses.

Might there be a genuine preference — albeit an irrational one — for taking the losses annually? Would compliance with international agreements for emission restrictions be more likely if they required annual, rather than cumulative, reductions? Monitoring requirements would be the same in either case; if effective monitoring were carried out, it would detect departures from cumulative or radiative forcing constraints just as easily as departures from annual constraints.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (40 pages).

979. Economic Growth and the Environment

Dennis Anderson
(September 1992)

Addressing environmental problems efficiently should be viewed as a means of raising economic growth and living standards in developing countries, not of reducing them — contrary to the standard historical and contemporary view in industrial countries.

Anderson argues that efficient solutions to environmental problems are a means of improving a country's economic growth prospects and that policies to improve economic growth prospects will help environmental problems be addressed. Among other points he makes:

- The costs of avoiding pollution or environmental damage are often less than the costs of incurring it. The costs of incurring such damage take many forms, including the impact of air and water pollution on health and amenities, the loss of time and output caused by urban congestion, the health implications of hazardous wastes and poor waste treatment and disposal practices, and the decline in productivity of soils and forests that results from unsustainable agricultural and forestry practices.
- With exceptions, environmental problems cannot be addressed by market forces alone. In some instances, the costs of environmental damage may be borne wholly or partly by agents other than those responsible for the damage. Some sort of tax, law, regulation, or framework for negotiation will be required to bring about a convergence of private and social interests in reducing damage in an economically desirable way.
- When policies are not in place, economic growth may intensify environmental damage and eventually be retarded by it. By contrast, when the right policies are in place, not only may such damage (and its impact on growth) be reduced to low levels, but economic growth may help to achieve environmental improvements — through, for example, raising the finance for water and sanitation facilities or for the maintenance of forest and wildlife reserves.
- The most effective way to reduce environmental damage from economic activities and their expansion is to address it directly — to "delink" it from economic activities, so to speak — by introducing environmentally superior technologies and practices.
- Reducing population growth would help relieve environmental pressures in urban and rural areas, but these effects would be small in relation to two other measures: reducing waste and inefficiency and introducing environmentally superior technologies and practices.
- For the most part, environmental policies succeed because of certain behavioral responses they may cause — in particular, a range of substitutions and technological and managerial changes that give rise to environmentally in-offensive practices.
- The evidence that pollution has a disproportionately higher impact on low-income groups is overwhelming.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (80 pages).

980. The Environment: A New Challenge to GATT?

Piritta Sorsa
(September 1992)

Clarification of the GATT rules would undoubtedly help counter increasing pressures to use trade instruments as a form of environmental policy — and would help redirect attention toward the true causes of environmental damage.

Will environmental issues challenge the General Agreement on Tariffs and Trade (GATT)? Calls for a new round of multilateral trade negotiations on the environment have multiplied. Environmentalists have kept up pressure to modify the GATT. Industries with higher environmental costs may seek protection from imports.

But the GATT, as a trade forum, is not the right place to discuss environmental solutions, contends Sorsa. Focusing on trade will only distract attention from the true causes of environmental problems. Legitimate environmental policies conflict little with GATT rules because the source of most environmental problems is not trade but prices that do not reflect environmental cost, subsidies to environmentally damaging activities, or unclear property rights.

Furthermore, the GATT imposes few constraints on the setting of domestic standards and environmental policies, so there is no environmental need to modify the GATT. On the contrary, by limiting the use of trade measures, which make for poor environmental policies, GATT rules support good environmental practice. By restricting unilateral recourse to trade sanctions, GATT rules respect sovereignty and help contain power-based abuse of the trading system.

In a number of areas, however, the rules are subject to wide-ranging interpretation and would benefit from clarification. This applies especially to GATT's relationship with international agreements and also, in some cases, to the unilateral use of trade sanctions. Industries and policymakers also call for clearer rules for the application of environmental policies with trade effects. Any attempt at unilateralism should be avoided.

A closer look reveals some anomalies in the GATT with regard to environmental policy; these may merit further discussion. GATT rules on border adjustment may encourage the use of indirect policies, since these can be extended to competing imports. Indirect policies can lead to environmental costs being passed on to importers, or to double taxation of environmental costs. Legitimate policies may be left out for lack of specific reference to the environment in Article XX. GATT subsidy rules may constrain burden-sharing options for environmental policies.

Clarification of the GATT rules would undoubtedly help counter increasing pressures to use trade instruments as a form of environmental policy — and would help redirect attention toward the true causes of environmental damage.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (42 pages).

981. After Socialism and Dirigisme — Which Way?

Andrés Solimano
(September 1992)

No universally valid blueprint exists for how to reform an economy, but certain patterns have emerged. This paper reviews alternative strategies for reform and their performance in mixed and post-socialist economies.

Solimano identifies fundamental economic changes in the last 20 years that have influenced the emergence of a new paradigm on economic reform. The new orthodoxy on economic reform emphasizes smaller government, trade liberalization, business deregulation and privatization, macroeconomic austerity, and the role of free markets for resource allocation and growth.

After describing diverse country experiences in economic reform, Solimano summarizes his findings on key aspects of the design of economic reform programs. Among many findings:

- Shock treatment (as opposed to the gradual approach) requires a strong government with broad social support, as the costs of the policies are paid upfront and the benefits may take time to accrue. If the program involves protracted social hardship, political support will begin to evaporate and pressure will build for a reversal of reform.
- Important choices must be made about the sequence of macroeconomic adjustment and consolidation and structural reform. Implementing tax reform and converting quotas to tariffs improve the fiscal budget, so they contribute to macroeconomic stabilization. But premature financial liberalization, before the budget is balanced and real interest rates are at a reasonable level, may lead to financial crisis, as happened in Chile in 1982-83. Massive privatization of large-scale firms can have both stabilizing and destabilizing macroeconomic effects, for example. If it means getting rid of loss-making public enterprises, it could save scarce government resources. But if the resulting output and unemployment costs are socially unsustainable, pressure may mount for the government to come to the enterprises' rescue.
- The shift from an economy with controlled prices to one in which most prices are market-determined generally involves a big hike in price levels. Chile and Mexico illustrate the stubbornness of the inflation that may follow.
- China, Korea, and Chile represent countries that carried out economic reform under authoritarian governments that postponed political reform to gain political legitimacy from the fruits of consolidated economic reform. In countries where economic and political reform are pursued simultaneously (as in Eastern Europe and Russia), fragile democracies with a fragmented party system and weak social institutions and governments do not provide the most favorable political environment for implementing and consolidating complex and painful economic reforms. Under these conditions, governments are bound to face the dilemma of either postponing economic reform to avert a political crisis or to backslide in democratization to apply painful economic policies — both unsavory choices.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — was presented at the conference, Economic Reform: Recent Experiences in Market and Socialist Economies, held July 6-8, 1992, in El Escorial, Spain. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (50 pages).

982. Microeconomics of Transformation in Poland: A Survey of State Enterprise Responses

Brian Pinto, Marek Belka, and Stefan Krajewski
(September 1992)

Managers are typically the inspiration and moving force behind change. Workers' Councils play at best a facilitating role. To get firms to make necessary changes, it is

essential to change the incentive structure at the firm level.

State enterprise behavior and reform have emerged as key issues in the emerging market economies of Eastern Europe because of the size of the state manufacturing sector as measured by its share in GDP, exports, and tax revenues. The difficulties experienced by Polish state-owned enterprises (SOEs) in adjusting and responding to the new economic environment have led to fiscal imbalance, deteriorating portfolios of commercial banks, and burgeoning interfirm payment arrears.

Pinto, Belka, and Krajewski examine the economic and behavioral reactions of a significant sample of Poland's largest SOEs to the macroeconomic reforms introduced as part of the "big bang" in January 1990. They track the evolution of output, costs, and profits, and examine wage setting behavior, enterprise debt dynamics, and enforcement of the "micro" hard budget constraint by banks. They conduct a firm-level analysis of the export boom and its causes and document the evolving tax burden on enterprises. Their findings are based on a survey of 75 large SOEs in manufacturing during June 1989 – March 1991 — six months prior to and 15 months following the big bang.

Some of the main quantitative conclusions were:

- The high nominal interest rate on working capital (from 50 to 72 percent for the month of January 1990 alone) inhibited borrowing and motivated firms to pay off zloty loans, leading to a squeeze on working capital. The huge decline in real wages led to a demand shock, witnessed by rising finished goods inventories. Consequently, the initial, unexpectedly large, decline in output could be explained by a combination of nominal interest rate shock and standard demand considerations.
- High profits in 1990 were temporary, stemming from inflationary gains on once-off inventory sales, devaluation gains on enterprise dollar accounts, and implicit input subsidies from CMEA trade.
- Banks were lax in enforcing creditworthiness, leading to an adverse selection problem marked by loans going mainly to "bad" firms.
- State-owned enterprises tend to be myopic, with considerable short-run pressure on wages that works to the detriment of restructuring investments essential for reducing energy and material intensity and product redesign.
- Nominal and real wages both displayed remarkable flexibility. Employment reduction has lagged output reduction partly because partial indexation of wages to inflation has kept real wages low and partly because of the natural reluctance of worker-controlled SOEs to shed labor. So, there is clear possibility of much higher transitional unemployment once privatization and commercialization get underway on a large scale.
- The hard-currency export boom in 1990 was motivated more by slack domestic demand than higher export profitability.

The main qualitative change is a definite attitudinal shift in favor of profits and marketing in contrast to the old exclusive emphasis on production targets. But there is a serious principal-agent problem, with managers serving at the pleasure of the workers' council and no obvious owner stressing long-term viability considerations in decisionmaking.

The paper concludes by discussing the microeconomics of transformation needed to complement the largely macroeconomic big bang. The importance of addressing firm-level managerial incentives and empowering managers is emphasized in the transition to eventual privatization.

This paper is a product of the Europe and Central Asia Region. An earlier version of this report was distributed under the title, "Microeconomic Response to the Economic Transformation Program: Evidence from the Largest Polish SOEs" [State-Owned Enterprises]. Copies of the more recent paper (supported by the Research Support Budget under research project RPO 676-58) are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Sina Husain, room H11-113, extension 37139 (42 pages).

983. Legal Reform for Hungary's Private Sector

Cheryl W. Gray, Rebecca J. Hanson, and Michael Heller
(October 1992)

Defining real property rights and creating the conditions for free and fair competition and efficient exit of firms are perhaps the most contentious and confused areas in Hungary's current legal landscape — largely because they tread so heavily on vested interests. Other areas of law — including intellectual property, company, foreign investment, and contract law — are less problematic.

Hungary is in the midst of a fundamental transformation toward a market economy. Although it was formerly in the forefront of efforts to reform socialism, after 1989 the goals of reform changed from market socialism to capitalism, as the old Communist regime lost power and the idea of widespread private ownership gained acceptance. The legal framework — the "rules of the game" — is now being geared toward encouraging, protecting, and rewarding entrepreneurs in the private sector.

Gray, Hanson, and Heller describe the evolving legal framework in Hungary in several areas, including constitutional, real property, intellectual property, company, foreign investment, bankruptcy, contract, and anti-monopoly law. These areas of law serve to define property rights, the means of exchanging them, and the rules for competitive market behavior. In essence, they form the bedrock of a legal system for a market economy.

In Hungary as in the other countries of Central and Eastern Europe, defining real property rights and creating the conditions for free and fair competition are perhaps the most contentious and confused areas in the current legal landscape — largely because they tread so heavily on existing vested interests.

Other areas of law — including intellectual property, company, foreign investment, and contract law — are less problematic.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger research effort in the department on the economic implications of legal reform in Central and Eastern Europe. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-054, extension 39065 (45 pages).

984. Barriers to Portfolio Investments in Emerging Stock Markets

Asli Demirgüç-Kunt and Harry Huizinga
(October 1992)

The capital gains withholding tax levied on foreign portfolio investors increases

required pre-tax rates of return in developing countries, increasing domestic firms cost of capital and discouraging physical investment. Dividend withholding taxes do not have this effect since foreign investors can obtain offsetting tax credits.

Demirgüç-Kunt and Huizinga examine to what extent features of the international tax system and indicators of transaction costs affect the required rates of return on emerging stock markets.

They show that the capital gains withholding tax levied on foreign portfolio investors increases required pre-tax rates of return. As countries generally do not index their capital gains taxes, it follows that inflation increases the capital gains tax base, as well as the required rate of return on equity.

Dividend withholding taxes instead appear not to increase the required pre-tax equity returns significantly. The differing results for capital gains and dividend taxes reflect the fact that foreign investors generally can receive domestic tax credits only for foreign withholding taxes paid on dividends.

The return on equity is part of the issuing firm's cost of capital. So, capital gains withholding taxes imposed on nonresidents increase the cost of capital for domestic firms and discourage physical investment. Private investment levels have tended to be low in developing countries in the 1980s. The cost of equity finance in developing countries has gained in importance in the last decade, as these countries' access to international lending capital has been limited during most of the decade.

What do these findings imply for the design of tax policy in relation to foreign portfolio investment in developing countries? The existence of foreign tax credits for dividend taxes paid suggests that a country should tax capital gains more lightly than repatriated dividends — as do Greece, Pakistan, Portugal, and Venezuela. Each of these countries has positive-dividend withholding taxes but no capital gains taxes imposed on nonresidents. Colombia and India do the exact opposite: they tax capital gains far more heavily than dividends. Despite what appears optimal, the trend in developing countries is toward lower dividend withholding taxes, with little change in the average level of capital gains taxation.

It also appears desirable for developing countries to index their capital gains taxes to prevent them from being higher than anticipated.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to understand the impact of emerging stock markets in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 37664 (27 pages).

985. Regional Integration, Old and New

Jaime de Melo, Claudio Montenegro, and Arvind Panagariya
(October 1992)

Regional integration arrangements are more likely to be a stepping stone toward a freer world trading system if GATT rules are strengthened — and if developing countries enter into arrangements with developed rather than other developing countries.

After lying dormant for two decades, regional integration is on the rise. Recent initiatives suggest that the world trading system may be moving toward three trading blocs clustered around Japan, the European Community, and the United States.

Some view this development as a move toward a less fragmented world trading system; others, as a threat to multilateralism. For a typical developing country, the issue is whether to enter into a regional integration arrangement or to choose unilateral trade liberalization.

Two questions must be asked: Is a preferential approach likely to enhance economic efficiency? And are substantial benefits attainable more easily through regionalism or through unilateral trade liberalization?

De Melo, Montenegro, and Panagariya address these issues first by reviewing past and recent regional integration arrangements. They note that recent arrangements are occurring in a more liberal trading environment than those in the past, and that developing countries are now seeking integration with developed country partners (for example, Mexico with the United States). So the context is different from past arrangements, when regional integration was viewed as an extension of import-substitution industrialization at the regional level.

In a discussion of the welfare economics of preferential trading arrangements, they show that a preferential approach to trade liberalization may not increase welfare. For a small country, unilateral trade liberalization will be superior to a preferential approach unless the world divides into trading blocs with mutually high barriers — in which case, a preferential approach ensures market access.

In a discussion of the welfare economics of trading blocs, they note that the move to a few trading blocs may make a cooperative solution more likely — at the same time increasing the rewards of noncooperative behavior if bargaining fails.

With an empirical evaluation, de Melo, Montenegro, and Panagariya show that — after controlling for differences in investment — countries that integrated grew no faster than their comparator group. But human capital contributes significantly to growth, suggesting benefits from regional integration arrangements that emphasize cooperation.

And there is evidence of catch-up, suggesting benefits for the least-developed members of the new wave of arrangements that emphasize North-South membership.

In short, regional integration arrangements are more likely to be a stepping stone toward a freer world trading system if GATT rules are strengthened, and if developing countries enter into arrangements with developed rather than other developing countries.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to understand new regionalism in trade policy. The research was funded by the Bank's Research Support Budget under research project "New Dimensions in Regional Integration" (RPO 677-12). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (47 pages).

986. The Administration of Road User Taxes in Developing Countries

Roy Bahl
(October 1992)

The causes of tax avoidance, of tax evasion, and of the failure to reach full revenue potential from road user taxes lie within tax structures and administrations — and those are the areas that need reform.

After studying the problems of administering road user taxes in 19 developing countries, Bahl reports the following, among other things:

- There is no single, correct structure for road user taxation since the various charges may play different roles in different national revenue systems.
- All effective tax administration requires a solid, uncomplicated tax structure.
- The substantial revenue potential of road user taxation rests on a growing tax base. Despite this, road user taxation remains an underused source of public finance in developing countries.
- Tax evasion and avoidance narrow the tax base, cost governments revenue, and compromise the efficiency and redistribution objectives of a tax system. Evasion may occur by nonfiling, underreporting, or smuggling. It generally increases with the tax rates (particularly the marginal tax rates) and decreases with a greater probability of detection and with a more severe penalty. Avoidance is the result of loopholes in a tax system that enable a taxpayer to reduce liability by adjusting the consumption or composition of received income, or by making different investment or production choices.
- The problems of evasion and avoidance must be approached simultaneously. Good tax administration narrows the possibility for successful evasion, the result may be an increase in avoidance.
- The four main types of road user charges are (1) fuel tax, (2) sales tax, excise tax, and import duty, (3) annual license and vehicle registration charges, and (4) tolls.
- Action should be taken under all four main reform options (1) to keep rate levels as low as possible, (2) to broaden the tax base, limit exemptions, and move toward a single uniform tax rate, (3) to simplify taxes to minimize ambiguity, ease administration, reduce administrative cost, and lower the compliance cost, and (4) to improve tax enforcement by improving tax collection, record-keeping, liability assessment, and identification of those liable to pay the tax.
- Transport fuel pricing needs to be better coordinated, and rate structures — especially for sales tax, excise tax, and import duty — could be lowered and made more uniform. In some countries there is scope for raising fuel tax and the annual license tax, provided it is accompanied by better enforcement. Evidence found in the case studies for this paper have not supported an incentives argument: that taxpayers will be more inclined to pay if they see a direct benefit between tax and spending.

This paper — a product of the Transport Division, Infrastructure and Urban Development Department — is part of a larger departmental project on pricing, cost recovery, and efficient resource use in the road sub-sector. The report is based on a series of case studies carried out in Argentina, Bolivia, Ghana, India, and Yugoslavia — drawing also on studies carried out in Indonesia, Nepal, and Tanzania. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC, 20433. Please contact TWUTD, room S10-027, extension 31005 (46 pages).

987. How the Epidemiological Transition Affects Health Policy Issues in Three Latin American Countries

Jose Luis Bobadilla and Cristina de A. Possas
(October 1992)

How can developing Latin American countries design realistic strategies for preventing and controlling noncommunicable conditions and injuries before they reach the peak rates observed in developed countries — and at the same time maintain efforts to reduce the "unfinished agenda" in health services?

Bobadilla and Possas focus on healthy policy issues associated with health reform needed to meet the health needs arising from the demographic and epidemiological transitions. They illustrate these policy issues by analyzing: Brazil, Colombia, and Mexico, whose populations represent about 60 percent of Latin America's population.

Brazil, Colombia, and Mexico are facing an important decline in mortality and fertility rates. New health problems have arisen related to rapid urbanization and industrialization — for example, injuries, accidental intoxication and poisoning, and the occupational and noncommunicable conditions (such as hypertension and diabetes) affecting an aging population. At the same time, these countries are not free of old health problems — of many infectious and parasitic diseases — although their mortality rates are declining.

That is, old and new health problems coexist while wide social disparities persist in these developing Latin American countries. The epidemiological diversity and the speed of change in disease profiles makes the health transition in many developing countries more complex than the situation developed countries faced.

Most of these countries also have inadequate health infrastructure and are unlikely to be able to afford to develop them in the next decade or so. And most governments are being pressed to adopt the therapeutic medical model to deal with noncommunicable conditions.

Bobadilla and Possas arrive at seven main conclusions about the implications of the epidemiological transition for health policy in developing Latin American countries:

- The transition offers an empirical framework for strategic planning for the health system, allowing policymakers to anticipate future trends and causes of mortality and anticipate disease scenarios.
- Since more disease is expected among the adult and elderly populations, the health system's mission should be revised with more emphasis on disease prevention and control and less on satisfying demand.
- Existing inequities in the geographical distribution of health resources and in the quality of care between health institutions should be corrected to avoid greater epidemiological polarization.
- The health care model should be reformed to strengthen the technical capacity to provide preventive and curative services at the first level of care (health centers) to control the dual burden of disease.
- Efficiency and quality of care need to be substantially improved to accommodate the greater demand for clinical services, especially those provided at hospitals.

• Criteria for setting priorities in the health sector must be defined, so resources can be allocated among competing health needs and socioeconomic groups.

• These countries need to strength their ability to analyze the health status of populations, to evaluate the health system's performance, and to design cost-effective interventions to deal with noncommunicable diseases.

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — was presented at the Workshop on Policy and Planning Implications of the Epidemiological Transition in Developing Countries, organized by the Committee on Population of the National Academy of Science, November 20-22, 1991, in Washington, DC. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (20 pages).

988. Economic Valuation and the Natural World

David Pearce
(October 1992)

Economic valuation can help improve decisions about protecting the environment. By imputing values to unpriced goods, it can make public choices more cost-efficient and thus allow limited public income to be optimally spent.

Economic valuation is controversial largely because its purpose has not been clearly conveyed to non-economists, says David Pearce. The purpose of valuation of the natural world is to elicit measures of human preferences for, or against, environmental change. As a procedure, it thus faces two immediate limitations, he argues.

First, economic values are not the same as "intrinsic" values — values "in" things rather than values "of" things. Economic valuation makes no claim to measure intrinsic values, although through the concept of "existence" value it may be capable of capturing human perceptions of intrinsic value.

Second, measuring preferences focuses on *efficiency* gains and losses from environmental change. It says little about the *distribution* of costs and benefits within a time period or between time periods.

Within a time period, the use of efficiency gains and losses as a guide to policy or project evaluation assumes that the prevailing distribution of income is socially acceptable, since it is that distribution which "weights" the measures of willingness to pay.

Between time periods, the use of another efficiency concept — the discount rate — biases the outcomes of evaluation in favor of the present, and against future, generations where future costs and benefits are both distant and significant.

But economic valuation is useful in several contexts, says Pearce. Project and program appraisal cannot be comprehensive or adequate without it. National environmental policy priorities will be better informed if economic values are known with some degree of certainty. The entire objective of sustainable development almost certainly cannot be interpreted without some idea of the value of environmental services and assets.

Empirical work on valuation remains limited, even in the developed world. It is fairly new in the developing world, although many project evaluations have used some form of indirect valuation. Its importance for the development process is that revealed economic values for environmental conservation and environmentally improving projects and policies have often been found to be large.

Valuation demonstrates that there is an economic case for protecting the environment, and can help improve decision-making. In so doing, it could make public choices more cost-efficient, thus allowing limited public income to be optimally spent.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the World Development Report 1992. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (63 pages).

989. The Indian Trade Regime

M. Ataman Aksoy
(October 1992)

Reforming export policies alone — without reforming India's import and tax systems — will produce only marginal improvements. The whole system needs rationalizing.

Despite attempts to liberalize India's import trade regime, the structure of import licensing is still restrictive and complex and for most products, the licensing systems probably offers no more protection than tariffs do. For most products, trade restrictions are probably redundant as protection.

Reforming export policies alone — without reforming India's import and tax systems — will produce only marginal improvements. Problems in the export administration can be resolved only by making changes in four areas:

• The import licensing system must be rationalized to eliminate import restrictions on inputs and components. The import regime inflicts heavy administrative costs on the Indian economy. Imports of raw materials and other inputs essential for production are delayed, leaving downstream producers idle when domestic supplies are interrupted (which happens often). The export regime is still not rationalized for smaller producers, indirect exporters, and firms that rely on domestic suppliers.

• Tariffs and excise taxes must be consolidated around two to three slabs and the quantitative restrictions in intermediate and capital goods must be eliminated so firms can be compensated accurately for their tax burdens. The system that exists is far too complex.

• The absolute level of tariffs on inputs must be reduced to administer the duty-free import schemes efficiently. High tariffs encourage leakage of duty-free imports into the domestic market and abuse of high drawback rates (incentives).

• Tariffs and taxes on capital goods must be reduced to reduce the costs of investment. Tariffs in India — especially on key intermediate products (metals and chemicals) and capital goods — are high and getting higher fast. The high cost of basic inputs increases the cost of production, leads to uneconomic import-substitution which causes pressure for more

protection, and requires an elaborate, cumbersome system to compensate exporters. High tariffs and excise taxes on capital goods damage Indian competitiveness, adding 10 to 15 percent to the cost of production and severely handicapping exporters.

The excessive tariffs do not fulfill their primary purpose of providing protection and incentives; they are aimed mainly at generating revenues. Public revenues should be generated through more efficient instruments, especially taxes.

This paper — a product of the South Asia Country Department III — is based on a larger study of India's trade regime undertaken by the Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Matenda, room J11-217, extension 35055 (90 pages).

990. Protection and Industrial Structure in India

M Ataman Aksoy and Francois M. Ettori
(October 1992)

...king India's industrial incentive ...eme transparent requires making tar... uniformly low and eliminating all ...ntitative restrictions on imports. Tar... must be used only to provide protection ... incentive signals, not to raise revenues.

...ective protection rates in India are so ...h and vary so greatly that anything ...rt of low uniform tariffs and the com... ...e elimination of quantitative restric... ...s would not make the industrial incen... scheme transparent, as it needs to be.

Aksoy and Ettori produce evidence to ...w that there is ample scope for reduc... tariffs and quantitative restrictions ... that most industries could coexist ...h much less protection than they now ...e.

By eliminating all surcharges on inputs ...iffs on imported inputs, price differen... ...s on local inputs, nondeductible excise ...es) — even without correcting for the ...cts of high investment costs — most ...jects (including import-substitution ...jects) would earn from current inter... ...ional prices a positive profit margin on ...r marginal as well as full production ...s. The proportion of projects with a positive profit margin would triple, from 20 percent to 63 percent.

Among import-substituting projects that are not candidates for export under the present trade regime, under the proposed new regime half would be candidates for export if they would procure their inputs at international prices.

Lower tariffs would fulfill their primary purpose more effectively: providing protection and incentive signals. The function of generating public revenues, another critical issue in India, should be fulfilled not through tariffs but through more efficient and protection-neutral instruments — in particular, direct taxation (income tax) and nontariff indirect taxation (neutral excise taxes, MODVAT, and preferably the value-added tax on consumption).

This paper — a joint product of the Southern Africa Department and of the Industry and Energy Operations Division, Middle East and North Africa Country Department I — is part of a larger study of India's trade regime undertaken by the South Asia Country Department III. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Matenda, room J11-217, extension 35055 (51 pages).

991. Environmental Costs of Natural Resource Commodities: Magnitude and Incidence

Margaret E. Slade
(October 1992)

What would happen to resource production, consumption, and revenue if the developing countries adopted the environmental standards set by the industrial countries, while at the same time the industrial countries increased their spending on environmental protection by the same fraction as the developing countries? The carrying capacity of our natural environment is an important unpriced input to production. A consensus is growing that users should pay for the environmental damage that they cause. Although most people can accept this policy in principle, many are concerned with the magnitude and incidence of its associated costs and the disruptions that would be created during a transition period. Of particular concern is the burden that might be placed on the economies of developing countries. When the industrial world was developing, it was able to benefit from cheap natural-resource commodities. Is it fair to expect countries that are trying to imitate this pattern to pay more?

Unfortunately there are not reliable estimates of the effects of environmental protection costs on production, consumption, revenues, and foreign exchange. Slade explores these issues for the energy and nonfuel-mineral markets, sectors responsible for much of current industrial pollution.

Using a model, she examines the consequences of the developing world adopting the environmental standards of the industrialized world. She assumes: all producers incur clean-up costs; most adjustment is made through changes in prices and quantities, not through altered trade patterns; and the industrialized world increases its environmental expenditures by the same fraction as the developing world.

Slade finds that increased revenue resources will more than compensate the average developing country for the costs of pollution control, so no assistance or intervention would be required. This assumes, however, that capital markets are perfect, which is far from the case in many developing countries. These imperfections constitute the greatest obstacle to successful environmental regulation.

Loans or subsidies from North to South should be considered, says Slade. Developing country producers should be given access to credit in dollars, prices of imported pollution-abatement equipment could be reduced, or aid could be tied to the installation and maintenance of environmental capital.

Slade finds that environmental protection costs are small. Compliance costs of roughly three percent of product prices lead to changes in export revenues of less than one percent. The principal reason for this result is that mineral commodity demand and supply are inelastic in the long run.

As for the incidence of environmental costs, an environmental "tax" is on average progressive, because low-income countries are typically net exporters of mineral commodities, whereas high-income countries are net importers.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Develop-*

ment Report 1992. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (26 pages).

992. Regional Integration in Sub-Saharan Africa: Experience and Prospects

Faezeh Foroutan
(October 1992)

The emphasis of regional integration in Sub-Saharan Africa should shift from the integration of goods markets to the regional coordination of macroeconomic and microeconomic policies, the harmonization of administrative rules and regulations, and the joint provision of public goods. Such steps are likely to make Sub-Saharan African markets more attractive to domestic and foreign investors and to improve economic growth.

After independence, every Sub-Saharan African country, without exception, joined one or more regional integration schemes. Regional integration would have enabled the subcontinent to attain economic growth and prosperity by allowing individual countries to overcome the barriers of desperately small size and poor human and physical capital endowment — thus breaking away from the colonial pattern of trade, often characterized by a heavy reliance on an undiversified and vulnerable structure of exports.

Despite many attempts, and the investment of many scarce resources, to create multinational institutions, Sub-Saharan African markets remain surprisingly isolated from each other. Production and exports in most of these countries show few basic structural changes. Their growth record — especially in the past decade — has been abysmal.

Foroutan's objective is to analyze the reasons for the huge gap between expectations and reality and to evaluate regional integration's prospects in Sub-Saharan Africa. Considering the economic characteristics of Sub-Saharan African countries and their trade relations with world partners, the author argues that too much was expected from regional integration — especially the integration of goods markets.

Benefits that theoretically could have been derived from regional integration went unattained for complex reasons, foremost among which is the disparity in the partners' economic development and the ensuing uneven distribution of gains from regional integration. This disparity prevented any meaningful step toward integrating Sub-Saharan African markets.

Foroutan argues that despite a renewed interest in regionalism in the world, it remains unlikely that regional integration as pursued in Sub-Saharan Africa so far will succeed any more in the future. Regional integration in Sub-Saharan Africa can bear gradual fruit only if costly protectionist and distortionary policies are abandoned for more market-oriented, transparent, balanced economic policies.

The disparity among Sub-Saharan African countries that has hindered the liberalization of goods markets is unlikely to disappear in the short run, Foroutan argues, so the emphasis in Sub-Saharan Africa should shift from the integration of goods markets to the coordination of macroeconomic and microeconomic policies, the harmonization of administrative rules and regulations, and the joint provision of public goods. Such steps are likely to make Sub-Saharan African markets more attractive to domestic and foreign investors and to bring about economic growth.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to understand new regionalism in trade policy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (42 pages).

993. An Economic Analysis of Capital Flight from Nigeria

S. Ibi Ajayi
(October 1992)

Eliminating distortions in Nigeria's economy could minimize externally held foreign claims and capital flight.

Unlike Latin America, there have been no detailed estimates of capital flight or its determinants in Africa. Ajayi addresses this problem and, using several concepts, provides "bands" or a "range" for capital flight in Nigeria. A significant proportion of capital flight can be estimated from recorded data in the balance of payments and debt statistics — but these estimates are only as good as the data are reliable.

Significant amounts of capital flight, relative to external debt, took place between 1970 and 1989. Trade-faking was an important vehicle: exports were underinvoiced to the tune of about US$8.1 billion and imports were overinvoiced about US$6.0 billion.

Econometric analysis shows the culprit to be domestic macroeconomic policy — in the form of inflation, exchange rate misalignment, fiscal deficit, and the lack of opportunities for profitable domestic investments — combined with the relative attractiveness of foreign investments

Eliminating distortions in the economy could minimize substantially externally held foreign claims and minimize capital flight. Among things that need to be done:

- Ensure that the nation's currency is not overvalued.
- Establish an integrated, unified tariff structure to reduce the rewards for trade-faking.
- Establish fiscal discipline, to maintain macroeconomic stability and reduce inflation.
- Ensure a positive real rate of interest — high enough to attract funds but not so high as to stifle investment initiatives.
- Adopt a realistic exchange rate determined by market forces.
- Foster attitudinal changes that contribute positively to honest government.

This paper — a product of the Office of the Director, Western Africa Department — is part of a larger effort in the department to examine the issues of debt, macrostability, and resource flows in the region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nga Lopez, room J6-288, extension 34555 (78 pages).

—. Textiles and Apparel NAFTA: A Case of istrained Liberalization

Trey Bannister and Patrick Low
ber 1992)

paper examines the changes Mexico's le and clothing industry is likely to under NAFTA.

nister and Low examine the changes Mexico's textile and clothing indus- s likely to face under the North Ameri- Free Trade Agreement (NAFTA). y compare pre-NAFTA and probable -NAFTA scenarios for Mexican ex- s. The U.S. clothing and textile indus- is likely to remain among the most ected of U.S. industries, so this is es- ially a comparison of two protection- ituations, not of protection and free e.

Bannister and Low trace how current a and tariff restrictions on U.S. im- s from Mexico will be replaced by rules igin designed to protect U.S. indus- Mexican textile and clothing exports enjoy greater access to the U.S. mar- if most inputs originate in North rica.

Under the triple transformation re- ement, for example, a cotton shirt ld have to be made in the NAFTA re- from yarn and fabric of NAFTA ori- Mexican compliance with this rule ld not prove onerous. Proximity and -standing production-sharing ar- ements have made Mexico heavily ndent on U.S. inputs. Roughly 53 ent of Mexican textile and apparel rts to the United States fall under luction-sharing programs, with an age 69 percent of value added of U.S. in. Only 15 percent of input require- ts for the other 47 percent of trade is orted into Mexico — only 8 percent non-NAFTA countries.

What about future trade? Bannister Low estimate that these Mexican rts to the United States will increase modestly — partly because of the low l of protection already associated with luction-sharing arrangements. Rules igin will not restrict trade expansion. ne additional costs to the Mexican con- er of adopting rules of origin under the TA are small.

ow much investment from outside n America will be attracted to Mexico r stringent input-sourcing require- ments is open to question. The competitiveness of Mexico's apparel industry in non-NAFTA markets will depend to some extent on the international competitiveness of the U.S. textile industry.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of trends toward growing regionalism in international trade. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Aban Daruwala, room S7-042, extension 33713 (43 pages).

995. Recent Experience with Commercial Bank Debt Reduction

Stijn Claessens, Ishac Diwan, and Eduardo Fernández-Arias
(October 1992)

An analysis of the five recent debt-reduction agreements shows that the menu approach achieved debt reduction at substantially lower costs than a comparable market-based operation. But indirect benefits, or efficiency gains associated with debt reduction, are necessary to make the operation benefit the debtor.

Claessens, Diwan, and Fernandez-Arias review the case for market-based debt reduction and concerted debt reduction. They explain the new menu-based approach to debt reduction and discuss why it may be preferred to market-based and concerted debt reduction.

In a review of the five recent debt-reduction agreements, they find that the menu approach indeed achieved debt reduction at substantially lower costs than a comparable market-based operation. By one measure, the five countries may have saved more than $8 billion.

Even a menu-based approach to debt reduction, however, is unlikely to directly benefit the debtor financially. They find that the debtors suffered financial losses equal to a few percent of their GDPs. Indirect benefits, or efficiency gains associated with debt reduction, are necessary to make the operation benefit the debtor.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the costs and benefits to countries of debt and debt service reduction arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 37664 (48 pages).

996. Strategic Management of Population Programs

Michael H. Bernhart
(October 1992)

Although descriptions of strategic planning and management may be reduced to a handful of prescriptions, the practice is often messy and frustrating — especially to managers accustomed to more precise disciplines such as medicine or evaluation. But the gains are widely accepted, making it incumbent on conscientious managers to embark on this often difficult and fractious process.

Formal strategic planning and management appear to contribute to organizational effectiveness. Bernhart surveys the literature on strategic management in private/for-profit organizations and applies lessons from that literature to population programs.

Few would argue that population programs would not benefit from strategic planning and management, but it would be inadvisable to initiate the process when the organization is faced with a short-term crisis; during or immediately before a change in leadership; or when implementation is unlikely. Public sector programs seem to have the latitude to manage strategically.

Models available for adoption include life-cycle models, strategic issues management, stakeholder analysis, and portfolio analysis. The model selected may be a function of (1) who will use it (life-cycle/evolutionary models may be well-suited to the planning needs of donors); (2) the presence of challenges to the survival of the program or to key components of it (stakeholder analysis would find ready application in those circumstances); and (3) the relative success and stability of the program (portfolio analysis may help a program balance its activities in a stable environment whereas strategic issues management is useful in responding to a dynamic environment).

It is important to marshall top-level support, designate who will do the leg work, analyze the organization's history

and current situation, assess internal strengths and weaknesses and external threats and opportunities, and summarize critical issues facing the program. Then a strategy may be developed.

Among the available approaches are: (1) scenario developments (useful for a program that senses a need to change its approach to clients); (2) critical issues analysis (useful for refining successful programs); and (3) a goal approach (useful for programs with diffuse, ill-defined objectives). There are no short-cuts, it is argued. A strategic plan typically contains (1) a mission statement that describes the social need to be addressed, what is unique about the organization, what its values are, and who the principal stakeholders are; (2) a statement of the population to be served and goals for service delivery and quality standards; (3) a service delivery strategy; (4) a financial strategy; (5) a marketing strategy; and (6) support strategies.

Most organizations will find that there is no ideal structure — all require tradeoffs — and that attention should focus on eliminating patently dysfunctional aspects of the structure.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — was prepared as background for a "best practice" paper on effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (26 pages).

997. How Financial Liberalization in Indonesia Affected Firms' Capital Structure and Investment Decisions

John R. Harris, Fabio Schiantarelli, and Miranda G. Siregar
(October 1992)

Financial reform has had a significant impact on firms' real and financial choices — helping to reallocate credit toward smaller firms and relaxing the financial constraints they face.

How did financial liberalization affect Indonesian firms? Harris, Schiantarelli, and Siregar analyzed real and financial indicators for the establishments in their panel of Indonesian manufacturing establishments for 1981-88. Their sample was not representative, but their evidence shows that economic reform had a favorable effect on the performance of smaller firms.

Liberalization helped reallocate domestic credit toward smaller firms to a level roughly proportionate to their contribution to value-added. Moreover, other firms were successful in replacing expensive domestic credit with cheaper foreign credit, releasing some domestic credit to establishments that lacked access to it.

Nominal and real interest rates rose to very high levels, but real returns to capital assets remain high and have increased substantially for small and medium-size exporting establishments. For all groups, higher rates of financial leverage gave rise to extremely high returns on owned equity. Medium-size firms — both conglomerate and nonconglomerate — have had the highest rates of return to capital, financial leverage, and returns to equity.

Financial reform has had a significant impact on firms' real and financial choices. Shifting from administrative allocations of credit to market-based allocations has increased borrowing costs, particularly for smaller firms, but it has also widened access to finance. The net effect appears to have been a decrease in the degree of market segmentation and a relaxation of financial constraints to the benefit of investment activity.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — was prepared for the World Bank research project, Investment Decisions, Capital Market Imperfections, and the Effects of Financial Liberalization: The Ecuadorian and Indonesian Cases (RPO 676-72). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (42 pages).

998. What Determines Demand for Freight Transport?

Esra Bennathan, Julie Fraser, and Louis S. Thompson
(October 1992)

Long-run demand for freight transport is determined in closely similar ways in developed and developing market economies. Not, however, in the transitional socialist countries, where structural change is likely to bring far greater changes in rail freight activity than in road transport.

Decisions about investments in the long-lived assets of transport infrastructure require some assumptions about prospective long-term demand from services using that infrastructure. To improve the basis for such predictions, Bennathan, Fraser, and Thompson estimated the long-run determinants of domestic freight transport, using single-equation regressions on a cross-section of data from "developed" (high-income), "developing" (low-income), and former socialist economies.

They also sought answers to two related questions. First, since statistics on national ton-kilometers of freight transport are much scarcer for developing than for developed countries, what is the scope for generalizing from data on high-income countries? Second, within what limits may one apply results obtained from data on market economies to the prospective evolution of freight transport demand in the socialist transitional economies?

They report the following findings, subject to caveats related to the simple methodology used:

- For the sample of developed countries, and the merged samples of developed plus developing countries, total ton-kilometers of freight transport (excluding transit) are adequately explained by two variables: a country's area and total GDP. Ton-kilometers by road are chiefly explained by GDP; ton-kilometers by rail are explained by country area.
- Road freight in developed and developing market economies shows very similar response (in additional ton-kilometers) to variations in GDP. But the elasticity of demand for road ton-kilometers with regard to GDP should be about or above 1.25 for developing countries, compared with close to unity for the high-income countries.
- Demand for rail freight transport appears to be determined in closely similar ways in both groups of countries. Elasticity with GDP appears to be close to unity.
- Judging from the narrow basis of evidence on socialist economies (China and the former USSR were excluded for technical reasons), transport demand was determined very differently in their sys-

ms than in the market economies. The trasts are almost entirely explained by differences in the role of, and demand rail transport in the different economic stems.

The road sector of freight transport, on other hand, conforms closely to norms the market economies; the marginal ponse (additional ton-kilometer for itional GDP) and elasticity with re- t to GDP, appear — on the available ence — to be close to what is found for eloped market economies.

- In short, structural change in the alist economies is likely to bring about greater changes in rail freight activ- han in road transport.

This paper — a product of the Transport sion, Infrastructure and Urban Devel- ent Department — is part of a larger rt in the department to develop quan- ive aids for the evaluation of perfor- ce of infrastructure-related services, design of policy, and the establishment iorities. Copies of the paper are avail- free from the World Bank, 1818 H et NW, Washington, DC 20433. se contact TWUTD, room S10-027, nsion 31005 (29 pages).

. Stopping Three Big Inflations gentina, Brazil, and Peru)

el A. Kiguel and Nissan Liviatan
ber 1992)

odes of hyperinflation in Argentina, zil, and Peru in the 1980s were impor- because they helped to dispel the myth it is possible to maintain a stable high of inflation on a long-term basis with- harmful effects on growth.

h existing literature fails to recognize high inflation (annual rates in three ts) is a distinctly different phenom- from moderate inflation and hyper- ation. The failure to understand the ific features of the inflation process in chronic high inflation economies has y times led to a wrong diagnosis of the erlying reasons for changes in infla- in those economies, and the policies led to stabilize prices in those coun- s. This lack of understanding extends e interpretations of the recent hyper- ation in some economies.

Argentina, Brazil, and Peru in the s were certainly high-inflation countries. The recent episodes of hyperinflation in these countries were not isolated — instead, they were the culmination of an unstable process, in which inflation crept up gradually for many years before accelerating explosively. These episodes were important because they helped to dispel the myth that it is possible to maintain a stable high rate of inflation on a long-term basis without harmful effects on growth.

The causes of the new hyperinflations were not as clear as in the classical episodes, as they originated from a combination of fiscal and nonfiscal factors. The chronic fiscal imbalances eventually became an insurmountable obstacle, and inflation moved away from the fragile high inflation equilibrium into hyperinflation. The interesting feature of the new episodes (especially in Argentina and Brazil) is that they were not triggered by a large increase in the budget deficit; instead, because the initial equilibrium was so fragile, inflation was in the end destabilized by financial shocks.

One important lesson of the new hyperinflations is that the process of restoring price stability has been longer and more costly than in the classical cases. The main reason for this has been that it was not clear in the minds of the public where inflation would settle once hyperinflation was stopped. In the classic hyperinflations of Europe in the 1920s, expectations were that inflation would return to the low levels that had prevailed before. In the new episodes, there is no compelling reason for agents to expect that the economy would go back to low inflation. Experience showed that inflationary expectations initially settled near the level where inflation was prior to hyperinflation. As a result, the disinflation process must continue once hyperinflation is stopped.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to examine stabilization policies. The research was funded by the Bank's Research Support Budget under research project "Stopping High Inflation" (RPO 674-24). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 39059 (52 pages).

1000. World Bank Adjustment Lending and Economic Performance in Sub-Saharan Africa in the 1980s: A Comparison with Other Low-Income Countries

Ibrahim A. Elbadawi, Dhaneshwar Ghura, and Gilbert Uwujaren
(October 1992)

Adjustment programs cannot succeed in Sub-Saharan African countries unless governments play a greater, albeit redefined, role in adjustment: where there is more public investment in infrastructure, human capital, and agricultural technology in order to generate a supply response; policy reform is made credible to the private sector; program implementation improves; and there is better "governance" and more political stability.

Elbadawi, Ghura, and Uwujaren investigated the factors that influence the participation of Sub-Saharan African countries and all low-income countries in World Bank adjustment lending. They estimated how the Bank's adjustment programs affected economic performance in both regions.

They found that the marginal contribution of Bank-supported adjustment programs to export performance has been positive and significant in Sub-Saharan Africa, given the potentially important links between export growth and economic growth

But adjustment programs have not significantly affected economic growth in Sub-Saharan Africa and have had a deleterious effect on investment there. This strengthens the argument of those who call for more explicit consideration of the initial conditions of the Sub-Saharan African economies in the design, emphasis, and schedule of their adjustment programs.

For one thing, a redefined but more important role for governments is in order for reforming African economies. Fiscal and monetary retrenchment are still indispensable, but it is critical that there be more public investment in infrastructure, human capital, and agricultural technology — to generate a supply response.

Moreover, efforts must be made to make policy reforms more credible to the private sector and to improve program implementation.

Also, "governance" and political stability — politically sensitive issues — critically affect the adoption, implementation, sustainability, and credibility of adjustment programs.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department, and the Economics and Finance Division, Africa Technical Department — is part of a joint research effort by CECTM and AFTEF on "The Effectiveness of Adjustment Lending in Sub-Saharan Africa." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-025, extension 39074 (96 pages).

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1001. World Bank Adjustment Lending and Economic Performance in Sub-Saharan Africa in the 1980s: A Comparison of Early Adjusters, Late Adjusters, and Nonadjusters

Ibrahim A. Elbadawi
(October 1992)

Structural adjustment programs in Sub-Saharan African have not significantly improved growth in the second half of the 1980s, and they have hurt investment. They have significantly improved export performance but the perceived increases in export competitiveness and in the efficiency of investment (supposed to be generated by reform programs) have not been sufficient to counterbalance the decline in investment and to restore economic growth.

Using a methodology that allows for endogenizing decisions to participate in World Bank adjustment lending programs, and for testing the validity of assumptions about program participation, Elbadawi studies the effectiveness of these programs in Sub-Saharan Africa.

He shows that adjustment programs in Sub-Saharan Africa had no statistically significant effect on growth in the second half of the 1980s, compared with the first half, but they have had a significant and deleterious effect on investment.

Adjustment lending has significantly improved export performance in Sub-Saharan Africa, at least compared with nonadjusting African countries.

The perceived increases in export competitiveness and in the efficiency of investment (supposed to be generated by reform programs) has not been sufficient to counterbalance the ensuing decline in investment and hence to restore economic growth in Sub-Saharan Africa.

These findings must be qualified: the methodology for classifying countries as adjusting or nonadjusting does not allow for different degrees of implementation — so, strictly speaking, the findings reflect an assessment of the effectiveness of a proxy (adjustment lending) for the adjustment programs.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department, and the Economics and Finance Division, Africa Technical Department — is part of a joint research effort by CECTM and AFTEF on "The Effectiveness of Adjustment Lending in Sub-Saharan Africa." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-025, extension 39074 (60 pages).

1002. World Fossil Fuel Subsidies and Global Carbon Emissions

Bjorn Larsen and Anwar Shah
(October 1992)

Removing world energy subsidies — estimated at US$230 billion — could reduce global carbon emissions by 9 percent.

Larsen and Shah present evidence on the level of fossil fuel subsidies and their implications for carbon dioxide emissions. They conclude that substantial fossil fuel subsidies prevail in a handful of large, carbon-emitting countries. Removing such subsidies could substantially reduce national carbon emissions in some countries. Global carbon emissions could be reduced by 9 percent, assuming no change in world fossil fuel prices, and by 5 percent when accounting for estimated changes in world prices.

Larsen and Shah estimate world energy subsidies to be more than US$230 billion. The welfare costs of these subsidies are more than US$20 billion, not including the cost of greenhouse gas and local pollution from fossil fuel consumption. Net fossil fuel importers in Japan, the United States, and Western Europe are estimated to experience welfare gains of about US$14 billion, while welfare effects would be negative in exporting countries in the event of a dampening effect on world fossil fuel prices associated with the removal of subsidies.

Eliminating these subsidies would translate into an average 21 percent reduction in carbon emissions in the subsidizing countries, or 20 percent of OECD emissions. To achieve an equivalent reduction in tons of emissions in the OECD countries would require imposing a carbon tax of $60-$70 per ton of carbon, even when accounting for estimated changes in world fossil fuel prices.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* Office, room T7-101, extension 31393 (31 pages).

1003. Rent-Sharing in the Multi-Fibre Arrangement: Evidence from U.S.-Hong Kong Trade in Apparel

Kala Krishna and Ling Hui Tan
(October 1992)

Why would importing countries apparently willingly choose forms of protection that are generally thought to result in large transfers to foreigners? Perhaps because their share of rents — and the consequent harm to developing countries from the MFA — may be greater than has been assumed.

The Multi-Fibre Arrangement (MFA) restricts the access of developing country exporters to developed country markets. It is usually assumed that the exporting countries receive all of the economic rents that result from these import restrictions — making it unclear whether the developing countries gain or lose as a result of the MFA.

Recent theoretical work on trade policy under imperfect competition casts doubt on whether exporting countries receive all of the quota rents arising from "voluntary export restraints" such as those applied by the MFA. Drawing on this theoretical literature, Erzan, Krishna, and Tan (1991) tested and rejected the hypothesis that MFA quota rents on exports from Hong Kong to the United States accrued in full to the Hong Kong exporters. The results in this paper build on that hypothesis-testing analysis and assess its implications for the returns to Hong Kong producers.

Their results suggest that rent sharing is an extremely important feature of the market for apparel exports from Hong Kong. U.S. importers were estimated to receive rents that were about 62 percent of the landed price of the imports.

Krishna and Tan conclude that the total potential rents arising from the MFA were split unevenly between the United States and Hong Kong — with the U.S.

share ranging from 47 percent for skirts to 94 percent for playsuits.

If the results of this study are corroborated for other developing countries, the implications of the MFA for developing countries are considerably worse than has typically been assumed.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of the Multi-Fibre Arrangement on developing countries. The study was funded by the Bank's Research Support Budget under research project "License Prices and Rent Sharing in the Multi-Fibre Arrangement" (RPO 676-69). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Teresa Sanchez, room S7-025, extension 33731 (32 pages).

1004. Family Planning Programs in Sub-Saharan Africa: Case Studies from Ghana, Rwanda, and the Sudan

Regina McNamara, Therese McGinn, Donald Lauro, and John Ross
(October 1992)

Perhaps family planning has a better future in Sub-Saharan Africa than experts have assumed. Case studies from three countries suggest reason for increased optimism.

In the 1980s, signs that Sub-Saharan Africans would welcome family planning in numbers sufficient to make a difference in fertility rates were scattered and weak. Pessimists cited formidable cultural and socioeconomic barriers; optimists provided resources for pilot projects, coupled with research to document results and to guide expansion and replication.

Among projects with measurable achievements in acceptance of family planning in settings that were less than promising were the Ghana Registered Midwives Project, the Ruhengeri Project in Rwanda, and the Sudan Community-Based Family Health Project. All were associated with the Operations Research Program of Columbia University's Center for Population and Family Health.

In Ghana, midwives in private practice were trained and given other support to initiate family planning services.

In Rwanda, rural community development volunteers added family planning to their educational activities.

In the Sudan, rural catchment areas and work assignments of rural primary health care personnel were changed to introduce family planning and strengthen other child survival services.

Positive results were evident from quantitative measures of service delivery and, in Rwanda and the Sudan, from an increase in contraceptive prevalence in the project areas. Other criteria for success included improved management skills, motivation for replicating successful programmatic elements, and potential for continuity.

Questions remain as to why attitudes changed, when contraceptive use for family limitation will be practiced widely, and how applicable the experiences reported here are to other locations. These projects do not provide the answers. They do, nonetheless, support an optimistic view for the future of family planning in Sub-Saharan Africa.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — was prepared for a review of effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (23 pages).

1005. An Approach to the Economic Analysis of Water Supply Projects

Laszlo Lovei
(October 1992)

A simplified method aimed at improving the quality of economic analysis on water supply projects.

Development economists are increasingly concerned about the correct approach to economic analysis of projects. By looking for a compromise between theory (which identifies ideals) and practice (which deals within the bounds of time and resource constraints), Lovei focuses on potential guidelines for economic appraisals of water supply projects.

He summarizes theory and the current World Bank guidelines on the economic analysis of water supply projects; reviews the method of economic analysis applied in 21 recently approved Bank projects; and describes a simplified method that was tested in practice and found to improve substantially the quality of economic analysis in the sector.

This new method relies on standardized and rigorous use of information that is routinely available during the preparation of water supply projects.

This paper — a product of the Infrastructure, Energy, and Environment Division, Europe and Central Asia Country Department III — is part of a larger effort in the Bank to improve operational practice and raise the quality of projects in the water and sanitation sector. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mari Dhokai, room S12-005, extension 33970 (37 pages).

1006. Preparing Multiyear Railway Investment Plans: A Market-Oriented Approach

Jorge M. Rebelo
(October 1992)

Practical guidelines for developing a market-oriented multiyear railway investment plan.

With the emergence of a powerful trucking industry and the deregulation of transport, most of the once-powerful developing country railways are facing a struggle for survival. Traditional traffic is shifting to trucking and pipelines, governments are increasingly reluctant to write blank checks to cover deficits, and the falling morale of railroaders is harming productivity and reliability.

Railway managements know they must introduce institutional and organizational changes that make railways market-oriented. Governments must support legislation that creates an enabling environment that supports the railway's autonomy and allows it to compete.

Young planners and not-so-young railroaders struggling with multiyear investment plans tend to concentrate only on investing in infrastructure and acquiring equipment ("bricks and mortar"). They tend to ignore or underestimate essential institutional reform, without which the revival of the railways cannot be sustained.

Rebelo's practical and detailed paper will help railway planners prepare profit-ori-

ented multiyear investment plans. He describes the steps of a plan and, within each step, lists basic issues and questions relevant to that step. He highlights the importance of marketing and sales in the modern railway, and shows how to screen proposed projects and package them into meaningful corridors, where the level of service can benefit substantially from the proposed investment.

Long-term objectives for modernizing a railway, according to Rebelo, would include achieving complete autonomy from the government, supporting ongoing economic rehabilitation programs, maximizing profits, signing contract plans for government-imposed services, and developing railway real estate.

Medium-term objectives would include increasing the railway's commercial orientation, continuing the rehabilitation of plant and equipment, searching for and developing new markets, lobbying for approval of an enabling plan, and achieving an acceptable tonnage/staff ratio.

Short-term objectives would include supporting an ongoing economic rehabilitation program; maximizing profits; removing bottlenecks when an investment is not necessary to do so; starting the rehabilitation of plant and equipment; preparing a plan for developing an enabling environment; strengthening marketing and sales, accounting, and railway costing; and starting a manpower development and retraining program.

This paper — a product of the Infrastructure Division, Latin America and the Caribbean, Country Department I — is part of a larger effort in the region to provide practical guidelines which promote the commercial orientation of government-owned railway enterprises to make them financially self-sufficient. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Allison Turner, room I7-151, extension 30933 (74 pages).

1007. Global Estimates and Projections of Mortality by Cause, 1970-2015

Rodolfo A. Bulatao and Patience W. Stephens (October 1992)

Global estimates and projections of death, by cause, for 1970, 1985, 2000, and 2015 — results, methods, tables, and expert assessments for selected diseases and conditions.

Bulatao and Stephens report estimates and projections of deaths by cause for major world regions, based on data from country reports to the World Health Organization and regression models. They report mortality rates for seven major causes: infectious and parasitic diseases, neoplasms, circulatory system diseases, complications of pregnancy, certain perinatal conditions, injury and poisoning, and other causes. Some more specific causes are reported on. They give estimates for six age groups by sex for four years (1970, 1985, 2000, and 2015) and six country groups: industrial market economies, industrial nonmarket economies, Latin America and the Caribbean, Sub-Saharan Africa, the Middle East and North Africa, and Asia and the Pacific.

Among their findings:

- The population over 45 in developing countries is projected to more than double between 1985 and 2015, rising from 17 to 24 percent of the population. Causes of death, which are closely related to age at death, must change accordingly.
- Infant mortality in developing countries is projected to fall from 78 per thousand in 1985 to 43 per thousand in 2015 and life expectancy at birth in developing countries is projected to rise by five years.
- The leading causes of death for the world as a whole for both 1970 and 1985 were infectious and parasitic diseases and circulatory system diseases — with the first more important in developing countries, and the second more important in developed countries. Certain perinatal conditions were also more important for developing countries, but accounted for only a fourth or a fifth as many deaths in 1985. Neoplasms were more important in developed than in developing countries.
- Deaths from infectious diseases are expected to decline as a percentage of deaths; proportionate deaths from diseases of the circulatory system are expected to rise.
- The greatest number of deaths will continue to be in Asia, where almost half of all deaths in the world take place. This proportion is not projected to change.
- Better data on causes of death are essential. The World Health Organization is working with countries to strengthen their cause-of-death information systems as an essential support for health monitoring.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — was prepared as background for the Health Sector Priorities Review. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (83 pages).

1008. Do the Poor Insure? A Synthesis of the Literature on Risk and Consumption in Developing Countries

Harold Alderman and Christina H. Paxson (October 1992)

Formal tests of perfect consumption-smoothing do not provide convincing evidence that such patterns are prevalent in village economies. Nevertheless, most individuals appear to have appreciable ability to mitigate income fluctuations.

How well do rural households in developing countries mitigate the income risk of the rural sector? There are several sensible reasons why households cannot fully insure consumption against income fluctuations. The well-known problems of moral hazard, information asymmetries, and deficient ability to enforce contracts may result in no or incomplete insurance markets — and certainly there is a dearth of formal insurance markets in developing countries.

Yet the literature indicates that these households do mitigate risk. Alderman and Paxson survey the literature on strategies for insuring consumption against fluctuating income and examine evidence on how effective these strategies are.

Strategies for *risk management* include crop and field diversification; a portfolio of occupations; and the strategic migration of family members. Strategies for *coping with risk* include those that smooth consumption *over time* (through *saving* behavior, including borrowing and lending in formal and informal markets, accumulating and selling assets, and storing goods for future consumption) and those that smooth consumption across households (through *risk sharing*).

Alderman and Paxson focus on, and discuss the relative effectiveness, of different risk-sharing arrangements.

Risk sharing arrangements may be through formal institutions (such as insurance and futures markets, and forward contracts for harvests) and informal mechanisms (including state-contingent

transfers and remittances between friends and neighbors). A number of institutions may offer "disguised" insurance. For example, share tenancy, credit contracts with state-contingent repayments, and long-term labor contracts may each contain an insurance component, although none are explicitly insurance contracts. Alderman and Paxson examine the literature on these strategies.

The few pieces of evidence available suggest that the effect of risk on production and investment decisions depends on how well households can cope with income risk. Poorer households, in particular, appear to forgo potential earnings to reduce risk. As such, there is a convergence of efficiency and equity issues.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — was funded by the Bank's Research Support Budget under research project "Drought Insurance" (RPO 677-51). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116 (44 pages).

1009. Labor and Women's Nutrition: A Study of Energy Expenditure, Fertility, and Nutritional Status in Ghana

Paul A. Higgins and Harold Alderman
(October 1992)

Women's nutritional status is reduced greatly by certain kinds of energy-expending work (especially agricultural tasks) and by "maternal depletion syndrome" in women with high fertility.

Economic approaches to health and nutrition have focused largely on measures of child nutrition and related variables (such as birthweight) as indicators of household production of nutritional outcomes. But when dealing with adult nutrition, economists have to address an issue that has generated tremendous controversy in the clinical nutrition literature.

That issue is heterogeneity in an individual's energy expenditures. Preschoolers' energy expenditure also differs, but the differences are small enough to be ignored. Not so for adults, whose waking hours are devoted mostly to labor activities the energy costs of which vary enormously. Variables measuring time allocation to various types of labor tasks were used to proxy differences in energy expenditure.

Parity has also been hypothesized to be an important determinant of female nutritional health in high fertility countries — with rapid reproductive cycling contributing to a cumulative nutritional decline. But the "maternal depletion syndrome" remains controversial. Much of the evidence to date has been impressionistic — or the results of studies based on small, nonrandom cohorts.

Higgins and Alderman used a two-step instrumental variables technique to get consistent estimates of the structural parameters. Energy expenditure, as embodied in individual time allocations over the previous seven days, was found to be an important determinant of women's nutritional status. Time devoted to agricultural tasks, in particular, had a strong negative effect.

The results also appear to confirm the existence of a maternal depletion syndrome. Perhaps more important, evidence was found of a substantial downward bias of the calorie-elasticity estimate when the energy expenditure proxies were excluded.

This paper — a product of the Agricultural Policies Division, Agricultural and Rural Development Department — is part of a larger effort in the department to monitor the impact of agricultural policies on rural poverty. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116 (41 pages).

1010. Competition and Efficiency in Hungarian Banking

Dimitri Vittas and Craig Neal
(October 1992)

Considerable progress has been made in reforming the Hungarian banking system and strengthening its legal and regulatory framework. But Hungarian banking suffers from market segmentation and high nominal spreads, caused by high inflation, low leverage, and nonperforming loans.

Banking reform started much earlier in Hungary than in other socialist countries and Hungary now has by far the most advanced system among transitional socialist economies.

Vittas and Neal discuss recent trends in competition and efficiency in Hungarian banking. They assess the performance of Hungarian banks and note the tremendous progress that has been made in expanding the number of competing banks, strengthening the legal and regulatory framework, increasing the banks' managerial autonomy, and promoting development of the private sector.

But Vittas and Neal also note that effective competition is constrained by the continuing segmentation of the market. In addition to the segmentation of corporate and household banking inherited from the old regime, a new segmentation appears to have emerged, between large and small banks, or between old and new banks.

The entry of new banks — especially joint-venture banks — has a clear impact on market shares, but competition appears to be more effective in increasing the range of services than in lowering bank spreads. The impact of foreign banks would be greater if they were allowed to open branches or at least to establish fully owned subsidiaries.

During the period under review, there was a collapse of long-term lending, reflecting both conservative lending practices and a subdued demand for investment finance. But the use of short-term credits has picked up considerably since 1988, in line with the ongoing restructuring of the Hungarian economy and the growth of services.

Reported nominal spreads and profit ratios appear to be high by international standards. For small banks, these reflect the high level of inflation and the low level of leverage. But for the large banks, the high nominal spreads may be more apparent than real because of the existence of nonperforming loans.

There is considerable uncertainty about the size of nonperforming loans, following the collapse of CMEA trade and its adverse impact on corporate profitability. Tackling the problem of nonperforming loans is important both for enhancing the efficiency of banks and for lowering nominal spreads, the high level of which appears to hinder the financing of new firms.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study financial policy issues in transitional socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37664 (29 pages).

1011. How Tax Incentives Affect Decisions to Invest in Developing Countries

Robin Boadway and Anwar Shah
(November 1992)

The design of investment incentives in developing economies should reflect consideration of their effects on the marginal effective tax rate, on firms likely to suffer losses, on cash flows, on foreign-owned firms, and on the way capital is allocated among assets.

Boadway and Shah contend that in evaluating and designing investment incentives in developing economies, analysts should consider their effect on:

The marginal effective tax rate (METR). Even simple tax incentives can perversely affect the METR. Many schemes have relatively generous write-offs to begin with, so generous that a negative marginal effective tax rate is not uncommon. In these circumstances, tax rate reductions (including tax holidays) can discourage investment. Investment tax credits are more likely to be effective.

Loss firms. Incentives that do not have generous loss-offsetting or refundability provisions will be of limited use to firms likely to suffer losses (including small growing firms and firms in risky environments).

Cash flows. Incentives that improve firms' cash flows may be more effective that those that do not. Refundability may be important here. Simply adopting cash-flow costing principles with refundability may be more effective than reducing tax rates.

Foreign-owned firms. If the value of a tax incentive is fully offset by reduced credits for foreign taxes, the incentive effect will probably be minimal.

Capital allocation among assets. Some measures favor short- over long-lived capital, machinery over inventory, some industries over others. Incentives that encourage investment selectively may cause distortions in the way capital is allocated.

Other factors to be considered in designing tax incentives:

- Inflation, which is typically high in developing economies. Incentives should offset the effects of inflation.
- Tax evasion, a common problem in developing countries.
- Technology transfer.
- The fulfillment of social, environmental, and regional non-economic objectives.
- The effects on firms' organization (do the incentives encourage mergers, takeovers, or bankruptcy?).

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to evaluate public policies for private sector development in developing countries. The study was funded by the Bank's Research Support Budget under research project "An Evaluation of Tax Incentives for Industrial and Technological Development" (RPO 675-10). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37754 (117 pages).

1012. The Brady Plan, the 1989 Mexican Debt Reduction Agreement, and Bank Stock Returns in the United States and Japan

Haluk Unal, Asli Demirgüç-Kunt, and Kwok-Wai Leung
(November 1992)

The menu approach to debt restructuring may benefit both the creditor banks and the debtor countries.

Unal, Demirgüç-Kunt, and Leung investigate the impact of the "menu approach to debt rescheduling" on the market value of two major creditors: U.S. and Japanese banks. They try to understand how major creditor banks are affected by debt reschedulings and the menu choices they make, so that debt deals can be structured in a way that appeals to both creditors and debtor countries.

They measure the stock market's reaction to the announcement of the Brady Plan and the Mexican debt reduction agreement. The Brady Plan was implemented through the menu approach, which acknowledges creditor heterogeneity and provides financing packages that meet the country's financing requirements while still allowing the banks to reduce their exposure.

The Mexican agreement provides an opportunity to test the impact of the Brady Plan's implementation. By examining individual bank's menu choices, exposure levels, and the market's reaction, they explore whether banks were able to make optimal portfolio choices when confronted with the obligation to participate.

They show that stock prices for different groups of banks reacted quite differently to focal events. Among all banks, U.S. multinationals showed the strongest positive reaction to the Brady announcement and the Mexican agreement. U.S. non-multinationals do not appear to have been significantly affected by these international-debt-related events.

The reaction experienced by all Japanese banks was much weaker than that of U.S. multinationals and was negative for the Brady announcement and the initial Mexico announcement. These authors contend that the lack of a strong reaction was because of the Japanese banks' relatively low exposure to developing country risk. They see the negative market reaction as a reflection of the expectation that a U.S.-initiated debt reduction strategy would not be favorable for Japanese banks. Indeed, after the menu choices were announced, the market recognized that the Japanese banks were treated fairly and corrected itself.

They do not find that banks that made different choices were treated differently by the market, so banks were able to negotiate menu choices in their best interest and to make portfolio choices consistent with their business objectives.

The results here confirm that the menu approach to debt restructuring may benefit both the creditor banks and the debtor countries.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand commercial bank lending behavior. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Widhanaya Patrawimolpon, room N9-043, extension 37664 (26 pages).

1013. The Impact of Mexico's Retraining Program on Employment and Wages

Ana Revenga, Michelle Riboud, and Hong Tan
(November 1992)

Compared with the controls (without training), trainees (especially men) find jobs more quickly if they have work experience. Training increases men's monthly earnings to a greater extent the higher their level of schooling attainment.

Revenga, Riboud, and Tan evaluated how Mexico's Labor Retraining Program (PROBECAT) affected unemployed and displaced workers. As part of the World Bank-supported Manpower Training Project (loan 2876-ME, 1987), PROBECAT has provided short-term vocational training to more than 250,000 unemployed people. Their evaluation was based on new longitudinal data on PROBECAT trainees developed for this purpose, and includes data on a control group of unemployed people who did not join PROBECAT. Their main findings were as follows:

- On average, the trainees found jobs more quickly than the control group. But training does not shorten the term of unemployment for those without work experience.
- Male trainees are more likely to be employed three and six months after training than are the controls. Female trainees with work experience are more likely to be employed three, six, and twelve months after training than are the controls.
- Male trainees are more likely to find employment in large firms than are comparable controls.
- Training increases the monthly earnings of male trainees, but this effect varies systematically depending on the person's level of schooling attainment.
- The monetary benefits of training outweigh the costs of the PROBECAT program for certain groups of trainees. For male trainees over 25 with prior work experience, the benefits outweigh the costs of training within *three months* of starting work. For all other males except those with no prior work experience, the benefits outweigh the costs within *one year*.

Men with no prior work experience spend the longest time job hunting after training (8 months, compared with the trainee mean of 4.4 months) and benefit less from training in terms of monthly earnings (128 thousand pesos compared with the average benefit of 152 thousand pesos). For this group, the costs of training are offset only after 17 months of higher earnings.

This paper — a joint product of the Latin America and the Caribbean Country Department II and the Industry Development Division, Industry and Energy Department — is part of a broader study of Mexico's labor market being carried out by the Human Resources Operations Division of the Latin America and the Caribbean Country Department II. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Debbie Young, room R2-050, extension 30932 (40 pages).

1014. Ethnicity, Education, and Earnings in Bolivia and Guatemala

George Psacharopoulos
(November 1992)

Indigenous people will earn more if they get more schooling.

Indigenous groups are often associated with poverty and so are low levels of education. Guatemala and Bolivia are the two Latin American countries in which the ethnic part of the population is proportionately greatest. And Bolivia is more "schooled" than Guatemala. So Psacharopoulos tried to determine how levels of ethnicity and education affect the level of worker earnings.

His investigation was based on data from household surveys in the two countries. He found that, other things being equal, indigenous people who acquire more human capital enjoy greater economic rewards than those who acquire less. Just giving ethnic groups basic education is bound to improve their position.

This finding was supported by both within-country and cross-country evidence: Indigenous people fare better in Bolivia (where there is more education) than in Guatemala (where there is less).

One possible (although controversial) intervention is to provide schooling in the child's first language. Such an intervention has been successfully implemented on a small scale in Guatemala. Bilingual programs also exist, on a small scale, in Bolivia.

This paper — a product of the Latin America and the Caribbean Technical Department — is part of a larger effort to document poverty conditions in the region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Malca, room S13-139, extension 37720 (23 pages).

1015. Benefit Incidence Analysis in Developing Countries

Thomas M. Selden and Michael J. Wasylenko
(November 1992)

Benefit incidence analysis offers an important perspective on budgets and can illuminate the distributional impacts of proposed reallocations of government resources among projects.

As interesting and difficult as it is to allocate tax burdens to individuals, the profession knows even less about allocating benefits. Selden and Wasylenko survey the literature on benefit incidence since DeWulf's (1975) review, focusing on the methodology and results of benefit incidence analysis in developing countries.

Research in this area faces all the general-equilibrium difficulties faced by tax incidence analysis as well as the difficult task of measuring benefits from publicly provided goods and services. Despite the inherent pitfalls of this methodology, Selden and Wasylenko believe that benefit incidence analysis can provide an important perspective on the budget by combining data on household use with data on project costs. In particular, benefit incidence analyses can help illuminate the distributional impacts of proposed reallocations of government resources among projects. The value of such research is especially high considering the scarcity of recent research in this area.

Selden and Wasylenko review the existing methodology, survey the available results, and point out areas in which further research might have large payoffs. They also make specific methodological suggestions that might help ensure that future research is as useful for policymakers as possible. For example:

- Aggregate results based on the zero-government counterfactual rely on strong assumptions about fixed relative prices and incomes, government efficiency, and the relationship between marginal and total benefits. And those studies are often not designed to identify which types of public services benefit the poor. Researchers should focus more on providing benefit incidence studies on specific government functions or programs that can help policymakers reach conclusions about proposed reallocations of resources among government programs.
- Benefit incidence should be assigned to households based on household survey

information on usage rather than on ad hoc assumptions that assign benefits based on income or the number of members in the household.

• Improved annual cost measures for services need to be developed, particularly for capital inputs.

• Researchers should group households by deciles and whenever possible should consider other groupings based on household income adjusted for household composition, age, location, and other relevant socioeconomic variables.

• Careful attention to life-cycle benefits, benefit shifting, rent-seeking, out-of-pocket costs, displacement of private sector efforts, average versus marginal incidence, and several other issues can significantly increase the value of benefit incidence analysis to policymakers.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to study the impact of public expenditure on household welfare, especially of the poor. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37754 (55 pages).

1016. Europe and Central Asia Region, Middle East and North Africa Region Population Projections, 1992-93 Edition

T. Vu, Eduard Bos, and Ann Levin
(November 1992)

rrently, Asia has 59 percent of all ople; Europe, 15 percent; America, 14 cent; Africa, 12 percent; and Oceania, percent. Over time, Asia's share is pro- ted to remain fairly stable, but Europe's are will almost be halved and Africa's are more than doubled.

pulation projections for all countries are pared annually by the Bank's Popula- n and Human Resources Department. ey are published first in summary form the Bank's *World Development Report* d later in greater detail as technical tes or working papers and, in alternate ars, as a book.

Separate papers cover the six Bank re- ns: (1) Africa (Sub-Saharan), (2) Latin erica and the Caribbean (and North erica), (3) East Asia and Pacific region d South Asia region combined, and (4) Europe and Central Asia region and Middle East and North Africa region combined.

This year's projections contain two major changes from the previous edition. First, projected mortality from AIDS has been incorporated into the tables for Sub-Saharan African countries. Second, demographic estimates and projections are provided separately for each of the fifteen countries that constituted the former Soviet Union.

Among trends observed:

• The total fertility rate for the world is an estimated 3.2 children per woman in 1992. The highest total fertility rates are found in East and West Africa, where the rate is above 6. Most countries in the Asian and Latin American regions have moderate fertility of three to five children per woman, although both continents contain countries with very high and very low levels. More developed countries have the lowest fertility, with rates generally ranging between 2.5 and 1.5, but one of the former Soviet republics, Tajikistan, has a total fertility rate of 5.

• Europe (including the former Soviet republics) is the only continent where aggregate fertility is currently below replacement — that is, where women are not having enough children to replace themselves. Recent trends in some countries of Europe show small increases in fertility, and the projections assume that the total fertility rate will recover to replacement level by 2030. Europe is also the continent with the most homogeneous fertility levels: with the exception of four of the former Soviet republics that have total fertility rates above 3, fertility in the other 41 countries varies in a narrow range between 1.5 and 2.8.

• The Northern American region has the highest aggregate life expectancy, 76.7. The European region has the second highest aggregate life expectancy, 74.4. Every country in this region is above the world's average of 66. Moving from west to east through this region, life expectancies tend to decline, from a high of 78 in Iceland to a low of 66 in Turkmenistan.

This paper — a product of the Population, Health, and Nutrition Division and the Population Policy Advisory Service of the Population and Human Resources Department — is part of a larger effort in the department to update demographic indicators on an annual basis. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091.

1017. Rural Poverty, Migration, and the Environment in Developing Countries: Three Case Studies

Richard E. Bilsborrow
(November 1992)

Case studies — of the links between highlands and lowlands in Latin America; of transmigration in Indonesia; and of migration and desertification in the Sudan — illustrate the relationship between poverty, internal migration, and environmental change in rural areas of developing countries.

Bilsborrow presents three case studies (of the links between highlands and lowlands in Latin America; transmigration in Indonesia; and migration and desertification in the Sudan) to illustrate the relationship between poverty, internal migration, and environmental change in rural areas of developing countries. Policies to deal with the problems of environmental degradation in areas that are destinations for migrants would usually include:

• Preparation of a detailed national inventory of land and water resources, and a land-use plan to protect biologically important or fragile areas and direct new agricultural settlements elsewhere.

• Coordination of this plan with the construction of roads.

• Better coordination across government agencies in the development and implementation of policies related to land use.

• Reduction of population growth, a driving force behind decisions to migrate.

• Improving land use in traditional areas of settlement, to reduce both overuse and underuse of land.

• Development of a system of land tenure that provides land users with incentives to maintain productivity.

• Environmental education programs (in schools and for farmers) to create a national environmental consciousness and more appreciation for the country's natural assets and beauty.

• New, appropriate systems of data collection and analysis, to help clarify underlying processes and develop more refined, appropriate policies.

• Broad-based macroeconomic policies aimed at improving incomes in rural ar-

eas, relative to urban areas — aimed at reducing poverty, environmental degradation, and rural outmigration.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (75 pages).

1018. Tariff and Tax Reform: Do World Bank Recommendations Integrate Revenue and Protection Objectives?

Anand Rajaram
(November 1992)

A selective review of the World Bank's recommendations on tariff reform suggests that there is scope to improve the design of these recommendations to reflect concerns regarding revenue *as well as* protection.

Tariff reform aimed at reducing domestic protection and the bias against exports holds the threat of widening the fiscal deficit by causing tariff revenue to decline. Because the success of an adjustment program depends critically on the correction of fiscal imbalances to achieve stabilization, tariff reforms must be coordinated with tax policy recommendations to develop alternative revenue sources. Conversely, the tariff reforms must eliminate the protective elements of domestic tax structures if they are to truly achieve their protection objectives.

Rajaram reviews the extent to which the Bank's analysis and tariff recommendations in twelve countries (Bangladesh, Ghana, Indonesia, Jamaica, Malawi, Morocco, Pakistan, the Philippines, Thailand, Turkey, Zaire, and Zambia) reflected such an integrated framework. He focuses on (1) the revenue impact of tariff reform, (2) the effect of domestic indirect taxes on protection, and (3) the structure of protection. The review is admittedly selective and the attempt is to capture the reasoning behind "typical" Bank recommendations.

Rajaram finds that the quality of analysis underlying Bank recommendations in this regard is highly uneven. The following broad conclusions are indicated:

- Revenue concerns are often not adequately addressed in the design of tariff proposals. In a few cases this neglect may have contributed to policy reversal.
- The protective effect of domestic indirect taxes is often not recognized and thus not incorporated into the reform of the structure of protection.
- Although there is little consensus on a desirable tariff structure, in a few cases the Bank has recommended a uniform nominal tariff. This could be seen as the logical culmination of attempts to narrow the range of tariffs.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to improve the design of policies to achieve reform objectives. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Peggy Jean Pender, room N10-067, extension 37851 (28 pages).

1019. How Effective Are Directed Credit Policies in the United States? A Literature Survey

Anita M. Schwarz
(November 1992)

U.S. policy on directed credit has a limited impact on growth — partly because it is oriented more toward equity than growth. U.S. credit programs have generally succeeded in increasing credit to, but not necessarily in increasing investment by, the targeted group.

Schwarz surveys U.S. experience with directed credit as background for a larger study of the Asian experience. Almost half of net credit lent in the United States annually is directly affected by government policies — half of net credit covering budget deficits, and half falling under various federal credit programs.

But the main difference between U.S. and Asian credit policy is that U.S. credit policy is oriented more toward equity than toward growth. Different sectors are affected differently by U.S. credit policies.

Few empirical studies test how U.S. credit policies affect growth — perhaps partly because of the motives behind those policies. Few empirical studies even test whether the policies effectively increase credit to the target group. Schwarz outlines a method for testing the effectiveness of credit policy, then examines existing empirical work to see how it fits that methodology.

The first common empirical technique examines credit allocation in the economy. Schwarz finds that for the largest program, housing credit, the effect of credit program on credit allocation is very small and may be negative when cross-program effects are considered.

The second common empirical technique examines individual sectors. Results here are mixed. In agriculture, much of the credit raises the demand for land, providing a gain for landowners rather than increasing production. In education, less than a third of the students who got government credit would not have gone to college without it. So in both cases, the credit had a positive impact but at a sizable cost.

Schwarz concludes that despite its huge volume, directed credit in the United States has a limited impact on growth. The credit programs have generally succeeded in increasing credit to the targeted group, but not necessarily in increasing investment by that group.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study the effectiveness of directed credit policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Raggambi, room N9-033, extension 37664 (30 pages).

1020. Another Look at Population and Global Warming

Nancy Birdsall
(November 1992)

There is little basis for the view that the South could contribute to major reductions in global warming by taking new and stronger steps to reduce its population. But cost analysis suggests that it makes sense for developed countries in their own interests *to spend money to reduce rates of population growth in developing countries as part of any optimal carbon reduction strategy.*

Birdsall addresses two questions: First, how much could feasible reductions in projected rates of population growth in the developing countries help reduce greenhouse gas emissions? Second, how much would it cost to ensure such reductions in population growth, compared with other options for reducing emissions?

The answer to the first question is that reductions in population growth would matter, but not much. Based on current econometric estimates linking population growth to deforestation, feasible reductions in population growth could reduce emissions from deforestation (relative to what they otherwise would be) by 8 percent over the next 35 years. Feasible reductions in population growth rates could reduce fossil fuel emissions by about 10 percent. The percentage reductions, though substantial, are small relative to projections of a tripling or more in emissions under any baseline scenario in the next 50 years.

Thus there is little basis for the view that the South could contribute to major reductions in global warming by taking new and stronger steps to reduce its population.

The answer to the second question is that reducing population growth is cost-effective compared with other options to reduce emissions. Birdsall estimates the costs of reducing carbon emissions by reducing births through increased spending on family planning at between $6 and $12 per ton; and by educating girls at between $4 and $8 per ton. These compare to a marginal cost of $20 per ton to reduce current emissions by 10 percent, using a carbon tax. Discounting reduces the cost advantage of the population reduction strategies over the tax, but does not eliminate them as a critical part of an overall global strategy to reduce emissions.

The implication of the cost analysis is simple: The global negative externality represented by rapid population growth in developing countries provides a strong, new rationale for developed countries, in their own interests, to finance programs that would reduce population growth in developing countries. This is true even though feasible reductions in population growth would represent only a modest contribution to reducing greenhouse gas emissions. Spending to reduce rates of population growth in developing countries makes sense as part of any optimal carbon reduction strategy.

This paper — a product of the Country Economics Department — was prepared for the United Nations' Expert Group Meeting on Population and Environment, New York, January 1992. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact PRDDR, room N11-051, extension 37460 (45 pages).

1021. Measuring Welfare Changes from Commodity Price Stabilization in Small Open Economies

Jonathan R. Coleman and Chris Jones
(November 1992)

New formulas for calculating the welfare changes from commodity price stabilization are derived within a general equilibrium framework. A better option than storage or varying import levies may be to use financial instruments for hedging against risk.

Coleman and Jones extend the widely used Newbery and Stiglitz (1981) approach to measuring welfare changes from commodity price stabilization to a general equilibrium setting. They derive the welfare changes in terms of net consumer and producer surplus, rather than in terms of producer income as in the Newbery and Stiglitz approach.

Coleman and Jones present formulas for measuring the welfare changes for domestic price stabilization achieved through profitable storage (as assumed by Newbery and Stiglitz) and for stabilization through a variable tariff scheme. These formulas differ significantly, so it is inappropriate to use the Newbery and Stiglitz formula to justify the use of domestic price controls such as a variable levy.

In recent years, governments in many developing countries have liberalized their trade policies in the pursuit of improved economic performance. But this has exposed their economies to variations in international prices and raised questions about the desirability of domestic price stabilization programs. A popular mechanism for this purpose is a variable import levy scheme.

Coleman and Jones' analysis confirms that domestic welfare is lower under trade policies that stabilize domestic prices, as such policies serve only to shift the price uncertainty from producers and consumers to the government budget — while incurring the social costs of the distortionary tariffs and subsidies.

Coleman and Jones focus on a comparison of the welfare effects of price stabilization under a variable tariff scheme and storage, but suggest a better option: to use financial instruments for hedging against commodity price risks. This requires that there be no capital controls — one of the main reasons private insurance is seldom undertaken in developing countries.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to research commodity price risk management by developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (26 pages).

1022. A New Approach to Evaluating Trade Policy

James E. Anderson and J. Peter Neary
(November 1992)

Introducing something new: The Trade Restrictiveness Index measures the restrictiveness of a system of trade protection. This measure is both simple and consistent with economic theory.

Anderson and Neary introduce a new measure, the Trade Restrictiveness Index, to measure the restrictiveness of a system of trade protection. They propose an alternative to the commonly used ad hoc indexes of trade restrictiveness, such as the trade-weighted average tariff. That measure has no welfare-theoretic basis and can be highly misleading, in practice. For example, the complete exclusion of trade in a commodity would usually lower the index, because its trade weight would fall to zero.

Anderson and Neary show that their proposed index is soundly based in standard welfare economics. When trade is restricted by tariffs only, the Trade Restrictiveness Index equals the *uniform* tariff, which would be equivalent to the existing system of tariffs in the sense of yielding the same level of aggregate welfare.

But tariffs have declined in importance in recent years as a means of restricting trade, so the measure must also be able to take account of quantitative restrictions on trade. Where quotas are the only form of restriction, this is easy: the Index equals the equiproportionate reduction in permit-

ted import volumes that is welfare-equivalent to the initial structure of quotas.

When both quotas and tariffs are present, the Index can be defined as the uniform tariff factor (one plus the uniform tariff) and uniform import reduction factor which would yield the same level of welfare as the initial system of trade restrictions.

The authors show how this can be formulated, noting that if a single good is subject to both a binding quota and a tariff, it should be viewed as quota-constrained — the tariff serves merely to ensure that some of the rents accrue to the importing country.

These theoretical derivations permit a major synthesis of the theory of protection and suggest how the results of computable general equilibrium models might be presented to make them internationally and intertemporally comparable. But in most cases such a model is not available and, even if it were, it would not be sufficiently disaggregated to deal with a complicated system of trade protection.

So the authors present some empirical shortcuts that can be adopted for estimating changes in the Index. Chief among these is the assumption that the goods under consideration are separable from others in an appropriate general-equilibrium sense. This can provide a rigorous foundation for a form of partial-equilibrium analysis (the consideration of a subset of markets in an economy). They also show how the Trade Restrictiveness Index can be adapted to allow for different forms of rent sharing and for a country's ability to influence its terms of trade.

Applying these empirical methods to exports of textiles and apparel from Hong Kong to the United States, the authors find that the protective system becomes more restrictive for both countries over the seven years considered (1982-88). Increased trade restrictiveness does not necessarily mean that quotas have been tightened. When there is economic growth, constant or even rising import quotas might still amount to a tightening of protection.

Results based on the trade-weighted average of "tariff equivalents" (the gaps between Hong Kong and U.S. prices) diverge significantly from those of the Trade Restrictiveness Index. The two measures have opposite implications for the change in trade restrictiveness for two-thirds of the observations.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger project to study the cost of protection. The study was funded by the Bank's Research Support Budget under research project "The Cost of Protection Index" (RPO 676-49). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Teresa Sanchez, room S7-025, extension 33731 (30 pages).

1023. Tariff Index Theory

James E. Anderson
(November 1992)

The Trade Restrictiveness Index is shown to provide a summary measure of the welfare costs of protection that is related, but preferable, to traditional measures such as the average tariff and the coefficient of variation.

For a single tariff, the "height" of the tariff is an unambiguous measure of the policy's restrictiveness With more than one tariff, theory has not provided an extension that captures the idea of the tariff's height, so analysts have used index numbers such as the mean and the coefficient of variation (standard deviation divided by the mean) of tariffs.

By contrast, the theoretical literature on the "piecemeal reform" of tariffs shows that efficiency gains from tariff reform depend on complex conditions that have little relation to the mean or variance of tariffs. But in the absence of a connection between theory and empirical measures, it is difficult to know whether to discard the measures. Moreover, the piecemeal reform question of measuring the welfare gain from a tariff reform is not directly related to the problem of evaluating the height of restrictiveness.

The problem of finding a single number analogous to the "height" of tariffs is the tariff index number problem. Anderson and Neary have developed a solution: the Trade Restrictiveness Index, which they define as the *uniform* tariff factor that is equivalent in trade restrictiveness (equivalent in the balance of trade) to the actual differentiated tariff structure.

Here, Anderson develops the Trade Restrictiveness Index in terms of mean and variance-covariance indexes of the tariff schedule. There are two payoffs. First, the Trade Restrictiveness Index can be decomposed into expressions that rescue the commonsense idea that lower mean and lower variance of tariffs are both efficient. Second, a special case is offered in which the proper weights in the mean and variance of tariffs are the observed trade weights.

Thus, the Trade Restrictiveness Index is superior to traditional summary measures such as the average tariff rate and the coefficient variation for the tariff schedule. It requires only limited additional information on the structure of the economy to yield a measure that is preferable on both theoretical and practical grounds.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of trade distortions on developing countries. The study was funded by the Bank's Research Support Budget under research project "Cost of Protection Index" (RPO 676-49). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Teresa Sanchez, room S7-025, extension 33731 (32 pages).

1024. An Exact Approach for Evaluating the Benefits from Technological Change

Will Martin and Julian M. Alston
(November 1992)

How a modified trade expenditure function *can be used to measure the welfare costs and benefits from technological change — in a model that allows for multiple market distortions and general equilibrium feedback.*

It is commonly believed that taxing agricultural commodities in developing countries, and subsidizing agricultural commodities in industrial countries, reduces incentives in the developing countries for both current production and longer-term investments in capital, knowledge, technology, and infrastructure. It is argued that distortions in agricultural markets have kept investments in research and development, and productivity rates, low in agriculture in developing countries.

Martin and Alston lay the theoretical foundation for empirical studies of how such distortions affect returns to agricultural research and development in developing countries. Earlier studies of the benefits from technological change have typi-

cally used partial equilibrium models with Marshallian welfare measures. Such models have not allowed for a general set of market distortions and market interactions.

Techniques recently developed for evaluating welfare in the context of general equilibrium models better measure the implications of trade-distorting policies. Martin and Alston describe how to harness these approaches to evaluate the benefits and costs of technological changes.

They show that a modified *trade expenditure function* can be used to measure welfare changes exactly, with a model consistent with the optimizing behavior of both producers and consumers. They do so in a general setting that allows for multiple market distortions and multiple paths of general equilibrium feedback.

They illustrate this approach using a quadratic form for a profit function that is a component of the trade expenditure function. They spell out, in principle, how to apply this approach with minimal requirements for additional information, using the results from a computable general equilibrium model. They provide a diagram to illustrate the application of the technique.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger departmental study of how distortions in commodity markets affect the benefits from, and incentives for undertaking, agricultural research and development projects in developing countries. The study was funded by the Bank's Research Support Budget under research project "Agricultural Policy Reform for Developing Countries" (RPO 676-11). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (31 pages).

1025. Openness and Economic Performance in Sub-Saharan Africa: Evidence from Time-Series Cross-Country Analysis

Kazi M. Matin
(November 1992)

Openness exerts a significant positive impact on performance in countries in Sub-Saharan Africa — the more open the economy, the better the economic performance.

In a cross-country study for 1967-87, Matin tests whether the finding that increased openness improves performance holds true for Sub-Saharan Africa as a subgroup among developing countries.

Econometric analysis — based on the augmented production function that includes labor, capital stock, and a measure of openness — shows that openness exerts a significant positive impact on economic performance of countries in Sub-Saharan Africa. The relationship is especially strong in "fixed-effect" estimates that use annual panel data with country dummies to capture unobserved country-specific differences.

Matin finds the evidence of a positive link between openness and performance surprisingly robust to different measures of openness, to different periods, and to the inclusion of other policy variables. All four measures of openness, for example, are significant for 1967-87. For the shorter period, 1980-87, three are significant. Also, the size and significance of the openness coefficients do not change when one controls for macroeconomic policy.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to assess the experience of Sub-Saharan Africa with trade liberalization. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-019, extension 38004 (38 pages).

1026. Financial Liberalization and Adjustment in Chile and New Zealand

Paul D. McNelis and Klaüs Schmidt-Hebbel
(November 1992)

Liberalization of the capital account does not eliminate volatility. Rather, it shifts it from the domestic interest rate to the real exchange rate.

McNelis and Schmidt-Hebbel analyze macrodynamic adjustment during financial liberalization in Chile and New Zealand.

During the adjustment to more open capital accounts in the late 1970s or mid-1980s, both countries experienced appreciation of the real exchange rate and a collapse of net exports, while domestic interest rates slowly converged to international levels. McNelis and Schmidt-Hebbel develop and estimate a two-sector dynamic model using both current and time-varying parameters. They find the domestic interest rate to be more responsive to shocks under imperfect capital mobility, the real exchange rate more responsive under perfect capital mobility.

In short, liberalization of the capital account does not eliminate volatility but rather shifts it from the domestic interest rate to the real exchange rate.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — received financial support from the Instituto Interamericano de Mercados de Capital. An earlier version of the paper was presented at the Seventh Latin American Regional Meeting of the Econometric Society, Costa Rica, August 1988. The paper will be published in the August 1993 *Journal of International Money and Finance*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-042, extension 31450 (52 pages).

1027. Lessons from Bank Privatization in Mexico

Guillermo Barnes
(November 1992)

Bank privatization in Mexico — arguably one of the most successful financial operations in recent years — has been facilitated by a strong macroeconomic stabilization program, legal and financial reform, and the adoption of clear objectives, precise rules, and transparent procedures.

The recently completed privatization of Mexican commercial banks may be one of the most successful financial operations in recent years. In 13 months, the Mexican authorities were able to sell 18 banks to private groups of Mexican investors for more than US$13 billion total — more than three times book value, and with a price/earnings ratio of 14.5.

Guillermo Barnes, Director General of the Development Planning Unit of the Ministry of Finance and a member of the Privatization Committee that supervised the program, sets out the preconditions, objectives, and main achievements of the privatization program. He summarizes the Mexican experience in nine lessons

that may be relevant for developing countries considering similar exercises:

- The conditions suitable for privatization and the strength of the financial system are directly related to the economy's general performance. Macroeconomic stability is essential for bank privatization to succeed.
- Bank privatization must be complemented by the structural transformation of the economy, to improve efficiency and productivity.
- Financial reform must aim to strengthen competitive economic conditions and to enhance the efficiency of the financial sector.
- Bank privatization requires a new legal framework, especially designed for private institutions.
- Legal reform should lead to structures that encourage solid, efficient financial intermediation.
- To encourage ample participation and to ensure fairness, the privatization process must be trustworthy — with clear objectives, precise rules, and transparent procedures.
- The mechanics of privatization should be consistent with the legal framework and should be based on adequate, detailed preparation.
- The proceeds of privatization should be in cash, which should be used to permanently reduce government outlays.
- Common sense rules should be followed, such as selling the small banks first, ensuring economic certainty and confidence, centralizing management of the privatization program, and ensuring honesty and transparency in the process.

The overall lesson of the Mexican experience is that bank privatization should not be rushed. Mexico waited until 1990, when inflation was less than 20 percent a year and the banks were strong (their numbers had been reduced and risky ventures restricted), while meticulous preparation set the ground rules for transparent and effective procedures.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study issues in bank privatization. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37664 (22 pages).

1028. Socioeconomic and Ethnic Determinants of Grade Repetition in Bolivia and Guatemala

Harry Anthony Patrinos
and George Psacharopoulos
(November 1992)

Children from less wealthy households and children of indigenous origins are more likely to repeat a grade, so targeted interventions could be directed at the poor and could have an indigenous component, such as bilingual education.

After reviewing the literature on repetition (students repeating grades in school) in developing countries, Patrinos and Psacharopoulos examine factors related to repetition in Bolivia and Guatemala. They develop a model to estimate the incidence and determinants of repetition. They use multivariate logistic regression analysis to estimate the determinants of repetition, using the results in simulations to determine probabilities of who is more likely to repeat.

Their empirical analysis shows that certain populations are more likely to repeat a grade: children from less wealthy households and children of indigenous origins. This suggests that any targeting activities could be directed to the poor and could have an indigenous component, such as bilingual education.

This paper — a product of the Latin America and the Caribbean Technical Department — is part of a larger effort to document poverty conditions in the region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Malca, room S13-139, extension 37720 (26 pages).

1029. Controlling Tropical Deforestation: An Analysis of Alternative Policies

Robert T. Deacon
(November 1992)

A simple general equilibrium model — representing salient aspects of the deforestation process — generates first- and second-best policy options for controlling deforestation and helps to assess the environmental consequences of government policies often cited in the literature on deforestation.

After discussing ownership issues related to tropical forests, Deacon develops a simple general equilibrium model to represent — at least in a stylized way — the salient aspects of the deforestation process. He uses the model to generate first- and second-best policy options for controlling deforestation and, later, to assess the environmental consequences of government policies often cited in the literature on deforestation.

Property rights, though important for understanding the process of tropical deforestation, do not necessarily point to a simple or straightforward fix for environmental problems, particularly in developing countries.

The sheer size, communal nature of service flows, and pervasiveness of individual access to tropical forests make monitoring and enforcement costly in some situations and unimaginable in others. Redefining nominal rights in ways that appear to correct inefficiencies may yield gains in some cases, but an approach to environmental protection that leans heavily on this prescription seems aimed more at symptoms than at causes, says Deacon.

Moreover, policy approaches based on the use of Pigouvian taxes or marketable permit schemes may yield efficiency gains in some cases, but such approaches generally involve the same monitoring and enforcement problems that prevent the market from solving allocation problems.

Simple, direct solutions to deforestation and other environmental problems are unavailable, but an ability to understand the environmental and welfare consequences of policies adopted for other reasons is useful — if only to help policymakers avoid mistakes that would otherwise go unrecognized.

The model Deacon develops for this purpose is highly stylized and intended primarily to provide a systematic way of thinking about the environmental and welfare effects of government policy — for example, by considering patterns of substitution among inputs and outputs, in cases where an environmental resource to which people have free access is exploited.

If the use of first-best policies is infeasible — whether because of monitoring costs, transboundary effects, or other reasons — then it becomes important to have detailed knowledge of patterns of substitution and complementarity among ordinary inputs and environmental resources,

and information on the use of various environmental resources in the production of specific goods and services. Knowledge of such factors can permit policymakers to pursue policy goals in situations where first-best instruments are unavailable.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to study environmental policies in developing countries. An earlier version of this paper was circulated as "Government Policy and Environmental Quality in Developing Countries: Complements or Substitutes." The research was funded by the Bank's Research Support Budget under research project "Pollution and the Choice of Policy Instruments in Developing Countries" (RPO 676-48). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Peggy Pender, room N10-067, extension 37851 (38 pages).

1030. Measuring the Effects of Urban Transportation Policies on the Environment: A Survey of Models

Alan J. Krupnick
(November 1992)

Air pollution from urban travel is influenced by travel demand — by its distribution among modes, by congestion levels, and by the characteristics of vehicles and fuels. How well do existing models evaluate the effect of different policies, especially on welfare and on air pollution?

Mandating emission control devices in new cars is only one of the most obvious steps to address the problem of vehicle emissions. Others range from taxes on gasoline and parking to incentives to scrap old cars or move businesses out of the cities.

There are models to simulate the "engineering" implications when changes are made to the vehicle fleet (such as the U.S. Environmental Protection Agency's "MOBILE 4"), but other models are needed to capture individual behavior, for two reasons. First, behavior — for example, using certain vehicles — affects emissions, and thereby the effect of policies on pollution. Second, behavioral relations determine how much consumer welfare is affected by different policies — through other channels than the effect on air pollution.

Krupnick reviews existing models of urban transport and evaluates their ability to simulate the effects of different policies on emissions and on other variables relevant to welfare. He finds that:

- Little modeling work is done on developing countries, but some stylized facts (the greater importance of nonmotorized modes, of mopeds, of old vehicles, and of work-related trips, greater growth in urbanization, and greater growth in the urban vehicle stock) allow us to assess how well models from developed countries apply in industrial countries.
- Models vary greatly in complexity. The central question for users is whether they want detailed coverage of the spatial nature of pollution and congestion. The most comprehensive and detailed models also require the most data.

Krupnick proposes eclectic use of several models, since a model incorporating long-term responses, shorter-term responses, and emission consequences is not easily tractable.

Krupnick acknowledges the many complex links between policies (on the one hand) and welfare and air pollution (on the other), but says that research can often be narrowed according to available policy instruments, data availability, and the implications considered relevant. Often, simple models can improve the basis for policy evaluation, particularly when there are limited data and resources for research.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger research project funded by the Bank's Research Support Budget on "Pollution and the Choice of Policy Instruments in Developing Countries" (RPO 676-48). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Peggy Pender, room N10-067, extension 37851 (77 pages).

1031. Measuring the Possibilities of Interfuel Substitution

Robert Bacon
(November 1992)

Whether fuel taxes can reduce air pollution cheaply through fuel substitution depends on how flexible activities are with regard to the fuel used. The author reviews empirical methods and findings.

What are the costs of making consumption or production activities use less-polluting fuels? Bacon reviews how the fuel mix used by different industries has changed over time and examines two techniques for estimating the responsiveness of fuel demand to fuel prices: econometric models and the engineering approach.

With econometric models, the elasticity of substitution between energy and other inputs determines the costs of making activities less energy-intensive, while the elasticity of substitution between sources of energy (interfuel substitutability) determines the marginal costs of replacing one energy source with another.

The engineering approach uses more detailed technical information and can draw a more complete picture, but with less ability to inform about activities with a vast number of different economic agents.

Among Bacon's main conclusions:

- There are surprisingly large variations in energy and fuel use over time and between countries. Industrial output increased 62 percent in OECD countries between 1971 and 1988, for example, while energy use stayed unchanged! Also, shares of energy sources for industry and electricity vary greatly with local availability, indicating that these sectors have some flexibility in choice of energy source. A judgment on whether this variability indicates that an economy responds cheaply if energy prices are changed selectively depends on how one reads the more detailed studies in the econometric and engineering literature.
- Lack of data is the biggest problem in estimating fuel and energy substitutability in non-OECD countries.
- Engineering studies of fuel switching in industry are rarely available. They exist, however, for the power industry and could be used to estimate the costs of alternative fuel-mixes for particular greenfield sites. The technique could not be used for assessment of economywide policies.
- Econometric studies are useful inasmuch as they take a sector- or economywide perspective. Econometric techniques are challenging, but often represent the state of the art in providing reliable estimates for elasticities of substitution — particularly when data are scarce and the level of aggregation is high.

• The issue of whether econometrically estimated structural parameters can be transferred across borders has not been thoroughly investigated.

This paper — a project of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to study pollution control policy in developing countries. The study was funded by the Bank's Research Support Budget under research project "Pollution and the Choice of Policy Instruments in Developing Countries" (RPO 676-48). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Peggy Pender, room N10-067, extension 37851 (76 pages).

1032. East Asia and Pacific Region, South Asia Region Population Projections, 1992-93 Edition

Eduard Bos, My T. Vu, and Ann Levin
(November 1992)

The Bank's largest region is East Asia and Pacific, which currently has 30 percent of the world's population. It is followed by South Asia with 21 percent, Africa with 10 percent, Europe and Central Asia with 9 percent, Latin America and the Caribbean with 8 percent, and Middle East and North Africa with 5 percent.

Population projections for all countries are prepared annually by the Bank's Population and Human Resources Department. They are published first in summary form in the Bank's *World Development Report* and later in greater detail as technical notes or working papers and, in alternate years, as a book.

Separate papers cover the six Bank regions: (1) Africa (Sub-Saharan), (2) Latin America and the Caribbean (and Northern America), (3) East Asia and Pacific region and South Asia region combined, and (4) Europe and Central Asia region and Middle East and North Africa region combined.

Among trends observed:

• In Asia, most countries have begun the transition from high to low fertility, with declines in many countries starting before and during the 1970s. In East and Southeast Asia, fertility has already reached a low level of 2.5 children per woman. South Asia, at 4.1 children per woman, has progressed less far in this process, and Southwest Asia has still further to go. But each subregion of the Asian continent includes countries at different stages of the fertility transition: each subregion has at least one country with a total fertility rate of 6 or greater and one country with replacement-level fertility. The projections of when replacement fertility will be reached in the region as a whole are determined by the trends in individual countries with the slowest decline; the Asian subregion aggregates will therefore be late in achieving this.

• South Asia has the worst mortality conditions of the Asian subregions, but improvement has been quite rapid since the mid-1970s, with life expectancy increasing from 49 to 59 years currently. Life expectancy in Southwest Asia is near the world's average, while it is well above that in East and Southeast Asia at 70 years. East and Southeast Asia contains some of the countries (Japan and Hong Kong) with the highest measured life expectancies in the world.

• The most populous country in the world is China, with a population of 1.2 billion. Its population growth rate, 1.5 percent in the early 1990s, is low for a low-income country and is due to the low level of fertility achieved in the last two decades.

• India, the second most populous country, has an estimated population of 883 million in 1992. Because of its higher total fertility rate, it is growing faster than China — 2.0 percent a year — despite higher mortality. The population of India is projected to surpass the 1 billion mark in the year 2000 and to surpass China in total population by 2120.

This paper is a product of the Population, Health, and Nutrition Division and the Population Policy and Advisory Service of the Population and Human Resources Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091.

1033. Latin America and the Caribbean Region (and Northern America) Population Projections, 1992-93 Edition

My T. Vu, Eduard Bos, and Ann Levin
(November 1992)

In Latin America and the Caribbean, life expectancy is slightly above the world's average, which is 66. The total fertility rate for Latin America is intermediate at 3.1, and replacement fertility is projected to be reached in every country no later than 2035. International net migration has a trivial effect on population growth at the regional level; projections of future net migration assume a gradual decline to zero from current levels.

Population projections for all countries are prepared annually by the World Bank's Population and Human Resources Department. They are published first in summary form in the Bank's *World Development Report* and later in greater detail as technical notes or working papers and, in alternate years, as a book.

Separate papers cover the six Bank regions: (1) Africa (Sub-Saharan), (2) Latin America and the Caribbean (and Northern America), (3) East Asia and Pacific region and South Asia region combined, and (4) Europe and Central Asia region and Middle East and North Africa region combined.

Among trends observed:

• All of the Bank's regions have positive population growth rates, but a few countries are losing people. These countries are in one of two regions: in Latin America and the Caribbean, where several small island countries (Dominica, Grenada, and St. Kitts and Nevis) have recently had negative growth rates, and in Europe (Bulgaria, Hungary, and Ireland). In the case of the Caribbean islands, the cause of population decline is outmigration, whereas in Eastern Europe it results from a combination of below-replacement fertility and outmigration.

• On the American continent, fertility in all countries has dropped to below 6 children per woman, but some countries have gone much further than others. The total fertility rate for Latin America is intermediate at 3.1, and replacement fertility is projected to be reached in every country no later than 2035. In Northern America, fertility is at 2 children per woman — that is, just below replacement level.

• At the regional level, international net migration has a trivial effect on population growth. The most significant flow in the world occurs between Latin America and the Caribbean and Northern America, which amounts to just over one-half million persons per year. Migration often occurs for unpredictable reasons, and is often reversed in a short time. The projections of future net migration assume a gradual decline to zero from current levels.

This paper is a product of the Population, Health, and Nutrition Division and the Population Policy and Advisory Service of the Population and Human Resources Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091.

1034. Revising Financial Sector Policy in Transitional Socialist Economies: Will Universal Banks Prove Viable?

David H. Scott
(November 1992)

In the transitional period, regulatory policy should assign to banks primary responsibility for achieving fundamental objectives: establishing and maintaining the integrity of the payments system and the safety of depositors' savings, and ensuring that money markets function. It should encourage nonbank financial institutions to pursue other objectives such as the privatization and restructuring of enterprises.

Focusing on efforts under way in most transitional socialist economies, Scott questions whether the banks emerging in the new policy framework will prove viable or be supervisable. He offers a model of financial sector structure designed to foster the development of a sound banking system.

In describing the environment in which financial policy is being revised, Scott notes that the extraordinary challenges policymakers face might influence the shape of policy. He is concerned that policies to promote a sound banking system might be overlooked or sacrificed.

Fundamental policy objectives, says Scott, are those important to long-term economic well-being. These include establishing and maintaining the integrity of the payments system and the safety of depositors' savings, and ensuring that money markets function. Transitional objectives, on the other hand, relate primarily to the immediate task of privatizing and restructuring enterprises. Policymakers must balance inherent conflicts between the two kinds of objectives while promoting the achievement of both.

Many transitional socialist economies, he observes, adopt a policy framework that envisions universal banking. He assesses the consequences of the immediate emergence of financial conglomerates, or universal-type banks, and questions whether — in the face of limited managerial and institutional capability, limited capability for supervising financial markets, and extraordinary financial market risks — financial conglomerates simultaneously pursuing conflicting fundamental and transitional objectives will prove viable.

Scott advocates delaying the emergence of financial conglomerates until skills are developed and market turmoil subsides. In the transitional period, regulatory policy would assign to banks primary responsibility for achieving fundamental objectives, and would encourage nonbank financial institutions to pursue transitional objectives. Policy should promote financial soundness in the banking system, to control the potential costs to government of achieving its fundamental objectives.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study financial reform in transitional socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Karin Waelti, room N9-043, extension 37664 (24 pages).

1035. How Import Protection Affects the Philippines' Motor Vehicle Industry

Wendy E. Takacs
(November 1992)

Heavy protection of motor vehicle imports in the Philippines imposes substantial costs on consumers and encourages the misallocation of resources to relatively high-cost activities.

The motor vehicle industry in the Philippines is regulated and protected by the provisions of development programs for cars, commercial vehicles, and motorcycles. Each program virtually prohibits the import of completely built-up vehicles, specifies minimum local content requirements for vehicles assembled in the country from imported completely knocked-down kits, and requires that firms assembling kits export to earn foreign exchange to cover the cost of the kits.

Similar protective regimes have existed in a number of countries, especially in Latin America.

Takacs develops a model to illustrate the economic impact and welfare cost of import prohibitions, local content requirements, and export requirements. She applies that model to Philippine data.

Her results indicate that the protective regime in the Philippines imposes substantial costs on consumers and encourages the allocation of resources to relatively high-cost activities. Eliminating all of the restrictions overnight may lead to adjustment problems, but gradual liberalization could limit these problems.

The proportion of domestic content required, the percentage of compensatory exports required for kits, and the tariff rates on kits could be lowered in stages, according to a preannounced schedule, to allow gradual adjustment. The prohibition on imports of assembled vehicles could be replaced by a tariff and phased out gradually. To avoid proportionately more protection of the assembly industry, the tariff on finished autos could be phased out more quickly than the other tariffs, to avoid sending false signals to the domestic industry about the direction of adjustment.

To avoid increasing the effective rate of protection on assembly operations during liberalization, elimination of the domestic content and compensatory export requirements should be accompanied by decreases in the tariff rates on assembled vehicles.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to evaluate trade policy measures and recommend methods of trade policy reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (31 pages).

1036. Output Decline in Hungary and Poland in 1990-91: Structural Change and Aggregate Shocks

Simon Commander and Fabrizio Coricelli
(November 1992)

Two different paths to reform appears to have led to two different outcomes in economic performance. What are the lessons?

Commander and Coricelli try to distinguish between general and national features in explaining the impulse, transmission channels, and path of output decline in Hungary and Poland.

It is clear that output losses are massively concentrated in the socialized industrial sectors, but they identify significant differences in the distribution of those losses and their associated employment outcomes; in the timing and degree of synchronization of those losses; and in the two countries' different policy responses to these powerful recessionary pressures.

In particular, they try to separate shocks particular to a sudden (Polish) big bang and those attributable to a more gradual path of reform (Hungary).

The contrast between Hungary and Poland is less robust than initial impressions led one to expect. By 1991, both economies have open trade regimes, and a practically fully liberalized price system.

The magnitude of shocks to both economies and the accompanying macroeconomic policies clearly diverged. The role of macroeconomic policies was easier to isolate in 1990, before the full effects of the CMEA shock could be felt. Interestingly, in 1990, the decline in output was far smaller in Hungary than in Poland, and was of rather a different nature. In 1990, employment declined more rapidly than output in Hungary, but lagged sharply behind output in Poland. So productivity increased, albeit marginally, in Hungary, while declining sharply in Poland. Contrary to expectations, the Polish big bang approach has produced less adjustment than the more gradual approach followed by Hungary.

One reason for this could be the lack of progress on microeconomic reforms that have accompanied the drastic shift in macroeconomic policies. But Commander and Coricelli suggest that this result could also be associated with the two different paths to reform, the big bang and gradualism.

This paper — a joint product of the National Economic Management Division, Economic Development Institute, and the Transition and Macro-Adjustment Division, Country Economics Department — was presented at the conference on the "Macroeconomic Situation in Eastern Europe," organized by the IMF and the World Bank, and held in Washington, DC in June 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Olga del Cid, room M3-047, extension 35195 (44 pages).

1037. Vocational Secondary Schooling, Occupational Choice, and Earnings in Brazil

Ana-Maria Arriagada and Adrian Ziderman
(November 1992)

As part of a "new wave" of studies on the efficacy of vocational school, this one reports the finding that students who complete vocational school and work in a related field earn more than vocational students who work in unrelated fields and more than academic graduates.

Empirical studies on the efficacy of vocational education, mainly in developing countries — a literature now comprising dozens of evaluation studies — have been fairly unanimous in recording a negative verdict on the costs and benefits of vocational secondary education, particularly compared with traditional academic school.

Arriagada and Ziderman, in this study set in Brazil, reach a different conclusion.

Like a number of recent evaluation studies (for Hong Kong, Israel, and the United States), this one challenges the established orthodoxy by reporting findings far more supportive of vocational schooling. Unlike traditional approaches, it focuses on the relationship between field of vocational study and subsequent occupation.

Arriagada and Ziderman report that students who complete vocational school and work in related fields have significant earnings advantages over students who do not work in fields related to what they studied and over students who complete academic school.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a larger effort in the department to provide policy guidance for vocational and technical education and training. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-214, extension 33640 (16 pages).

1038. Determinants of Expatriate Workers' Remittances in North Africa and Europe

Ibrahim A. Elbadawi and Robert de Rezende Rocha
(November 1992)

The level of remittances from expatriate workers is significantly affected by economic policies in the home (labor-exporting) country. Special incentive schemes cannot substitute for a stable, credible macroeconomic policy.

Elbadawi and Rocha review the theoretical literature on the determinants of international workers' remittances and then posit an empirical model that accounts for demographic, portfolio, and macroeconomic factors that — together with special incentive policies — determine official remittances.

They estimated the model using data from five major labor-exporting countries of North Africa and Europe: Morocco, Portugal, Tunisia, Turkey, and the former Yugoslavia. The econometric results strongly corroborate the model's predictions and reveal interesting policy implications.

In planning for the future growth of remittances, labor-exporting countries should explicitly take into consideration the history of migration, since an aging labor force abroad will be less inclined to remit. Labor-exporting countries should also account for the economic prospects of the major labor-receiving countries and for the geographical distribution of their migrant labor.

Elbadawi and Rocha's results show that remittances are significantly affected by economic policies in the home (labor-exporting) countries. Special incentive schemes cannot substitute for a stable, credible macroeconomic policy.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department, and the Trade and Finance Division, Technical Department, Europe and Central Asia and Middle East and North Africa regions — is part of a larger project funded by the two departments, "The Determinants of Expatriate Workers' Remittances." Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lanha Ly, room H9-071, extension 37352 or Anna Maranon, room N11-025, extension 31450 (56 pages).

39. Education, Externalities, tility, and Economic Growth

tin Weale
vember 1992)

ucation yields externalities that appear nger in macroeconomic data than in sehold-level studies. Simulations show t there is a small growth externality as l as a fertility externality which is inced by the rate of return to education tive to that on physical capital.

benefits of education are usually ased by analyzing rates of return. Social s of return reflect the fact that educa- may be provided free or at a subsid price and that a part of any vidual's income accrues to the state ough taxation. But they typically do not lude private benefits that are not dily connected with the individual's ss earnings; nor do they include the rnal effects of education on economic wth.

Some benefits are generally omitted n calculations of social returns to edu- on, but the estimates produced — ging from 13 percent to 26 percent — implausibly high. There are several sons for this. Studies may not reflect fact that family background influences the likelihood of participating in edu- on and a person's future earning power n without education. Failure to take ount of the effects of quality of educa- may also lead to upward bias.

An alternative approach is to make s-country comparisons using macro- nomic data. A number of such studies discussed. In assessing whether edu- on has any external effect on economic wth, assumptions must be made about cation's direct effect on earning power. ed on a conservative figure of a 5 to 8 cent increase in earnings for every year ducation, there is some evidence to port the presence of a small external- but the evidence cannot be said to be rwhelming.

There is, however, much clearer evice of a link between education and ility rates. The effect is observed in n macroeconomic data and household lies, but is stronger in macroeconomic for reasons that are not clear. This ct constitutes an externality that — at me of widespread (but not universal) cern about population growth — is of at importance.

Weale develops a simulation model from work by Barro and Becker. The model links fertility decisions with consumption/saving decisions. In this model, parents derive utility from their children's welfare; as a consequence, children are a form of saving. The model is extended to reflect education as an endogenous decision and then further to look at the effects of an external effect of education on economic growth. Simulations demonstrate that the rate of return on education relative to that on physical capital is a major influence on fertility, suggesting that the model sheds some light on education's external effect on fertility.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a larger effort in the department to establish the linkages between human capital investments and economic development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (51 pages).

1040. Lessons of Trade Liberalization in Latin America for Economies in Transition

Jaime de Melo and Sumana Dhar
(November 1992)

The reform packages of trade liberalization, stabilization, and supporting policies in Argentina, Bolivia, Chile, Mexico, and Uruguay offer lessons for the economies in transition in Eastern Europe and the former Soviet Union.

After four decades as prime examples of inward-looking trade policies and import-substituting industrialization, several Latin American countries undertook comprehensive trade liberalization and macroeconomic adjustment in the 1980s. De Melo and Dhar contend that the experiences in those countries are relevant for the economies in Eastern Europe and the former Soviet Union in transition from socialism to market economies.

In all of these Latin American countries, the move toward an outward orientation occurred

- when the economy was facing a large negative external shock because of falling terms of trade and rising debt payments;
- after several decades of protectionism; and
- under severe macroeconomic imbalances.

De Melo and Dhar study the reform package of trade liberalization, stabilization, and supporting policies in Argentina, Bolivia, Chile, Mexico, and Uruguay. They conclude that for the economies in transition:

- Rationalizing the foreign trade regime is crucial for the success of stabilization measures.
- Rapid, far-reaching reform is possible in sectors that were subject to prolonged periods of heavy protection.
- Sustained growth requires a comprehensive reform package, with supporting policies for labor, capital, and domestic product markets.
- Liberalization of the financial sector requires investigating the links between commercial banks and private sector firms.
- If trade liberalization is to succeed in the long run, it is important to study the evolution of the real exchange rate and measures to stabilize it.

In the final section of the paper, de Melo and Dhar study the recent impetus toward trade liberalization through regional arrangements in Latin America. The issue is relevant to countries in Eastern Europe and the former Soviet Union because they belonged to the CMEA, a regional trading arrangement, and because such arrangements are evolving anew among countries in the former Soviet Union.

This paper — a product of the Trade Policy Division, Country Economics Department — was prepared for the UNDP/TEP Conference on "World Experience of Trade Liberalization" held in Kiev, June 9-11, 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (40 pages).

1041. Family Planning Success Stories in Bangladesh and India

Moni Nag
(November 1992)

When resources are limited, a program that encourages people to take advantage of existing services may be more practical than one that provides new services.

The Matlab Project in Bangladesh and the Kundam Project in India have demon-

strated that a significant rise in contraceptive prevalence can occur in socioeconomic environments that are generally conducive to high fertility and mortality. Nag describes the inputs and outputs of these two projects and tries to identify the factors underlying their success.

Both projects are experimental in the sense that in each an intervention area is provided with special inputs that are not provided to a contiguous control area. The special inputs were different for the two projects.

In the intervention area in Matlab, the project took responsibility for providing family planning and some rudimentary maternal and child health services that were considerably different from those provided in the national program. In Kundam, the project did not take responsibility for providing services in the intervention area, but rather tried to mobilize the community through various clubs and committees to take the most advantage of the government's family planning and other development programs.

The success of the Matlab Project can be attributed to various aspects of the organizational system developed for delivering consumer-friendly services. The success of the Kundam Project can be attributed to various aspects of the system developed for community members' active participation in the program.

The projects are not fully replicable because of inadequate human and financial resources, but the lessons learned from them should be useful in improving national programs. The Kundam Project is more realistic in the sense that it focuses on activities that *supplement* local activities of the national program rather than *substitute* for them (as in the Matlab Project). Thus the Kundam Project is more likely to be replicable than the Matlab Project.

This paper — a product of the Population and Human Resources Department — was prepared as a background paper for the best practices paper on effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (37 pages).

1042. Family Planning Success in Two Cities in Zaire

Jane T. Bertrand and Judith E. Brown
(November 1992)

Factors that contribute to the success of family planning programs include developing a strong sense of mission among staff members, ensuring an uninterrupted supply of contraceptives through outlets in many locations, and establishing a system of regular, supportive supervision. Also important: enough organizctional autonomy (perhaps through decentralization) to make staff members feel responsible for achieving project objectives.

Both projects described here, Matadi and Kananga, helped health providers in those two cities offer clinical family planning services. But their approaches differed markedly. PRODEF/Matadi concentrated on pioneering community-based distribution of contraceptives, with carefully supervised distributors. The Kananga Project emphasized clinical supervision and pleasing the clients; introduced social marketing with loose supervision of retailers; and provided an information team skilled in face-to-face group meetings, plus a weekly radio program.

Four factors common to both projects seemed to contribute to their success:

- The single-minded dedication of staff members to making family planning work.
- An uninterrupted supply of affordable contraceptive methods available through outlets at many locations.
- Enough organizational autonomy to be able to respond to problems as they arose. Such autonomy made project personnel identify more with project goals and feel responsible for achieving project objectives.
- Regular and supportive supervision of those responsible for service delivery. Both projects emphasized regular contact with clinic personnel — Matadi also included distributors. These contacts bolstered morale by showing that the project administration was closely following service providers' activities and by transmitting to providers the staff's enthusiasm for project activities. Supervisory visits included administrative functions such as collecting service statistics and controlling inventory, but these activities were handled in a friendly, nonthreatening manner that encouraged service providers to perform their tasks well.
- Adequate funding. Both projects had special funding that allowed them to experiment with approaches for increasing contraceptive prevalence. That funding may partly explain their organizational autonomy and may have contributed to the sense of purpose and esprit de corps that developed among project staff. Larger-scale programs in Zaire have operated with significant financial constraints, so it would be unfair to compare them with these more successful projects. Special funding does not guarantee project success but may make it far more likely, conclude Bertrand and Brown.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — was prepared for a review of effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (36 pages).

1043. Deriving Developing Country Repayment Capacity from the Market Prices of Sovereign Debt

Stijn Claessens and George Pennacchi
(November 1992)

The market prices of developing countries' debts are imperfect indicators of the countries' payment capacity, for three reasons: the concave shape of the debt's payoff structure, the presence of third-party guarantees, and the differences in the terms of various debt claims. This new model takes those factors into account.

The market prices of developing countries' debts are imperfect indicators of the countries' payment capacity, for three reasons: the concave shape of the debt's payoff structure, the presence of third-party guarantees, and the differences in the terms of various debt claims.

Claessens and Pennacchi derive an improved indicator of payment capacity by developing a pricing model — using option valuation techniques — that takes these three factors into account.

Applying the model to bonds issued recently by Mexico and Venezuela, they find that the estimated indicator of payment capacity often behaves differently from the raw bond prices themselves, confirming the importance of cleaning the raw prices for these three factors. In order of importance,

the benefits of cleaning raw prices come first from correcting for the effects of different terms (such as fixed versus floating interest rates), followed by the value of third-party enhancements and then by the concavity of the payoff structure.

They find some evidence that the new indicator of repayment capacity conforms better than the raw prices themselves to generally held beliefs about which variables drive a country's repayment capacity. In particular, they find that variables that are often assumed to be related to payment capacity — such as oil prices and the countries' stock market prices — are more closely (and with the right sign) associated with the new estimated measure of payment capacity than are the secondary market prices of the bonds.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the determinants of secondary market prices of developing countries' debt. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (37 pages).

1044. Hospital Cost Functions for Developing Countries

Adam Wagstaff and Howard Barnum
(November 1992)

A critical survey of the techniques available for analyzing hospital costs and a review of the few hospital cost-function studies undertaken for developing countries.

There is an extensive literature on hospital cost functions for industrial countries, and a small literature for developing countries. Yet the issues facing policymakers in all countries are much the same: Are hospitals overcapitalized, as is often claimed of U.S. hospitals? Are hospitals inefficient in other respects? Do hospitals vary in efficiency? Are private hospitals more efficient than their public counterparts? Should hospitals specialize or provide a broad range of services? Should costs be reduced by concentrating cases in fewer hospitals?

Wagstaff and Barnum critically survey the techniques available for analyzing hospital costs and review the few hospital cost-function studies undertaken for developing countries.

Although their paper is intended primarily for those working in developing countries, the discussion of cost function methodology has broad implications for interpreting econometric cost functions and for examining economies of scale and scope in both developing and industrial countries.

Their survey of econometric techniques is not uncritical. They question, for example, the validity of recent tests of overcapitalization undertaken on American hospitals. They also make general observations about the methods used to investigate economies of scope and economies of scale.

This paper — a product of the Health and Nutrition Division, Population and Human Resources Department — is part of a larger effort in the department to examine the efficiency of resource allocation for human services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (32 pages).

1045. Social Gains from Female Education: A Cross-National Study

Kalanidhi Subbarao and Laura Raney
(November 1992)

Female secondary education, family planning, and health programs all reduce fertility and infant mortality — but the effect of female secondary education appears to be particularly strong.

Subbarao and Raney explore the strength of female secondary education relative to, and in combination with, family planning and health programs in reducing fertility and infant mortality. They find that family planning and health programs do influence fertility and mortality, but that the impact of expanding female secondary enrollments appears to be much greater, especially in countries with low female secondary enrollment. Fertility and infant mortality are more elastic with respect to female secondary education than to family planning and health programs. Their simulations suggest:

- Doubling female secondary school enrollment (from 19 to 38 percent) in 1975 would have reduced the total fertility rate in 1985 from 5.3 to 3.9. Doubling the "family planning service score" (from 25 to 50 percent) in 1982 would have reduced the total fertility rate only from 5.5 to 5.0.
- Doubling female secondary school enrollment in 1975 from 19 to 38 percent would have reduced the infant mortality rate from 81 to 38. Halving the ratio of population per physician would have reduced the infant mortality rate only from 85 to 81. Doubling per capita GDP from $650 to $1,300 would have reduced the infant mortality rate only from 98 to 92.
- Doubling female secondary school enrollment (from 19 to 38 percent) in 1975 would have lowered the number of births by 29 percent of the 1985 number. Doubling family planning services would have reduced it by 3.5 percent.
- Doubling female secondary school enrollment would have reduced infant deaths by 64 percent. Halving the ratio of population per physician would have reduced it only by 2.5 percent. Doubling per capita GDP has no effect on reducing infant deaths, all other factors being constant.

Female education affects desired family size by raising the opportunity cost of a woman's time in economic activities, increasing demand for family planning, and promoting more effective contraceptive use.

This paper is a product of the Women in Development Division, Population and Human Resources Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Abundo, room S2-270, extension 36820 (50 pages).

1046. World Bank Project-Financed Research on Population, Health, and Nutrition

J. Price Gittinger and Carol Bradford
(November 1992)

Most population, health, and nutrition projects provide finance for research. Personalities — of both borrowers and Bank staff — make a difference in the quality of research. Supervision and peer group review also make a difference, and more best-practices workshops are in order.

This report on World Bank project-financed research on population, health, and nutrition (PHN) is based on a review of 109 staff appraisal reports for projects financed in fiscal 1980-91 and on selected interviews with task managers. The report looks at only the simplest dimensions

of project-financed research and examines research outcomes of only a few projects. Among conclusions tentatively reached:

- More than 90 percent of PHN projects from fiscal 1980-91 financed research.
- Bank experience with project-financed research in the PHN sector has been extremely variable: quite successful in some countries and almost a total failure in others. Even so, some striking successes justify continued efforts to incorporate research into projects and to encourage use of that research to improve both national PHN policy and follow-on Bank-financed projects.
- Personalities make a difference, both among borrowers and within the Bank. Often successes are associated with a particular person within the government or the Bank who has taken a continuing personal interest in encouraging research.
- Supervision is crucial to good results. Supervision must be frequent enough to keep the research component on time and of good quality. For quality research to be completed, it is important that those responsible for supervision attach a high priority to research even if it is not a large part of the project in terms of budget.
- Research that leads to a project outcome — such as research needed to justify release of funds or for a follow-on project — is more likely to be undertaken and completed than is research with a more general objective.
- In countries where the institutional capability exists, using a national institution to review research proposals and to administer research grants can be quite effective. Experience indicates that some sort of peer-group review produces better research.
- There is probably room for more best-practices workshops where PHN staff can exchange experiences about successful design and supervision of project-financed research components. But usually it will be necessary to retain experienced consultants to help design substantial research components.
- More systematic collection and dissemination of project-financed research is justified, given the considerable amounts of money and effort devoted to it.

This paper — a product of the Health and Nutrition Division, Population and Human Resources Department — is part of a larger effort in the department to disseminate Bank-funded population, health, and nutrition research. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (16 pages).

1047. Côte d'Ivoire: Private Sector Dynamics and Constraints

Enrique Rueda-Sabater and Andrew Stone
(November 1992)

Taxes weigh heavily on private firms, while the burden of labor regulations is reduced by informal responses. But the essential precondition for a substantial supply response is continued macroeconomic policy reform.

Private sector assessments provide information and analysis essential to formulating strategies for alleviating constraints on private sector development. They are meant to contribute both to the Bank's policy dialogue with borrowing governments and to the formulation of country assistance strategies.

Rueda-Sabater and Stone examine the constraints on growth faced by private enterprises and how these relate to the policy and institutional environment in Côte d'Ivoire. They employ new data sources as well as surveys of, and in-depth interviews with, private entrepreneurs. They focus on:

- The effects of taxes and labor regulation on private firms.
- The impact of public spending on private sector development.
- The role of informality in enterprise activity.

Among their findings:

Tax policy and enforcement impose a heavy financial burden on a shrinking base of formal enterprises, whose regulatory burden has also grown. Taxes are increasingly independent of a firm's profits. This substantial fixed cost may lead some businesses to exit prematurely and may discourage others from formal entry. The overall tax burden on small and medium-size enterprises has risen disproportionately, to levels that discourage formal participation in the economy. Informal firms pay some taxes, but there is considerable leakage in collection.

Unnecessary rigidities in labor policies weigh less heavily than expected on firms, because they avoid their full costs through such means as subcontracting and apprenticeships. The restrictions nonetheless limit firms' flexibility of operation and ability to reward merit.

In the 1980s, public spending increasingly channeled limited financial resources and human capital toward nondeve- lopment purposes, including poorly performing enterprises and elite-oriented services, precluding their use in the private sector. The methods of financing public spending (such as withholding taxes and accumulating arrears) have sharply curtailed the capital available to private enterprises. The public sector's dramatic accumulation of arrears and growing reputation as a bad customer are undermining the competitive private supply of goods and services to the government.

Government employment policies attract many of the most qualified potential entrepreneurs and business professionals to government employment.

Rather than a sharp divide, there is a continuum between small informal and large formal firms. Some medium-size and large formal firms engage in informal behavior, and large firms sometimes lower their costs through links with informal firms — including purchases of inputs that have escaped regulation and taxes.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — reflects an early application of a methodology for private sector assessment developed by the Division to identify constraints on, and priorities for, the development of a country's private sector. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room N9-059, extension 37642 (48 pages).

1048. Targets and Indicators in World Bank Population Projects

George Baldwin
(November 1992)

The Bank should strengthen its use of international comparisons and trend analysis rather than increasing its use of target setting; the use of demographic and health surveys should be the rule, not the exception, in Bank population and health projects; and more attention should be given to program-level than to project-level performance.

In reviewing World Bank evaluations of the impact of population projects, Baldwin

explains the nature and uses of four families of performance indicators. Two measure inputs:

Project implementation indicators, which are project-specific, are the principal measures used in Bank supervision. They measure success in creating sources capable of conducting certain desired activities.

Process (or activity) indicators measure performance of a project's intended activities but tell nothing about the "yield" or output of those activities.

And two measure output:

Performance (or intermediate-output) indicators measure the yield or output-performance of a project or program. For family planning, the principal indicator in this category is acceptor figures, normally with details about methods used plus the age, parity, and geographical distribution of acceptors. Quality may or may not be good and coverage may or may not be comprehensive. These indicators do not directly measure ultimate demographic impacts—lower fertility and slower population growth.

Demographic outcome (or impact) indicators do measure demographic impacts, usually the contraceptive prevalence rate and age-specific and total fertility rates.

One can use a desired value of any comparator as a target, but a target is only one possible comparator. Two more widely used comparators for family planning are *trends* (comparing current with past performance) and *international performance* (an external comparison). Baldwin recommends strengthening the Bank's use of world ("successful developing country") standards and of trend analysis rather than increasing its use of target setting.

The Bank's primary interest is normally the performance of the borrower's national program, so more attention should be given to program-level than to project-level performance — except for pilot projects.

Baldwin recommends:

- That the Bank standardize its terminology about these four families of indicators.
- That the Population and Human Resources Department periodically prepare comparator tables and graphs for use in Bank project and sector reports.
- That the Bank discontinue Project Performance Audit Reports on population projects, as they seldom add much to information and judgments contained in Project Completion Reports. The money saved could be applied to more effective evaluation research.
- That operational staff show more concern for a program's contraceptive mix.
- That more attention be paid to a program's service quality.
- That the use of demographic and health surveys be the rule, not the exception, in Bank population and health projects.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is part of a larger effort in the department to assess the performance of family planning programs in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (57 pages).

1049. Money Demand and Seignorage-Maximizing Inflation

William Easterly, Paolo Mauro, and Klaus Schmidt-Hebbel
(November 1992)

The elasticity of substitution in transactions between money and bonds is a crucial determinant of the seignorage-maximizing inflation rate and of whether the semi-elasticity of money demand with inflation increases with inflation.

There is widespread consensus among economists that high inflation is often caused by the government's need to raise seignorage to finance high budget deficits. Depending on the shape of the money demand function, steady-state seignorage may follow a Laffer curve, where seignorage first rises and then falls with higher inflation. If so, a rate of inflation exists that maximizes steady-state inflation.

Conventional estimates of the seignorage-maximizing rate of inflation often make use of the Cagan form, which implies a constant semi-elasticity of money demand with inflation. Easterly, Mauro, and Schmidt-Hebbel develop a model that implies a variable semi-elasticity. They show that the elasticity of substitution in transactions between money and bonds is a crucial determinant of the seignorage-maximizing inflation rate and of whether the semi-elasticity of money demand with inflation increases with inflation.

Individual country estimates and cross-country panel regressions based on annual data from 11 high-inflation countries provide empirical support for their model. Relaxing the hypothesis of a constant semi-elasticity leads to estimates showing that, on average, the semi-elasticity of money demand with inflation increases with inflation.

The results imply well-behaved Laffer curves that peak at plausible inflation rates; under the Cagan form, there is no seignorage Laffer curve.

In addition, the estimates based on the correct measure of the opportunity cost of holding money contrast starkly with implausibly high Laffer-curve maxima obtained when using conventional but wrong measures of inflation.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to assess the relationship between fiscal deficits, money creation, and inflation. The study was funded by the Bank's Research Support Budget under research project "The Macroeconomics of Public Sector Deficits" (RPO 675-31). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-021, extension 31448 (32 pages).

1050. Marginal Income Tax Rates and Economic Growth in Developing Countries

William Easterly and Sergio Rebelo
(November 1992)

One step closer to being able to do the empirical work needed on the common hypothesis of growth theory: that income taxes have a negative effect on the pace of economic expansion.

One of the central predictions of growth theory, old and new, is that income taxes have a negative effect on the pace of economic expansion. Little empirical work has been done on the topic because of the difficulty of measuring the relevant marginal tax rates.

Easterly and Rebelo experiment with a method for computing average marginal income tax rates that combines information on statutory rates with the amount of tax revenue collected and with data on income distribution

Their method relies heavily on the assumption that the marginal tax schedule

has a logistic form. Their method stands a better chance of measuring the relevant average marginal tax rate than the widely used alternative of assuming (implicitly or explicitly) that the income tax is proportional.

The possibility of estimating marginal income tax rates suggests two lines of research: a study of the properties of models with nonlinear income taxes and a search for adequate empirical strategies for testing those models with cross-country data.

This paper a product of the Transition and Macro-Adjustment Division, Country Economics Department is part of a larger effort in the department to assess the effects of economic policies on long-run growth. The study was funded by the Bank's Research Support Budget under research project "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-021, extension 31448 (18 pages).

1051. The Legal Framework for Private Sector Activity in the Czech and Slovak Federal Republic

Cheryl W. Gray
(November 1992)

In the reform of company, contract, and antimonopoly law, the Czech and Slovak Federal Republic could to some extent be a model for other reforming socialist economies. In constitutional and real property law, it lags behind some neighboring countries. And the courts are relatively ill-prepared to handle the skyrocketing demands expected in the newly reformed system.

Since its "velvet" revolution in late 1989, the Czech and Slovak Federal Republic (CSFR) has moved steadily to create the conditions for developing a private market economy. Not only has the CSFR freed up the conditions for entry of new private firms, but it has also taken far-reaching steps to return property to former owners and to privatize large parts of its state-owned industry. For this emerging private sector to thrive, there must be a clear legal framework to provide decentralized "rules of the game."

Gray describes the evolving legal framework in the CSFR in several key areas: property, contracts, company law, foreign investment, bankruptcy, and antimonopoly law. Essentially the same legal framework exists in the Czech and Slovak republics, although the legal frameworks of the two could diverge considerably in the coming months and years if the country separates, as is expected.

The CSFR differs somewhat from its Central and Eastern European neighbors, especially Poland and Hungary, in that its pre-war legal system was more thoroughly abrogated during the socialist period. So, fewer people are familiar with market-oriented legal principles and practices. On the other hand, in 1989 the CSFR had the advantage of starting with a relatively "clean slate" on which to craft modern laws. In some areas of law — such as company, contract, and antimonopoly law — legal reform in the CSFR is relatively well-advanced and could to some degree serve as a model for other reforming socialist economies. In others — including constitutional and real property law — legal reform is embroiled in political controversy and is lagging behind developments in some neighboring countries. The interests of former property owners are clashing with those of current tenants, creating a surge of new disputes entering the courts. The surge in cases is likely to be exacerbated as the current moratorium on bankruptcy claims against state enterprises expires in 1993, and as cases under the new intellectual property laws and commercial code come onstream. The CSFR's judicial system, suffering from recent purges of judges compromised by the former regime as well as generally low pay and prestige, appears to be relatively ill-prepared to cope with the skyrocketing demands expected in the newly reformed system.

All in all, it is a time of great progress, great confusion, and great challenge.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger research effort on the economic implications of legal reform in Central and Eastern Europe. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maxine Berg, room N11-021, extension 36969 (25 pages).

1052. A Reappraisal of How Oral Rehydration Therapy Affected Mortality in Egypt

Hoda Rashad
(November 1992)

Do not expect too much from oral rehydration therapy. An upper ceiling for the potential impact of oral rehydration therapy in Egypt is a 25 percent reduction in the infant mortality rate.

Oral rehydration therapy is the key low-cost child survival intervention used to deal with diarrheal illness in developing countries. The existence of a low-cost, highly efficacious technological fix (oral rehydration salts) for the life-threatening dehydration that accompanies diarrhea provided a strong rationale for making oral rehydration therapy a cornerstone of diarrheal disease control programs. The Egyptian oral rehydration therapy program has been quoted as having the most spectacular success in reducing infant and child mortality. But there is a need to differentiate between the efficacy of oral rehydration therapy in clinical settings and in community use.

The National Control of Diarrheal Diseases Project (NCDDP) was launched in Egypt in 1983. A pilot program was followed by national promotion starting in February 1984. As early as 1985, opinions were being expressed about the favorable impact of NCDDP activities on child mortality.

There is no doubt that the NCDDP greatly increased both awareness of the dangers of dehydration consequent upon diarrhea in children and knowledge of oral rehydration therapy. But survey data on the use of oral rehydration therapy during diarrheal episodes show such use to be far from universal (with use in fewer than 50 percent of episodes). Further, ethnographic studies show appropriate use, in terms of timing and quantity, to be the exception rather than the rule.

The maximum theoretical effect of the NCDDP on child mortality would be to eliminate all deaths from diarrhea, a reduction of about 50 percent. The maximum effect that could realistically be expected is a reduction of less than 20 percent. Analysis of a time series of infant mortality from vital registration data indicates an abrupt, statistically-significant change in level in 1985 amounting to a once-off decline of about 15 percent. In the

absence of other changes taking place at about the right time that might explain this drop, it is concluded that the NCDDP probably was responsible. Thus, although many of the claims made for the impact of the NCDDP on child mortality in Egypt appear to have been greatly exaggerated, it does seem likely, in the absence of alternative explanations, that the program significantly reduced infant mortality in the mid-1980s.

This paper — a product of the Population, Health, and Nutrition Division, Population and Human Resources Department — was prepared for an international workshop on "Child Health Priorities for the 1990s," held in June 1991 in Baltimore, Maryland, sponsored by Johns Hopkins University and the World Bank. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (26 pages).

1053. Development of the Zimbabwe Family Planning Program

Alex F. Zinanga
(December 1992)

A serious national family planning effort began after independence in 1980. As a result, the contraceptive prevalence rate increased from about 14 percent in 1982 to 43 percent in 1988. But program efforts are now stalling.

Family planning was introduced in Zimbabwe as a voluntary movement in the 1960s. Volunteers formed a Family Planning Association in the mid-1960s. The government became interested in family planning in the late 1960s after analysis of the 1961 population census. It gave the Family Planning Association an annual grant, allowed contraceptives to be available through Ministry of Health facilities, and allowed nonmedical personnel to initiate and resupply family planning clients with condoms and pills. But before Zimbabwe achieved independence in 1980, family planning was viewed with great suspicion by the black majority, so the program's effectiveness was limited to the white few.

A new era began after independence. The new government took over the Family Planning Association and changed its outlook completely. Through government and international donor support, the family planning program was restructured and expanded. The number of family planning personnel more than doubled in some units. More service delivery points were set up — particularly in rural areas. And the information, education, and communication and evaluation and research units were established. Through a World Bank-assisted project (with grant funding from Norway and Denmark), the Ministry of Health began strengthening its family planning capabilities.

These efforts helped increase the contraceptive prevalence rate from about 14 percent in 1982 to 43 percent in 1988. But the program's growth is beginning to stall. More effort and resources are needed if the program is to grow or even maintain its present status. Particularly important are the following:

- Designing innovative strategies to reach hard-to-reach populations.
- Giving more emphasis to information, education, and communication, especially for men and youths, using multimedia.
- Involving other sectors in the delivery of family planning services.
- Broadening the mix of contraceptive methods (especially promoting long-term and permanent methods).
- Making use of alternative family planning delivery systems, such as the use of depot holders, volunteers, and government extension workers.
- Establishing a national population policy.
- Considering cost recovery and other measures for self-sustainment and program growth.

This paper — a product of the Population Policy and Advisory Service, Population and Human Resources Department — is part of a larger effort in the department to understand the impediments to contraceptive use in different environments. The study was funded by the Bank's Research Support Budget under research project "Impediments to Contraceptive Use in Different Environments" (RPO 675-72). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (13 pages).

1054. Distributional Impact of Cash and In-Kind Social Transfers in Eastern Europe and Russia

Branko Milanovic
(December 1992)

During the transition to a market economy, cash social benefits in the formerly socialist countries must become more targeted as well as smaller in absolute amounts. The reforming socialist economies are likely to follow the corporatist earnings-linked model of continental Europe.

Milanovic empirically explores the distributional impact of social transfers in cash and in kind in Russia and Eastern Europe.

He shows that cash transfers, on the whole, are distributed almost uniformly (equally per capita) regardless of one's position in income distribution. By contrast, in market economies, absolute amounts of cash transfers decline as one moves up the income ladder.

The family allowance is the only type of cash transfer that is somewhat focused on the poor in the socialist economies. Family allowances are paid for children, and since larger households are typically poorer, some redistribution is achieved.

Education benefits are also slanted slightly toward the poor, primarily through the high share of public spending on primary education. As the level of schooling rises, the distribution of education benefits resembles more closely the distribution of income.

Health care benefits are distributed uniformly, per capita. In market economies, on the other hand, public health benefits are targeted more to the poor — primarily because the rich often opt out of publicly-run programs.

During the transition, cash benefits in the formerly socialist countries must become more targeted as well as smaller in absolute amounts. The reforming socialist economies are likely to follow the corporatist earnings-linked model of continental Europe.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to study income distribution in formerly socialist countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (39 pages).

1055. Wealth, Weather Risk, and the Composition and Profitability of Agricultural Investments

Mark R. Rosenzweig and Hans P. Binswanger
(December 1992)

Investment portfolios of small farmers reflect their difficulties in smoothing consumption in the face of high risks. Improving farmers' ability to smooth consumption — perhaps through public employment schemes or increased consumption credit — would increase the overall profitability of their investments and would decrease inequality of earnings in high-risk areas.

Despite the growing evidence that farmers in low-income environments are risk-averse, there has been little empirical evidence on the importance of risk in shaping the actual allocation of production resources among farmers differentiated by wealth.

Rosenzweig and Binswanger use panel data on investments in rural India to examine how the composition of productive and nonproductive asset holdings varies across farmers with different levels of total wealth and across farmers facing different degrees of weather risk.

Income variability is a prominent feature of the experience of rural agents in low-income countries. Rosenzweig and Binswanger report evidence, based on measures of rainfall variability, that the agricultural investment portfolio behavior of farmers in such settings reflects risk aversion, due evidently to limitations on consumption-smoothing mechanisms such as crop insurance or credit markets. The authors' results suggest that uninsured weather risk is a significant cause of lower efficiency and lower average incomes: A one-standard-deviation decrease in weather risk (measured by the standard deviation of the timing of the rainy season) would raise average profits by up to 35 percent among farmers in the lowest wealth quartile.

Moreover, rainfall variability induces a more unequal distribution of average incomes for a given distribution of wealth. Wealthier farmers are willing to absorb significant risk without giving up profits to reduce production risk. Smaller farmers have to invest their limited wealth in ways that reduce their exposure to risk at the cost of lower profit rates.

The authors found that at high levels of rainfall variability, differences in rates of profit per unit of agricultural assets were similar across classes of wealth. But over the sample range of rainfall variability, these rates of profit were always higher for the poorer farmers than for the wealthier ones, suggesting that the disadvantages of small farmers in risk diffusion are more than offset by their labor cost advantage.

This paper is a product of the Latin America and the Caribbean Technical Department. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Caroline Banton, room I4-049, extension 34783 (42 pages).

1056. Earnings and Education in Latin America: Assessing Priorities for Schooling Investments

George Psacharopoulos and Ying Chu Ng
(December 1992)

In most Latin American countries, the earnings premium received by graduates of higher education decreased in the 1980s. Investment in primary education shows the highest rate of return among all levels considered.

Psacharopoulos and Ng use household survey data for 16 Latin American countries to assess earnings differentials by level of education, and to assess how these differentials changed in the 1980s.

Introducing the cost of education allows them to estimate private and social rates of return on investments on education across several dimensions: by gender, by level of education, by sector of employment, by nature of the secondary school curriculum, and over ti

The results show that, in most countries, the earnings premium received by graduates of higher education decreased in the 1980s. Investment in primary education shows the highest rate of return among all levels considered — and is still the number one investment priority in most countries.

This paper — a product of the Technical Department, Latin America and the Caribbean Region — is part of a larger effort in the department to document the role of education in the region's development efforts. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Malca, room S13-139, extension 37720 (93 pages).

1057. Measuring the Incomes of Economies of the Former Soviet Union

Socio-Economic Data Division,
International Economics Department
(December 1992)

The study's estimates of income per capita for the states of the former Soviet Union, while subject to considerable uncertainty, are considered reliable enough for their primary purpose: to assign the new states of the Soviet Union to income categories for Bank analytical and operational purposes.

There is as yet no fully satisfactory way to compare income per capita of the former Soviet Union with that of other economies. Even more problematic is compiling estimates for the separate economies that have emerged with the breakup of the Soviet Union. The main problem is the isolated non-market economy of the country, compounded by the chaotic state of information services.

The results presented here, while subject to considerable uncertainty, are considered reliable enough for their primary purpose: to assign the new states of the Soviet Union to income categories for Bank analytical and operational purposes.

The main difficulty was choosing a ruble-dollar conversion factor that accords reasonably well with the Bank's *Atlas* method. Official rates cannot be used because they are as artificial and misleading as any other planned price, meaning that they diverge by a large margin from the rate effectively applied to international transactions. This study investigated three alternative conversion methods, yielding GNP per capita estimates for the former Soviet Union for 1990 ranging from $2,440 to $3,720.

The method judged most reliable (referred to as the synthetic *Atlas*-type conversion factor) gave an estimate of $2,870. That figure is somewhat at odds with *Atlas* estimates for the former Soviet Union and other members of the Council for Mutual Economic Assistance (CMEA), which may reflect the limited applicability of the *Atlas* methods for historically planned economies. Income per capita is calculated for each of the states of the former Soviet Union and for the other

European members of CMEA.

The method developed here relies on a purchasing power parity bridge from planned to market economies. Unlike conventional use of this measure, the study uses the relationship between purchasing power parity and exchange rates for comparator market economies to suggest an *Atlas*-type conversion factor. The estimations for the states of the former Soviet Union have a suggested margin of error of plus or minus 10 percent.

Incomplete reports for 1991-92 show large declines in real GDP in all countries of the former Soviet Union — as much as 25 percent in some cases. It is unlikely that mechanically extending results to 1992 will yield meaningful results, so this study is just a beginning.

This paper — a product of the Socio-Economic Data Division, International Economics Department — is part of a ger effort in the department to facili- integration of the historically planned nomies, including the former Soviet ublics, into the global economy. Cop- of the paper are available free from the World Bank, 1818 H Street NW, Washing- , DC 20433. Please contact Estela nora, room S7-136, extension 33706 (70 es).

1058. The Pricing of Country ds and Their Role in Capital bilization for Emerging onomies

c Diwan, Vihang Errunza, and Lemma W. bet
ember 1992)

ntry funds traded in the developed ital markets can help promote the effi- cy of pricing in the emerging capital kets and can enhance capital mobili- on by local firms.

an, Errunza, and Senbet theoretically lyze country funds, focusing on emerg- economies in which capital markets not readily accessible to outside inves- . They study country-fund pricing and associated policy implications under rnative variations on segmentation of rnational markets.

They show that country funds traded in developed capital markets can help note the efficiency of pricing in the rging capital markets and can en- e capital mobilization by local firms. These efficiency gains vary depending on the degree of the international investor's access to the emerging market securities (access effect), on the degree to which the industrialized countries' securities market span the securities offered in the emerging markets (substitution effect), and on the existing cross-border arbitrage restrictions

As a byproduct of their analysis, they study the reasons why country funds sell at a premium or discount relative to their net underlying asset value. They also show that the efficiency gains that arise with the development of new funds can be positive even when these funds start trading at a discount.

They conclude with a catalog of policy implications, including strategies for efficiently promoting country funds. For example:

- In general, introducing the country fund in the advanced or developed market increases the prices of the underlying component assets traded in the originating emerging markets.
- As a policy matter, country funds that should be encouraged by emerging countries for introduction by fund promoters should be targeted to those local assets with imperfect or no substitutes in the advanced core markets.
- In some circumstances, it may be socially optimal to subsidize the introduction of new funds that are expected to sell at a discount.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study portfolio investments in developing countries. The study was funded by the Bank's Research Support Budget under research project "Closed-End Country Funds: Theoretical and Empirical Investigation" (RPO 676-07). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (54 pages).

1059. Political Economy of Policy Reform in Turkey in the 1980s

Ziya Önis and Steven B. Webb
(December 1992)

Among the lessons from Turkey's experience with economic policy reform: The political management of reform requires building and institutionalizing coalitions of beneficiaries from reform.

Turkey's adjustment experience was a tremendous success in terms of structurally reorienting the economy. The share of output for export rose from 5 percent in 1979 to 23 percent in 1989, and real output roughly doubled. The financial markets opened and have developed depth and sophistication. The program failed to reduce fiscal deficits, inflation, income inequality, and the size of the inefficient public enterprise sector, but the transformation of trade and finance fundamentally altered the context of the problems, changing their effects on the private sector and changing the government's options for dealing with them.

The first phase of economic adjustment was sustained, although not initiated, in an authoritarian context, but the Turks restored democracy when the agenda for reform was incomplete. The Motherland Party (ANAP) won office on the platform of economic success and eventually lost partly because of the failure of economic policy. ANAP's electoral defeat in 1991 did not mean, however, the demise of the pro-structural adjustment or the pro-liberalization coalitions. The long period of ANAP rule helped consolidate reforms to such a degree that all of the principal parties agreed on a broadly similar economic program. The ideological differences between the left and the right — a state-directed versus a market-oriented economy — substantially diminished

The reforms of the early 1980s greatly reduced the importance of rent-seeking, particularly through foreign trade, but patronage politics became widespread again in the second half of the decade. The initial strength ANAP derived from privileged access to state resources progressively became a disadvantage, creating resentment and reaction among the populace. One source of discontent was the over-invoicing of exports (that is, "fictitious exports"), designed to take advantage of favorable export subsidies, and the government's failure to discipline or penalize the companies involved. This jeopardized attempts to build a pro-export coalition, and some key features of import substitution continued.

Önis and Webb attribute the failure of Turkey's macroeconomic policies in the late 1980s to the government's failure to cultivate popular support for macroeconomic stability; to the top bureaucrats'

lack of autonomy to counteract political pressures to expand the fiscal deficit; and to the continuation of top-down individualistic linkages between policymakers and key economic interests.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to understand what is necessary for sustaining structural adjustment. Earlier drafts of this paper were read by participants in the May 1992 conference on Voting for Reform: The Political Economy of Structural Adjustment in New Democracies. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Barbara Protas, room I5-157, extension 37859 (60 pages).

1060. Economies of the Former Soviet Union: An Input-Output Approach to the 1987 National Accounts

Dmitri Steinberg
(December 1992)

An input-output approach is used to derive internationally comparable estimates of GNP for the 15 economies of the former Soviet Union.

Steinberg uses an input-output (I-O) approach to derive internationally comparable estimates of GNP for the 15 economies of the former Soviet Union (FSU). The commonly accepted measure of economic output of GDP or GNP based on the System of National Accounts (SNA) cannot be readily estimated for these economies because relevant statistical reporting systems have yet to be set up to replace the system used historically — the Material Product System (MPS).

Steinberg's "three-tier" approach improves on the short-cut method of "bridge tables (from MPS to SNA)" by integrating additional financial data and using the inherent cross-checks of I-O tables. The three steps in the process are to:

- Analyze the official 20-sector MPS-type I-O tables.
- Integrate financial data on services, etc., from National Economic Balance (NEB) tables.
- Convert the I-O table derived from the integrated NEB tables to SNA forms.

Steinberg resolves inconsistencies between Goskomstat I-O tables for the overall FSU accounts and those for the 15 individual FSU economies by drawing on data from other financial tables. The main adjustments are in inter-republic trade, which is included in individual FSU economies' I-Os, but not in the overall I-O for the FSU, and for "unplanned" sectors (military, police, and so on). Additional adjustments necessary to estimate GNP from net material product — such as inclusion of nonmaterial services — are explicitly shown in the appropriate I-O sectors. Appendices report details on these and other adjustments, notably the apportionment and revaluation of inter-republic trade from internal to foreign trade prices.

The end product is one in which income, output, and expenditures are estimated in a consistent SNA-type framework for the overall FSU and for the 15 individual FSU economies. These I-O tables provide the information needed for macroeconomic and sectoral analysis, and form the basis for estimating per capita GNP for these economies

Steinberg presents the three-tier I-O tables for the FSU region as a whole in this paper, but presents only the SNA tier for individual economies. All tables for each FSU economy, with supporting tables, are available on diskettes from the contact person indicated above.

This paper — a product of the Socio-Economic Data Division, International Economics Department — is part of a larger effort in the Bank to provide an objective framework for determining whether, and where, special problems of international comparability arise in reports about national accounts of economies emerging from the former Soviet Union. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Estela Zamora, room S7-136, extension 33706 (113 pages).

1061. Dynamic Response to Foreign Transfers and Terms-of-Trade Shocks in Open Economies

Klaus Schmidt-Hebbel and Luis Serven
(December 1992)

Both permanent and transitory disturbances can change long-run capacity and output — although they may have opposite effects on the current account. Liquidity constraints and wage rigidities tend to amplify the cyclical adjustment to external shocks.

The transmission of shocks and policy changes depends crucially on the structure of the economy. Schmidt-Hebbel and Serven analyze the impact of two classes of external shocks in open economies, using a rational-expectations framework that nests three prototype economies:

- A neoclassical, full-employment benchmark economy, with intertemporally optimizing consumers and firms and instantaneous clearing of asset, goods, and factor markets.
- A full-employment economy, with partly liquidity-constrained consumers and investors.
- A Keynesian economy exhibiting both liquidity constraints and wage rigidity, which results in transitory unemployment.

Their model is forward-looking in that the short-run equilibrium of the economy depends on current and expected future values of all exogenous variables, and displays hysteresis (that is, its long-run equilibrium is path-dependent).

Using parameters for a representative open economy, they simulate and compare the dynamic effects of foreign transfers and of a terms-of-trade windfall in the form of a lower price for an imported production input. They contrast the role of Keynesian elements with the neoclassical factors in determining the dynamic adjustment to shocks, by analyzing the effects of permanent/transitory and anticipated/unanticipated disturbances in the three prototype economies. The results illustrate three main points:

- Both permanent *and* transitory disturbances cause changes in long-run capacity and output.
- Transitory and permanent shocks may have opposite effects on the current account; in particular, a permanent favorable foreign shock produces a current account *deficit*, while a transitory favorable shock induces a current account surplus.
- Liquidity constraints and wage rigidities tend to amplify the cyclical adjustment to external shocks.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to understand macroeconomic adjustment in devel-

g countries. Copies of the paper are able free from the World Bank, 1818 treet NW, Washington, DC 20433. se contact Anna Maranon, room N11- extension 31450 (46 pages).

2. Economic Development, Ironmental Regulation, the International Migration of lc Industrial Pollution, 1960-88

rt E. B. Lucas, David Wheeler, Hemamala Hettige mber 1992)

lisplacement of toxic intensity toward loping countries may not have been table in the last two decades. And industrial migration seems to have the result of restrictive trade policies e developing countries themselves than of regulatory cost differences een the North and the South.

ral previous studies have asked her environmental controls imposed e industrial economies are diverting stments in pollution-intensive activi- off-shore. Broadly, these studies con- e that direct investment does not ap- to be stimulated by such regulations, ly because the cost of emission con- is generally a tiny fraction of operat- osts.

Yet direct investment reflects only part hat may be happening to world pro- ion patterns. Technology transfers occur with no simultaneous direct stment, and production may readily toward a different global distribution out either direct investment or tech- gy transfer.

Lucas, Wheeler, and Hettige attempt a ral test of the displacement hypoth- developing time series estimates of ufacturing pollution intensity for a sample of developed and developing tries between 1960 and 1988. Among conclusions:

- As a result of shifts in industrial com- ion, total manufacturing emissions ive to GDP grow faster than GDP at levels of per capita income and slower GDP at higher levels of income.
- This happens because manufacturing a declining share of GDP at higher ne levels, not because of any shift rd a cleaner mix of manufacturing ities.
- The more rapidly growing high-income countries have actually enjoyed negative growth in toxic intensity of their manufacturing mix.
- Stricter regulation of pollution-intensive production in the OECD countries appears to have led to significant locational displacement, with consequent acceleration of industrial pollution intensity in developing countries. The poorest economies seem to have the highest growth in toxic intensity. One cannot, of course, be certain of the causal connection.
- Pollution intensity has grown most rapidly in developing economies that are relatively closed to world market forces. Relatively closed, fast-growing economies experienced rapid structural transitions toward greater toxic intensity. The opposite seems to have been true for more open economies.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1992*. The *Report*, on development and the environment, discusses the possible effects of the expected dramatic growth in the world's population, industrial output, use of energy, and demand for food. Copies of this and other *World Development Report* background papers are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (20 pages).

1063. Mongolia: Privatization and System Transformation In An Isolated Economy

Cevdet Denizer and Alan Gelb (December 1992)

Mongolia initiated an innovative reform program in the face of severely growing shortages and a collapsing economy. The latter may hasten reform. But collapse can also create serious difficulties, including rejection of radical reforms by the electorate.

Denizer and Gelb examine the process of economic transformation in Mongolia, a huge, isolated, sparsely populated country. After identifying factors that led to formulation of a radical adjustment program in such an isolated country, they focus on Mongolia's innovative voucher privatization scheme, and the interplay between the speed of contraction in resource availability and that of the movement to a market economy. They show that the reform process was not smooth: that after the rapid formulation and implementation of major reforms, there was a marked slowdown, when reform timetables were revised and a more gradualist approach adopted. Later, reforms driven by the privatization program picked up momentum again. But one important lesson learned in Mongolia is that voters are likely to shy away from radical reformers when faced with growing shortages and a collapsing economy. In June 1922, the Mongolian People's Revolutionary Party (the former communist party) was returned to power in general elections, capturing 72 of 76 parliamentary seats.

Denizer and Gelb identify factors related to speed versus caution: organizational and institutional limitations; political considerations; whether a "model" of transformation exists; and a contracting resource envelope.

Using a simple computable general equilibrium model, they analyze the impact of the cutoff of Soviet aid, which amounted to 30 percent of GDP, and of the disruption of trade. They conclude that preventing a decline in welfare of more than 20 percent — which is close to the decline in 1991 — would require aid flows of about 15 percent of GDP.

Their model suggests that the rural sector is reasonably well insulated from external shocks, in sharp contrast with the urban sector.

One response scenario explored by the model is that of massive reverse migration to rural areas. They point out that the more the resource envelope tightens and squeezes away the margin above subsistence, the harder it will be to sustain an orderly pattern of reform. In the extreme, this pattern may force the country to adopt a rationed "wartime" economy, despite intentions to shift to a market system.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to compare and evaluate country experiences with systemic transformation toward private market economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC

20433. Please contact Raquel Luz, room N11-035, extension 39075 (44 pages).

1064. More Evidence on Income Distribution and Growth

George R. G. Clarke
(December 1992)

Inequality is not a necessary condition for growth. Indeed, inequality is associated with slower growth — perhaps because increased inequality causes more conflict over distributional issues, encouraging greater economic intervention and higher taxes.

Inequality is often regarded as a necessary evil that has to be tolerated to allow growth, says Clarke. The view that inequality is necessary for the accumulation of wealth, and contains the seeds of eventual increases in everyone's income, is evident in "trickle down" economic theories, where societal acceptance of inequality allows the rich to earn a greater rate of return on their assets.

Others argue that inequality slows growth — because increased inequality causes more conflict over distributional issues, thereby encouraging greater economic intervention and higher taxes.

According to Clarke, the empirical evidence shows that:

- Inequality is negatively, and robustly, correlated with growth. This result is robust to many different assumptions about the exact form of the cross-country growth regression.
- Although statistically significant, the magnitude of the relationship between inequality and growth is relatively small. Decreasing inequality from one standard deviation above to one standard deviation below the mean increases the long-term growth rate by about 1.3 percentage points a year.
- Inequality has a similar effect in democracies and non-democracies. When an interaction term between the type of regime and inequality is included in the base regression, it is insignificant at conventional significance levels.
- The cross-country data on inequality follows Kuznets' inverted-U shape.

Care should be taken in interpreting these results. Although inequality is negatively correlated with growth, this does not necessarily imply that "soak-the-rich" policies will improve long-term growth.

First, theoretical work on inequality and growth stresses that this negative correlation is caused by high levels of inequality provoking high levels of government economic intervention. Soak-the-rich policies may be less necessary where there is less inequality.

Second, although the partial correlation is robust, the direction of causality has not been determined and the effects of specific income distribution policies have not been tested.

Finally, if policies designed to decrease inequality result in greater government consumption and the cost of increased government consumptions outweighs the benefits of greater equality, long-term growth may be harmed.

But for certain: inequity is not a prerequisite for growth.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department—is part of a larger effort in the department to understand the determinants of economic growth. The study was funded by the Bank's Research Support Budget under research project "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-054, extension 39065 (28 pages).

1065. Strengthening Uganda's Policy Environment for Investing in University Development

Thomas Owen Eisemon, John Sheehan, George Eyoku, Franklin Van Buer, Delane Welsch, Louisa Masutti, Nat Colletta, and Lee Roberts
(January 1993)

In recent years, Makerere University has experienced increasing student and staff unrest. The academic community is demoralized by tight government controls on spending — especially by inaction on staff salary demands. Donor support will not be forthcoming without broad policy reform in higher education, rather than piecemeal reform.

Eisemon, Sheehan, and colleagues examine the policy environment for investment in university development in Uganda, with special attention to the needs of Makerere University. They present data on the structure and financing of higher education, which gets a high priority in government educational spending.

A second public university and new private universities have been established since 1986, but Makerere accounts for most university enrollment and government spending on higher education and it trains most of the country's high-level professional and technical manpower. Its revitalization after many years of neglect is central to government and donor plans for investment in human resource development.

The authors emphasize how continuing austerity affects staff retention and staff engagement in academic work, as well as the quality of programs Makerere offers. They present a strategy for university development that involves establishing policy structures to:

- Guide and coordinate investments in higher education as a whole.
- Facilitate the expansion of higher education and the development of diploma-granting institutions to accommodate increasing social demand.
- Promote cost-saving and revenue-generating activities in the public universities — which would require giving them more autonomy in matters affecting their cost structure and budgeting.

Among specific actions they recommend:

- Making better use of public university assets by developing night courses, part-time degree and non-degree programs, and contract training and other income-generating activities.
- Investigating possibilities for better use of university farms and other properties.
- Making more using of existing capacity in public institutions and increasing the capacity of the newly established private universities.
- Strengthening secondary education in science subjects and encouraging more women to study science and technology.
- Coordinating future donor investments so they address the broad needs of Makerere and other universities.
- Raising incomes of academic and nonacademic university staff members.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of the background preparation for the Bank's Higher Education Policy Paper. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please con-

Cynthia Cristobal, room S6-214, ex-
ion 33640 (70 pages).

5. Pollution Control Decentralized Economy: ch Level of Government uld Subsidize What In Brazil

nio Estache and Kangbin Zheng
ary 1993)

neral, the most effective approach is te abatement subsidy — kept low — bined with a pollution tax. But when al or state inspection capabilities are ed, federal monitoring subsidies may effective substitute.

idies in Brazil essentially serve three oses:

- Assigned to the right level of govern-, they could reinforce the effectiveness llution taxes in reducing pollution.
- They offer an opportunity for addi- l combinations of instruments and e more flexibility in dealing with the fic institutional characteristics of y state.
- They can serve a purely "public rela- " effect by showing that the federal rnment does not always rely on ts" but can also provide "carrots."

Estache and Zheng have four main ages of relevance to the Brazilian omy.

irst, carrots will not work without a . Subsidies of any type will not work out a coexisting pollution tax.

cond, some carrots are better than rs at achieving the government's ob- ves. In general, a state abatement idy is the more effective instrument mbine with a pollution tax. But when al or state inspection capabilities are ed, monitoring subsidies may be an tive substitute.

ird, increasing abatement subsidy can be counterproductive — tending crease firm investment more than ssary and hence reduce the pollution ase, while increasing subsidy costs. can worsen the monitoring and in- ion efforts and fiscal revenue.

nally, it is more effective to keep sub- ates low if they are to be effective and inable and at the same time get the rsement needed from state and fed- fiscal administrations.

is paper — a product of the Infra- ture Division, Latin America and the Caribbean, Country Department I — is part of a larger effort in the region to design specific reforms that can assist decentralized economies such as Brazil and Venezuela in dealing with unusual sources of policy failures in the area of pollution control. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Antonio Estache, room E10-081, extension 81442 (35 pages).

1067. Returns to Investment In Education: A Global Update

George Psacharopoulos
(January 1993)

Primary education continues to yield high returns in developing countries, and the returns decline by the level of schooling and a country's per capita income.

Psacharopoulos updates compilations of rate of return estimates to investment in education published since 1985 — and discusses methodological issues surrounding those estimates.

Some key world patterns:

- Among the three main levels of education, primary education continues to exhibit the highest social profitability in all world regions.
- Private returns are considerably higher than social returns because of the public subsidization of education. The degree of public subsidy increases with the level of education, which is regressive.
- Social and private returns at all levels generally decline by the level of a country's per capita income.
- Overall, the returns to female education are higher than those to male education, but at individual levels of education the pattern is more mixed.
- The returns to the academic secondary school track are higher than the vocational track — since unit cost of vocational education is much higher.
- The returns for those who work in the private (competitive) sector of the economy are higher than in the public (noncompetitive) sector. And the returns in the self-employment (unregulated) sector of the economy are higher than in the dependent employment sector.

Controversies in the literature are discussed in the light of the new evidence. The undisputable and universal positive correlation between education and earnings can be interpreted in many ways. The causation issue on whether education really affects earnings can be answered only with experimental data generated by randomly exposing different people to various amounts of education. Given the fact that moral and pragmatic considerations prevent the generation of such pure data, researchers have to make do with indirect inferences or natural experiments. Some have been attempted.

Psacharopoulos looks at the research on overeducation or surplus schooling.

The conclusions reinforce earlier patterns. They confirm that primary education continues to be the number one investment priority in developing countries. They also show that educating females is marginally more profitable than educating males, that the academic secondary school curriculum is a better investment than the technical/vocational tract, and that the returns to education obey the same rules as investment in conventional capital — that is, they decline as investment is expanded.

This paper is a product of the Office of the Director, Latin America and the Caribbean Region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact George Psacharopoulos, room I4-187, extension 39243 (60 pages).

1068. Enterprise Reform In Eastern Europe

Sweder van Wijnbergen
(January 1993)

Applying Western textbook solutions to the problems of enterprise reform in Eastern Europe is likely to be counterproductive. Policy design must be imaginative and explicitly incorporate the political constraints and incentive problems specific to the region, leading to new approaches to enterprise and banking reform.

Enterprise reform is emerging as the core economic problem in Eastern Europe. As privatization has been delayed, a new problem has emerged, largely unanticipated by outside advisers: It is probably possible to run a clear-cut state enterprise efficiently, and it is certainly possible to get efficient performance from a private enterprise. But it is utterly impossible to get anything like efficiency from an enterprise for which the current and future

ownership status are in limbo. What has happened in Poland, where reform started earlier than elsewhere, is probably a harbinger of things to come.

Two years after the crumbling of central authority that used to exercise both ownership and control, ownership of state-owned enterprises remains ineffective and control diffuse. Lacking sharply defined control rights, various groups (workers, incumbent managers, and local authorities) often had no other way of demonstrating their clout than by disrupting the enterprise. And with changes in ownership announced but not implemented, managers and workers councils alike have every incentive to decapitalize the enterprise and increase its debts.

Eastern Europe is not well served with straight textbook advice. The common wisdom on privatization fails to address the problems created by diffuse ownership and conflicts over control that exist before privatization. Regular cash auctions may fail to match managers and capital stock efficiently because of pervasive wealth constraints. Standard advice on enterprise restructuring does not allow for the sheer scale of the problem or the special reasons why, in Eastern Europe, current profits are a poor guide to potential profitability. Simply applying Western bankruptcy procedures based on current data about enterprise profitability introduces a destructive bias toward liquidation and delay.

And, argues van Wijnbergen, introducing Western style unemployment insurance, although it would lower the social costs of unemployment, could also contribute to its indefinite extension.

Van Wijnbergen sketches how these problems can be addressed by incorporating all the incentive problems specific to Eastern Europe into the design of the policies to be implemented. Sometimes the advice that results is novel and as yet untried; sometimes examples exist of its successful implementation. But the alternative is a long period of declining incomes and, presumably, increasing social unrest as the consensus underlying the reform programs begins to erode.

This paper — a product of the Europe and Central Asia Department — is part of a larger effort in the department to assist the process of enterprise reform in Eastern Europe. Parts of this paper draw on van Wijnbergen (1992), which appeared in the 1992 Marjolin essay competition volume sponsored by American Express Bank. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Bonnie Pacheco, room H11-071, extension 37033 (36 pages).

1069. Why Is There Proportionately More Enrollment In Private Schools In Some Countries?

Estelle James
(January 1993)

Heavy enrollment in private secondary schools stems from limited public spending, which creates an excess demand from people who would prefer to use the public schools but are involuntarily excluded and pushed into the private sector.

The proportion of students enrolled in private rather than public schools varies greatly among countries. James tries to explain (1) the systematically higher proportion of enrollment in private schools in developing than in industrial countries, at the secondary level, and (2) the seemingly random variation across countries within a given level of education and stage of development.

She argues that differentiated demand and nonprofit supply — both of which stem from cultural heterogeneity, especially religious heterogeneity — are the major explanations for variations in the proportion of private education within a given stage of development and educational level.

By contrast, she hypothesizes that the proportionately heavy enrollment in private secondary schools in developing countries stems from limited public spending, which creates an excess demand from people who would prefer to use the public schools but are involuntarily excluded and pushed into the private sector.

Limited public spending on secondary education, in turn, is modeled as a collective decision which is strongly influenced by the numerous families that opt for many children, and that consequently can only afford to invest small amounts in each child, in developing countries.

The results of regressions that determine private-sector size recursively and simultaneously with public educational spending are consistent with these hypotheses.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — is part of a larger effort in the department to understand public-private relationship in the provision of social services. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-061, extension 37496 (34 pages).

1070. Economic Fundamentals of Road Pricing: A Diagrammatic Analysis

Timothy D. Hau
(December 1992)

Most economists agree that road pricing benefits society by curtailing congestion. Efficiency analysis demonstrates why the public rejects congestion pricing. A dedicated road or transport fund is more viable when the road users are charged not only for the damage caused by heavy vehicles but also for congestion.

Hau presents a conceptual framework for road pricing based on a rigorous diagrammatic — but nonmathematical — framework derived from first (economic) principles. His analysis of traditional arguments about road pricing shows why implementing congestion pricing as practiced in the past has encountered obstacles. Partly, it is because both types of road users — the tolled and the tolled off (those who avoid the road to shun a toll) — are shown to be worse off under a constant value of time, except for the government. And when differences in time valuation are taken into account, primarily those with very high time values are better off. Unless congestion toll revenues are earmarked and travelers perceive that the money is channeled back in reduced taxes, lower user charges, or improved transport services, neither the tolled nor the tolled off will support road pricing. Only where there is travel hypercongestion is everyone better off with congestion pricing.

In the absence of scale economies or diseconomies, the level of economic profits — toll revenue collections less a road's fixed and non-use-related costs — serves as a surrogate market mechanism indicating that a road should be expanded or downsized. The decision to let roads deteriorate over time is itself an act of disinvestment.

Hau shows that if a road authority levies economically efficient charges for congestion, it is possible to make money on a

Roads can be profitable in urban in the long run because land rents igh; congestion tolls reflect the asso- d high opportunity costs.

On urban roads with indivisibilities and onomies of scale, efficient pricing may il the extent of profitable undertak- On rural roads with indivisibilities conomies of scale, marginal cost pric- an produce short-run profits. Eco- c efficiency is enhanced by pursuing ial pricing in the short run and opti- nvestment in capacity in the long run. rule is to implement short-run mar- cost pricing while varying road capac- er the long run.

Insights by Newbery, Small, and Win- — about the economic implications e extensive damage that heavy ve- s cause to roads — enrich the basic ing model. Charging for both the nal and variable cost of road damage, signing a fee based on vehicle weight xle, can help cover deficits arising road congestion.

Even if a road network is broadly char- ized by increasing returns to scale in ing and strengthening roads, the t could be closed by diseconomies of . A road network that accommodates cars and trucks costs more than the of an autos-only and a (smaller) s-only road system. So the surplus iated with diseconomies of scope off- the potential loss associated with -specific economies. A dedicated road ansport fund is all the more viable se road users are charged not only the damage caused by trucks and y vehicles but also for congestion.

is paper — a product of the Transport ion, Infrastructure and Urban Devel- nt Department — is part of a larger in the department to evaluate op- for charging for road use. Copies of paper are available free from the l Bank, 1818 H Street NW, Washing- DC 20433. Please contact Jennifer is, room S10-063, extension 31005 205 (96 pages).

. Congestion Charging anisms for Roads: An uation of Current Practice

hy D. Hau
mber 1992)

e many direct and indirect methods urging for road use, the key alternatives for reducing road congestion are (1) cordon pricing using manual tollbooths, (2) supplementary vehicle licensing, (3) automatic vehicle identification, and (4) smart card technology.

Hau explores 20 criteria for a "good" road pricing system and presents case studies illustrating the costs, revenues, and benefits of alternative congestion charging mechanisms.

Hau finds that *manual tollbooths* are not suitable for congestion charging because they are land-, labor-, and time-intensive. *Cordon pricing* (as in the Bergen toll ring) can be an effective instrument for charging for congestion if half the toll lanes are reserved for seasonal pass holders traveling through the pricing points at regular highway speed. Enforcement of those driving in reserved lanes can be carried out by periodic videographs of vehicle license plates.

Area licensing schemes require that vehicles entering the central business district during peak hours prominently display a monthly or daily license. Enforcement is undertaken at gantry points by traffic wardens who perform visual checks on the nonstop traffic. The enforcement costs of area licensing schemes are prohibitive at motorway speeds but relatively low-cost in a standard congested urban setting with limited gateways. Area licensing schemes, also known as supplementary licensing, carry the lowest cost per transaction.

Electronic road pricing with automatic vehicle identification (an off-vehicle recording system) is electronic toll collection by time of day *writ large* and made obligatory on vehicle owners in a jurisdiction. The cost of the electronic equipment is not trivial, but is outweighed by the benefits. Sensitivity analysis performed on the Hong Kong electronic road pricing scheme in 1983-85 shows that even after excluding time savings, the savings in operating costs produce benefit figures that are greater than system costs. The invasion-of-privacy issue that led to the political failure of the Hong Kong electronic road pricing scheme can now be overcome by giving road users access to confidential "numbered account arrangements" with a prepaid cash deposit.

The capital cost of *electronic road pricing with smart card technology* (an on-vehicle charging system) is higher than the cost for automatic vehicle identification technology alone, but benefits still outweigh costs (as in the Dutch proposal). Together, the benefit-cost ratio and the cost per transaction are acceptable but this technology is still not widely used commercially.

Hau argues that electronic approaches to direct road use charging are superior to manual approaches for road users, road authorities, and society as a whole. And rapid progress in microelectronics, cryptology, and microwave technologies will continue to yield large-scale economies in the manufacturing of automatic vehicle identification equipment, read-write transponders, smart cards, and the hardware and software that go with them.

Hau ranks electronic road pricing with automatic vehicle identification alone higher than electronic road pricing with smart card-type AVI based on an unweighted index of all criteria. And generally, the area licensing scheme is superior to cordon pricing. If budgets allow, authorities should investigate the feasibility of electronic road pricing. If the budget is tight, they should look into the area licensing scheme with its low cost and high benefit-cost ratio (the latter being the most important of the 20 criteria Hau uses).

Both conceptually and practically, Hau finds that it is important to earmark the proceeds of road pricing to implement marginal cost pricing in the road sector.

This paper — a product of the Transport Division, Infrastructure and Urban Development Department — is part of a larger effort in the department to evaluate options to charge for the use of roads. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jennifer Francis, room S10-063, extension 31005 or 35205 (99 pages).

1072. Costs of Alternative Treatments for Incomplete Abortion

Brooke R. Johnson, Janie Benson, Janet Bradley, Aurora Rábago Ordoñez, Catia Zambrano, Leonard Okoko, Leticia Vázquez Chávez, Paulina Quiroz, and Khama Rogo
(January 1993)

Unsafely performed abortion is one of the five leading causes of maternal deaths worldwide. Many women who have undergone unsafe abortions enter the healthcare system to seek help for the resulting com-

plications, including incomplete abortion. The human and financial cost of this health problem is tremendous, especially in the developing world.

This study examined the potential for reducing costs to healthcare systems by changing the standard method of treatment for incomplete abortion. Vacuum aspiration (VA) has been shown to be safer than dilation and curettage (D&C) for uterine evacuation; the World Health Organization includes VA as an essential service at the first referral level.

The technique most commonly used for treating first-trimester incomplete abortion in developing countries, however, is D&C. This study examined the hypothesis that use of manual vacuum aspiration (MVA) — a variation of VA — would be less costly than D&C and thus advantageous to healthcare systems with limited resources.

The purpose of the study was to identify and, where possible, to explain the factors that contributed to cost differences between MVA and D&C for treatment of first-trimester incomplete abortion. To achieve this objective, researchers observed patient management and documented resource use at hospital sites in Ecuador, Kenya, and Mexico.

In most cases, treatment with MVA required a shorter patient stay and fewer hospital resources than D&C, as the two techniques were practiced at the various study sites. The policy decision to adopt MVA, supported by procurement of instruments and incorporation of training in its use, is the chief prerequisite for achieving these improvements.

But the full advantages of MVA are realized only if it is introduced in conjunction with certain changes in patient-management practices, such as offering outpatient treatment of incomplete abortion.

Further, decentralizing MVA services can maximize the benefits of the technique, facilitating (hospitals' and) healthcare systems' efforts to decrease the cost of delivery service and improve the quality of care.

This paper — a product of the Population and Human Resources Department — is part of a larger effort in the department to improve the status of women's health. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (31 pages).

1073. Fiscal Aspects of Developing Country Debt Problems and Debt and Debt-Service Reduction Operations: A Conceptual Framework

Peter J. Montiel
(January 1993)

The quality of fiscal adjustment programs must improve if Brady Plan programs are to improve fiscal solvency.

The causes and implications of the developing country debt crisis — as well as its solution — all have an important fiscal dimension.

The crisis was triggered by the widespread perception that the public sectors in many heavily indebted countries were effectively insolvent in the international environment of the early 1980s. The actual fiscal response to the resulting liquidity crisis involved increased reliance on domestic financing, the inflation tax, and the curtailment of public investment. This created adverse adjustment incentives for policymakers and resulted in credit rationing, capital flight, assumption of private external claims by the public sector, and poor domestic investment performance.

Solutions involve restoring fiscal health through a combination of debt relief and efficient fiscal adjustment, aimed at mitigating the burden associated with public sector debt service and minimizing the liquidity problems facing the indebted public sector.

The debt and debt-service reduction (DDSR) programs implemented so far under the Brady plan have provided only partial solutions, closing without eliminating the gap between the face value of the external debt and the present value of prospective public sector debt service. They have done so partly by reducing the former and partly by increasing the latter.

Their contribution toward easing the immediate liquidity problems of the debtors has not been encouraging. The amount of debt relief embodied in Brady Plan programs enacted so far has not in itself been sufficient to restore fiscal solvency. Better-quality fiscal adjustment could greatly help improve the situation.

The most important potential contribution of such programs, then, may have been the reduction — through the policy conditionality associated with resources provided by the international financial institutions — of the secondary burden associated with the internal transfer of resources to the public sector.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the costs and benefits to countries of debt relief arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (29 pages).

1074. How Moving to World Prices Affects the Terms of Trade in 15 Countries of the Former Soviet Union

David G. Tarr
(January 1993)

As 15 countries of the former Soviet Un[illegible] move to international trade prices, [illegible] terms of trade improve for exporters of r[illegible] material and energy (including Kazakh[illegible]stan, Russia, and Turkmenistan), a[illegible] decline for countries that concentrate [illegible] food and machinery exports (such [illegible] Belarus, Estonia, Latvia, Lithuania, a[illegible] especially Moldova).

Tarr presents the first documented esti[illegible] mates of how moving to internatio[illegible] trade prices affects the terms of trade [illegible] 15 countries of the former Soviet Union.

First, he decomposes the total impac[illegible] a change in the terms of trade into a cha[illegible] in the inter-republic and extra-repul[illegible] terms of trade. The broad pattern, he esti[illegible] mates, is that exporters of raw material a[illegible] energy (notably Kazakhstan, Russia, a[illegible] Turkmenistan) gain, whereas countr[illegible] that concentrate on food and machin[illegible] exports (notably the Belarus, Estonia, Latvia, Lithuania, and especially Moldo[illegible] are the biggest losers.

The results support the customs un[illegible] theory of pricing within the CMEA.

He also estimates the initial impac[illegible] the terms of trade on the GDP for all [illegible] countries. This, as well as the commod[illegible] composition of trade and estima[illegible] changes in relative prices by commod[illegible] at the 105-sector and 15-sector levels fo[illegible] each of the 15 independent states, is avai[illegible] able in the appendix.

This paper — a product of the Tr[illegible] Policy Division, Country Economics D[illegible]

partment — is part of a larger effort in the department to examine the role of trade liberalization in the transition from a socialist to a market economy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nellie Artis, room N10-013, extension 38010 (119 pages).

1075. Many Paths to Skilled Employment: A Reverse Tracer Study of Eight Occupations in Colombia

Adrian Ziderman and Robin Horn
(January 1993)

The manpower requirements forecasting approach to national planning for vocational education and training reduces choices available to individuals and creates a less diverse and efficient training system.

Ziderman and Horn use the reverse tracer study technique to identify alternative training paths for selected skilled and semi-skilled occupations in Colombia.

The study, confirming earlier research for the United States, shows that workers pursue many different training paths to acquire the skills they need in a given occupation. Ziderman and Horn provide an occupational training map format to analyze these training paths.

They conclude that strong public intervention that narrows the effective range of available training should be discouraged; such intervention will not only reduce choices but will also lead to a less flexible and efficient training system.

A reduction in training alternatives is the result of the manpower requirements forecasting approach to planning for the provision of national vocational education and training — yet that approach is still popular in the planning ministries in developing countries.

The more training options available to workers, the better they can arrange their own training packages.

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a larger effort in the department to study the operation of the labor market and its impact on human resources development. Copies of the paper are available free from the World Bank, 1818 H Street NW Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (35 pages).

1076. A Presumptive Pigouvian Tax on Gasoline: Analysis of an Air Pollution Control Program for Mexico City

Gunnar S. Eskeland
(January 1993)

Taxing a variable input in polluting activities makes sense when abatement is induced indirectly, rather than by a pollution tax. By including a gasoline tax in an otherwise well-composed control program for Mexico City, one saves 11 percent of the welfare costs of the program, because — keeping emissions constant — costly technical abatement measures are replaced by cheaper demand conservation.

Without continuous monitoring of emissions, a pollution control agency needs to evaluate abatement options itself. Apart from making activities cleaner, it should also stimulate reductions in the level of activity in polluting sectors.

Eskeland develops an analytic framework to show that a tax on a variable input, such as gasoline, is useful for this purpose. It encourages individuals and firms to sacrifice trips when they would prefer those sacrifices to those of higher spending on abatement. The instrument exploits privately held information about which trips can be saved at a low social cost.

Other weaknesses of a program based on indirect instruments — as opposed to one induced by a theoretically conceived pollution tax — remain. One of these is that the agency may have poorer information than individuals and firms about the status of vehicles and the effectiveness of individual abatement options. Such an information gap — which could be bridged by a true pollution tax — is abstracted from the analysis.

Eskeland shows that the tax rate that belongs in a cost-effective pollution control program is independent of the price elasticity of demand for the polluting good. But the higher the demand elasticity, the higher are the costs of not including a presumptive tax on the polluting good in the tool kit of the pollution control agency.

Eskeland estimates the cost savings available when an optimal gasoline tax is included in an otherwise well-composed program, appropriately accounting for the welfare costs of demand consumption. He shows that the targeted emission reductions can be obtained at 11 percent lower costs, saving $64 million annually, when the demand conservation induced by the gasoline tax allows some other, more expensive abatement options to remain unused.

He proposes an ad valorem gasoline tax of about 25 percent, when no separate value is associated with the collection of revenue or with avoidance of noise, congestion, accidents, and road damage. In Mexico City alone, the tax would collect $350 million a year. After recent price increases, implicit tax rates in Mexico City are higher than suggested by Eskeland's analysis. Higher rates may or may not be justified due to the benefits of demand conservation not accounted for in the analysis.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to examine alternative instruments to pollution control in developing countries. The study was funded by the Bank's Research Committee under research project "Pollution and the Choice of Economic Policy Instruments in Developing Countries" (RPO 676-48). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (132 pages).

1077. Risk Management Prospects for Egyptian Cotton

Panos Varangis, Elton Thigpen, and Takamasa Akiyama
(January 1993)

The New York futures market does not provide an appropriate mechanisms for hedging the price risk in Egyptian cotton under present procedures for determining prices. Establishing a domestic spot market (while privatizing the industry), followed by a forward market, may provide the best interim mechanism.

Varangis, Thigpen, and Akiyama examine risk management options for Egyptian cottons, the export prices for which are volatile. They use regression analysis to establish whether Egyptian cotton's prices

can be effectively hedged by using existing futures contracts on the New York Cotton Exchange.

They find no relationship between the movements in prices of Egyptian long and extra-long cottons and prices for the base quality of U.S. medium staple cotton traded on the New York futures market. (Probably because Egyptian cotton prices are government-determined, U.S. medium staple cotton prices are influenced by price support policies unrelated to the longer staple markets, and the fiber of the cottons analyzed have different physical characteristics.)

So, the New York cotton futures market's No. 2 contract is not an appropriate mechanism for hedging the price risk facing Egyptian cotton under present procedures for determining prices — and probably not under market-determined prices.

If the cotton market in Egypt is liberalized, cotton prices there may correlate more with prices elsewhere — especially for the longer staple cottons.

Varangis, Thigpen, and Akiyama extend their regression analysis to the prices of other medium staple cottons — Australian, Central Asian, Mexican, Pakistani, and Turkish — to determine how they behave relative to U.S. medium staple cotton prices. None of these prices had short-term movements closely related to U.S. cotton prices, indicating mainly the influence of domestic policies on the U.S. market. Again, the New York futures No. 2 contract does not provide a satisfactory hedge for these cottons.

The cotton futures contract recently introduced in New York (world cotton contract) — based on the Cotlook A Index — may prove useful for hedging the price risk for some cottons (especially Australian, Central Asian, and Pakistani) but apparently not Egyptian cotton.

Varangis, Thigpen, and Akiyama recommend (together with privatizing the industry) establishing a domestic spot market to give transparency to the price-forming process. When the spot market is functioning well, establishing a forward market could provide a hedging instrument for Egyptian cotton.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to explore possibilities for commodity risk management in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-047, extension 33714 (26 pages).

1078. The Evolution of Welfare and Poverty Under Structural Change and Economic Recession in Côte d'Ivoire, 1985-88

Christiaan Grootaert
(January 1993)

The need for poverty alleviation is greater than ever. The priority should be not so much to change distribution as to generate growth, although it is crucial to target basic needs services (education, health, tap water) to the very poor — especially in rural areas of the poor Savannah zone, but also in the West Forest.

Grootaert demonstrates what can happen to the welfare of households and individuals, and to poverty, in a low- to middle-income country, under structural adjustment and recession. Côte d'Ivoire was one of the first African countries to launch a structural adjustment program with support from the World Bank and the IMF. The program was sustained for six years (1981-86), then abandoned in 1987-88 when a severe recession hit the country. A new economic recovery program was initiated in 1989.

Côte d'Ivoire presents a unique case study — certainly in Africa — because four end of a sustained adjustment effort, when consecutive years of comprehensive data on levels of living are available, for the period 1985-88, from the Côte d'Ivoire Living Standards Survey (CILSS). The first two years of data capture the situation at the economy was growing moderately; the last two years capture a period of pronounced macroeconomic decline and destabilization.

Grootaert found that in the first period, the incidence of poverty remained steady and the welfare level of the poor actually rose. In 1987, on the other hand, poverty and extreme poverty both became more widespread — a trend that accelerated dramatically in 1988, when the incidence of poverty rose from 35 percent to 46 percent.

Over 1985-88, the regional and socioeconomic patterns of poverty changed markedly. The most important shift was the rapid increase in urban poverty. Especially households of public sector employees and those working in the informal sector were hardest hit. Farmers appear to have benefited during the final years of the adjustment phase, while poverty incidence among them increased sharply in 1987-88, especially among export crop farmers. This occurred in spite of continued maintenance of producer prices, suggesting that price support alone is not sufficient to protect farm incomes. The entire system of agricultural support must be maintained and improved.

Grootaert found that basic needs fulfillment did not decline as much as expenditure. But the burden of whatever declines did occur fell disproportionately on the very poor. The targeted provision of public services (health, education, tap water, and so on) is thus a high priority.

This paper-a product of the Poverty and Social Policy Division, Africa Technical Department-is part of the output of the research project "Poverty and the Social Dimensions of Structural Adjustment in Cote d'Ivoire, 1985-88: A policy-Oriented Analysis" (RPO 675-26). Copies of this paper are available free from the World Bank, 1818 H Street NW Washington, DC 20433. Please contact Elena Vitanov, room J2-241, extension 38400 (114 pages).

1079. How Useful Are Integrated Household Survey Data for Policy-Oriented Analyses of Poverty? Lessons from the Côte d'Ivoire Living Standards Survey

Christiaan Grootaert
(January 1993)

Simpler and bigger are better, for household living standards surveys. And better collection of price data, in an independent survey, should be a priority.

Grootaert reflects on the pros and cons of using integrated household survey data in empirical analysis aimed at providing a quantitative basis for policy decisions affecting welfare, poverty, and the fulfillment of basic needs. The experience examined is that of using four years of data from the Côte d'Ivoire Living Standards Survey (1985-88) to link changes in poverty and welfare to macroeconomic trends.

Grootaert groups the lessons learned from this work around four themes.

Survey content. When survey data are rich, transparency of methodology is important. It is essential that analysts pro-

vide explicit information about how their income and spending aggregates were constructed. These aggregates must be deflated with a regional price index, but prices should be collected separately from household survey data. Data on household spending and basic needs fulfillment are the key information for poverty analysis.

Sample size and design. Bigger and simpler is better. Grootaert recommends increasing (at least doubling) sample size in future living standards surveys; this could be done without increasing the cost of the survey by reducing or eliminating the income modules of the questionnaire.

It is important to involve analysts and policymakers in survey design. They need to identify up front, using current knowledge, the important socioeconomic and target groups on which the survey must be able to report. The sample designer can n compose the sample in such a way t certain groups will be undersampled l others oversampled, to make the lysis of the resulting sample as useful possible.

Frequency of data collection. Grootaert ommends that an integrated survey of CILSS type be undertaken every four ive years, to provide benchmark data l to permit in-depth analysis of house- d behavior and response to policy, if the ntry has the capability to fully analyze data. In the intervening years, a much pler collection of household spending l basic needs data can be used to moni- changes in welfare and poverty.

The role of panel data. To be really use- , panel data collection should be ex- ded over longer periods than two years, hough this increases the costs and dif- lties of finding the same households. a country undertakes an integrated vey every four to five years and a ter monitoring survey in between, a all, parallel, panel survey could be ducted. The monitoring sample and panel sample should be drawn from same master sample.

This paper — a product of the Poverty l Social Policy Division, Africa Techni- Department — is part of the output of research project "Poverty and the So- l Dimensions of Structural Adjustment Côte d'Ivoire, 1985-88: A Policy-Ori- ed Analysis" (RPO 675-26). Copies of s paper are available free from the rld Bank, 1818 H Street NW, Washing- , DC 20433. Please contact Elena anov, room J2-241, extension 38400 (23 es).

1080. A New Regional Price Index for Côte d'Ivoire Using Data from the International Comparisons Project

Christiaan Grootaert and Ravi Kanbur
(January 1993)

Data from a survey on household spending patterns are combined with price data from the International Comparisons Project to produce a regional price index deemed superior to previous estimates based solely on data from the Living Standards Survey.

Grootaert and Kanbur report on an exercise in economic statistics. They develop a regional price index for Côte d'Ivoire building on the strengths of two independent data sources: the Côte d'Ivoire Living Standards Survey (CILSS) and the International Comparisons Project (ICP).

The CILSS collected detailed information on household incomes, spending, employment, and so on, but its coverage of prices left much to be desired. The ICP collected a wealth of information on prices across the country, but collected no information on household spending patterns or other socioeconomic data.

Grootaert and Kanbur bring together these two sources to produce a regional price index that they argue is superior to previous estimates based solely on the Living Standards Survey. The procedures they follow should be of interest to practitioners faced with similar data shortcomings, particularly when working on Africa.

They show this to be no mere statistical exercise. Using the new price index can have a significant effect on earlier evaluations of poverty in Côte d'Ivoire. They also use the new price information to construct disaggregated indices by commodity category and by poverty group.

This paper — a product of the Poverty and Social Policy Division, Africa Technical Department — is part of the output of the research project "Poverty and the Social Dimensions of Structural Adjustment in Côte d'Ivoire, 1985-88: A Policy-Oriented Analysis" (RPO 675-26). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elena Vitanov, room J2-241, extension 38400 (21 pages).

1081. Correcting for Sampling Bias in the Measurement of Welfare and Poverty: The Case of the Côte d'Ivoire Living Standards Survey

Lionel Demery and Christiaan Grootaert
(January 1993)

Analysts must pay close attention to sampling procedures used to collect survey data. This case study illustrates how observed changes in household welfare and in the incidence of poverty can vanish when corrections are applied to the data for changes in sampling procedures — and how even the direction of the trend may be reversed.

Over the years, household surveys have become a popular, valuable data source for empirical research in microeconomics. In developing countries, household survey data have become more available in the past decade, as a result of several international programs. This has spurred interest in the economics of the household in the context of development economics.

Many analysts give little attention to the sampling design of the surveys they use, taking the data produced by statisticians and survey practitioners "as is." At best, sampling weights are applied to ensure that the results are representative.

Demery and Grootaert illustrate the need to pay close attention to the sampling aspects of a household survey used in applied microeconomic analysis — particularly for comparisons over time. This case study shows that observed changes in household welfare and in the incidence of poverty in Côte d'Ivoire between 1985 and 1988 vanish when corrections are applied to the data for changes in sampling procedures; even the direction of the trend is reversed. Similarly, the cross-sectional patterns of welfare and poverty observed in earlier analyses for 1985-86 prove to be incorrect.

The Côte d'Ivoire Living Standards Survey, conducted between 1985 and 1988, has provided a popular, fruitful data set for policy analysis. But according to Demery and Grootaert, the recorded decline in mean household size during this period is due to sampling bias in the early years of the survey. If this is true, the robustness of the analyses based on these data is questionable.

This paper — a product of the Poverty and Social Policy Division, Africa Technical Department — is part of the output of

the research project "Poverty and the Social Dimensions of Structural Adjustment in Côte d'Ivoire, 1985-88: A Policy-Oriented Analysis" (RPO 675-26). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elena Vitanov, room J2-241, extension 38400 (39 pages).

1082. What Do Governments Buy? The Composition of Public Spending and Economic Performance

Shantayanan Devarajan, Vinaya Swaroop, and Heng-fu Zou
(February 1993)

The traditional views that public capital spending strengthens economic growth and current spending does not are not borne out by experience in developing countries. In fact, the only category of public spending associated with higher economic growth is current spending — although spending on preventive care and "other education" has some positive effect.

Devarajan, Swaroop, and Zou develop a simple analytical framework that shows how the composition of public spending affects economic growth.

Distinguishing between productive and unproductive government spending (that which complements private sector productivity and that which does not), they show that increasing the share of productive spending leads to a higher steady-state economic growth rate.

They use data from 69 developing countries over 20 years to determine which components of public spending are productive. They find that an increase in the share of current spending has positive and statistically significant effects on growth.

Otherwise, the news is mainly negative. The relationship between the capital component of public spending and per capita growth is negative. The same is true of the share of spending on transport and communications. The shares spent on health and education have no significant impact, although parts of those shares — the parts spent on preventive care and "other education" — do.

These results raise the question whether public spending actually leads to a flow of public goods and services.

This paper — a product of the Public Economics Division, Country Economics Department — is part of a larger effort in the department to analyze public expenditure policies in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (40 pages).

1083. Finance and Growth: Schumpeter Might Be Right

Robert G. King and Ross Levine
(February 1993)

Finance matters. The level of a country's financial development helps predict its rate of economic growth for the following 10 to 30 years. The data are consistent with Schumpeter's view that the services provided by financial intermediaries stimulate long-run growth.

Joseph Schumpeter argued in 1911 that the services provided by financial intermediaries — mobilizing savings, evaluating projects, managing risk, monitoring managers, and facilitating transactions — stimulate technological innovation and economic development.

King and Levine present evidence that supports this view.

Examining a cross-section of about 80 countries for the period 1960-89, they find that various measures of financial development are strongly associated with both current and later rates of economic growth. Each measure has shortcomings but all tell the same story: Finance matters.

King and Levine present three main findings, which are robust to many specification tests:

- The average level of financial development for 1960-89 is very strongly associated with growth for the period.
- Financial development precedes growth. For example, financial depth in 1960 (the ratio of broad money to GDP) is positively and significantly related to real per capita GDP growth over the next 30 years even after controlling for a variety of country-specific characteristics and policy indicators.
- Financial development is positively associated with both the investment rate and the efficiency with which economies use capital.

Much work remains to be done, but the data are consistent with Schumpeter's view that the services provided by financial intermediaries stimulate long-run growth.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to understand the ways policies can affect long-term growth. The study was funded by the Bank's Research Support Budget under research project "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 38526 (43 pages).

1084. Stock Market Development and Financial Deepening in Developing Countries: Some Correlation Patterns

Dong He and Robert Pardy
(February 1993)

Correlation analysis of cross-sectional data from 32 countries for 1984-90 shows a significant relationship between stock market development and financial depth. But time-series data for 1978-90 show significant correlations only for Asian economies.

Programs to develop securities markets are now a common feature of World Bank financial sector loans. Stock market development in particular is receiving considerable attention, especially the legal and institutional underpinnings required for successful stock market development.

The financial underpinnings needed have received less study.

He and Pardy contribute to such a study by exploring the relationship between the degrees of financial depth and stock market development in an economy.

Using a simple indicator of stock market development and several indicators of financial depth, and using cross-sectional data from 32 developing countries for 1984-90, they find a strong correlation between the two factors.

Time-series data from 19 of these countries (for 1978-90) show similar correlations for most Asian countries, but not for other countries in the sample. Also, the correlations of the Asian data are strongest after the mid-1980s.

He and Pardy test a "threshold hypothesis" that a certain level of financial depth

may be necessary to allow stock market development to take off. They find that available data do not support the hypothesis.

The results suggest that financial depth is a significant factor in stock market development in most developing countries, but that country-specific factors (such as industrial policy and structure, foreign investment controls, and stock market regulatory and operational infrastructure) have an equally strong influence on stock market growth.

Case studies of economies in which stock market development has been successful would help elucidate the interplay between these factors.

This paper — a product of the Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to promote the development of sound securities markets. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room N9-005, extension 37665 (39 pages).

1085. Economic Approaches to Modeling Fertility Determinants: A Selective Review

Cristino R. Arroyo III
(February 1993)

or the most complete treatment of fertility issues, the analyst should adopt a dynamic-stochastic view of the fertility decision.

Arroyo reviews critical models of fertility in which the fertility decision is regarded as the outcome of economic choice behavior. He considers, separately, two classes of models. The first are static lifetime fertility models that explain lifetime fertility aggregates and are exemplified by the work of Easterlin-Crimmins (1983), Rosenweig and Schultz (1985), and Montgomery (1987). The second are dynamic stochastic fertility models that have been used to analyze intertemporal or intergenerational decisions on birth-timing and birth-spacing. These are represented by the work of Wolpin (1984), Newman (1988), and the macroeconomic model of Barro and Becker (1989).

Arroyo discusses issues concerning the theoretical specifications and the econometric implementation of these models. With respect to the choice of modeling paradigm, he notes that static lifetime choice models, while relatively easy to implement, are restrictive in scope. The lifetime decision framework abstracts from the sequential nature of the fertility decision and cannot therefore adequately address how changes in the *time profile* of costs of contraception, wages, incomes, mother's education, or mortality risks affect fertility variables. Static models also cannot explain stylized empirical regularities with time dimensions, such as convergence of fertility rates across countries, the tendency for women to space births as their number of children increases, or the counter cyclicality of U.S. fertility to the business cycle.

Arroyo recommends that for the most complete treatment of fertility issues, the analyst should adopt a dynamic-stochastic view of the fertility decision.

This paper — a product of the Population Advisory Service, Population and Human Resources Department — is part of a larger effort in the department to explore the determinants of contraceptive use. The study was funded by the Bank's Research Support Budget under research project "Impediments to Contraceptive Use in Different Environments" (RPO 675-72). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S11-219, extension 31091 (70 pages).

1086. Teachers' Salaries in Latin America: A Comparative Analysis

George Psacharopoulos, Jorge Valenzuela, and Mary Arends
(February 1993)

A comparison of teachers' salaries against the salaries of other workers did not support the position that teachers are either overpaid or underpaid in Latin America.

Data from household surveys of 12 Latin American countries were used to assess how teachers' salaries compare with those of workers in other occupations.

The results show that salaries vary among countries, ranging from an apparent 35 percent underpayment in Bolivia (compared with the control group) to a 65 percent overpayment in Colombia.

But when statistical controls are introduced for differences in education, hours worked, and gender composition between the teachers group and the comparator group, much of the earnings differential disappears.

Psacharopoulos, Valenzuela, and Arends conclude that the data do not support the position that teachers are either overpaid or underpaid.

This paper — a product of the Office of the Director, Technical Department, Latin America and Caribbean Region — is part of a larger effort to document the condition of teachers' salaries in the region. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact George Psacharopoulos, room I4-187, extension 39243 (37 pages).

1087. Exchange-Rate-Based Stabilization: Tales from Europe and Latin America

Alberto F. Ades, Miguel A. Kiguel, and Nissan Liviatan
(February 1993)

In high inflation economies exchange-rate-based stabilizations typically start with a boom, with the recession coming later. In contrast, in similar programs in the moderate inflation European economies, the recession generally appears upfront. When such programs result in a boom, it is driven by different forces than in the high inflation economies.

There is convincing empirical evidence that the cycle for exchange-rate-based disinflation in high-inflation Latin American economies typically begins with expansion and ends in recession — a surprising pattern. Ades, Kiguel, and Liviatan explore whether a similar cycle can be observed in exchange-rate-based disinflation in low-inflation economies.

They draw on empirical evidence from stabilization programs in three European countries in the early 1980s: in Denmark (1982), Ireland (1982), and France (1983). In these programs, the authorities fixed the central parity of the exchange rate band against the European currency unit (ECU). This represented a break from previous years when this rate was often realigned to accommodate inflation.

They find that the Irish and French programs followed the more traditional pattern. In the initial phase, there was a recession accompanied by a continuous,

gradual reduction in inflation — followed by a second, more expansionary, phase. The initial recession was attributable to a lack of credibility about the *pace* of disinflation (reflected in an increase in real wages) and a reduction in aggregate demand resulting from tight monetary and fiscal policies.

Stabilization in Denmark, on the other hand, was expansionary. The key question is whether this expansion was similar to that in the high-inflation Latin American economies, in origins and characteristics. It has been argued that expansion in the high-inflation economies was caused by the perception that the program was temporary. Expectations of a future reversal led to an increase in spending and output. By contrast, expansion in Denmark appears to have been driven by opposite forces — by overconfidence about the speed of disinflation.

These findings support the view that the high-inflation economies are a group to themselves. In particular, disinflation in these economies is likely to face obstacles inherently different from those observed in most industrial, low-inflation countries.

In addition, the costs of exchange-rate-based disinflation are typically experienced at different times. The recession appears upfront in industrial countries, and at a later stage in the high-inflation economies.

This paper — a product of the Transition and Macro-Adjustment Division, Country Economics Department — is part of a larger effort in the department to study adjustment policies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Raquel Luz, room N11-059, extension 34303 (39 pages).

1088. A Primer on the MFA Maze

Riccardo Faini, Jaime de Melo, and Wendy Takacs
(February 1993)

The MFA results in inefficient resource allocation across countries, across consumers, and among firms within constrained countries. Evidence indicates that quotas tend to be binding, and many consumers pay more for products as a result.

It is generally agreed that the arrangements that have regulated trade in textiles and clothing have slowed the natural shift in comparative advantage from industrial countries to developing countries. But there is quite a bit of disagreement about how restrictive the Multi-Fibre Agreements (MFA) are.

Faini, de Melo, and Takacs address the potential sources of allocative inefficiency occasioned by the MFA and search for evidence that the MFA has indeed led to such inefficiency.

In a theoretical section, they identify five sources of inefficiency relating to allocations across countries, across consumers, and among firms within constrained countries.

In the empirical part of the paper, first they provide evidence of the restrictiveness of the quota arrangements from trends in import shares for aggregate categories of textiles and clothing, before and during the MFA. Then they provide evidence from a detailed examination of quota utilization rates and price differentials among EC importing countries.

Among their findings:

- Relatively high utilization rates across exporters suggest a relatively high degree (and stability) of quota bindingness across exporters.
- Overshipment was highest for the most important (by shipment value) products.
- There is concentration among a few leading exporters (China, Hong Kong, Taiwan, and Thailand) and a few importers (Benelux, Germany, and the United Kingdom).
- The data suggest a positive correlation between the coefficients of variation in prices and quota utilization rates for China, Hong Kong, and Korea. This suggests that prices are related, as one would expect, to the degree of bindingness.
- The data suggest that binding quotas would be associated with higher import prices.

This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to evaluate trade policy measures and recommend methods of trade policy reform. This paper was presented at the Ford Foundation Conference on U.S.-EC Trade Relations (in Brussels) and at the OECD Conference on Trade Policy, Productivity, and Foreign Investment (in Paris). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-029, extension 37947 (45 pages).

1089. Equity Portfolio Investment in Developing Countries: A Literature Survey

Stijn Claessens
(February 1993)

Empirical research about equity portfolio investment in developing countries is needed to facilitate policy decisions about liberalizing capital accounts, reforming financial markets, and coping with the potential volatility of these financial flows.

Claessens surveys the literature on equity portfolio investment to develop a research agenda that could help developing countries interested in attracting equity portfolio flows.

He finds that a broad literature exists on equity portfolio flows, but that most empirical tests have focused on industrial countries. Although some of the analytical papers may be applicable to developing countries, Claessens identifies areas of empirical research of specific interest to developing countries:

- Identifying barriers that prevent a free flow of (equity portfolio) capital between industrial and developing countries.
- Quantifying the opportunity costs of these barriers in higher risk-adjusted cost of capital and lower flow of capital.
- Analyzing the optimal amount of portfolio investment and the degree to which investors in industrial countries are currently (under-) invested in developing countries.
- Analyzing the efficiency of the various stock markets in developing countries, as inefficient stock markets could be a barrier to foreign flows.

This research could help policymakers in developing countries make decisions about liberalizing capital accounts, reforming financial markets, and coping with the potential volatility of equity portfolio flows.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to study alternative forms of external financing to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (25 pages).

1090. Government Expenditures As A Citizens' Evaluation of Public Output: Public Choice and the Benefit Principle of Taxation

Ianos Catsambas
(February 1993)

Elements from the theories of public choice and benefit taxation are combined to form a conceptual framework for quantifying citizens' preferences about privately available and publicly provided goods and services. When the theoretical results were applied to four Central European countries, under certain behavioral and stability assumptions, both the evaluation of the desired level of public output by individuals was found to be lower than that actually provided by government.

Combining elements from the theories of public choice and benefit taxation, Catsambas develops a framework in which private citizens can evaluate public activities.

Why, and under what circumstances, do "bureaucrats" increase the size of the public sector and the amount of public spending in their own self interest?

What does the private sector think public output should be, what is actual public output, and how does the private sector evaluate that output?

Catsambas applies the theoretical results of an attempt to answer these questions in four Central European countries (Czechoslovakia, Hungary, Poland, and Slovenia), using actual data for 1989-91 and projections for 1992. Interpreting indirect evidence, he shows that the private sector would prefer less government activity in all countries, from a low of 5 percent less public spending (in Poland) to a high one-third less (in Slovenia). If those governments were to follow those guidelines, their spending-to-GDP ratios would more closely resemble the 1987-89 average for a selected group of European market economies.

Catsambas also introduces a more rigorous, if not necessarily more objective, approach to determining "optimal" government spending. This approach requires little information, but uses a static model and requires faith in the direction of causality for some key variables. To the extent that one can accept those limitations, the model may be a useful operational tool in public spending evaluation.

This paper — a product of the Country Operations Division, Europe and Central Asia, Country Department II — is part of a larger effort in the department to address issues of economic policy in Central European countries through analytical techniques based on market economic principles. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anita Correa, room H11-107, extension 38549 (16 pages).

1091. Capital Market Imperfections Before and After Financial Liberalization: A Euler-Equation Approach to Panel Data for Ecuadorian Firms

Fidel Jaramillo, Fabio Schiantarelli, and Andrew Weiss
(February 1993)

Econometric results suggest that increasing borrowing costs at the margin and a ceiling on leverage affect small, young firms, but not large, old firms. And there is no evidence that financial reforms in Ecuador have relaxed these financial constraints.

Using a large set of panel data for Ecuadorian firms, Jaramillo, Schiantarelli, and Weiss analyze the role of capital market imperfections in investment decisions and investigate whether the financial reforms introduced in the 1980s in Ecuador succeeded in relaxing financial constraints.

To facilitate capital accumulation and growth, the Ecuadorian government removed administrative controls on the interest rate and eliminated or scaled down directed credit programs.

The model used here allows both for an increasing cost of borrowing, as the degree of leverage increases, and for a ceiling on leverage. The econometric results suggest that both types of capital market imperfections are important for small and young firms, but not for large and old firms. Moreover, the estimated equations do not provide evidence that financial reform in Ecuador has helped to relax these financial constraints.

This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department — was prepared under funding for the World Bank research project, "Investment Decisions, Capital Market Imperfections, and the Effects of Financial Liberalization: The Ecuadorian and Indonesian Cases" (RPO 676-72). A preliminary version of the material was presented at the conference, "The Impact of Financial Reform," held at the World Bank, Washington, DC, in April 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (30 pages).

1092. The Effect of Financial Liberalization on the Allocation of Credit: Panel Data Evidence for Ecuador

Fidel Jaramillo, Fabio Schiantarelli, and Andrew Weiss
(February 1993)

The evidence suggests that liberalization resulted in a reallocation of resources toward older, larger, and more efficient firms.

Jaramillo, Schiantarelli, and Weiss discuss two effects of financial liberalization, using panel data for Ecuadorian firms.

After describing the main thrust of the reforms and the general macroeconomic developments, they document the changes that occurred in firms' financial structure and in the allocation of credit.

Descriptive evidence suggests that there has been a reallocation of resources toward older, larger firms after liberalization. The authors also investigate econometrically whether financial reform has helped direct credit to more efficient firms. The results, based on measures of technical efficiency obtained from estimating stochastic production frontiers, show that this has indeed been the case in Ecuador.

This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department — was prepared under funding for the World Bank research project, "Investment Decisions, Capital Market Imperfections, and the Effects of Financial Liberalization: The Ecuadorian and Indonesian Cases" (RPO 676-72). A preliminary version of the material was presented at the conference, "The Impact of Financial Reform," held at the World Bank, Washington, DC, in April 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37666 (41 pages).

1093. Swiss Chilanpore: The Way Forward for Pension Reform?

Dimitri Vittas
(February 1993)

Swiss Chilanpore is a proposal for a pension reform strategy. It is based on a multipillar structure and aims to combine the best features of the pension systems of Switzerland, Chile, and Singapore—leaving behind their weaknesses.

Many countries are considering far-reaching pension reform. This is happening in response to growing demographic pressures in some countries (especially in Western and Eastern Europe), to unsustainably generous benefits in others (especially in Latin America), or to failure to ensure the profitable investment of accumulated funds (as seems to be true with national provident funds in African countries).

Given the worldwide interest in reform, one could ask: Is there a blueprint for pension reform? Can lessons learned in different countries be combined in a best-practice structure usable in different countries' pension systems?

Vittas reviews the experience of Switzerland, Chile, and Singapore, countries with relatively successful economies and pension systems. He suggests a multipillar pension system — which he dubs "Swiss Chilanpore" — that would blend the hard-headed softness of the Swiss, the expensive yields of the Chilean scheme, and the ruthless efficiency of Singapore. He emphasizes that:

- There is no perfect pension system. All systems suffer from the problems of moral hazard, adverse selection, agency costs, and free riders.
- All well-functioning pension systems require good government and good management.
- All pension systems have to cope with the problems of long-term uncertainty.

For these reasons, Vittas favors a multipillar approach that diversifies across different providers. Swiss Chilanpore would have two compulsory and two voluntary pillars:

- A first pillar (drawn from the Swiss model) consisting of two parts: a flat-rate pension proportional to the length of a person's career and an earnings-related pension based on annual actualized lifetime earnings.
- A second pillar consisting of a central agency, which could be public or private, for record-keeping and other centralized functions, and private fund management companies for investing funds. The point would be to keep operating costs down and achieve high investment returns.
- A third and fourth pillars based on occupational pension schemes and personal savings.

The proposed structure would aim to combine the strengths and avoid the weaknesses of the three countries' systems, but Vittas cautions that no reform proposal would apply equally well in all countries, regardless of local circumstances and conditions.

This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department—is part of a larger effort in the department to study how pension systems function. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please Contact Wilai Pitayatonakarn, room N9-003, extension 37666 (27 pages).

1094. The New Regionalism: A Country Perspective

Jaime de Melo, Arvind Panagariya, and Dani Rodrik
(February 1993)

Regional integration is on the rise again — but from different starting points and with different objectives than in the past.

Regional integration is on the rise again, despite its apparent failure among developing countries in the past.

De Melo, Panagariya, and Rodrik survey the ambiguous economics of customs unions, emphasizing that the traditional dichotomy between "trade creation" and "trade diversion" is not particularly helpful for policy. In a world with trade restrictions, regional integration presents certain advantages, including enhanced bargaining power and market access.

The authors point out that integration enforces arbitrage in institutions as well as in markets for goods and factors. This kind of arbitrage can lead to improved economic outcomes by making decision-making less sensitive to economically harmful factional interests—especially when regional institutions are designed properly.

An empirical evaluation of existing schemes produces no evidence that membership in integration schemes has any effect on growth.

Finally, the authors note that recent attempts at regional integration have different starting points and objectives than past efforts — so history is a poor guide to the future of regional integration.

This paper — a product of the Trade Policy Division, Country Economics Department—is part of a larger effort in the department to improve our understanding of the economics of regional integration. The paper was revised to reflect comments received at the Conference on New Dimensions in Regional Integration, (funded by the Bank's Research Support Budget under RPO 675-31). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-029, extension 37947 (47 pages).

1095. Are Failproof Banking Systems Feasible? Desirable?

Samuel H. Talley
(February 1993)

A proposed failproof-banking system that could both benefit and harm developing countries.

In recent years, instability of the banking system has returned as a major problem in many countries, particularly in the developing world. In many cases, this instability has been so threatening to financial intermediation and the functioning of the payments system that governments have felt compelled to intervene and restructure banks, often at considerable cost to the public budget.

One response to these problems has been a proposal to create failproof banking systems — to radically transform the structure, priorities, and operation of the banking and financial systems. Banks would be limited to issuing deposits, holding essentially riskless portfolios, and operating the payments system. To minimize the resulting disruptions to the financial system, banks would be authorized (and encouraged) to set up holding companies and then transfer to holding company affiliates all the functions — including lending — that banks would no longer be permitted to perform. So while

the failproof-banking proposal would severely restrict the activity of *banks*, it would not restrict the activities of *banking organizations* that convert to a holding company form of organization.

This proposal would produce major public benefits. It would assure a nation of a smoothly functioning banking and payments system, would substantially reduce the resources committed to banking supervision, would prevent bank-type regulation from expanding to the rest of the financial system, and would place banking and nonbanking organizations on a level playing field for the financial activities in which they compete.

There are two major problems with the proposal. First, it might be difficult to implement because of too few riskless assets in a nation's financial system. (Talley suggests several modifications that would alleviate this problem in some countries.) Second, the proposal might hurt the financial market by (1) increasing interest rates for higher-risk borrowers, forcing them out of the market, and (2) transferring greater risk to the nonbank sector of the financial system, making it more susceptible to crisis.

Although the proposal would benefit developing countries (more prone to banking instability) more than industrial countries, it would also be more difficult to implement in developing countries. And the adverse effects of the proposal would be felt more severely in the financial markets of developing countries than in industrial countries, which have deeper, more responsive financial markets.

This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department — is part of a larger effort in the department to study issues associated with the structure, operation, and soundness of banking and financial systems. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington,, DC 20433. Please contact Bobo Lu, room N9-005, extension 37664 (19 pages).

1096. How Trade Liberalization Affected Productivity in Morocco

Mona Haddad
(February 1993)

Trade liberalization in Morocco improved productivity in manufacturing firms, so they could exploit their comparative advantage and compete better with foreign firms.

The economic literature now accepts theoretical arguments that liberal, outward-oriented trade policy is better than restrictive, inward-oriented policies. Traditionally such arguments for the gains from trade have rested on the concept of allocative efficiency. But a new argument for liberal trade has emerged: increased technical efficiency or productivity. The best-known attempts to link trade policy and productivity are based on "X-efficiency," economies of scale, capacity use, increased competition, and technological catch-up.

Haddad estimates total factor productivity (TFP) at the firm level using panel data from the Moroccan industrial census in a production-function framework during Morocco's period of trade liberalization (1984-89). Haddad corrected for several problems that usually bias the estimate of productivity. The use of panel data allowed Haddad to take into account the heterogeneity across firms. These firm-specific effects were tested for randomness. Differences between large firms and small firms were checked. She also corrected for errors in measuring capital stock, so common in data from developing countries, and for simultaneity bias because of the endogeneity of factor inputs or because managers have some knowledge about the noise in the production function.

Haddad then estimated the effect of various trade and market-structure variables on the level of TFP, as well as on the deviation of firm TFP from the efficiency frontier. The results are not very sensitive to the different measures of TFP and show that trade openness has a significant positive effect on firm productivity through:

- Outward orientation from export promotion.
- Import liberalization.
- More direct foreign investment.

By splitting the sample into protected and unprotected sectors, Haddad showed lower productivity in protected sectors.

The results are clear. Trade liberalization in Morocco improved productivity in manufacturing firms, so they could exploit their comparative advantage and compete better with foreign firms.

This paper — a product of the Trade Policy Division, Policy Research Department — was prepared for the World Bank research project, Industrial Competition, Productive Efficiency, and Their Relations to Trade Regimes (RPO 674-46). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (39 pages).

1097. A Production Function-Based Policy Simulation Model of Perennial Commodity Markets

Takamasa Akiyama and Jonathan R. Coleman
(February 1993)

Policy variables greatly influence the growth and development of the coffee sector in Nicaragua. Nicaragua could increase its coffee production and exports substantially by the end of the decade if there were a favorable economic climate, especially in terms of international prices and investment incentives.

In modeling the supply of perennial crops, many researchers have used the "vintage-capital production approach," most recently formulated by Akiyama and Trivedi.

Implementing this approach requires reliable time-series data on production, total area planted, new planted area, yields, real producer prices, and credit availability. For many producers, these data are not available, and many producers of perennial crops face substantially changed incentive structures in countries undergoing structural adjustment.

So, Akiyama and Coleman developed an alternative method for modeling perennial crop subsectors. It takes into account past investment decisions and other dynamics of supply response, captures all important features of the market, should be consistent with economic theory, should require minimal data, and should not rely on time-series data or econometric estimates.

This production function-based model uses a Cobb-Douglas production function. The model is based on partial equilibrium and does not take into account the impact on individual subsectors on such aggregate variables as wages and interest rates.

The authors apply the model to the coffee sector in Nigeria, which is undergoing major reform, but the model can be applied — with only minor modifications — to

other types of crops, in other countries.

The model results show that:

- Policy variables greatly influence the growth and development of the sector. A 10 percent increase in the price of coffee, for example, would increase demand for labor 19 percent and that for fertilizer 29 percent and would expand the area of coffee investment 17 percent.
- The sector would substantially benefit from greater labor efficiency, lower real interest rates, and a reduction in the real value of the cordoba against the U.S. dollar.
- Nicaragua could increase its production and exports substantially by the end of the decade, if there were a favorable economic climate — especially in terms of international prices and investment incentives.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze policy impacts on agricultural supply. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (30 pages).

1098. Fortress Europe and Other Myths Concerning Trade

Jean Baneth
(February 1993)

Free trade in manufactures is a reality in most industrial countries. There is little more to gain from further trade liberalization. But there is much to lose from any retreat from the open multilateral trading system, or even from threats to it. To preserve the system, the benefits of free trade should be made more tangible through better domestic structural and macroeconomic policies that would raise growth rates and lower unemployment.

Developing countries sometimes still resist free trade because of the alleged protectionism of industrial countries — a myth belied by facts, says Baneth.

Import growth in the industrial countries accelerated during the 1980s, while income growth slowed. Outside of agriculture (only about 2 percent of GDP) and with the possible exception of Japan, free trade — not protectionism — is the reality.

Despite the march toward a frontierless Europe, EC manufactures imports from nonmembers rose faster than intra-EC trade, and imports from developing countries rose fastest. Similar tendencies prevailed in North America. This pattern of imports contradicts the myth of widespread, effective, and growing barriers to manufactures imports. Protectionist rhetoric is up because imports are increasing, not because trade barriers are rising. The rising share of developing countries, despite their often weak bargaining positions, shows that multilateral rules, rather than bargaining, threats, and counter-threats, still drive the system.

In the 1980s, manufactures imports rose to 40 percent of manufacturing production in the United States and to 25 percent in the European Community (not including imports from EC members; including those, manufactures imports rose to 87 percent of manufactures production in the United Kingdom, 67 percent in France, and 53 percent in West Germany). But in Japan, manufactures imports in 1990 were less than 12 percent of manufacturing production, and their dollar value was smaller than Italy's.

Granted, some protectionism persists everywhere, but it is an irritant rather than a true obstacle to trade. For that reason, further trade liberalization can bring the industrial countries little additional benefit in terms of faster growth, though retreat from free trade holds huge potential losses. Only improved domestic policies — structural and macroeconomic — can raise investment, accelerate growth, reduce unemployment, and consolidate support for free trade.

Developing countries should view the United States and the European Community as open markets for their manufactures exports. Even in agriculture, policy reform over the present decade should reduce inefficiencies. Meanwhile, analysts should be careful to disaggregate: industrial countries' agricultural policies that have truly harmed food exporters, like Thailand, should not be blamed for the ills of food importers, like most African countries.

Selective trade restraints may have blunted but not countered the dynamism of newly industrialized countries and accelerated their shift toward more sophisticated exports. As their barriers to manufactures imports are generally low, the preferences industrial countries grant to developing countries carry similarly low benefits. They help nascent exporters benefit from good policies, but they do not overcome the handicap of bad policies.

This paper is a product of the Geneva Office. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mona St. Leger, room R8-063, extension 37148 (40 pages).

1099. Trade Unions and Collective Bargaining

Harry C. Katz, Sarosh Kuruvilla, and Lowell Turner
(February 1993)

The ability of developing countries and the new transitional economies to compete in the global marketplace will depend on their ability to transform industrial relations policies involving trade unions and collective bargaining so that they promote flexibility in the workplace and encourage the formation and effective use of human resources.

Katz, Kuruvilla, and Turner assert that changing world markets and new technologies are driving industrial restructuring. The ability of developing countries and the new transitional economies to compete in the global marketplace will depend on their ability to transform industrial relations policies involving trade unions and collective bargaining so that they promote flexibility in the workplace and encourage the formation and effective use of human resources.

History has shown, they say, that there are certain key moments of transition in industrial relations systems. After that time, systems get set and are hard to modify. Often these key moments are the result of legislative changes (such as the National Labor Relations Act and the emergence of public sector unions after the burgeoning of public sector legislation in the United States). Sometimes they are the result of key historical or economic junctures (such as the postwar reconstruction in Japan and Germany, and independence movements in the developing world).

Recent pressures for structural change in the developing world present an opportunity for major transitions in industrial relations.

Drawing on the Japanese and German experiences, as well as experiences in the developing world, Katz, Kuruvilla, and Turner focus on lessons that can be applied in guiding this transformation.

Worker participation in decisionmaking, they contend, is critical for bringing about the essential popular acceptance of changes that will come with industrial restructuring.

It is also important to coordinate and integrate industrial relations policy with other social, legal, economic, and educational policies. The education system, for example, should not be overproducing college graduates when there is an undersupply of unskilled and skilled workers.

This paper — a product of the Education and Social Policy Department — is part of a series of state-of-the-art studies on employment and labor market issues and reform programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact ESP, room S6-035, extension 33680 (39 pages).

1100. Indigenous Territories and Tropical Forest Management in Latin America

Shelton H. Davis and Alaka Wali
(February 1993)

For successful management of tropical forests there must be a new type of partnership between indigenous peoples, the scientific community, national governments, and international development agencies. This relationship should be a contractual one, in which indigenous peoples are provided with juridical recognition and control over large areas of forest in exchange for a commitment to conserve the ecosystem and preserve biodiversity.

Using data from Latin America, Davis and Wali argue that fundamental changes must take place in the legal recognition and demarcation of indigenous territories if indigenous peoples are to fulfill their potential as resource managers for threatened tropical forest ecosystems.

Davis and Wali compare different national land tenure models for forest-dwelling indigenous peoples (contained in national Indian, agrarian, and protected-area laws in Latin America) and a model proposed by indigenous organizations in Latin America.

The conventional models emerged during an era when most governments were more concerned with the rapid occupation and exploitation of frontier zones and the assimilation of indigenous peoples. Recent attention to the environmental degradation of these areas and the need to create alternative models of land use and development have directed attention to the potential contribution of indigenous peoples to the conservation and management of the vast tropical forests of Latin America.

Davis and Wali find that indigenous peoples must be given some degree of control over their territories and resources. They contend that for successful management of tropical forests there must be a new type of partnership between indigenous peoples, the scientific community, national governments, and international development agencies. This relationship should be a contractual one, in which indigenous peoples are provided with juridical recognition and control over large areas of forest in exchange for a commitment to conserve the ecosystem and preserve biodiversity.

This paper — a product of the Environmental Assessments and Programs Division, Environment Department — is part of a larger effort in the department to seek ways of incorporating indigenous peoples and their traditional cultural knowledge into biodiversity conservation and natural resources management. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Shelton Davis, room S5-109, extension 33413 (31 pages).

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1101. Transforming State Enterprises in Poland: Microeconomic Evidence on Adjustment

Brian Pinto, Marek Belka, and Stefan Krajewski
(February 1993)

Poland's state sector is far from a write-off. Success stories among state-owned enterprises are emerging in all manufacturing sectors, contradicting negative stereotypes. The industrial revival showing up in economywide statistics can be regarded as a sustainable trend born of genuine microeconomic adjustment.

Basing their report on repeat visits in late 1992 to 75 large state-owned manufacturing enterprises (which had been earlier surveyed in mid-1991), Pinto, Belka, and Krajewski present optimistic new evidence about the transformation of state-owned enterprises in Poland.

This evidence shows state-owned enterprises in a much more favorable light than the stereotype of myopic, decapitalizing companies that dominates discussion of Poland's state manufacturing sector. Success stories are emerging, and the state sector is far from a write-off.

Moreover, favorable evidence is drawn from all manufacturing sectors, attesting to the potential for a diversified manufacturing base. The state-owned enterprises' operations are largely autonomous, so the positive adjustments indicate that decentralized approaches to transformation could work — if bolstered by appropriate managerial incentives. But several problems remain, and many issues have yet to be addressed.

Pinto, Belka, and Krajewski examine various adjustment indicators (labor shedding, material and energy costs, bank borrowings, and export performance) and correlate these with firms classified by 1992 financial performance. (By 1992, presumably, the transitional measurement distortions of 1990 and 1991 had disappeared.) They show that significant differences exist between "successful" and "unsuccessful" firms. Managers in successful firms have tended to stress a change in product mix, have generally become more efficient in the use of materials and energy, have maintained labor productivity, and have shown restraint in setting wages and in borrowing from banks.

The authors discuss key transformation issues: the disappearance of such safety valves as easy bank loans and interfirm credit, hardening of the microeconomic budget constraint, excess-wage tax reform, and, most important, managerial attitudes and incentives.

To complete the picture, they correlate the results of manager interviews with the quantitative performance of firms. Essentially, firms have learned a good deal about operating in a market economy in the past three years, and managers have matured. The industrial revival showing up in economywide statistics can be regarded as a sustainable trend born of genuine microeconomic adjustment.

This paper is a product of the Poland Resident Mission, Country Department II, Europe and Central Asia Region. The study was funded by the Bank's Research Support Budget under research project "State Enterprise Behavior in Poland During the Economic Transformation Program" (RPO 677-58). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Marylou Kam Cheong, room K6-115, extension 39618 (43 pages).

1102. Did the Debt Crisis or Declining Oil Prices Cause Mexico's Investment Collapse?

Andrew M. Warner
(February 1993)

Commodity price shocks (such as the decline in oil prices) have been underestimated as a direct cause of declining investment in the 1980s.

Warner proposes and estimates a microeconomic investment model to determine the relative importance of three explanations for Mexico's investment decline in the early 1980s:

- The decline in oil prices.
- The termination of capital in flows.
- The effects of debt overhang and uncertainty.

He uses investment data for private industries between 1981 and 1985, which have yet to be used in addressing the question under discussion.

The data indicate that the main microeconomic mechanism driving the decline in investment was a rise in the relative price of investment goods — especially the relative price of machinery (a traded good in Mexico). Moreover, the decline in trade (driven by falling world oil prices) explains much of the increase in this relative price.

The decline in Mexico's international terms of trade was probably the most important ultimate cause of the increased relative cost of machinery, but the reversal in net capital inflows to Mexico probably also played a role in increasing this relative price. On this point, the evidence is not as clear.

After controlling for these effects, Warner finds little evidence that the effects of debt overhang and uncertainty had much to do with the investment decline.

Warner points out that investment in Texas and Louisiana (which were also riding the oil boom of 1973-81) also fell in 1981-86, and adverse commodity price shocks also affected many other heavily indebted countries. At the very least, commodity price shocks (such as Mexico's decline in oil prices) as a direct cause of declining investment levels in the 1980s have been insufficiently emphasized in the literature on the effects of the international debt crisis.

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — is part of a larger effort in the department to examine the impact of external shocks on low and middle-income countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mila Divino, room S8-013, extension 33739 (31 pages).

1103. Capital Mobility in Developing Countries: Some Measurement Issues and Empirical Estimates

Peter J. Montiel
(February 1993)

It is rare for developing countries to be strongly integrated with world financial markets, but most developing countries must be regarded as financially open, according to new estimates.

An economy's financial integration with the outside world (the extent of capital mobility across its borders) is a key determinant of some of its most important macroeconomic properties.

Yet little is known about this characteristic of many developing economies. An important stumbling block in the empirical assessment of financial integration (openness) is the many approaches to measuring it.

Montiel describes and evaluates different tests of capital mobility, surveys existing evidence, and applies four tests of capital mobility — to assess the degree to which the many developing countries tested have achieved integration with world financial markets.

The four tests are the: (1) magnitude of gross capital flows; (2) uncovered interest rate parity; (3) strength of saving-investment correlations; and (4) behavior of domestic consumption over time.

The evidence suggests that most developing countries can be considered to be financially open — in only 18 of the 57 developing countries classified did the data fail to show financial openness — and that many countries may be experiencing an increased degree of integration with world financial markets.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the effects of external financing on developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (57 pages).

1104. Trade Policy Reform in Latin America and the Caribbean in the 1980s

Asad Alam and Sarath Rajapatirana
(February 1993)

Most Latin American and Caribbean countries have undertaken far-reaching and fundamental reforms of their trade policies. These reforms have been undertaken unilaterally under extenuating economic conditions. Their success lies in bold and consistent implementation, complementary macroeconomic and exchange rate policies, and political will and resilience.

Alam and Rajapatirana examine the wide-ranging and fundamental trade reforms undertaken in 16 Latin American and Caribbean countries in the 1980s. These reforms have dramatically altered the nature of the trade regimes in these countries and are particularly significant because they were undertaken during severe economic crisis and uncertainty.

Alam and Rajapatirana show that the average levels and the growth rates of imports and exports were substantially higher during the reform period. But imports did not show the surge many had expected, possibly because of low domestic demand. Domestic demand was low because of stabilization and structural adjustment policies, real exchange rate devaluations, and limited access to foreign loans.

All the trade reforms were preceded or accompanied by restrictive fiscal and monetary policies and by devaluations of the real exchange rate. The reform period also moved toward the unification and floating of exchange rates.

The trade reforms were associated with changes in the political regimes. In most countries, the reforms began under the auspices of democratically elected governments, despite resistance — belying the conventional wisdom that democratic leaders are particularly vulnerable to powerful special-interest groups and are thus less able to sustain reforms. Crucial to the success in implementing these reforms was the boldness with which the governments pursued them.

Alam and Rajapatirana point out that the success of the trade reforms lies in ensuring their domestic viability through macroeconomic stability and growth. A successful conclusion of the Uruguay Round of multilateral trade negotiations would also enable the countries to realize greater benefits from their trade reforms, making them more sustainable.

This paper — a product of the Trade, Finance, and Private Sector Development Division, Latin America and the Caribbean Technical Department — is part of a larger effort in the department to disseminate lessons of policy reform in the Latin America and the Caribbean region. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Joy Troncoso, room I4-059, extension 37826 (25 pages).

1105. Estimating Quasi-Fiscal Deficits in a Consistency Framework: The Case of Madagascar

Philippe Le Houerou and Hector Sierra
(February 1993)

To assess fully the effect of adjustment programs and development strategies, it is essential that the fiscal deficit include quasi-fiscal deficits — the losses of public financial institutions such as the central bank. A flow-of-funds format may be the best approach for doing so, as this case shows.

In practice, conventional measures of the fiscal deficit exclude the activities of public financial institutions. As a result, fiscal policies may be applied inappropriately when these institutions — especially the central bank — run large losses (the quasi-fiscal deficit).

The macroeconomic effects of the quasi-fiscal deficit are similar to the effects of the deficit from other public entities — and should therefore be included in the public deficit.

Conceptual and practical difficulties have so far precluded a definition of quasi-fiscal deficits that is operationally useful and comparable across countries. After studying the methodological and practical problems of treating quasi-fiscal deficits, Le Houerou and Sierra propose using a flow-of-funds format, which in principle could be standardized across countries.

Using Madagascar as an example, they show that the public sector deficit is significantly undervalued if quasi-fiscal deficits are not considered.

They contend that such deficits must be taken into account in assessing the success of adjustment problems and development strategies supported by the IMF and the World Bank.

This paper — a product of the Private Sector Development Economics Division, Africa Technical Department — is part of a larger effort in the department to assess the macroeconomic impact of quasi-fiscal deficits. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nydia Velasco, room J3-283, extension 34346 (26 pages).

06. Improving Women's Access Higher Education: A Review World Bank Project Experience

il Dundar and Jennifer Haworth
bruary 1993)

ojects to increase female participation in her education are most likely to succeed ere there is a strong demand for edu-ed women in the labor market, com-ed with a high private demand for her education by women (and their ents).

rld Bank project experience on what rks to improve women's access to ter-ry education is so limited that it may premature to draw firm conclusions. ny of the projects with interesting ltiple interventions are ongoing. But conclusions emerge.

First, the most essential factor for suc-sful intervention seems to be a strong nand for educated women in the labor rket combined with a high private de-nd for higher education by women (and ir parents). How well a project succeeds pends on the extent to which project nponents are sensitive to the local situ-on in terms of these factors.

Projects with often only a single inter-ition were successful in societies where formal labor market is growing and re are few social constraints or quali-itions to inhibit women's participation. ojects with single interventions are likely to succeed with such pervasive ial factors as low secondary enrollment es for women, high direct costs for fe-le education, and heavy cultural re-ictions in the labor market.

Second, the link between programs of-ed and labor market demands is criti-. High secondary enrollment rates, avy private demand for women's edu-ion, and the availability of student ces do not necessarily guarantee an rease in women's participation in her education — unless the programs dovetailed to meet the specific de-nds of the labor market. It is not ugh to overcome social barriers ough policy interventions. Projects st take an integrated view of social and or market constraints.

The Bank seems to be moving in a posi-e direction as more projects are ad-ssing and taking action against gender quities today than they did in the 0s. Of the projects introducing gender-specific interventions, 62 percent were developed in the past five years (1987-92). Some recent Bank projects have multiple, interrelated interventions.

Initial project results indicate that one for inaction, as the conclusions of this study suggest that financial reform is worth the effort and that, with due attention to the institutional environment, the lessons can be applied elsewhere.

Authorities can do much to increase the market orientation of their financial system, with all its benefits, even without a "big bang." They can eliminate the grossest interest subsidies, move toward market financing of government debt, and raise deposit rates at least to only slightly negative or modestly positive levels, paying attention to budget realities. In several countries, authorities ended modest financial repression early in their reform efforts, while still retaining some controls. Of those that moved fastest on interest rate deregulation, Indonesia and New Zealand met most of the foregoing conditions, with some uncertainty about the health of their banks at the point of deregulation. But in both cases banks had a window of a few years before new entry was permitted, allowing them time to adjust before competition intensified. Caution regarding entry helped to limit the reduction in the franchise value of bank licenses, especially given the limitations on supervisory skills. And in both cases, deregulation coincided with falling world interest rates.

Although an eclectic approach to financial reform is more difficult to manage than one of immediate, complete deregulation, it appears borne out by the country cases and the theoretical approached reviewed here.

This paper — a product of the (former) Financial Policy and Systems Division, Country Economics Department — presents lessons on financial reform derived from two World Bank research projects on both the real and financial sector effects of financial reforms in selected countries. This paper is adapted from chapter 7 of the draft manuscript, *Financial Reform: Theory and Experience*. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Wilai Pitayatonakarn, room N9-003, extension 37664 (35 pages).

1107. Financial Reform Lessons and Strategies

Gerard Caprio, Jr., Izak Atiyas, and James Hanson

Financial reform calls for more nuances than simply "letting the market work." An eclectic approach to financial reform is more difficult to manage than immediate, complete deregulation, but it appears to have more chance of success. Unless a country can count on good fortune, it seems wisest to move gradually and improve the fundamentals, until certain basic conditions are met — especially given most governments' explicit or implicit commitment to providing deposit insurance.

The argument in favor of gradual — but sustained — financial reform is based on two factors. First, the development of borrower net worth will determine the health of the real and, ultimately, the financial sector. Thus, speeding up reforms when borrower net worth is subject to positive shocks — or slowing them when it is subject to negative shocks — appears sensible and appears to have worked better in practice. Second, the initial conditions of the banking sector — not just its net worth but its stock of human capital, the initial portfolio mix, and the internal incentive systems — will also determine the success of any reforms. Thus the speed of financial reform must be related to these conditions: rapid reform with unskilled bankers, unbalanced portfolios, and perverse "bank cultures" is a sure recipe for financial crisis. Of course, political factors can present unique opportunities to point an economy rapidly and permanently toward a more market-based system. And these opportunities should be seized. But where possible, financial reforms should consider links to the real sector and institutional development.

The case for gradual reforms is not one for inaction, as the conclusions of this study suggest that financial reform is worth the effort and that, with due attention to the institutional environment, the lessons can be applied elsewhere.

Authorities can do much to increase the market orientation of their financial system, with all its benefits, even without a "big bang." They can eliminate the grossest interest subsidies, move toward market financing of government debt, and raise deposit rates at least to only slightly negative or modestly positive levels, pay-

ing attention to budget realities. In several countries, authorities ended modest financial repression early in their reform efforts, while still retaining some controls. Of those that moved fastest on interest rate deregulation, Indonesia and New Zealand met most of the foregoing conditions, with some uncertainty about the health of their banks at the point of deregulation. But in both cases banks had a window of a few years before new entry was permitted, allowing them time to adjust before competition intensified. Caution regarding entry helped to limit the reduction in the franchise value of bank licenses, especially given the limitations on supervisory skills. And in both cases, deregulation coincided with falling world interest rates.

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1108. Public Output and Private Decisions: Conceptual Issues in the Evaluation of Government Activities and Their Implications for Fiscal Policy

Thanos Catsambas
(February 1993)

We need to know more about individual citizens' responses to macroeconomic choices — about the political economy of public economics.

In this essay, Catsambas explores theoretical concepts behind the current debate on government growth, public sector inefficiency, and the role of fiscal policy with a view to raising the most important issues relevant for fiscal policy. He examines theories of public sector growth, the evaluation of benefits from government spending, and the response of the private sector to government activities.

Three principal reasons have been suggested to explain public sector growth: conscious government choices, political pressure from interest groups, and the self-interest of bureaucracies. One may ask: Is the growth of the public sector a response to public demand or the result of government waste and inefficiency? In terms of the agent-principal theory, bureaucrats who are supposed to serve as agents for citizens may not necessarily do so — which is where waste comes in. If bureaucrats are interested in the nonpecuniary benefits of their bureaus, they will have an incentive to maximize their activities and budgetary allocation rather than their operating efficiency.

In discussing the evaluation of public programs, Catsambas focuses on the "true" benefits, as perceived by citizens. Would a well-to-do citizen, who could afford private security guards, make the same evaluation about public security that a poor citizen would make? In general, what considerations affect a person's desire for a given amount of public spending, and what are the important parameters that analysts should take into account in their investigation?

Catsambas also explores the issues behind the private sector's response to government activities and argues against a mechanistic approach to the interaction between the private and the public sector. Unless decisionmakers are relatively certain about how citizens evaluate government actions, citizens may respond in a way that nullifies the government action.

Catsambas concludes that more empirical work is needed on measuring citizens' response to public sector activities. And fiscal policy, especially on expenditures, should be modeled on a disaggregated basis to isolate hypotheses about potential private sector responses to individual public programs.

This paper — a product of the Country Operations Division, Europe and Central Asia, Country Department II — is part of a larger effort in the department to develop background conceptual frameworks for operational activities. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anita Correa, room H11-107, extension 38549 (9 pages).

1109. Risk Management and Stable Financial Structures

Andrew Sheng and Yoon Je Cho
(March 1993)

National risk management and stable financial structures are essential to the long-term economic growth of developing countries. The 1980s taught many nations the heavy cost of the financial distress associated with poor national and sectoral risk management.

Conventional development economics has focused mainly on generating economic growth by mobilizing savings and allocating them wisely among investment opportunities. Savings (external and domestic) were to be mobilized through tax incentives, income, and interest rate policies. Their allocation often involved direct government intervention in the investment process.

After the disastrous results of the 1980s, the new wisdom is to let the private sector generate growth, while the government provides the regulatory and supervisory framework for competitive markets, ensures the existence of level playing fields, and removes obvious cases of moral hazard. But the private sector working under an inappropriate financial structure may do no better than the government in making right investment choices for long-term growth. So governments (which in a financial crisis are responsible for all national debts) should have an effective national risk management strategy, with an understanding of the national balance sheet, and the necessity of a stable financial structure for steady long-term economic growth.

Sheng and Cho argue that it is not only how much investment is mobilized and allocated but also how investments are financed that matters for an economy's long-term growth. Finance and development are inextricably linked with risk management (both at the sectoral and national levels).

Development is a function not just of promoting the right industries and allocating capital for the high-return investments (asset management) but also of choosing the right financial structure (liability management) — and of the related risks arising from the liability mix chosen.

Sheng and Cho argue that one of the ingredients of the East Asian success is prudent risk management by these gov-

ernments. Sheng and Cho present five rules for national risk management, concluding, among other things, to:

- Establish fiscal discipline and price stability as the anchor of overall financial stability;
- Encourage asset diversification through industrialization and export orientation, financed by foreign direct investment;
- Avoid sectoral imbalances, such as excessive domestic or external borrowing, including the development of instruments and institutions to absorb shocks;
- Establish strong institutional capacity to assess and contain systemic risks; and
- When the above conditions are not adequately met, retain some policy measures to handle the risk.

This paper — a product of the Financial Policy and Systems Division, Policy Research Department — is part of a larger effort in the department to study issues associated with the structure, operation, and soundness of financial systems. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Raggambi, room N9-033, extension 37664 (20 pages).

1110. What Would Happen If All Developing Countries Expanded Their Manufactured Exports?

Will Martin
(March 1993)

As more developing countries expand their manufactured exports, all developing countries benefit, because the prices of their manufactured imports (purchased from each other) decline.

Despite the achievements of the export-oriented economies of East Asia, many policymakers doubt that a development path led by manufactured exports is feasible for all developing countries.

Martin examines what happens if all developing countries, rather than merely a few, expand manufactured exports. He considers two driving forces for export expansion: the liberalization of trade barriers, and productivity growth in the production of manufactured exports.

With only trade liberationalization, the static welfare gains are small (with the standard Armington specification used in the analysis). Even the export growth rates are far too small to replicate the essential East Asian experience. And when all developing countries participate in static trade liberalization, the small welfare gains diminish slightly.

Under the more realistic assumption of dynamic export growth driven by productivity gains for manufactured exports, the welfare effects are much greater and the efforts of developing countries are mutually reinforcing. Because of strong South-South trade links, and developing countries' dependence on manufactured imports, developing countries buy more manufactured goods from each other.

Martin accepts the view of "export pessimists" that a country expanding its manufactured exports will receive depressed prices for those exports. But his results differ because he uses a general equilibrium framework with intra-industry trade rather than a partial equilibrium model of the export market. The general equilibrium model captures the fact that developing countries still import most manufactured goods, often from each other. They will suffer, but they will also benefit, from declining prices. So they are better off if they all expand those exports.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze developing country trade in manufactures. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (28 pages).

1111. Foreign Investment Law in Central and Eastern Europe

Cheryl W. Gray and William Jarosz
(March 1993)

Policymakers should focus on reducing uncertainty and transaction costs through clear and simple legislation, the enforcement of contracts, the use of arbitration and other alternative dispute resolution mechanisms, stronger protection of property rights, the dissemination of information on laws and on business opportunities, and an end to unnecessary bureaucratic intervention.

One of the most remarkable developments in Central and Eastern Europe (CEE) has been the region's opening to foreign direct investment. CEE states saw foreign investment climb from minuscule amounts in 1989 to more than $7 billion in 1992. All CEE states have enacted new laws on foreign investment as well as related legislation in areas such as taxation and company and environmental law.

Gray and Jarosz describe these efforts at legal reform and assess their impact on foreign investment in light of what is known about investor motivation. They concentrate on the role of foreign investment law, referring occasionally to other aspects of law that apply to domestic and foreign investors. They find that specialized foreign investment laws can play a useful role during the transition to a market economy. Of particular importance is their role in sending a strong signal to foreign entrepreneurs that the host country is serious about economic reform and is willing to work with investors to establish mutually beneficial arrangements.

Foreign investment laws are also often used to target special incentives to foreigners and create an island of legal development that may differ from — and sometimes outpace — other legal development. In such ways they tend to create investment "enclaves." But to the extent that an enclave separates foreign from domestic investors, it can quickly outlive its usefulness. The incentives it fosters may not only bleed domestic treasuries, but may also lead to bureaucratic structures that complicate the investment environment and elevate information and transaction costs for foreign investors. As quickly as possible, the transforming economies should dismantle the enclave and put domestic and foreign investors on an equal footing. This may well mean that foreign investment laws are no longer needed. The Czech and Slovak Federal Republic was the first CEE country to abolish specific foreign investment legislation in favor of a broad commercial code covering all investors.

If an enclave does exist, policymakers should focus on the concerns critical to foreign firms. In the design of investment laws to date, the CEE countries have perhaps paid too much attention to preferential tax schemes, ignoring other costs foreign investors face. Policymakers should focus on reducing uncertainty and transaction costs through clear and simple legislation, contract enforcement, arbitration and other alternative dispute resolution mechanisms, stronger protection of prop-

erty rights, dissemination of information on laws and on business opportunities, and an end to unnecessary bureaucratic intervention. Complex regulations not only increase investor uncertainty but divert bureaucratic resources that the host country cannot afford to squander.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to analyze the economic impact of legal reform in Central and Eastern Europe. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maxine Berg, room N11-057, extension 31450 (21 pages).

1112. Privatization, Concentration, and Pressure for Protection: A Steel Sector Study

Ying Qian and Ronald C. Duncan
(March 1993)

Incentives for seeking protection in the steel industry — particularly import quotas as a fixed proportion of domestic sales — seem to increase with industry concentration. If protection is necessary, tariffs are preferable to import quotas.

In considering whether to privatize a large state-owned steel enterprise in Argentina, the question arose: Would its sale to a consortium of large domestic enterprises, and the resulting increase in firm concentration, inevitably lead to cries for protection?

To shed light on the question, Qian and Duncan examine data for steel industries in the major industrial countries. They also construct a simulation of Argentina's steel sector to study the relationships between levels of industrial concentration, substitutability between domestic and imported steels, trade policy regimes, and mark-ups of domestic prices over international prices.

Their simulation results show that heavier rents and economic distortions are generated through fixed-ratio import quotas (quotas that are a fixed proportion of domestic sales) than through use of a tariff or a fixed-quantity import quota.

The results show why industries seeking protection prefer a fixed-ratio import restraint — a practice being used increasingly often in industrial countries. If there is not perfect substitutability between domestic and imported steels, the incentives for the Argentine industry to seek protection — particularly as a fixed-ratio quota — are greater, the more concentrated the industry is.

The lesson for policymakers — who should be trying to minimize economic distortions — is that if protection is necessary, tariffs are preferable to import quotas, perhaps even to the point of making quota-type restrictions unconstitutional.

The simulation results for Argentina confirm that the less substitutable domestic and foreign goods are, the higher the rents the domestic industry can extract. So, it is important for policymakers implementing privatization schemes to ease any explicit or implicit obstacles to imports by such measures as:

- Standardizing domestic product classifications with international classifications.
- Modernizing transportation facilities to improve the speed of shipment and communication.
- Reducing bureaucratic practices related to trade in goods and services.
- Releasing foreign exchange restrictions.

The goal should be to make a foreign transaction as easy as a domestic transaction.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of trade distortions on developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sarah Lipscomb, room S7-062, extension 33718 (31 pages).

1113. The Lucky Few Amidst Economic Decline: Distributional Change in Côte d'Ivoire As Seen Through Panel Data Sets, 1985-88

Christiaan Grootaert and Ravi Kanbur
(March 1993)

Panel data sets show that a lucky few bucked the general trend of economic decline in Côte d'Ivoire — that among the poorest of the poor, some actually improved their standard of living, despite a great increase in the incidence of poverty.

Côte d'Ivoire's economy declined drastically in the second half of the 1980s. The incidence of poverty climbed from 30 percent in 1985 to 35 percent in 1987, and jumped to 46 percent in 1988.

But how widespread was the collapse in living standards? Did a lucky few escape the decline?

Using panels of data from the Côte d'Ivoire Living Standards Survey (for 1985-86, 1986-87, and 1987-88) allowed Grootaert and Kanbur to track the level of living for the same households over successive years. These panels had not yet been used to examine the dynamics of poverty in the second half of the 1980s.

They find that "two-period" poverty was generally less than poverty measured from single-period snapshots. Surprisingly, a significant number of the poorest of the poor *improved* their status over the two years of the panel, even though there was a downturn in the average fortunes of the poor.

And Grootaert and Kanbur find that the "lucky few" are not so few. They were widespread regionally — though in some socioeconomic groupings, the poor had a greater chance to escape poverty amidst the general decline in living standards. Finer investigation of the characteristics of these groupings is hampered somewhat by the small sample sizes of the panels.

This paper — a product of the Poverty and Social Policy Division, Africa Technical Department — is part of a study funded by the Bank's Research Support Budget under research project "Poverty and the Social Dimensions of Structural Adjustment in Côte d'Ivoire, 1985-88: A Policy-Oriented Analysis" (RPO 675-26). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elena Vitanov, room J2-241, extension 38400 (36 pages).

1114. Does Price Uncertainty Really Reduce Private Investment?: A Small Model Applied to Chile

Anita George and Jacques Morisset
(March 1993)

Uncertainty about the cost of capital should be compared with uncertainty about the price of output. The efficiency of policies to reduce the price of capital may be enhanced if the volatility of the output price is greater than the volatility of the price of capital, and if there is a positive

correlation between changes in prices for output and capital.

Understanding how prices and quantities affect investment demand is important in analyzing adjustment policies in many developing countries.

Recent literature emphasizes that uncertainty curtails private investment, adding a risk premium — the price of waiting. Several recent empirical studies have confirmed this result.

This new development has been used to challenge one of the most popular policy recommendations derived from the traditional literature on investment: increasing investment by reducing the cost of capital through tax incentives or exchange rate policies. Because such policies are likely to increase uncertainty about the price of capital, their effect on private investment is ambiguous. The popular intuition is that private investors care more about the uncertainty of the price of capital than its level. In other words, incentives would have to be unreasonably high to bolster investments.

George and Morisset argue that uncertainty about the cost of capital should be compared with uncertainty about the price of output. Using a simple analytical model, they conclude that the efficiency of policies aimed at reducing the price of capital may be enhanced if:

- The volatility of the output price is greater than the volatility of the price of capital.
- And there is a positive correlation between changes in prices for output and capital.

In both cases, private investment will be more responsive to changes in the price of capital (or in aggregate demand) because firms will minimize profit fluctuations.

They apply this model to Chile for 1980-[illegible]. Chile is the reputed "success story" of structural adjustment and has achieved fairly stable growth in the past eight years. (The results correspond to the predictions of the analytical model.)

This paper a product of the Country Operations Division, Country Department IV, Latin America and the Caribbean — is part of a larger effort in the Department to understand private investment in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Diane Bievenour, room I6-011, extension 37899 (13 pages).

1115. Looking at the Facts: What We Know about Policy and Growth from Cross-Country Analysis

Ross Levine and Sara Zervos
(March 1993)

Cross-country regressions should not be used to predict by how much long-run growth will change when policies change — at best, they suggest interesting empirical regularities. But beliefs about policy and growth that are not supported by cross-country evidence will tend to be viewed skeptically.

What has the profession learned from cross-country regressions about the links between long-run growth and indicators of fiscal, monetary, trade, financial, and exchange-rate policies?

Levine and Zervos find that:

- Indicators of financial development are strongly associated with long-run growth.
- Other individual policy indicators are only weakly linked to growth.
- It is particularly difficult to find a consistent relationship between inflation and long-run growth. For example, the inclusion or exclusion of one or two countries (Nicaragua and Uganda) out of more than 100 countries in the sample can lead to reach three quite different conclusions: (1) that only very high inflation is bad for growth, (2) that very high inflation in itself is not bad for growth, but small increases in inflation in moderate-inflation countries slow growth, or (3) that inflation is unrelated to growth.

The connections between policy indicators and growth are quite sensitive to slight alterations in the right-hand-side variables and to small changes in the sample of countries.

And the daunting array of methodological problems limiting our ability to interpret cross-country regressions implies that, *at best*, they suggest interesting empirical regularities. Cross-country regressions should not be used to predict by how much long-run growth will change when policies change. But beliefs about policy and growth that are not supported by cross-country evidence will tend to be viewed skeptically. So, future work on the policy-growth nexus should integrate broad cross-country analyses with country case studies and investigations of specific firms.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to understand the determinants of long-run growth. The study was funded by the Bank's Research Support Budget under research project "How Do National Policies Affect Long-Run Growth?" (RPO 676-66). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-089, extension 38526 (45 pages).

1116. Implications of Agricultural Trade Liberalization for the Developing Countries

Antônio Salazar P. Brandão and Will Martin
(March 1993)

Global trade liberalization — reducing both negative and positive protection in line with the Dunkel proposal — would gain developing countries an estimated $60 billion a year.

Brandão and Martin examine the implications for the developing countries of a range of liberalization proposals along the lines of the Dunkel proposal. First, the analysis considers liberalization in the OECD countries alone, then global liberalization of all (positive and negative) protection. Since the current Dunkel proposal requires reduction only in positive assistance, this specific proposal is assessed. Finally, the implications of the developing countries acting alone, perhaps in the absence of a successful Uruguay Round, are evaluated.

Virtually all research on agricultural trade liberalization has focused on the case of total liberalization, an unlikely outcome in the near future. The earlier work provides useful insights into the effects of partial liberalization on world prices, but may be misleading as a guide to the welfare implications of partial liberalization in a second best context of continuing distortions in both agriculture and manufacturing.

Brandão and Martin consider partial liberalization along the lines of the Dunkel proposal: a reduction of 36 percent in (positive) border protection and 20 percent in domestic support in industrial countries, with smaller reductions in developing countries. This partial reform would produce gains of $20 billion a year for developing countries. These benefits are widely

spread among developing countries. Few regions would suffer overall losses, and those would be small in relation to overall gains.

If developing countries had chosen not to participate in the Round, and to rely on liberalization only by the industrial countries, their gains would have been less than $1 billion — and a number of important regions would have suffered significant welfare losses.

The gains to developing countries could be greatly enhanced by a more comprehensive liberalization. If developing countries reduced all agricultural distortions, including agricultural taxation, by the proportions specified in the Dunkel package, their total gains would increase to almost $60 billion a year — even without productivity gains stimulated by rising world prices for agricultural commodities.

With productivity gains taken into account, total gains from partial reform would be more than $130 billion a year for non-OECD economies.

The predicted gains are greater here than in earlier studies because Brandão and Martin have included more commodities and the welfare measure explicitly considers the partial nature of the liberalization being considered.

This paper — a joint product of the Agricultural Policies Division, Agriculture and Natural Resources Department, and the International Trade Division, International Economics Department — is part of a larger effort in the Bank to assess the implications of trade policy reforms. The study was funded by the Bank's Research Support Budget under research project "Implications of Agricultural Policy Reform for Developing Countries" (RPO 676-11). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (39 pages).

1117. Portfolio Investment Flows to Emerging Markets

Sudarshan Gooptu
(March 1993)

It is important that policymakers know the source of portfolio inflows to their countries — to help them gauge whether they are temporary, and to make policy decisions for dealing with large future inflows and outflows.

The 1990s brought developing countries the heaviest private capital flows since the early 1980s, says Gooptu — mainly bond and equity financing, rather than medium- and long-term lending by commercial banks.

Flows were mainly to Asia in the first half and Latin America in the second half. Market participants believe that most inflows of portfolio investment (especially in Latin America) reflected the return of flight capital by domestic residents with overseas holdings.

This and possible "herding" by foreign investors in a few countries, such as Mexico, could at the margin make securities prices volatile in the emerging markets and cause rapid switching of portfolios between markets (between developed and emerging markets and between emerging markets). This could make macroeconomic management difficult for policymakers.

Some contend that if external portfolio investment flows into an emerging market are the result of external factors — such as the U.S. recession and low international interest rates — the increased demand for shares in a relatively illiquid emerging stock market may "overheat" the stock markets and lead to an appreciation of the real exchange rates in these countries. Any attempt to counteract this appreciation of the domestic currency by the monetary authorities, by devaluing the *nominal* exchange rate, will increase international reserves and perhaps be inflationary.

If, on the other hand, policymakers dilute the effect of the real appreciation by sterilizing incoming resources through open market operations, this could increase domestic debt and possibly domestic interest rates. This might attract further inflows from abroad and create a vicious cycle of expected devaluations — which could further appreciate the domestic currency.

What is crucial is the policymakers' perception of whether the inflows are temporary. That is why it is important to know the source of portfolio inflows.

If the inflows are coming from investors with long-term capital appreciation motives, such as the large institutional investors, and the developing country remains on a path of sustained market-oriented reform aimed at long-run growth, these inflows should continue and even grow in the near future. As more comprehensive data become available, it is important to determine whether these inflows from abroad are intended to be short-term or long-term.

Gooptu provides a comprehensive database of transaction-level information on different types of instruments and a glossary of portfolio investment terms.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study alternative forms of external financing to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (68 pages).

1118. Trends in Retirement Systems and Lessons for Reform

Olivia S. Mitchell
(March 1993)

Aging populations, high unemployment, and changes in economic structure may require fundamental reform of both benefit formulas and approaches to the financing of retirement systems. One thing is clear: using high-cost, long-term retirement systems to mitigate short- and medium-term unemployment problems is a costly, inefficient solution to the problems faced by economies in transition.

In multiple-pillar retirement systems, the government provision of old-age income support plays a very different role from vehicles for encouraging private retirement savings — and for the government regulation and insurance of private savings.

Despite the diversity of public and private retirement systems, and despite their wealth and their potential impact on labor and capital markets, they are often overlooked in structural analyses of country problems and prospects.

Mitchell examines important institutional features of retirement systems in industrial and developing countries and outlines what is known about their economic effects. She also identifies ways in which public and private retirement systems affect economic adjustment, paying special attention to the costs and benefits of encouraging early retirement.

She finds that a coherent plan for retirement reform must identify how much old-age income security is affordable, how the

government and private sector can address failures in the private market to provide this security, and how these objectives can be attained given available financing mechanisms.

She finds evidence that many retirement systems will be forced to change a great deal in the next few decades. In some cases:

- Retirement benefits will have to be reduced (perhaps by imposing a means test).
- The age for early retirement will have to be raised.
- Multiple-pillar plans will have to be integrated and streamlined to rationalize work incentives.
- Incentives and opportunities for private saving will be increased.

In any case, using high-cost, long-term retirement systems to mitigate short- and medium-term unemployment problems will probably prove costly and inefficient as a solution to problems faced by economies in transition.

This paper — a product of the Education and Social Policy Department — is part of a series of state-of-the-art studies on employment and labor market issues and reform programs. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the Education and Social Policy Department, room S6-035, extension 33680 (52 pages).

1119. The North American Free Trade Agreement: Its Effect on South Asia

Raed Safadi and Alexander Yeats
(March 1993)

South Asia's loss of exports to North America as a result of the North American Free Trade Agreement (NAFTA) is likely to be small, concentrated in the textiles and clothing sector. The trade gains South Asian countries could experience from successful completion of the Uruguay Round are about 100 times greater than the losses they might incur from NAFTA.

Over the past three decades, free trade agreements were mostly a European phenomenon (EFTA, EEC, and their regional arrangements). Recently, this phenomenon has reached the Americas and is growing. Safadi and Yeats show that free trade agreements now cover about half of world trade in manufactured goods and about 46 percent of total world trade.

Free trade agreements discriminate in favor of member countries, so other exporters are naturally concerned about their trade being displaced. Safadi and Yeats try to quantify the adverse third-party effects of the recently concluded North American Free Trade Agreement (NAFTA) on the developing countries of South Asia.

They find that because the NAFTA countries and South Asia export different types of goods, exports from South Asia will be displaced for only a narrow range of products (probably little more than 10 four-digit SITC groups). The sector most affected is textiles and clothing, given that the preferential removal of tariffs (in the 15 to 30 percent range) and MFA quotas could give Mexico a formidable competitive advantage in the U.S. market.

But domestic supply constraints (Mexico seriously and consistently underutilizes its textile and clothing quotas), and NAFTA's domestic import content regulations should limit the amount of trade that Mexico may displace in these sectors.

Using a partial equilibrium trade projection model developed by UNCTAD and the World Bank, Safadi and Yeats try to quantify the trade diversion South Asia could experience in North America as a result of NAFTA. The model focuses on NAFTA's short-run impact on South Asian trade. This study does not address dynamic long-run effects, such as changes in terms of trade, investment diversion, and externalities associated with the growth dividend.

The results suggest that the total export decline could be about 1 percent, with projections for Bangladesh slightly higher (because textiles and clothing represent a higher-than-average share of Bangladesh's exports).

Safadi and Yeats argue that successful completion of the Uruguay Round would considerably reduce South Asia's potential losses, as it would lower the preference margins that NAFTA could provide its member countries.

To put the two events in perspective, Safadi and Yeats note that *the trade gains South Asian countries could experience from successful completion of the Uruguay Round are about 100 times greater than the losses they might incur from NAFTA.*

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and predict structural changes in trade and to quantify factors affecting exports of developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-035, extension 33710 (34 pages).

1120. Policies for Coping with Price Uncertainty for Mexican Maize

Donald F. Larson
(March 1993)

More efficient, market-based policies should be introduced for coping with uncertainty about international prices for maize in Mexico.

The three goals of recent agricultural pricing policies in Mexico for maize have been to raise farm income and crop profitability by boosting domestic prices through trade restrictions, to provide some price certainty at planting time, and to reduce year-to-year variations in maize prices.

The government pursued all goals jointly, using import quotas and a state marketing agency to implement a mandated pan-Mexico price for maize. Farmers benefited primarily from the price support, and very little from the other goals. Maize policies were unsustainable and enormously expensive, so the government has decided to reform the sector. [The reforms will be institutionalized in the North American Free Trade Agreement (NAFTA).]

Larson shows that the same price enhancement and stabilization could have been achieved at less cost by using variable border tariffs within a price-band mechanism. Moving immediately to such a policy can lower costs yet produce the same effects as current policy. The multiple effects of policy on price can be measured separately, and a variable tariff/price-band scheme can be used to target both price levels and price variability.

International markets in commodity futures and options (through millers and banks) could offer farmers an inexpensive way to provide in-season price stability. But the farm sector can take advantage of these instruments only if the domestic distribution system is reformed — by liberalizing interstate trade, harmonizing

standards and measures (including sanitation standards), and privatizing storage facilities.

No market mechanisms exist to ease the underlying year-to-year price variability for wheat and maize. But the benefits of government intervention to smooth prices are small and, in themselves, do not justify using a price-band mechanism.

Still, a price-band system might be considered as a transitional tool. NAFTA calls for slow liberalization of the maize market, but the Mexican government could liberalize its markets more aggressively. Levels of transfer under current policies remain high and the costs of adjustment may depend on the path of international prices during the transition. The advantage of the price-band mechanism is that relief is granted (transparently and automatically) to consumers when prices are abnormally high and to producers when they are abnormally low. This would help forestall political pressures for ad hoc measures.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to improve the developing countries' management of commodity price risk. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (27 pages).

1121. Measuring Capital Flight: A Case Study of Mexico

Harald Eggerstedt, Rebecca Brideau Hall, and Sweder van Wijnbergen
(March 1993)

The wrong conceptual approach can distort estimates of capital flight. The debt-stock-based estimates widely used in discussions of Mexico's debt crisis largely understated capital flight in the early 1980s, but overstated it in the mid-1980s. Other estimates significantly understate the foreign asset accumulation in the second half of the 1980s by not including interest earnings.

Eggerstedt, Hall, and van Wijnbergen show how the various methods commonly used to measure capital flight produce vastly different estimates (with a 100 percent difference between the lowest and the highest, in Mexico's case). They emphasize the importance of the conceptual approach to its measurement.

First, they did not try to separate "normal" capital flows from capital flight. A capital shift outward because of expected taxation is as much a response to anticipated developments in rate of return as is a shift out in response to lower interest rates at home.

Nor is it satisfactory to directly measure capital flight by taking short-term asset changes and the balance of errors and omissions from the balance of payments. Neither is necessarily related to the unreported private accumulation of foreign assets.

They chose the residual approach, which assumes that capital inflows in the form of increases in external indebtedness and foreign direct investment should finance either the current account or reserve accumulation; any shortfall in reported use can be attributed to capital flight.

Implementing the residual approach requires careful data selection and several adjustments. The authors contend that:

- Introducing debt stock data into the analysis — instead of the changes in debt recorded directly in the balance of payments — requires many difficult adjustments and should be avoided.
- Foreign asset changes of public corporations must be subtracted.
- Rather than eliminate interest received on foreign assets from the current account, as some have done, earnings on private assets held abroad should be considered part of the "flight capital" that might have been repatriated, given different incentives and macroeconomic conditions.
- The effect on capital flight of the faking of trade invoices should be assessed, since import overinvoicing and export underinvoicing can be used to channel capital abroad.

They demonstrate the empirical importance of these choices with a new set of capital flight estimates for Mexico, based on the recommendations they present. They contrast the results of this approach with those of other approaches, to demonstrate the effect of conceptual choices.

This paper — a product of the Country Operations 1 Division, Country Department II, Latin America and the Caribbean — is part of a larger effort in the department to understand the macroeconomic effects of capital flows. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedwig Abbey, room D8-099, extension 80512 (52 pages).

1122. Fiscal Decentralization and Intergovernmental Relations in Transition Economies: Toward a Systemic Framework of Analysis

Richard Bird and Christine Wallich
(March 1993)

Designing a well-functioning intergovernmental fiscal system is essential to the success of all the transitional economies' major reform goals: privatization, macroeconomic stability, more efficient performance and economic growth, and an adequate social safety net.

The decentralization of government in Eastern Europe represents a reaction both from below (to tight central political control) and from above (to privatize the economy and relieve the central government's fiscal stress).

In all transitional economies, the developing structure of intergovernmental relations is intimately related to such critical policy issues as privatization, stabilization, and the social safety net. In the fiscal sphere, tax reform, deficit control, and intergovernmental finance are a tripod. Unless each leg is set up properly, the whole structure could collapse.

The present strategy of devolving *expenditures* downward while holding back on revenue flows and transfers to balance the central budget is unlikely to succeed for more than a year or two at best.

Net spending reductions at the subnational level may be difficult to achieve. From 10 to 40 percent of outlays go to the subnational sector, and in many countries local governments provide much of the social safety that makes the pain of the economic transition politically tolerable. And, most housing and many enterprises have been shifted to local ownership, with the maintenance and subsidy cost this implies. Since the revenue sources assigned to local governments cannot finance expected levels of local activity, the result of shifting spending downward is likely to be strong demands for increased, rather than decreased, transfers. Alternatively, subnational governments may look to "coping mechanisms" such as holding onto their enterprises (which provide vital social services), developing extrabudgetary revenues, or borrowing. These coping

mechanisms threaten privatization, reduce budgetary transparency, and impede stabilization policies.

Bird and Wallich describe the risks to privatization, to macroeconomic stability, and to an adequate social safety net that present policies toward local government may imply. Its themes are that the subnational sector needs to be more realistically factored into national plans — and that subnational expenditures be more clearly assigned and revenue needs more realistically assessed. Such assessments are likely to acknowledge a larger sphere for subnational governments and the need for access to more robust revenue sources. Giving local government a share in the personal income tax is one possible and perhaps desirable approach to meeting these revenue needs.

Careful attention needs to be paid to the design and implementation of the intergovernmental fiscal transfers likely to remain prominent features of the intergovernmental landscape for years to come. Caution is also needed on borrowing by subnational government. Consolidating and integrating extrabudgetary funds at the subnational (and national) levels is crucial to enhanced budgetary transparency and macrostability.

This paper — a joint product of the Public Economics Division, Policy Research Department, and the Infrastructure Division, Technical Department, Europe and Central Asia, and Middle East and North Africa Regions — is part of a larger effort in both departments to analyze issues relating to decentralization, and in particular, the role of subnational governments in the reform process. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Bonnie Gheco, room H11-065, extension 37033 (pages).

1123. Social Development and Economic Development

Nancy Birdsall
(April 1993)

Increases by the World Bank in support of social investment — from $1 billion for 1987-89 to more than $3 billion for 1990- — indicate growing awareness that social development is economic development, both as an end in itself and as a good investment in economic growth.

Birdsall makes four main points in this paper:

- Social development, in addition to improving human welfare directly, is an excellent investment. The hard-nosed economic fact is that it contributes to economic growth. Even a narrow interest in growth for growth's sake dictates putting your money into social development programs.
- But investing in social development does not guarantee growth all by itself, so those concerned with social progress cannot absent themselves from the larger debate about other aspects of economic policy in their countries.
- Moreover, making social programs work is not simple — not politically, not technically, and not administratively.
- Still, we know from the experience of some of the poorest countries that it can be done.

This paper — a product of the Office of the Director, Policy Research Department — was presented to the Delegates of the Social Committee at the United Nations General Assembly on October 19, 1992. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Soledad Rothschild, room N11-051, extension 37460 (20 pages).

1124. A New Database on Human Capital Stock: Sources, Methodology, and Results

Vikram Nehru, Eric Swanson, and Ashutosh Dubey
(April 1993)

A brief review of the method and data sources used to prepare the International Economics Department's estimates of the stock of education. Analysis suggests that it is not unreasonable to use education stock as a proxy for human capital in production function analysis.

Nehru, Swanson, and Dubey describe the techniques and data adopted for the construction of a new series of estimates of the stock of education in 85 countries over 28 years (1960-87). It covers all the important developing regions except the republics of the former Soviet Union.

IEC continues a well-established trend in growth research of using educational stock (measured as mean school years of education of the labor force) as a proxy for human capital. The series are built from enrollment data using the perpetual inventory method, adjusted for mortality.

Estimates are corrected for grade repetition among school-goers and country-specific drop-out rates for primary and secondary students. Enrollment data series used start as far back as 1930 for most countries, and even earlier for others. This reduces the need for backward extrapolation of enrollments to provide the initial estimates of the investment inventory.

This paper describes a new database on human capital stock in developing and industrial countries prepared by the International Economics Department (IEC) and undertaken as part of a larger IEC research project on total factor productivity growth. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Moira Coleridge-Taylor, room S8-049, extension 33704 (19 pages).

1125. Industrial Development and the Environment in Mexico

Adriaan Ten Kate
(April 1993)

Postwar industrialization has moved Mexico's manufacturing industry toward more polluting activities, partly through heavy public investment in heavily polluting subsectors and partly through below-market pricing policies for petroleum fuels.

Postwar industrialization has moved Mexico's manufacturing industry toward more polluting activities. Fairly independent of changes in foreign trade policy, this process was induced by expansive public investments in heavily polluting subsectors, especially petro- and agrochemicals.

Below-market pricing policies (implicit subsidies) for petroleum fuels contributed to an increase in industrial energy intensity — in sharp contrast with the pervasive energy-saving transition in OECD countries in the last two decades. Energy intensity in Mexican industry increased 5.7 percent between 1970 and 1990, compared with a decrease of 35.3 percent in OECD industry.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to study pollution control

policies in developing countries. The study was funded by the Bank's Research Support Budget under research project "Pollution and the Choice of Policy Instruments in Developing Countries" (RPO 676-48). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (76 pages).

1126. The Costs and Benefits of Slovenian Independence

Milan Cvikl, Evan Kraft, and Milan Vodopivec
(April 1993)

Declining trade with the rest of Yugoslavia hurts Slovenia's short-run prospects. But in the long run Slovenia may benefit from greater macroeconomic stability, freedom from subsidizing less-developed regions of Yugoslavia, and speedier integration with Western Europe.

One year is not enough time to draw conclusions about independent Slovenia's prospects, and it may not be easy for other countries to copy Slovenia's model. Slovenia is ethnically homogeneous, culturally and historically compatible with the West, and near (and somewhat protected from) friendly Western neighbors. And despite sharp political divisions, it has shown a political will to fight counterproductive redistribution. Still, Slovenia's experience may offer insights for other new post-Communist economies:

- Despite the obvious short-run costs of the brutal breakup of Yugoslavia's federal structure, Slovenia's medium- and long-run economic prospects are fairly good. Declining trade with the rest of Yugoslavia dims Slovenia's short-run prospects. But in the long run it may benefit from greater macroeconomic stability, freedom from subsidizing less-developed regions of Yugoslavia, and speedier integration with Western Europe.
- What has happened to Slovenia does not prove that separation necessarily improves welfare. In fact, had forces amenable to rational debate and compromise prevailed in Yugoslavia, Slovenia's secession might have decreased welfare.
- Slovenia's experience suggests that secession from a larger entity that is wrecked by political instability may produce economic benefits. Local autonomy gives Slovenia a chance to introduce a new currency and achieve macroeconomic stability, for example. This can work only if the local political constellation is not controlled by coalitions bent on preserving the old system of redistribution and is not hampered by major political divisions that paralyze decisionmaking.

In short, secession can be beneficial if the new state is more homogeneous and functions more coherently than the old state.

- Not all newly independent states would face the costs Slovenia has faced. In the Czech-Slovak breakup, for example, political risk and refugee costs (or rather, the costs of migration) were much smaller than in Slovenia. Indeed, the Czech republic may also expect short-term costs but long-term gains.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to investigate the transition of economies of Eastern Europe and the former Soviet Union. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (36 pages).

1127. How International Economic Links Affect East Asia

Vikram Nehru
(April 1993)

An anatomy of economic links between East Asia and the global economy — and a description of how those links shape the region's exposure to risks from the global economy.

Nehru applies the theme of the last two papers in the Global Economic Prospects series, written by the International Economics Department, to the case of one developing region: East Asia.

He documents the rapid integration of the East Asian economies into the world economy through trade and foreign direct investment, and suggests that this has helped create a relatively well-diversified structure of production and of external markets. As a result, East Asia was relatively unaffected by the great terms-of-trade shocks experienced by other developing countries in the 1980s. East Asia's creditworthiness in international financial markets meant that (except for the Philippines) it could maintain access to external capital flows during the world years of the debt crisis.

East Asia's close economic links with the rest of the world makes the region particularly vulnerable to shocks originating externally. Simulations suggest that its growth rate is closely related to the growth rate of the OECD economies, even if its export markets are more diversified than those of other developing regions.

Similarly, given the strength of its export drive to the industrial economies in the last two decades, especially in labor-intensive products, East Asia would stand to gain the most from a successful Uruguay Round. By the same token, it would also be hurt the most were the Uruguay Round to fail and were industrial protection to increase as a result.

So, East Asia must closely watch developments involving the North America Free Trade Agreement (NAFTA). Although preliminary analysis suggests that the immediate trade consequences of NAFTA would be negligible for East Asia, the longer-run consequences for foreign direct investment and trade flows are more difficult to predict.

Finally, the region's strong physical and institutional infrastructure, its outwardly oriented trade policies, and its well-developed human resource base, have attracted a large share of incremental private capital flows to developing countries. But such flows are volatile and sensitive to macroeconomic conditions and the regulatory environment in host countries. Were these conditions to change in East Asia and inhibit foreign direct investment and private portfolio flows, the region's rapid transformation into a competitive producer of manufactures would be affected adversely.

This paper — prepared by the Office of the Regional Vice President, East Asia and Pacific Region — was written as a background study for the East Asia and the Pacific Regional Development Review. It reflects the Bank's recent emphasis on analyzing the effect of the external economic environment on developing country prospects and policies. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Moira Coleridge-Taylor, room S8-049, extension 33704 (21 pages).

The International Ocean sport Industry in Crisis: ssing the Reasons Outlook

Jürgen Peters
1993)

orld's ocean transport industry faces precedented crisis. Fundamental es in the seatrade markets and con- ble discrepancies between tonnage y and the demand for transport are y reasons. The international fleet has e critically overaged and suffers deteriorating safety record. Serious ching and sharp long-term planning eded but — hampered by reduced t earnings, rising insurance costs, shortage of investment capital.

1980, the world merchant fleet ex- d rapidly in response to thriving de markets. Since then, it has not much. The industry did not adjust vely to periodic global recession, and et's earnings deteriorated as the gap ed between the supply of tonnage e demand for transport.

unpredictability of seatrade mar- nd the changing structure of de- for ocean transport complicated wners' efforts to retrench and draw ensive strategies. Advances in ship and ocean transport technologies d shipowners to adjust to the r need for specialized vessels, but to retain their assets and their adop- as expensive.

t shipowners added only a few new s after 1980, often supported by nment subsidies. Government regu- s created serious distortions in ocean port and impeded free market ad- ents.

most serious issues the industry are a critically overaged fleet and ge of capital. Because of reduced t earnings, maintenance has been ted, leading to frequent structural e. Ship casualties—often with seri- environmental damage — have d alarming levels. The deteriorat- fety record has caused insurance o escalate and has provoked calls for r liability rules, stringent technical ards, and rigorous inspection. En- ent would make ocean transport expensive.

meet expected demand for ocean port safely and efficiently, a great deal of overaged tonnage must be replaced, maintenance must be improved, and new tonnage has to be added. The estimated cost: almost US$400 billion in constant 1992 prices.

But traditional financing, through mortgage lending and government subsidy, is becoming scarce. Leasing or cashflow-based lending are promising alternatives, but they require predictable revenue streams based on long-term freight contracts predicated on cargo-owners' cooperation, which remains doubtful.

No effective arrangements have been made to meet the industry's capital requirements, and doubts are more numerous than assurances in the industry.

The crisis that has developed is unprecedented.

This paper—a product of the Transport Division, Transportation, Water, and Urban Development Department — was prepared in the course of the department's efforts to monitor developments in international freight markets and the transport industries that serve them, as a basis for advising the Bank groups' operational units about policy implications. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Joanne Lucas-Walker, room S10-022, extension 31078 (49 pages).

1129. How Policy Changes Affected Cocoa Sectors In Sub-Saharan African Countries

Jonathan R. Coleman, Takamasa Akiyama, and Panos N. Varangis
(April 1993)

Ghana's structural adjustment program was very beneficial to its cocoa sector. Although world cocoa prices fell as a result of Ghana's expansion, the decline was much less than that from production expansions by other major producers.

Structural adjustment programs in Sub-Saharan African countries in the 1980s removed trade restrictions, price controls, and export taxes and abolished state-owned commodity marketing bodies. Coleman, Akiyama, and Varangis studied the effects of these policy changes on the cocoa sector, using a global econometric model specifying major producer countries through the vintage-capital approach. They focused on Ghana and Nigeria (major cocoa producers that undertook structural adjustment programs), as well as on Côte d'Ivoire and Cameroon.

The impact on world cocoa prices of structural adjustment programs in Ghana and Nigeria was relatively small. The results imply that, without structural adjustment programs in Ghana and Nigeria, world cocoa prices in the late 1980s would have been about US$1,060/ton (in 1985 constant dollars), instead of US$850/ton. So, without the structural adjustment programs, 1989-90 world prices in real terms would have been about 45 percent lower than they were in the early 1980s, compared with an actual decline of 55 percent.

Much more important in depressing prices in this period was the rapid increase in production in Brazil, Côte d'Ivoire, Indonesia, and Malaysia (which together accounted for about 75 percent of the increased production in that decade). That increased production resulted largely from tree planting in response to higher world cocoa prices in the late 1970s—and subsequent increases in productivity.

The results of counterfactual simulations suggest that cocoa production in Ghana would have been at almost half its 1989-90 level if Ghana had not implemented its structural adjustment program. The producers' surplus would have been lower without the program, and the government's budget deficit would have been unsustainable.

The effects of the structural adjustment program in Nigeria are mixed. The simulation results show lower cocoa production but higher government revenue without the reforms. But the program was evaluated only three years after the reforms, so the full effects on production had not been realized.

The structural adjustment programs in Ghana and Nigeria had a negative effect on other cocoa-producing countries in Sub-Saharan Africa and the rest of the world —producing an estimated loss (in government revenue from cocoa exports and producer surplus) of about 15 percent in other Sub-Saharan African countries.

Results show that both Côte d'Ivoire and Cameroon would have been better off had they set export taxes at a higher level (closer to an estimated "optimal" level) at the same time that they depreciated the real exchange rate. Producer prices could have been sustained at their earlier higher level, or even raised, without hurting government revenues.

Structural adjustment programs in Ghana and Nigeria had a negative effect on producers in other countries, but not adopting such policies would have been economically irrational, contend Coleman, Akiyama, and Varangis.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to evaluate the impact of policy changes in primary commodity producing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Grace Ilogon, room S7-033, extension 33732 (71 pages).

1130. Poverty and Policy

Michael Lipton and Martin Ravallion
(April 1993)

Healthy economic growth is crucial to the well-being of poor people, who derive income mainly from their labor. Alleviating poverty should begin with reducing biases against the rural sector and the urban informal sector — not reversing the bias, but aiming for neutrality. Public action should foster the conditions for pro-poor growth, and should provide a safety net for those who cannot benefit from such growth or who do so only with exposure to unacceptable risks.

In this analysis of public policy to reduce poverty, Lipton and Ravallion point out, among other things, that typically the highest incidence and severity of poverty are still found in rural areas, especially if ill-watered. For many of the rural poor, the only immediate route out of poverty is by migration to towns, to face a higher expected income, although often a more uncertain one. This may or may not reduce aggregate poverty. We can be more confident, they say, that growth in agricultural output — fueled by investment in human and physical infrastructure — is pro-poor, though not because the poor own much land.

The policies pursued by most developing countries up to the mid-1980s — and by many still — have been biased against the rural sector in various ways. The same is true — although different policies are involved — of the other major sectoral concentration of poor, namely, the urban informal sector. There are clear prospects for reducing poverty by removing these biases. Looking ahead (far ahead, in some cases), it is less clear how much further gain to the poor can be expected from introducing a bias in the opposite direction. Neutrality should be the aim.

We need good data and measurement to identify which public actions are effective in fighting poverty. There have been a number of advances in household data and analytic capabilities for poverty analysis over the last ten years. We are in a better position than ever to devise well-informed policies.

Lipton and Ravallion identify two important roles for public action. One is to foster the conditions for pro-poor growth, particularly by providing wide access to the necessary physical and human assets, including public infrastructure. The other is to help those who cannot participate fully in the benefits of such growth, or who do so with continued exposure to unacceptable risks.

Here there is an important role for aiming interventions by various means to improve the distribution of the benefits of public spending on social services and safety nets in developing countries. Those means range from the selection of key categories of public spending (such as primary education and basic health care) to more finely targeted transfers (including nutrition and health interventions) based on poverty indicators, or on some self-targeting mechanism. Though disappointing outcomes abound, many countries have demonstrated what is possible with timely and well-conceived interventions.

This paper — a product of the Poverty and Human Resources Division, Policy Research Department — is part of a larger effort in the department to review and disseminate research findings on poverty in developing countries, and the implications for policy. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room S13-064, extension 33902 (120 pages).

1131. Prices and Protocols In Public Health Care

Jeffrey S. Hammer
(April 1993)

An attempt to derive price and rationing rules for public health facilities.

Hammer tries to derive price and rationing rules for public health facilities. He highlights the effect on these rules of different assumptions about the objectives of government (health versus welfare), the limits of available policy instruments, and the market environment in which the public system operates.

One recurrent finding: Policy reform must be assessed in relation to the changes it induces relative to the status quo before reform. This point may seem obvious, but it represents a distinct gap in the literature on resource allocation in health.

To assess changes, the behavior of the private sector must be known in the type of care given in a system and on how this care will change in response to the policy. Substituting for a reasonably well-functioning private sector is not as valuable as providing services that the private sector cannot be expected to sustain.

Research is needed to characterize market equilibrium for medical care and its response to policy measures. Hammer could not examine many issues — most important, those related to uncertainty and insurance. But if the research he calls for in this paper is pursued, those issues must figure prominently as major determinants in the demand for care. This need was originally identified by Arrow, and there is still a long way to go.

Hammer's analysis is not done in terms of "preventive" or "curative" care, and he argues for assessing interventions on the basis of changes in the stated objectives of a public system. But there could well be a connection with the preventive-curative dichotomy if there were reason to believe that preventive care will systematically lose out to curative care in a market setting. On the basis of people's generally acknowledged undervaluation of preventive services, this may well be the case.

Other prevention activities also have many "public good" features, with few private alternatives, and will look good when improvements over status quo are examined for all interventions. But all activities must be evaluated in their improvement over market provision. It is not necessary to prejudge the case for certain types of intervention.

This paper — a product of the Population, Health, and Nutrition Department — is part of a larger effort in the department to apply principles of public economics to the health sector. The study was funded by the Bank's Research Support Budget under research project "Determi-

's of Nutritional and Health Outcomes ıdonesia and Implication for Health y Reform" (RPO 676-27). Copies of the r are available free from the World t, 1818 H Street NW, Washington, DC 3. Please contact Jae Shin Yang, room 031, extension 81418 (35 pages).

2. An Analysis of Repressed ıtion in Three Transitional nomies

ew Feltenstein and Jiming Ha 1 1993)

ssessment of the extent of repressed tion in Czechoslovakia, Poland, and ania between 1980 and 1990.

ntrally planned economies, domestic s do not respond flexibly to market s, so economic disequilibria—includ- repressed inflation — persist. ɜrstein and Ha assess the extent of essed inflation in Czechoslovakia, nd, and Romania between 1980 and).

First, they develop a simultaneous ıtion model, which stipulates that the essed inflation is caused by the differ- in growth rate between households' ey holdings and retail sales in the omy. Following are the model's basic mptions:

- A stable demand for money function s where the demand for real quasi- ey depends on the level of real income the expected rate of inflation.
- Inflationary expectations are formed r an adaptive scheme in which ex- ed inflation for the next period de- ls on the error made in predicting the ent period's "true" inflation.
- The real stock of quasi-money bal- s adjusts to the desired level, after a lag.

ltenstein and Ha then derive a re- d-form equation on real quasi-money ings, and estimate it with quarterly for Czechoslovakia and Poland, and annual data for Romania. Based on estimated equation, they derive the inflation rate for each economy. Fi- , they determine the significance of epressed inflation in each economy ugh statistical tests on parameters of estimated equation.

ese are their main findings:

During 1980-90 in Czechoslovakia, essed inflation was insignificant, the demand for money was mostly for transaction purposes, and inflationary expectations were almost myopic.

- In Poland, repressed inflation was significant but decreasing after 1987, and inflationary expectations adjusted fairly rapidly.
- In Romania, repressed inflation was serious throughout the period, and inflationary expectations adjusted quite rapidly.

This economic model needs to be refined and the data used need to be improved. But the paper's findings are broadly consistent with the results of most other studies.

This paper — a product of the Socio-Economic Data Division, International Economics Department — is part of a study funded by the Bank's Research Support Budget under research project "Accounting for Economies in Transition" (RPO 676-18). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Estela Zamora, room S7-136, extension 33706, (32 pages).

1133. Macroeconomic Framework for an Oil-Based Economy: The Case of Bahrain

Ibrahim A. Elbadawi and Nader Majd (April 1993)

Alternatives available to an oil-dependent economy with excessive producer and consumer subsidies and possibly misaligned currency.

Bahrain's economy is characterized by producer and consumer subsidies and, possibly misaligned currency. These subsidies have resulted in lower savings rates than would be consistent with the country's endowment in oil and gas. In addition, the misaligned real exchange rate has encouraged imports, at the same time creating incentives biased against the non-oil tradable sectors. So, Bahrain's economy remains largely dependent on a rapidly depleting hydrocarbon resource base.

Elbadawi and Majd espouse a macroeconomic consistency framework to focus on the behavior of Bahrain's economy along two paths.

Path one is based on the assumption that the government's present macroeconomic policy will continue. In that case, the solution exhibits bubbles—fiscal and current account imbalances that would be unsustainable over time. Meanwhile, real appreciation of the dinar would suppress non-oil exports. As a result, the need for foreign borrowing would be more pressing. In an attempt to restore the equilibrium, the government would need to contain aggregate demand by compressing imports and investment, thereby worsening the economic situation.

Path two is based on a reform strategy that includes policies to raise the domestic savings rate, improve the fiscal situation (by rationalizing expenditures and introducing income taxes and cost recovery measures), and correct the misaligned exchange rate.

The results show that the expenditure-switching effect of the exchange rate alignment would shift resources in favor of the tradable sectors. Non-oil GDP and exports would register high growth rates while economic diversification, in the context of a growing and more dynamic economy, would foster investment efficiency. This would help Bahrainis maintain a high standard of living as the oil income dries up, without too much loss of consumption for the present generation.

This paper — a joint product of the Transition and Macro-Adjustment Division, Policy Research Department, and the International Trade Division, International Economics Department—was prepared as background material for Bahrain's Country Economic Memorandum. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-025, extension 31450 or Maria Teresa Sanchez, room S7-022, extension 33731 (56 pages).

1134. Managing a Nonrenewable Resource: Savings and Exchange-Rate Policies in Bahrain

Ibrahim A. Elbadawi and Nader Majd (April 1993)

This model predicts that a real depreciation of about 31 percent will be needed between 1992 and 2005 to avert serious real overvaluation of the exchange rate.

Bahrain's oil-producing economy is vulnerable to terms-of-trade shocks for oil in the short to medium run. But the country's dependence on nonrenewable hydrocar-

bon resources represents a more basic constraint on Bahrain's prospects for long-term economic growth and welfare. To maintain economic growth and welfare in the post-oil era, Bahrain must save more of its oil revenues and assets and use them to invest abroad and to support economic diversification.

Elbadawi and Majd derive optimum domestic savings rates for Bahrain in the context of a two-assets (oil and non-oil) intertemporal welfare-maximizing model. Based on these derived rates, they recommend that the current suboptimal savings ratios be raised by about 10 percent of GDP.

Achieving such a high savings rate is probably not economically feasible or politically sustainable in a stagnant economy, because it implies significantly reducing absolute levels of real consumption. Such austerity would not be necessary in a growing, efficiently restructured, and diversified economy, in which the real exchange rate policy played a key role by stimulating non-oil tradable sectors that could replace oil when it dries out. But the success of real exchange rate depreciation itself depends on a sufficiently high savings rate, to free up resources to switch to the production of other tradables.

Elbadawi and Majd present an empirical three-sector model of the real exchange rate, which permits links between the equilibrium real exchange rate and the optimum savings rate. They use this model to compute what real depreciation is required consistent with the derived optimum savings ratios.

Their model predicts that a real depreciation of about 31 percent would be needed between 1992 and 2005 to avert serious real overvaluation over this period.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department, and the International Trade Division, International Economics Department — was prepared as background material for Bahrain's Country Economic Memorandum. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Anna Maranon, room N11-025, extension 31450, or Maria Teresa Sanchez, room S7-022, extension 33731 (47 pages).

1135. Inflation in Czechoslovakia, 1985-91

Zdenek Drabek, Kamil Janacek, and Zdenek Tuma
(April 1993)

Hidden and suppressed inflation in Czechoslovakia in 1985-91 — reflected in long waiting lists for cars and state and cooperative flats — was relatively slight for the economy as a whole, and it virtually disappeared when prices rose after prices liberalized in 1990-91.

Drabek, Janacek, and Tuma assess inflation in Czechoslovakia between 1985 and 1991 and identify the main causes of inflation through a literature survey and empirical studies.

The official prices in centrally planned economies were never perceived by central planners to be fully market clearing. Only by coincidence would the overall price level correspond to the level associated with general equilibrium.

What is missing in official price indices in centrally planned economies — including the consumer price index — is "suppressed" inflation, manifest in queuing for products, forced substitution of demand, and forced savings. Also missing is "hidden" inflation, associated with practices that disguise price increases behind "cosmetic" or other changes in product quality.

Drabek, Janacek, and Tuma argue that inflationary pressures in Czechoslovakia in 1985-89 originated mainly in the investment sector. Even though the investment sector was strictly controlled, making it difficult for open inflation to emerge, the scope for inflationary pressures was great in Czechoslovakia. Such pressures arose from a mixture of factors, including poor investment planning, accommodating government finance, and the high priority given to investments and social consumption.

For Czechoslovakia, the official price indices show virtually no inflation between 1985 and 1989, when there were long waiting lists for such products as cars and state and cooperative flats. Trends in these price indices do not seem to depend on the method used for constructing them, according to the sensitivity tests conducted by Czechoslovakia's Federal Statistical Office. Obviously, the official price indices failed to capture the full extent of economic disequilibrium in that period.

But the extent to which official price indices understated inflationary pressures was not serious in Czechoslovakia, compared with other centrally planned economies. Estimates of hidden inflation for 1985-89 range from 0.5 percent to 2 percent a year in consumer markets and about 3 percent in the industrial sector. Estimates for suppressed inflation were less than 5 percent. The relatively small inflationary gap is indirectly confirmed by the sharp inflation associated with the recent price liberalization that subsided in a relatively short period, and both suppressed and hidden inflations have virtually disappeared.

Estimates of hidden inflation were based on benchmark price comparisons between Czechoslovakia and such market economies as Austria. Those for suppressed inflation were based on disequilibrium econometric models of asset holdings and on "conjecture tests."

This paper is a product of the Socio-Economic Data Division, International Economics Department. The study was funded by the Bank's Research Support Budget under research project "Accounting for Economies in Transition" (RPO 676-18). Please contact Estela Zamora, room S7-136, extension 33706 (33 pages).

1136. The Dynamic Behavior of Quota License Prices: Theory and Evidence from the Hong Kong Apparel Quotas

Kala Krishna and Ling Hui Tan
(May 1993)

Welfare evaluations and reform recommendations in many studies may need to be reworked, to account for the possibility that the quota license market — usually assumed to be perfectly competitive for Hong Kong — is not perfectly competitive.

Empirical studies of the welfare consequences of quotas often assume perfect competition everywhere. If this assumption is not valid, welfare estimates and policy recommendations may err dramatically. The popular press often argues that market power is being exercised in markets constrained by import quotas.

Krishna and Tan develop a framework for testing the hypothesis of perfect competition in the market for apparel quota licenses. Drawing on simple models, they predict the behavior of license prices, tak-

o account four influences on prices: y value, option value, renewal and asset value. They explore the of imperfections in the license mar- license price paths.

ey test allegations that there is price in the market for Multi-Fibre Ar- ment (MFA) apparel quota licenses ng Kong. (Hong Kong often serves enchmark case for the welfare con- nces of the MFA.) They use monthly n license prices and use rates to test presence of imperfect competition. rgue that a concentration of license g could affect both the supply side e demand side, by affecting the costs rch.

ese results accord well with their tical discussion, in which they point at license use and price paths with fect competition in the license mar- ay be quite different from the corre- ing paths in the case of perfect com- n — even though the total use of es is the same.

y estimate the structural demand pply equations of the model, which e further evidence of imperfect com- n in the license market. In particu- e intra-year path of quota license and of quota use are found to be d by concentration in license hold-

results, in short, suggest that mar- wer exists in Hong Kong's quota li- market. Hong Kong is often consid- he prime example of perfect compe- so this has major implications for developing countries.

s paper — a product of the Interna- Trade Division, International Eco- s Department — is part of a larger in the department to assess the n imposed on developing country ters by trade barriers. Copies of the are available free from the World 1818 H Street NW, Washington, DC . Please contact Dawn Gustafson, S7-044, extension 33714 (52 pages).

Railway Reform e Central and Eastern pean Economies

W. Blackshaw and Louis S. Thompson 993)

egy paper for restructuring railways t the changing needs of the Central astern European countries.

In May 1992, the World Bank hosted a Railway Roundtable in Vienna, Austria, attended by transport ministers, advisors, and senior railway staff from the Central and Eastern European (CEE) countries. The Roundtable reviewed recent trends in the railways' roles in these countries and identified appropriate actions to address emerging transport issues in the CEE region. The Bank prepared this strategy paper based on the discussions and the apparent widespread consensus that emerged at the Roundtable.

The financial situation of the CEE railways is beginning to deteriorate rapidly, and the CEE railways are not well positioned to provide good, reliable service to their increasingly market-driven customers. These countries are thus under increasing pressure to restructure their railways to relieve financial pressures and meet future needs.

Railways in market economies have faced a steadily declining role in the transport market, and have typically dealt with emerging problems by "tinkering at the margin" — for example, by debt write-offs — and thus delaying attacking their underlying structural problems. Many of these governments have come to the conclusion that "drastic surgery" is required — as illustrated by the British, German, and Japanese railways.

The agenda for change that emerged from this Roundtable emphasized developing a strategic plan for restructuring the railway. This plan should define the market; project the level of activity (tons, ton-kilometers and freight tariffs, passenger-kilometers and passenger fares) for all business activities; include a five-year financial plan for the different lines of railway business (to make options concrete); and define all government policies and changes that would put the railway on a level playing field with competing modes of transportation.

Two items on the agenda for change (among many others) are to:

- Convert the current railway "enterprise" or ministry into a joint stock company (JSC) or, at least, an independent enterprise operating under normal commercial law. The board of directors should include representatives from government, the railway executive *and* high-level business or public representatives from outside of government. Formation of a JSC or independent enterprise does not necessarily imply privatization of the railway because the underlying assets may well remain in public hands. The objective is to change the enterprises' authority and enhance their commercial orientation.
- Have the explicit mission of the railway be to operate freight and intercity passenger services on a commercial basis, with revenues from services covering all costs, including a return on investment. "Social" services, such as urban passengers, should be identified and supported by the appropriate govern- mental agencies.

This paper — a joint product of the Transport Division, Transport, Water, and Urban Development Department and the Technical Department, Europe and Central Asia Regional Office — is part of a larger effort in the Bank to clarify and refine the Bank's approach to institutional reform. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact TWUTD, room S10-029, extension 31005 (18 pages).

1138. The Economic Impact of Military Expenditures

Daniel Landau
(May 1993)

Levels of military spending in developing countries have been falling and are relatively low in areas with economic problems. Generally, military spending (typically about 4 percent of GDP) is not associated with lower rates of economic growth, of capital formation, or of government spending on health, education, and infrastructure, or with higher rates of inflation.

Landau addresses three questions about military spending in developing countries:

- What are levels of (and trends in) military spending as a percentage of gross national product?
- What impact does peacetime military spending have on growth, government spending on social welfare and infrastructure, and other key economic variables?
- What major factors influence the level of military spending?

Landau finds that military spending as a share of GNP generally fell in the 1980s, even in the Middle East and North Africa. The mean level of military expenditure as a share of GNP (MES) was 3.9 percent, well below the peak of 5.3 percent in 1976. In 1989, MES averaged only 2.7 percent in Latin America and 2.0 percent in Sub-

Saharan Africa — the two regions with the most severe economic problems.

He finds no evidence of a negative relationship between military spending as a share of GNP and the peacetime growth rate of developing countries — except where military spending is high.

He finds that higher shares of MES are not associated with lower shares of government spending on education, health, and infrastructure. As MES increases, government spending as a share of GNP increases, which allows the level of spending on health, education, and infrastructure to be maintained.

He finds some evidence that increased military spending in the developing countries has a weak negative impact on investment and the balance of trade. He finds no evidence of a statistically significant relationship between military spending and inflation.

The most important determinant of peacetime military spending is the spending level of neighboring countries — in other words, the potential external threat. Regional conciliation and disarmament may be an important step toward reduced military spending.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to study public expenditure issues in developing countries. This study was funded by the Bank's Research Support Budget under research project "The Economic Impact of Military Expenditures" (RPO 676-85). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (45 pages).

1139. Should Sub-Saharan Africa Expand Cotton Exports?

Jonathan R. Coleman and M. Elton Thigpen
(May 1993)

Sub-Saharan Africa's recent rapid expansion of cotton exports has not caused an "adding-up" problem. And further expansion of Sub-Saharan Africa's cotton exports is unlikely to have a significant impact on the world cotton market.

In the 1980s, cotton production in Sub-Saharan Africa expanded significantly. Annual production growth averaged 4.7 percent between 1980 and 1990, compared with only 1.2 percent for 1964-79. At the same time, cotton exports grew an average 8 percent a year, compared with almost no growth between 1964 and 1979.

Concern has been expressed, at the World Bank and elsewhere, about the "adding-up problem" of expanding exports for commodities that are highly price-inelastic. The concern has been that export expansion — as a result of project loans or structural adjustment programs — could lead to a fall in world prices and an overall reduction in export revenues.

Coleman and Thigpen assess whether expansion of cotton exports in Sub-Saharan African countries has produced an adding-up problem. They test the hypothesis that export expansion has led, or will lead, to a decline in the terms of trade, which would offset any benefits from export expansion.

Their results reject this hypothesis. Using comparative static analysis — comparing Sub-Saharan Africa's export share with estimated world demand elasticities — they show that Sub-Saharan Africa's 14 percent share of world exports is too small relative to the estimated price elasticity of demand (ranging from -0.2 to -0.3) to produce an adding-up problem.

Using an econometric model of the world fibers market, Coleman and Thigpen show that maintaining the high 1980s growth rate of cotton exports in the 1990s would increase Sub-Saharan African export revenues more than 50 percent by the end of the decade, compared with base-case projections. And, except when the price elasticity of world cotton demand is lowered substantially below its estimated value, estimates of the elasticity of export revenue relative to export volume were close enough to unity for Coleman and Thigpen to conclude that an adding-up problem does not exist for expanded cotton exports in Sub-Saharan Africa.

Their analysis also shows that the structural adjustment programs implemented in the 1980s are unlikely to have had a significant adverse impact on the world cotton market. A 20 percent real devaluation for all of Sub-Saharan Africa, for example, leads to an average 0.4 percent decline in the world price of cotton, while a 20 percent increase in producer cotton prices in all Sub-Saharan African countries leads to a 0.8 percent decline in the world price.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to evaluate the impact on world markets of policy char in primary commodity-producing coun tries. Copies of the paper are available from the World Bank, 1818 H Street NW Washington, DC 20433. Please con Grace Ilogon, room S7-033, exten 33732 (40 pages).

1140. How Retail Food Markets Responded to Price Liberalization in Russia after January 1992

Bruce Gardner and Karen M. Brooks
(May 1993)

Progress was made toward market integration in the seven months after price liberalization. Further development of markets will require deeper price liberalization, removal of local controls, continued enterprise reform, privatizat demonopolization, and entry of new fir

Under administered prices through the of 1991, Russia's food distribution sys broke down, and it was feared that the supply would be inadequate in the wi of 1992 and thereafter. In January March 1992, price ceilings were remo on most items sold in state-owned Rus stores. Price liberalization was intende return food to shelves and to improve flow of food among regions through sponses to price differentials. Privatiza of the distribution system did not b until October 1992. At the time of price eralization the environment was still d nated by unrestructured state enterpri

Retail prices immediately rose sha and fluctuated. Because food prices did stabilize after the initial jump, m people questioned whether price libe ization accomplished anything posit Gardner and Brooks examine data movements in food prices and volu between December 1991 and August 1 to examine how retail food markets sponded to liberalization. They add the following questions:

Is there any evidence that after libe ization food returned to retail outlets t were essentially bare in December 1 Is there evidence that transactions t place in response to price differentials markets begin to emerge despite the of privatization and demonopolizati Did city-to-city price differentials ev to reflect a price surface explainabl transportation costs and other econo variables? If not, why not?

Gardner and Brooks conclude that progress was made toward market integration in the seven months after price liberalization. The volume of food sold in monitored shops increased substantially. The geographic dispersion of prices declined over time. But large price differences between cities persisted that cannot be explained in terms of available economic variables.

Large economic gains could be achieved by further market integration.

This paper — a product of the Agricultural Policies Division, Agriculture and Rural Development Department — is part of a larger effort in the department to analyze changes in agriculture in economies. This research was supported by a grant to the University of Minnesota from the National Council on Soviet and Eastern European Research, and by the World Bank. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cicely Spooner, room N8-039, extension 32116 (66 pages).

1141. Foreign Direct Investment in a Macroeconomic Framework: Finance, Efficiency, Incentives, and Distortions

Maxwell J. Fry
(May 1993)

Does foreign direct investment affect national saving both directly and indirectly through the rate of economic growth? It depends on which countries you're talking about. Pacific Basin countries appear to differ markedly from some other developing countries.

Does foreign direct investment (FDI) increase domestic investment, or does it provide additional foreign exchange for a pre-existing current account deficit, or some linear combination of the two? Fry investigates this question for a group of five Pacific Basin countries and a control group of 11 other developing countries.

For the sample of all 16 developing countries, Fry finds that FDI does not provide additional balance of payments financing for a pre-existing current account deficit. In the control group of 11 developing countries, FDI is associated with reduced domestic investment — implying that FDI to those countries is simply a close substitute for other capital inflows. For the five Pacific Basin market economies, however, FDI raises domestic investment by the full extent of the FDI inflow.

Fry finds that FDI has a significantly negative impact on national saving in the sample of all 16 developing countries. For the control group, this negative effect is similar in magnitude to FDI's negative effect on domestic investment — implying a zero effect on the current account. But FDI's negative effect on national saving in the five Pacific Basin developing market economies implies that FDI could have more of a negative effect on the current account than through increased domestic investment alone.

Fry also investigates the impact of FDI on economic growth in these 16 countries, taking into account distortions in the economies. He estimates reduced-form current account equations, and presents an analytical framework for estimating FDI's effect on economic growth in the presence of incentive-disincentive packages and other economic distortions.

He illustrates his framework using indicators of foreign trade and financial distortions. His main conclusion: the effect of FDI differs markedly from one group of countries to another.

FDI has a negative effect on economic growth in the control group. It has the same positive effect on growth as domestically financed investment does in the Pacific Basin countries. The main cause for the different effect is the low level of distortion in the Pacific Basin countries.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the benefits of foreign direct investment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (May 1993, 30 pages).

1142. Rent-Seeking Trade Policy: A Time-Series Approach

Martin Rama
(May 1993)

Foreign-trade barriers that benefit a single firm or industry are more likely to increase with discretionary trade policies and under dictatorships. And although these barriers may produce short-run benefits, in the long run they have a negative effect on the growth rates of output and exports.

Using a time-series approach, Rama analyzes the relationship between the extent of rent-seeking trade policy and both political and economic variables. For rent-seeking trade policy, the indicator he uses is the number of foreign-trade regulations passed each year for the benefit of a single firm or industry.

Rama uses data from Uruguay for 1925-83. Uruguay, which experienced an impressive economic decline, is an outstanding example of a rent-seeking society. After being a wealthy economy in midcentury, it suffered almost complete stagnation, which led to social and political disintegration by the end of the 1960s. Three decades of restrictive regulations on foreign trade had created a nearly closed economy by the end of the 1960s. It was worth analyzing whether policymakers' great receptiveness to demands for protection could account for Uruguay's decline.

Over the period 1925-83, Rama finds almost 4,000 laws, decrees, and administrative resolutions that create, maintain, or modify a foreign-trade regulation for the benefit of a single firm or industry. About half of them explicitly identify the petitioner — usually a firm or guild. Since the size of the Uruguayan economy changed over the period studied, Rama scales the annual number of regulations by output or exports to measure the extent of rent-seeking trade policy.

Rama shows that the extent of rent-seeking trade policy increased with discretionary policies and under dictatorship. (In the period studied, there were two stages of democracy — until 1932 and from 1943-72 — and two stages of dictatorship.) He also shows that rent-seeking trade restrictions increased under import-substitution strategies and, more unexpectedly, under active export promotion. This suggests that discretionary power leads to wasteful distribution, whether it is used to support inward- or outward-oriented policies.

Finally, Rama analyzes the correlation between innovations in the trade policy indicator and innovations in the growth rates of output and exports, with a lag of up to 20 years. Surprisingly, he finds a positive correlation with output growth rates after two or three years. But the correlation becomes negative some years later, particularly in the case of exports. The short-run positive impact on growth

rates, together with the surprisingly long time lag before the negative impact, may account for policymakers' receptiveness to demands for protection.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to understand the political economy of protection. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (17 pages).

1143. Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts

Lant Pritchett and Geeta Sethi
(May 1993)

Tariff rates on specific products and the ratio of tariff revenue to import value are only tenuously related. Above a 50 percent rate, collected rates do not increase at all despite increases in official rates.

The ad valorem tariff rates on specific products and the ratio of tariff revenue to import value, the collected rate, are only tenuously related, contend Pritchett and Sethi.

Using tariff and revenue data (at the tariff code line level of detail) for three developing countries, Pritchett and Sethi compare the statutory ad valorem tariff rates (official rates) with the ratio of tariff revenues to import values (collected rates). They document four facts:

- The collected rate for any given item of the tariff code has almost no relationship to the official rate for that item.
- The variation of collected rates around the official rate increases as the level of the official rate increases.
- The collected rates increase much less, on average, than one-for-one with the official rates.
- Above a certain level, collected rates do not increase at all despite increases in official rates. Collection rates appear to level off at roughly 50 percent. (In Kenya, collected rates are lower for high-tariff than for moderate-tariff items. Assigning lower rates for high-tariff items would actually increase revenue on those items.)

The implications of these findings are twofold for calculating general revenue:

- Rates are not the critical determinant of revenues. The revenue implications of large rate changes can be offset by modest changes in the system of exemptions, for example. The benefit of eliminating exemptions is primarily transparency. The costs of programs that provide import exemptions for, say, regional promotion, are often hidden in customs statistics.
- If pressures that cause collected rates not to increase one-for-one with tariff rates will continue to be present in any tariff regime, then these must be factored into tariff reform design.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to assist in the design of tariff reforms. The study was funded by the Bank's Research Support Budget under research project "Design of Tariff Reform: Theory, Evidence, and Implication" (RPO 676-77). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maria Fernandez, room S9-035, extension 33766 (23 pages).

1144. The Foreign Trade Dimension of the Market Transition in Poland: The Surprising Export Performance and Its Sustainability

Bartlomiej Kaminski
(June 1993)

Contrary to expectations, the driving force behind the export upswing were manufactures — not raw materials, mineral fuels, or agricultural products.

To the extent that foreign trade has been discussed in the debate about the transformation of former centrally planned economies, discussion has focused on what should be done to minimize the costs of external adjustment through managed foreign trade and exchange rate policies. Little attention has been paid to the "supply-side" forces behind export expansion.

Kaminski addresses questions that have been ignored: What product categories were the driving force behind the expansion of exports to the OECD? To what extent were exports from the CMEA reoriented to the West? What was the factor content of exports to the OECD? Was export expansion accompanied by a shift in relative comparative advantage? Will the Central European economies preserve their recent gains in OECD markets?

He finds that developments from the beginning of the transformation program represent a dramatic acceleration of the trends in exports observed between 1984 and 1989. Contrary to expectations, the driving force behind the export upswing were manufactures — not raw materials, mineral fuels, or agricultural products. Exports expanded because of the efforts of state-owned enterprises to export more in metallurgy, electro-engineering, and chemical and light industries.

Evidence on the relationship between Poland's export performance in the West (especially trade with the European Community) and the collapse of the CMEA seems to suggest that the fall in Polish exports to the CMEA was smaller than expected. The redirection of Polish exports from the CMEA fueled only limited export expansion to the West.

The developments in Polish trade during the first two years of the transformation program suggest that attempts to recreate the CMEA arrangements in some new guise would have unnecessarily weakened incentives to restructure the economy with its comparative advantage.

This paper — a product of the International Trade Division, International Economics Department — is a revised version of a paper presented at the conference "Transition to Democracy in Poland," organized by the Hoover Institution on War, Revolution, and Peace, Stanford University, California, in November 1992. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room S7-040, extension 33716 (27 pages).

1145. The Simple(r) Algebra of Pension Plans

Dimitri Vittas
(June 1993)

Unless the real rate of interest exceeds the growth rate of real wages by a significant margin, payment of a reasonable pension rate requires a high contribution rate or a high active worklife ratio.

Chile's success with pension reform in the early 1980s and the continuing financial pressures facing the social security systems of many developing (and some industrial) countries have elicited considerable interest in the mechanics of pension systems that are based on fully funded individual capitalization accounts.

Vittas sets out the simple(r) algebra of both defined contribution and defined benefit plans. He notes the following results:

- Unless the real rate of interest exceeds the growth rate of real wages by a significant margin, payment of a reasonable pension rate requires a high contribution rate or a high active worklife ratio (the ratio of working life to retirement life).
- It is more difficult for a high-growth economy to provide a high pension rate, although the absolute level of the pension could be higher than the pension level in a low-growth economy with a high pension rate.
- When pensions are indexed to prices, the level of interest rates and growth rates affects positively the level of the pension rate. But when pensions are indexed to wages, only the difference between interest rates and growth rates has an effect on pension rates. In all cases, the active worklife ratio has a positive effect on the pension rate.
- The timing of contributions, and therefore the pattern of earnings over a person's full career, has a significant but not major effect on pension rates.
- Employer-based, final-salary, defined-benefit plans penalize early leavers and favor late high-fliers.
- Full funding with universal coverage and full lifetime careers would lead to a massive accumulation of capital, especially if the demographic structure resembles a pillar rather than the more traditional pyramid. This would have major plications for the productivity of capi- and the functioning of financial sys- ns.
- Full funding may not provide a solu- to the financial pressures caused by nographic changes. An increase in the irement age may be required under h funded and unfunded pension sys- ns to accommodate population aging. his will result in a higher active worklife io and a lower dependency ratio.
- A mixed system — combining a redis- utive first pillar and a fully funded ined-contribution second pillar — rep- ents a more prudent, perhaps more itable, approach to reforming pension tems.
- Variable contribution and pension es, within specified limits, might be ferable and more consistent with ater reliance on personal choice.

This paper — a product of the Financial tor Development Department — is t of a larger effort in the department to study pension systems and contractual savings. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room N9-003, extension 37664 (35 pages).

1146. Is Poverty Increasing in the Developing World?

Shaohua Chen, Gaurav Datt, and Martin Ravallion
(June 1993)

New data suggest that the aggregate number of poor is increasing at roughly the rate of population growth. Poverty measures are highest in either South Asia or Sub-Saharan Africa, depending on the poverty line used. The only regions with falling poverty measures are South and East Asia.

Chen, Datt, and Ravallion assess the developing world's progress in reducing absolute-consumption poverty during 1981-91, using new data on the distribution of household consumption or income per capita for 40 countries (at two points in time for 18 of the countries). They apply dominance tests to the distributions after adjusting to purchasing-power parity.

They find that the incidence of aggregate poverty changed little. The number of poor increased at the rate of population growth. The region with the greatest aggregate poverty is either South Asia or Sub-Saharan Africa, depending on the poverty line used.

The experience was diverse across regions and countries. The only regions with falling poverty measures are South and East Asia.

This paper — a product of the Poverty and Human Resources Division, Policy Research Department — is part of a larger effort in the department to monitor progress in reducing poverty in the developing world. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Patricia Cook, room S13-064, extension 33902 (41 pages).

1147. Interest Rates, Growth, and External Debt: The Macroeconomic Impact of Mexico's Brady Deal

Stijn Claessens, Daniel Oks, and Sweder van Wijnbergen
(June 1993)

The debt-relief package worked in Mexico because it reduced uncertainty, not because it reduced transfers.

Interest rates fell sharply after Mexico's Brady deal, and private investment and growth recovered.

Claessens, Oks, and van Wijnbergen show that the main benefit of debt relief was not to lower expected payments but to reduce uncertainty. Reduced uncertainty was found to be the dominant factor in explaining the positive macroeconomic response (largely because of its favorable effect on exchange rate crises).

Econometrically, they find that the *variability* of the future net transfer had a significant impact but the *average* of the future net transfer itself did not.

Their results confirm that debt reduction has a positive macroeconomic effect, but reject the "debt overhang" hypothesis (the benefits to growth of a reduced tax burden) as the dominant factor.

Their main conclusion: Debt reduction can have a much greater impact than the magnitude of relief, coupled with standard growth models, would suggest. The secondary effects on private investment of reduced uncertainty about government policy is likely to be more important than the direct amount of debt reduction itself.

But private investment is unlikely to increase if uncertainty remains about future domestic macroeconomic stability and reform. The debt package would not have succeeded if the government had not put through a successful domestic reform program *before* the debt relief package.

This paper — a joint product of the Debt and International Finance Division, International Economics Department, and the Country Operations Division 1, Country Department II, Latin America and the Caribbean — is part of a larger effort in the Bank to study the impact of debt reduction on developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (27 pages).

1148. Economic Instability and Aggregate Investment

Robert S. Pindyck and Andrés Solimano
(June 1993)

Using the irreversibility approach to investment, a robust, negative relationship between inflation and capital formation is found for high-inflation countries in Latin America and for low-inflation economies in the OECD.

Recent literature suggests that because investment expenditures are irreversible and can be delayed, they may be highly sensitive to uncertainty. Pindyck and Solimano briefly summarize the theory, stressing its empirical implications.

Then, using cross-section and time-series data for a set of developing and industrial countries, they explore the empirical relevance of irreversibility and uncertainty to aggregate investment. They find that:

- The volatility of the marginal profitability of capital — a summary measure of uncertainty — affects investment as the theory suggests, but the effect is moderate, and greatest for developing countries.
- This volatility has little correlation with indexes of political instability used in recent studies of growth.
- Inflation is *highly* correlated with this volatility and is a robust determinant of investment and the marginal profitability of capital. The volatility of the real exchange rate also has an independent contribution in explaining investment.
- The relationship between inflation and investment is nonlinear, and different thresholds of inflation, where the relationship with investment becomes stronger, were detected for a group of high-inflation countries in Latin America and low-inflation economies in the OECD.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — was prepared for the NBER Macroeconomics Conference, March 12, 1993. It will be published in the NBER Macro-Economic Annual in 1993. Research was supported by MIT's Center for Energy and Environmental Policy Research, the National Science Foundation, and the World Bank. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (53 pages).

1149. How Labor Markets and Imperfect Competition Affect Tariff Policy

Martin Rama
(June 1993)

Labor market institutions provide a rationale for the difference between the "corporatist" consensus on free trade and the "populist" resistance to trade liberalization.

Protection may be a second-best policy when the domestic sector is imperfectly competitive. But the optimal tariff depends on labor market institutions too.

Rama considers two theoretical settings. The first is fully centralized wage bargaining, where all workers are unionized and wage differentials are redistributed among workers (the "Scandinavia" case). The second is negotiation at the firm level, where workers are unionized in imperfectly competitive sectors only, and wages may differ from sector to sector (the "Latin America" case). He uses the case of the competitive labor market as a benchmark.

In Scandinavia, free trade maximizes welfare. The central trade union internalizes the consequences of imperfect competition in the domestic sector. Since prices in this sector are a mark-up over labor costs, there is a wedge between the sectoral productivities of labor and, therefore, an inefficient allocation of manpower. By choosing a "moderate" wage, the central trade union replicates the effects of a subsidy to the imperfectly competitive sector so that no government intervention is required.

In Latin America, decentralized wage bargaining increases the wedge between the sectoral productivities of labor. While wages in the export sector are constrained by harsh competition in world markets, trade unions in the domestic sector can get higher wages without completely squeezing labor demand. An import tariff improves manpower allocation by reorienting demand toward the domestic sector. Since the second-best tariff is strictly positive, opening the economy leads to a drop in welfare.

Rama's analysis sheds some light on the political economy of protection. Particularly, it suggests that trade liberalization is more likely to raise welfare in the Latin America case when it is accompanied by changes in labor market institutions.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to understand how labor market policies and institutions affect economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (22 pages).

1150. Wealthier Is Healthier

Lant Pritchett and Lawrence H. Summers
(June 1993)

In 1990 alone, more than half a million child deaths in the developing world could be attributed to poor economic performance in the 1980s. Wealthier nations are healthier nations.

With cross-country, time series data on health (infant and child mortality, and life expectancy) and per capita income, Pritchett and Summers estimate the effect of income on health.

They use instrumental variables estimation to identify the effect of income on health that is structural and causal, isolated from reverse causation (healthier workers are more productive and hence wealthier) or incidental association (some other factor may cause both better health and greater wealth).

The long-run income elasticity of infant and child mortality in developing countries lies between 0.2 and 0.4.

Using those estimates, they calculate that in 1990 alone, more than half a million child deaths in the developing world could be attributed to poor economic performance in the 1980s.

This paper — a product of the Office of the Vice President, Development Economics — is one in a series of background papers prepared for the *World Development Report 1993* on health. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact the *World Development Report* office, room T7-101, extension 31393 (41 pages).

1151. Is Growth Bad for the Environment? Pollution, Abatement, and Endogenous Growth

Charles van Marrewijk, Federick van der Ploeg, and Jos Verbeek
(July 1993)

In what circumstances, if any, do economic growth and environmental quality go hand in hand?

Van Marrewijk, van der Ploeg, and Verbeek investigate the implications of pollution as a byproduct of production and analyze how environmental concern affects the optimal rate of economic growth and optimal government policy.

The government must levy taxes on income to finance both productive government spending *and* abatement activities. Must levy an optimal tax. Too high a tax harms prospects for growth and too a tax rate is bad for the environment.

Van Marrewijk, van der Ploeg, and Verbeek distinguish between two approaches to incorporate the environment the model stock approach and the flow approach. The flow approach assumes t the level of environmental quality nges instantly if production or abatement levels change (this is relevant for lyzing externalities associated, for mple, with noise). The stock approach umes that pollution and abatement *irectly* influence the environment by cting the rate of change in the environment over time (this is more relevant for lyzing problems of acid rain).

They conclude that:

- "Win-win" situations (in which improvements in economic growth and environmental quality go hand in hand) can arise under the flow approach, but can e under the stock approach — if and if the intertemporal elasticity of substitution exceeds unity.
- Maximizing the economy's growth is never optimal unless consumers nothing about the environment.

This paper is a product of the Systems ision, International Economics Department. Copies of the paper are available free from the World Bank, 1818 H eet NW, Washington, DC 20433. ase contact Jos Verbeek, room S9-116, ension 33935 (44 pages).

1152. Population, Health, and Nutrition: Annual Operational Review for Fiscal 1992

Denise Vaillancourt, Stacye Brown, and Others
(July 1993)

Growth in the population, health, and nutrition sector has been significant in the past five years, stimulated by the World Bank's renewed commitment to reduce poverty and its rapidly growing emphasis on human resource development.

Population, health, and nutrition (PHN) lending decreased in fiscal 1992 from the record levels of fiscal 1991, in both the amount and the number of operations. Lending amounted to $961.6 million for 16 projects, compared with $1,567.6 million for 28 projects in fiscal 1991.

This temporary dip in PHN lending is attributable largely to pipeline factors. Fiscal 1993 lending is projected to recapture if not exceed the fiscal 1991 level, and projections for fiscal 1994 and fiscal 1995 are for a continued increase in lending volume.

PHN projects approved in fiscal 1992 have been responsive to the World Bank's objective of poverty alleviation. Collectively, fiscal 1992 projects cover the essential features of good poverty work but the depth and quality of poverty work varies across projects. Drawing from the good practices observed and lessons recorded in this year's portfolio, the review offers the following suggestions, among others, for strengthening PHN interventions to alleviate poverty:

- Poverty information and monitoring must be accompanied by dissemination and sensitization activities to strengthen national understanding of poverty-related issues and national commitment to resolving them through the proper policy.
- Community involvement in project design and development requires clearly defined and carefully designed institutional and procedural mechanisms, and a concerted effort to make them work.
- It is essential that PHN sector work identify poor and vulnerable groups and assess their needs and demands for basic health, family planning, and nutrition services.
- Even the most demand-driven project designs targeted to clearly identified poverty groups require promotional activities to ensure that these groups participate in and benefit from project initiatives.

Health lending is now a decade old, and many innovations in PHN lending have emerged only in the past four or five years. This review demonstrates that good practices and new and promising ideas — well worth emulating — are scattered across PHN work.

Overall, PHN work is moving in the right direction and the quality of work is generally seen to be improving. Welcome trends (which should be encouraged and reinforced) include serious attention to the poorest, most vulnerable populations, growing consideration of the demand of target groups, and increased attention to monitoring and evaluation of sector performance.

This paper is a product of the Population, Health and Nutrition Department. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (77 pages).

1153. North American Free Trade Agreement : Issues on Trade in Financial Services for Mexico

Alberto Musalem, Dimitri Vittas, and Asli Demirgüç-Kunt
(July 1993)

Implementation of the North American Free Trade Agreement (NAFTA) will generate substantial efficiency gains for Mexico's financial system and economy. The key to NAFTA's success in the financial sector will be effective prudential regulation and supervision. But Mexican financial institutions will need a reasonable transition period to modernize operations and rise to the challenge of their Canadian and U.S. counterparts.

To maximize the efficiency gains from NAFTA, the regulatory environment for Mexican banking, insurance, and securities markets should be further harmonized with those of the more advanced and efficient Canadian and U.S. markets.

Musalem, Vittas, and Demirgüç-Kunt argue that a prerequisite for NAFTA's success is to remove regulatory distortions and to eliminate opportunities for regulatory arbitrage. Moreover, eliminating or reducing disparities between the NAFTA countries' tax rates and ways of levying taxes would help prevent distortions, tax evasion, and tax avoidance.

Complete harmonization may not be feasible or even desirable, given the way

the three countries' financial systems have evolved and the differences between their industrial structures and stages of economic development.

In banking, insurance, and securities markets, the main free trade issues are the convergence of authorization criteria and the removal of most of the obstacles to freedom of establishment. It is also important to harmonize guarantee schemes and to create well-defined Mexican schemes to protect small, unsophisticated investors rather than mismanaged institutions. The key to NAFTA's success in the financial sector will be effective prudential regulation and supervision — particularly because of the heavy financial pressures on the newly privatized banks and the financial groups that own them. Without effective supervision, the new owners of the banks may take excessive risks to recoup the substantial element of goodwill in the privatization price, before the protection from foreign competition and new entrants is phased out.

An integrated market will presuppose greater cooperation and information exchange among the national regulatory authorities to ensure, for instance, that weak banks do not undermine credit standards and that weak insurers do not offer deceptively low-priced policies. In these areas, Mexico needs intensive training and cooperation with the Canadian and U.S. regulatory authorities.

To increase the contestability of the financial markets and benefit from the transfer of financial technology, the Mexican financial system should be opened to foreign entry. But Mexico needs to modernize its financial institutions and Musalem, Vittas, and Demirgüç-Kunt conclude that the proposed NAFTA should allow for a gradual approach to foreign entry. A reasonable transition period, extending up to the year 2000, will give Mexican institutions ample time to achieve the efficiency gains that motivated the quest for the agreement in the first place.

This paper — a product of the Financial Sector Development Department — is based on a report produced for the Mexican authorities in March 1991. It updates the earlier report in relevant areas. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room N9-003, extension 37664 (58 pages).

1154. Options for Pension Reform in Tunisia

Dimitri Vittas
(July 1993)

Tunisia's financially pressed pension system needs to rationalize benefits and improve investment performance in the near future. To anticipate deteriorating demographics, steps should also be taken to prepare for more radical reform: one pillar for redistribution, and one fully capitalized.

Tunisia's pension system provides old age, survivorship, and disability benefits to retired and disabled workers and their dependents. It is a partially funded system based on solidarity between generations. It is designed to provide insurance against loss of income in old age, especially for people who live longer than average, and to redistribute income more favorably toward low-income retired workers. Only to a limited extent does it achieve a third objective: compulsory long-term saving.

Vittas analyzes the structure of Tunisia's pension system, assesses its financial condition, and sets out options for pension reform. He finds that the current system:

- Is fragmented, comprising several schemes with different rules and conditions.
- Promises generous benefits, with high targeted replacement rates that may be unsustainable.
- Despite high benefits, operates with low contribution rates, because both the system and the labor force are young.
- Only weakly links contributions and benefits. It suffers from evasion of contributions and inflated benefit claims and redistribution (from capricious favoring of workers with low incomes and short credited service).
- Faces increasing financial pressures because it is maturing and expanding benefits, but its reserves show poor investment performance and it has failed to adjust contribution rates.

Vittas proposes the following main reforms:

- In the short run, reallocating social security contributions from family allowances to pensions and improving the financial performance of reserves.
- In the medium term, rationalizing benefit formulas through gradual use of lifetime actualized earnings, indexing pensions, gradually increasing the normal retirement age, and expanding the use of proportional pensions for workers with short careers.
- In the longer term, a more radical program to create a fully capitalized pillar that complements a redistributive pillar paying basic benefits. This would generate long-term savings, stimulate the development of capital markets, and facilitate the privatization program. A third pillar, voluntary savings encouraged by tax savings, would cover self-employed people not covered by occupational schemes.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study pension systems. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact (Priscilla Infante, room N9-003, extension 37664 (32 pages).

1155. The Regulation and Structure of Nonlife Insurance in the United States

Martin F. Grace and Michael M. Barth
(July 1993)

Restrictive regulations on the U.S. nonlife insurance industry have affected its efficiency and profitability, especially for such mandatory lines as automobile insurance. Prudential regulation that emphasizes solvency monitoring is preferable to price, product, and entry controls.

The insurance industry is underdeveloped in most developing countries because of low levels of income and wealth and because restrictive regulations inhibit the supply of insurance services. But several countries have begun to reform their insurance industries.

To help those countries, Grace and Barth offer an overview of insurance regulation in the United States—and discuss the economics and market structure of nonlife insurance in entry and exit barriers, economies of scale, and conduct and performance studies.

They conclude that the U.S. nonlife insurance industry exhibits low concentration at both national and state market levels. Concentration is low even on a line-by-line basis.

The primary concern of regulators has been to protect policyholders from insolvency, but regulation has also often been used to protect the market position of lo-

cal insurance companies against the entry of out-of-state competitors. Regulation has worked best when based on solvency monitoring, with limited restrictions on entry. It has been more harmful when it involved controls on premiums and products and on the industry's level of profitability.

Over the years the industry has shown a remarkable degree of innovation, although it has also faced many serious and persistent problems. The problems include the widespread crisis in liability (including product liability and medical malpractice), the crisis in automobile insurance, the volatility of investment income, the effects of market-driven pricing and underwriting cycles, and the difficulty of measuring insurance solvency.

The "long-tailed" lines of insurance — those that entail long delays in final settlements — are exposed to the vagaries of inflation and rising costs.

Two mandatory lines — third party automobile insurance and workers' compensation (for work accidents) — account for nearly 55 percent of premiums. These two lines — plus medical malpractice, other liability, and aircraft insurance — had combined ratios well over 125 percent in 1989.

The industry has some ability to collude and to set prices, but seems to be competitive and to earn profits below similarly situated financial firms. Insurance profitability is not consistently above or below normal returns, although earnings for mandatory and strictly regulated lines of automobile insurance and workers' compensation appear to be below-adequate for long-term viability.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the development of the insurance industry. Copies of the paper are available from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Priscilla Infante, room N9-003, extension 33564 (64 pages).

1156. Tropical Timber Trade Policies: What Impact Will Eco-Labeling Have?

Panayotis N. Varangis, Carlos A. Primo Braga, and Kenji Takeuchi
(July 1993)

Eco-labeling could be beneficial if pursued unilaterally and if used not as a "stick" but as a "carrot" to encourage proper environmental practices.

About 20 percent of the total production of tropical timber is traded internationally. But for Indonesia, Malaysia, Papua New Guinea, and some countries in West-Central Africa, tropical timber trade accounts for more than 50 percent of production.

Although the tropical timber trade has often been blamed for deforestation, Varangis, Primo Braga, and Takeuchi find that it contributes much less to deforestation than do poor policies for the production of tropical timber. Lack of tenure rights, short and uncertain logging concessions, low stumpage values, and inadequate monitoring of logging activities are among the major policy failures that help deplete the tropical forests.

Trade policies, often identified as an instrument for enforcing environmental objectives internationally, are inefficient instruments for correcting domestic distortions, and in the case of tropical timber trade, may affect the environment perversely.

Export and import restrictions ultimately depress the value of an already underpriced resource — the forest. Restrictions on log exports, for example, encourage wasteful processing of logs. Unless sound forest management policies are enforced domestically, the net effect could even be an increase in the rate of deforestation.

Import restrictions may have a marginal impact, since trade accounts for less than 20 percent of production and most of the tropical timber is imported in Asia, where such restrictions currently do not exist. Even if import restrictions had a significant impact, it would be in a reduction in value of tropical logs that would make alternative uses of the forest lands more profitable — so the rate of deforestation might not be reduced.

Eco-labeling's main strength is its capacity to discriminate (through market signals) in favor of timber produced under sound environmental practices. By contrast, bans and boycotts have an indiscriminate, perverse impact.

But if eco-labeling is imposed unilaterally by a subset of countries, its effectiveness will be doubtful. It will lead to trade diversion and potentially perverse environmental results, not to mention an increase in GATT trade disputes. Even if eco-labeling is adopted by all importing countries, there could still be trade diversion in tropical timber products because some consumers may not prefer certified timber, given its higher price.

Eco-labeling programs should be designed so that producers see them not as a nontariff barrier but as an instrument for capturing the rents associated with prevailing environmental concerns in the developed world. Consumer education is important to the success of such programs, and eco-labeling programs should be designed accordingly.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to evaluate the impact on world markets of environment-related trade policy instruments. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (31 pages).

1157. Intertemporal and Interspatial Comparisons of Income: The Meaning of Relative Prices

Sultan Ahmad
(July 1993)

Harmonizing methods for comparing prices is essential for improving comparisons of outputs over time and space. And a synthesis of methods would reduce the cost of collecting and disseminating relevant information.

The conceptual issues confronting compilers of price indices have not changed much over the years. They include the intractability of basic index-number problems, the practical difficulties of sampling and matching prices, and the uncertainties about the appropriate weighting scheme for comparing events in specific locales over time and across locales.

Ahmad considers inconsistencies in some measures of time-to-time and place-to-place comparisons of income. He argues for a method that harmonizes price work across generally recognized national price compilations, such as consumer price indices (CPIs), the International Comparison Programme (ICP), and national accounting.

Modern economies tend to be more open, so relative prices should be more similar, but it is increasingly apparent that price

levels and trends can differ considerably even within a nation — particularly those encompassing economically heterogeneous areas.

The global ICP exercise has provided useful insights into the issues involved. At the same time, international comparisons of the type ICP aims to facilitate are now seen as being more sensitive than expected to changes in relative prices. ICP has given little attention to this issue, but there is a rich literature on the subject with respect to CPIs. The common ground for the two logics is essentially national accounts, broadly defined.

Through conceptual and practical work done by the World Bank on the topic, Ahmad suggests that harmonizing the various methods is essential to a proper interpretation of the market signals that prices send to economic agents. He also explains how a better synthesis reduces the overall cost of collecting relevant information and disseminating it to users.

This paper — a product of the Socio-Economic Data Division, International Economics Department — was presented at the meetings of the Allied Social Sciences Associations in Anaheim, California, January 5-7, 1993. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Elfrida O'Reilly-Campbell, room S7-136, extension 33707 (20 pages).

1158. Population Growth, Externalities, and Poverty

Nancy Birdsall and Charles Griffin
(July 1993)

The two major arguments for fertility reduction involve externalities and income redistribution. The implications of the two arguments for policy are the same — both require behavioral change by the poor. Their behavior is most likely to change if the change improves their welfare — which should therefore be the focus of population programs.

Birdsall and Griffin review the implications for social policy in developing countries of two major justifications for fertility reduction: the externality argument and the income redistribution argument.

First they set out the arguments. In terms of how policy affects the poor, they show that the implications of the two different arguments are virtually identical. Both imply that the only reasonable way to view policies to reduce fertility is as activities in which one segment of society (the rich) is offering another segment (the poor) compensation to elicit a change in behavior.

Where there are true externalities, the rich may also end up as well or better off in terms of income than they were, because everyone can benefit from the overall efficiency gain.

Where there are not true externalities, the poor are made better off in the sense of real income while the rich gain in terms of utility by financing the necessary social programs.

Birdsall and Griffin outline briefly the program implications of this "welfare" approach: more emphasis on a package of targeted social programs, and more emphasis in family planning services on client welfare and contraceptive choice.

This paper — a joint product of the Office of the Director, Policy Research Department, and the Population and Human Resources Operations Division, Eastern Africa Department — is part of a continuing effort in the Bank to assess the implications for poverty of various sectoral and economywide policy changes. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Ella Hornsby, room J10-206, extension 35742 (26 pages).

1159. Stock Market Development and Financial Intermediary Growth: A Research Agenda

Asli Demirgüç-Kunt and Ross Levine
(July 1993)

The relationship between the development of stock markets and the functioning of financial intermediaries may be complementary.

Empirical evidence suggests that financial services — such as mobilizing savings, managing risk, allocating resources, and facilitating transactions — influence and are influenced by economic development. And financial crises — widespread bank failures, the collapse of stock markets — can impede and even reverse economic advances.

With this in mind, the World Bank made special efforts in the 1980s to help countries improve their financial systems and cope with financial crises that threatened economic prosperity. Bank programs focused on core financial themes (loosening up interest rates, reducing government involvement in credit allocation, rationalizing taxes on financial intermediaries) and on managing bank failures, rehabilitating insolvent banks, and training bank managers and supervisors.

Recently, Bank programs have stressed the development of capital markets, especially stock markets, but little research has been done in measuring the level of stock market development or understanding the relationship between the development of stock markets and the functioning of financial intermediaries.

Demirgüç-Kunt and Levine did some preliminary research on these issues and suggest further topics for research.

They propose different empirical indicators of "stock market development." They also suggest how to use these indicators to help evaluate stock market development policies.

They find that the relationship between the development of stock markets and the functioning of financial intermediaries may be complementary.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to evaluate the development and role of emerging stock markets. The research outlined here will be funded by the Bank's Research Support Budget under research project "Stock Market Development and Financial Intermediary Growth" (RPO 678-37). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room N9-059, extension 38526 (35 pages).

1160. Equity and Bond Flows to Asia and Latin America: The Role of Global and Country Factors

Punam Chuhan, Stijn Claessens, and Nlandu Mamingi
(July 1993)

Equity and bond flows to a sample of Asian and Latin American countries are about equally sensitive to global factors and to country-specific factors.

Chuhan, Claessens, and Mamingi investigate what has motivated the large portfolio flows to several developing countries in recent years.

Using monthly data on U.S. capital flows to nine Latin American and nine Asian countries (instead of monthly reserves data), they analyze the behavior of bond and equity flows to those countries.

Using panel data, they find that global factors — such as a drop in U.S. interest rates and the slowdown in U.S. industrial production — are important in explaining capital inflows. But country developments are at least as important in determining those flows, especially for Asia.

They also find that equity flows are more sensitive than bond flows to global factors, but that bond flows are generally more sensitive to a country's credit rating and to the secondary market price of debt.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the determinants of capital flows to developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047. (36 pages).

1161. Increasing Women's Participation in the Primary School Teaching Force and Teacher Training in Nepal

Molly Maguire Teas
(July 1993)

Recruiting and training more women in primary education requires more effective communication and more effort to provide culturally acceptable travel to and accommodations near training centers.

Although research shows that Nepalese parents prefer sending girls to schools with female teachers, only 12.8 percent of Nepalese primary school teachers are women. Nepal has among the lowest enrollment and retention rates for girls in the world. One strategy to correct the situation is to increase the number of women who become and remain teachers. But teacher training is also important; 60 percent of Nepalese teachers are untrained, so the quality of education is poor — often rote memorization, with the teacher simply reading textbooks aloud.

Teas tried to find out what factors affect Nepali women's decision to join the primary school teaching force and to participate in in-service teacher training. Prior studies, using large survey methods, did not provide the information program planners needed. The author chose a research strategy more appropriate to the Nepali culture by combining quantitative and qualitative methods.

Teas focused on the participation of women in the primary teaching force and on two in-service teacher training projects: the Primary Education Project (PEP) and the Radio Education Teacher Training Project (RETT). In the PEP, teachers from 10 to 15 primary schools receive in-service training in short sessions at a resource center. They get roughly a dollar a day to cover their food and lodging costs. The RETT provides in-service training to primary teachers through daily radio broadcasts, plus written assignments and monthly meetings in resource centers. Gender disaggregated information on the RETT and the PEP programs had never been collected. The author hypothesized that female teachers' needs are different from those of their male counterparts and this would reflect in differential participation rates. Among Teas's conclusions:

- Women are more likely to be recruited as teachers or into training programs if information about positions and programs is made available to them in a timely, accessible way. To do this, extension agents could be hired to bring information *from* the ministry or program *to* intended beneficiaries. Teaching positions and training programs could be advertised in short radio messages and in letters to primary school principals.
- Women are less likely to get training if the resource center is inaccessible. To counter disincentives for women to travel away from their homes and villages, culturally acceptable travel companions, lodging, and childcare should be provided.
- The current broadcast time for radio training conflicted with women's household responsibilities. Changing the time to later in the evening would increase female participation in the program.
- Women often lacked family support to become teachers or to become trained. To increase such support, existing incentives (including allowances and salary increases) should be publicized.

This paper — a product of the Population and Human Resources Operations Division, Country Department I, South Asia — is part of a larger effort in the Region to increase equity for women in education. The study was funded by the Bank's Research Support Budget under research project "Increasing Educational Equity for Women in Nepal" (RPO 676-98). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lydia Maningas, room D9-015, extension 80380 (59 pages).

1162. The Slovenian Labor Market in Transition: Issues and Lessons Learned

Milan Vodopivec and Samo Hribar-Milic
(July 1993)

To stimulate the efficient reallocation of labor, transitional economies should direct resources away from programs to preserve jobs and into programs to create new jobs; allow for flexible determination of relative wages but retain incomes policy; and build support for reform by promoting cooperation among parties involved in collective bargaining.

Yugoslavia (including Slovenia) has been more market-oriented than the rest of Eastern Europe, with little or no planning and healthier development of product markets. Until recently, however, the labor market in Slovenia was subject to formidable constraints.

But sweeping legislative changes and a dramatic change in the climate of the Slovenian economy have produced major shifts in the allocation of Slovenia's labor force. Most important, the Rubicon of job security has been crossed: Slovenian workers — who like other Yugoslav workers were more protected from job loss than workers in most socialist countries — can now be laid off. Partly as a result of layoffs and bankruptcies, there has been a dramatic increase in unemployment — from 1.5 percent in the mid-1980s to 12.5 percent in January 1993. Moreover, social sector employment decreased 17.6 percent from December 1989 to December 1991, and the labor force participation rate dropped by nearly 8 percentage points.

Among lessons learned about the labor market in Slovenia's transition to a market economy:

- Governments in transitional economies tend to preserve current jobs through employment subsidies and by subsidizing

early retirement. To stimulate the efficient reallocation of labor, they should redirect resources away from programs to preserve jobs into programs to create new jobs. And to increase the flexibility of adjusting firms' workforces, transitional economies should legislate simple layoff procedures and should not assign firms the responsibility for financing redundant workers.

• It may be easy to demolish the old system of determining wages, but it is difficult to develop a new, well-functioning system. One country cannot simply copy another's methods. It is important to provide for a minimum wage, but it is inefficient to establish a complete wage structure, or to provide for automatic cost-of-living adjustments which hinder wage moderation and make the wage structure inflexible. Moreover, while state and social ownership prevail, an incomes policy is a must.

• The trial and error approach to finding the right mix of active labor market policies is unavoidable. But governments should evaluate the effectiveness of such programs and weigh them against alternative policies aimed at reducing unemployment — notably increased public spending and investment tax credits.

• Unilateral government action is counterproductive. To overcome mutual hostility and achieve cooperation, governments should, among other things, consult with trade unions on the legislation and programs to be introduced, and wage a public relations campaign to demonstrate the unavoidability of reform and to emphasize program successes.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to investigate how labor markets work during the transition of socialist economies. It is one of the outputs of the research project "Labor Market Dynamics during the Transition of a Socialist Economy" (RPO 677-20) funded by the Bank's Research Support Budget. This paper was prepared for the 24th National Convention of the American Association for the Advancement of Slavic Studies, held in November 1992 in Phoenix, Arizona. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Sabah Moussa, room N11-017, extension 39019 (37 pages).

1163. Domestic Distortions and International Trade

James E. Anderson and J. Peter Neary
(July 1993)

The Trade Restrictiveness Index provides a theoretically consistent and empirically feasible framework for investigating the trade implications of such domestic distortions as production taxes and subsidies.

Trade is affected not only by taxes and subsidies that affect producers and consumers of goods, but also, indirectly, by taxes and subsidies that affect nontraded goods or factors of production.

Anderson and Neary show how the Trade Restrictiveness Index (TRI) may be extended to incorporate these types of distortions. Again, the value of the TRI gives the equiproportionate change in the prices of *traded* goods, which would compensate for a given change in all distortions, both in traded and nontraded goods and in factor markets.

Anderson and Neary, who developed the theory of the TRI, show how to apply it in practice, drawing on a larger study by Anderson and Bannister of changes in Mexican agricultural policy between 1985 and 1989. Adapting the TRI to a partial equilibrium context allows existing estimates of key demand and supply elasticities to be incorporated into the Index; and the basic formula is adapted to take account of some special features of Mexican agricultural markets.

The TRI shows a great increase in restrictiveness in 1986 and especially 1987, followed by major reductions in restrictiveness in 1988 and 1989. The cumulative effect: a 49.9 percent fall in trade restrictiveness over the four years.

The major, although not the only, source of changes in trade restrictiveness were changes in producer subsidies, especially for maize. These trends are not captured by changes in indices for consumer and producer subsidy equivalents, which the authors also present. Indeed, in a number of years at least one of the ad hoc indices changed in the opposite direction to the change in the corresponding welfare-based index.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to measure the effects of protection policy. The study was funded by the Bank's Research Support Budget under research project "The Cost of Protection Index" (RPO 676-49). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Gustafson, room S7-044, extension 33714 (30 pages).

1164. Power, Distortions, Revolt, and Reform in Agricultural Land Relations

Hans P. Binswanger, Klaus Deininger, and Gershon Feder
(July 1993)

If the efficiency of the large commercial farm is a myth, why do markets for the rental and sale of agricultural land rarely reallocate land to the most efficient uses and users (family farmers)?

Most work on the relationship between farm size and productivity strongly suggests that farms that rely mostly on family labor are more productive than large farms operated primarily by hired labor.

This study began as an inquiry into how rental and sales markets for agricultural land in the developing world affect efficiency and equity. What emerged was the clear sense that great variations in land relations around the world and over time cannot be understood in the common paradigm of property rights and competitive markets. Under that paradigm, land scarcity leads to better definition of rights, which are then traded in sales and rental markets accessible equally to all players. The outcome should be the allocation of land to the most efficient uses and users, yet this rarely happens.

Instead, land rights and ownership tend to grow out of power relationships. Landowning groups have used coercion and distortions in land, labor, credit, and commodity markets to extract economic rents from the land, from peasants and workers, and most recently from urban consumer groups or taxpayers. Such rent-seeking activities reduce the efficiency of resource use, retard growth, and increase the poverty of the rural population.

Binswanger, Deininger, and Feder examine how these power relations emerged and what legal means enabled relatively few landowners to accumulate and hold on to large landholdings. They discuss the successes and failures of reform in market and socialist economies, and the per-

versions of reforms in both systems, manifested in large commercial farms and collectives.

They survey the history of land relations and the legacies that history leaves. They discuss the three analytical controversies surrounding economies of scale, and the efficiency of the land sales and land rental market.

They discuss the main policy issues and implications of various distortions and successful and unsuccessful reforms in the developing world, including land registration and titling, land taxation, regulations restricting land sales and rentals, fragmentation and consolidation of land, redistributive land reform, and decollectivization.

In an epilogue on methodology, they examine how various strands of economic theory have contributed, or failed to contribute, to the explanation of variations in policies, distortions, and land relations over space and time.

This paper — a product of the Advisory Group, Latin America and the Caribbean Technical Department and the Agricultural Policies Division, Agriculture and Rural Development Department — was prepared for the *Handbook of Development Economics*, Volume II, edited by Jere Behrman and T. N. Srinivasan. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hans Binswanger, room I4-021, extension 31871 (121 pages).

1165. Social Costs of the Transition to Capitalism: Poland, 1990-91

Branko Milanovic
(August 1993)

Contrary to expectations, Poland's stabilization program entailed unexpectedly high social costs. Unemployment reached 12 percent by the end of 1991, and real incomes fell 40 percent. The poverty gap rose from an estimated 1.4 percent of GDP to 4.8 percent.

The Polish stabilization program implemented in 1990 as part of the transition to capitalism entailed unexpectedly high social costs.

The often unstated assumption had been that since central planning was intrinsically inefficient, stabilization in Poland might be less costly in terms of lost output than it would have been in a market economy. The idea was that recession stemming from an overall decline in demand could be moderated by removing the administrative barriers that in a planned economy hindered the best deployment of resources.

The results were the reverse of expectations. Unemployment reached 12 percent of the labor force by the end of 1991, and real incomes plummeted (by about 40 percent). An estimated 17 percent of the population lived in poverty in 1989. By 1991, that figure reached 34 percent. The poverty rate more than doubled for all social groups except pensioners, for which it remained stable. Large households, and children in particular, were especially affected. The poverty gap rose from an estimated 1.4 percent of GDP to 4.8 percent.

Existing evidence on income distribution shows that it did not change. There was a slight compression of income among farmers, which has also occurred in the past when real incomes declined, and possibly some wage-stretching among workers.

What happened to the general welfare? Conclusive results are elusive. Personal consumption, overall, decreased. Queuing also decreased, but utility gains from shorter lines were offset as real wages, and thus the opportunity cost of waiting, declined. Real appreciation of the exchange rate raised dollar wages substantially and led to an upsurge in consumer imports, thus increasing the utility derived from the ownership of consumer durables.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to analyze income distribution and poverty in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-043, extension 39026 (29 pages).

1166. The Behavior of Russian Firms in 1992: Evidence from a Survey

Simon Commander, Leonid Liberman, Cecilia Ugaz, and Ruslan Yemtsov
(August 1993)

The shocks 41 Moscow firms suffered in 1992 did not necessarily reduce their profitability. But what's good for these few Russian firms may be bad for the economy. Rapid adjustments to price changes, accelerated wage claims, and accommodating monetary policy may lead to high, sustained inflation.

The authors surveyed 41 firms in and around Moscow in the last two weeks of November 1992 to get an empirical handle on how firms are responding to the changing economic environment. They found that:

- There were large negative (supply and demand) shocks to output for a significant number of firms and branches.
- Profitability was remarkably buoyant in real terms; there was clear evidence that firms with market power rapidly adjusted producer prices, trying to maintain or increase their markup.
- There was no evidence of a strategic change in pricing rules.
- Most firms experienced relative stability in earnings and in the distribution of revenues. There was no substantial evidence of decapitalization — at least through greater borrowing or predatory wage settlements.
- The upward shift in interfirm arrears was smaller than aggregate numbers might have led one to expect.
- Inertia in the wage system should not be ignored. Real wages were cut back sharply by the great price shock of January 1992, but real statistical wages then climbed back toward early 1991 levels.
- Benefits firms provided account for large shares of labor income and 40 to 45 percent of firms' costs. Firms may have tried to squeeze benefits, particularly in housing, but allocations to the Social Fund have generally stayed constant.
- Employment adjustments were limited, despite the downward pressure on output and the lack of growth in firms surveyed. Net employment separations were relatively restricted. Firms continued to hire at significant rates in 1992, in part because of fixed factors technology, in part because of the reluctance of firms to discard workers. Consequently, firms have shed few workers — mostly ancillary and clerical staff, usually women.
- Some firms chose to place workers on minimum wages, reducing labor costs significantly. The result is that unemployment benefits are provided de facto within the firms rather than through labor offices.
- In short, the status of the so-called production worker, the core of the Russian industrial firm, remains untouched. Clearly, there was a large "employment

overhang" at the end of 1992. The next stage of the transition will be difficult.

This paper — a product of the National Economic Management Division, Economic Development Institute — was funded by the Bank's Research Support Budget under the research project "Labor Markets in Transitional Socialist Economies" (RPO 677-30). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Olga del Cid, room M3-047, extension 35195 (46 pages).

1167. Unemployment and Labor Market Dynamics in Russia

Simon Commander, Leonid Liberman, and Ruslan Yemtsov
(August 1993)

Lack of a credible reform program has weakened any impulse toward large-scale restructuring of firms in Russia. Net changes to employment have been limited, and have involved mostly ancillary or clerical staff.

The past 15 months have seen the beginning of structural change in Russia but a failure of the economy to stabilize. The balance sheet, conclude Commander, Liberman, and Yemtsov, suggests that a return to centralized control remains almost impossible, but the decentralization that has occurred contains many undesirable features.

In framing their analysis, the authors draw on aggregate data and firm-level data from the first-round results of a 1992 survey covering 41 firms in the Moscow region. The survey results suggest that the greater autonomy of firms has facilitated the exploitation of market power while failing to dampen the demand for easy credit from the budget or banking system. For the most part, that demand has been satisfied, enabling firms to meet current wage claims and, to a lesser degree, sustain output levels.

Buoyant nominal profits can be traced either to pricing behavior derived from market power or to transfers or subsidies channeled through the fiscal or monetary system. This in turn has artificially sustained the revenue side of the government accounts.

Official unemployment was no more than 1 percent of the labor force by the end of 1992, but evidence on the importance of marginal unemployment indicates that the underlying pass-through into open unemployment will be great. By the third quarter of 1992, this "augmented" unemployment rate approached 4 percent of the labor force. Even so, the authors observe nontrivial outflows from unemployment to jobs, and in some regions to jobs in the private or collective sector.

In Russia, outflows to state sector jobs dominate. Survey evidence shows considerable turnover in the state sector and resilient hiring. Much of the churning in labor markets seems to be through voluntary separations and job transitions. Net changes to employment have been limited, and have involved mostly ancillary or clerical staff.

Commander, Liberman, and Yemtsov discern a core or membership rule dominating Russian firms' decisions, which it would be dangerous to assume will be maintained. They interpret it as a holding strategy in a complex game the firms have been playing with government. Lack of a credible reform program has weakened any impulse toward large-scale restructuring of firms.

Wages have been more volatile and have greater regional dispersion, but the authors predict no large consistent shift in relative wages. Rather, the wage path has probably been governed by current revenue streams and additional transfers, and then set consistent with the stable employment rule. The path of wages over 1992 is clearly associated with changes in Russia's monetary and fiscal stance and allied institutional features.

This paper — a product of the National Economic Management Division, Economic Development Institute — was funded by the Bank's Research Support Budget under the research project "Labor Markets in Transitional Socialist Economies" (RPO 677-30). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Olga del Cid, room M3-047, extension 35195 (46 pages).

1168. How Macroeconomic Projections in Policy Framework Papers for the Africa Region Compare with Outcomes

Rashid Faruqee
(August 1993)

Actual outcomes are compared with projected or targeted outcomes for selected macroeconomic variables to assess the quality and relevance of projections in policy framework papers for the Africa region.

Policy framework papers (PFPs) have become important documents because they provide a framework for the economic policies that a country will pursue and for donor assistance. The projections included in these documents reflect the policy targets and the expected outcomes of policy reforms.

Faruqee focuses on the quality and relevance of these projections, comparing actual outcomes with the projected or targeted outcomes for selected variables. The idea is that a retrospective survey such as this will eventually improve projections.

Faruqee recommends further country-by-country analysis of PFP projections and actual outcomes to identify how much of the divergence between the two is due to external factors (such as weather and terms of trade) and how much to lack of progress in policy reform. Delayed progress could be due to unforeseen circumstances (such as political changes or internal strife) or to unrealistic targets.

The quality and realism of PFP projections are likely to improve, says Faruqee, if certain steps are taken in making projections:

- All PFPs after the first one should contain a review of outcomes in relation to projections in previous PFPs.
- Whenever the chances of falling short of projected or targeted outcomes are high, the PFP should say so.
- Using references such as this review, the projections could consider benchmark figures based on experience with successful cases of adjustment.
- From time to time, each country department could carry out a review to assess the realism of departmental PFP projections, and the Chief Economist's Office could review projections to assess their quality.

This paper — a product of the Office of the Chief Economist, Africa Regional Office — is part of a larger effort to assess the progress of adjusting countries in the Africa region with macroeconomic and structural reforms. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nandita Tannan, room J5-101, extension 34581 (109 pages).

1169. Costs and Benefits of Debt and Debt Service Reduction

Eduardo Fernández-Arias
(August 1993)

Contrary to popular views, commercial banks have probably benefited from debt and debt service reduction operations. Debt and debt service reduction make sense to the borrowing country only if they will engender enough indirect benefits (such as increased domestic and foreign savings) to compensate for their heavy direct costs.

Fernandez-Arias evaluates the costs and benefits of debt and debt service reduction (DDSR) from the point of view of five countries that have concluded Brady deals: Costa Rica, Mexico, the Philippines, Uruguay, and Venezuela.

He concludes that, contrary to widely held views, commercial banks have probably benefited from the operations. Commercial bank participation in DDSR is voluntary, so direct financial savings to the country are probably negative at present values. The benefit from DDSR is not that debt is bought at "bargain prices" at the expense of commercial banks. It appears difficult to justify a DDSR operation on purely financial grounds. A more realistic way to look at a DDSR operation is to view it as a "project" that involves a certain financial cost. The return on such a project is how the DDSR operation improves the macroeconomy, or contributes to development.

The main purpose of DDSR is to establish a more efficient arrangement between debtor countries and commercial banks, leading to improved conditions for development. A DDSR operation that does not help development is costly and should not be undertaken.

The impact of DDSR on development is usually measured by the increase in the growth rate of GDP, but it is too soon to measure that for these five countries. A suitable alternative is to look at the change in investment patterns.

A strong policy framework is needed if debt and debt service reduction are to significantly improve development. In Mexico and, to a lesser extent, Venezuela improved and sustained strong adjustment policies have generated the greatest development benefits. Gains have been less in smaller countries where policies were not as supportive.

Fernandez-Arias concludes that for a country to benefit from DDSR, it needs significant indirect benefits (such as increased domestic and foreign savings). Direct benefits are likely to be negative because of the commercial banks' financial gains and because DDSR operations are frontloaded. DDSR operations cannot be justified solely by direct benefits and savings in cash flow.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to understand the costs and benefits to countries of debt and debt service reduction arrangements. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 33722 (38 pages).

1170. Job Search by Employed Workers: The Effects of Restrictions

Avner Bar-Ilan and Anat Levy
(August 1993)

Some firms offer high wages in return for their workers' implicit commitment not to search for better jobs. Some firms that cannot afford to pay wages that guarantee lifetime attachment pay lower wages, but impose no restrictions on searches for better jobs. When the separation bond takes the form of a transfer between the employer and the employee, employment is unaffected in most cases. But when it is forfeited to a third party, employment among all types of workers falls.

Within the framework of a general equilibrium search model, Bar-Ilan and Levy study the effect of institutional restrictions on workers' job mobility.

The model generates endogenous job searches on the job and off the job with two forms of labor contracts emerging and coexisting in equilibrium.

One form of contract involves the workers' long-term commitment to the firm ("reversed tenure"): Some firms offer high wages in return for their workers' commitment not to search for better jobs.

The other is a short-term contract requiring no such commitment: Some firms that cannot afford to pay wages that guarantee lifetime attachment pay lower wages, have lower turnover costs, but impose no restrictions on searches for better jobs.

Bar-Ilan and Levy study the effects on employment of exogenous restrictions on mobility — in the form of a transfer from the quitting worker, made either to the employer or to a third party. These transfers, the separation bonds, are typically the benefits lost by the quitting worker, such as vested pension. Restrictions of this type, by crowding out the firms that allow on-the-job searches for employment, directly increase unemployment.

When restrictions on workers' mobility take the form of a zero-sum transfer, there is no real effect so long as the transfer is below some bound — the worker loses nothing. When the separation bond is prohibitively large, or when it is forfeited to a third party, employment among all types of workers falls.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to study the impact of labor market institutions and policies on economic performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (29 pages).

1171. Finance and Its Reform: Beyond Laissez-Faire

Gerard Caprio, Jr. and Lawrence H. Summers
(August 1993)

Many economies would benefit from less government intervention in financial markets, but the prescription should not be abrupt or total government withdrawal from the financial sector. Rather than intervening heavily in credit allocation decisions, governments should focus on doing what only they can do: providing an enabling environment for the private financial and nonfinancial sectors, and ensuring that financial operations are safe and sound.

That the financial sector should be liberalized was the orthodox view in the mid-1970s, during a pendulum swing toward reliance on the free market. In the early 1980s, the pendulum swung back to the left, based partly on evidence — especially from Latin America — that overly rapid reform had real costs, and partly on an

increased appreciation of financial market failure. Blind adherence to free market principles was no longer appropriate. Now a counter-counterrevolution is in sight, with some swing back toward the view that the market makes a mess of it, but the government makes it even worse.

Caprio and Summers agree that market-oriented financial systems appear to do a better job than systems with extensive government involvement, but contend that the assumption that perfect competition will solve all problems in finance — especially in banking — can be dangerous. Information problems, implicit or explicit government guarantees associated with deposits, and externalities associated with the payments system make banks unique.

Governments implicitly recognize banking's uniqueness — few allow just anyone to enter banking — but public pronouncements and observers' recommendations often favor a move to more competition. Perfect competition, however, is optimal under the assumption, among others, of no government guarantee. In fact, most governments differ only in how explicit they are about their deposit insurance schemes.

The financial reforms most likely to succeed are those that give banks an incentive to engage in safe and sound banking. When excessive competition is allowed, the "charter value" of banking diminishes to the point that it is no longer profitable for bankers to behave prudently.

A consideration of finance's role, and a look at how reforming economies have fared, suggest also that gradual reform is often to be preferred in this domain. Deregulation of credit markets and interest rates can be counterproductive in unstable macroeconomic conditions and when banks are unsophisticated or have weak balance sheets. And changes in the charter value may evolve only slowly after reform.

Faster progress and greater efforts should be made, however, in bank supervision and regulation and in institutional development, including accounting, auditing, legal and judicial reform, and training (of bankers and other finance professionals).

In sum, many economies would benefit from less government intervention in financial markets, but the prescription should not be abrupt or total government withdrawal from the financial sector. Rather than intervening heavily in credit allocation decisions, governments should focus on doing what only they can do: providing an enabling environment for the private financial and nonfinancial sectors, and ensuring that financial operations are safe and sound.

This paper — a product of the Financial Sector Development Department — is part of a larger effort in the department to study the role of finance in development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room N9-059, extension 38526 (24 pages).

1172. Liberalizing Indian Agriculture: An Agenda for Reform

Garry Pursell and Ashok Gulati
(September 1993)

India's incentive system heavily favors manufacturing and discriminates against agriculture. This proposed reform agenda would remove major policies that distort agricultural imports, exports, inputs, and domestic markets. It would protect low-income groups against necessary increases in food prices.

In July 1991, India embarked on a program of economic decontrol that greatly speeded the previously slow process of liberalizing trade and domestic regulatory controls begun in 1978. But the focus of reform has been on manufacturing. Reform has barely touched agriculture, which accounts for two-thirds of employment in India and about 30 percent of India's GDP.

Although some crops (notably oilseeds) receive heavy protection, the net effect of interventions to date is to heavily favor manufacturing over agriculture. In this agenda for reform, Pursell and Gulati recommend:

- Removing all quantitative export and import controls on agriculture, except for special treatment (such as export taxes) when Indian exports would be substantial enough to depress world prices (most likely with rice).
- Further reducing protection on manufacturing, rather than bringing protection for agriculture up to the same level.
- As a transitional measure, considering the use of variable tariffs based on weighted averages of past international prices as a way to partly insulate domestic prices from extreme fluctuations in world prices.
- Initially, allowing the export only of high-quality, high-priced varieties of such commodities as cotton and rice, to limit upward pressures on domestic prices of lower-quality varieties, which are important to consumption in low-income Indian households.
- Liberalizing fertilizer imports and deregulating domestic manufacturing and the distribution of fertilizers.
- Removing subsidies on irrigation, electricity, and credit (and creating conditions to facilitate the trading of canal irrigation water rights).
- Deregulating the wheat, rice, sugar, cotton, and edible oil and oilseed industries, and abolishing compulsory government acquisition at below-market prices of sugar, molasses, and milled rice.
- Reforming the food security system to protect low-income groups from the increase in the general level of food prices required by the liberalization of agriculture. This would involve better targeting of food subsidies and associated reforms of the public distribution system, or even its eventual replacement by a food stamp system.

Research for this paper — a joint product of the Trade Policy Division, Policy Research Department of the World Bank, and the National Council of Applied Economic Research in New Delhi — was carried out mainly by consultants in India. It is part of a long-term research program to quantify the impact on agriculture of India's trade and other incentive and regulatory policies. The paper was funded by the Bank's Research Support Budget under a dissemination grant (RPO 678-04). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-023, extension 37947 (44 pages).

1173. Morocco's Free Trade Agreement with the European Community: A Quantitative Assessment

Thomas F. Rutherford, E. E. Rutström, and David Tarr
(September 1993)

Welfare benefits to Morocco from a free trade agreement with the European Community would be about 1.5 percent of GDP. But welfare benefits would be 2.5 percent of GDP if Morocco liberalized trade with

the whole world — and with only slightly higher adjustment costs.

Morocco is interested in developing a reciprocal free trade agreement with the European Community (EC), although it already enjoys free access to EC markets in industrial products and is not obligated to give EC exporters reciprocal access. But Moroccan agricultural exports are impeded by agricultural protection in the European Community.

A free trade agreement would require that Morocco lower its moderately high tariffs against its most important trading partner. Tariff reductions against the European Community but not against the rest of the world may provide benefits provided the trade diversion costs of preferential tariff reduction do not dominate.

Rutherford, Rutström, and Tarr apply a 39 sector general equilibrium model of the Moroccan economy which includes the sectors most likely to be affected by such an agreement. They investigate the economic effects of the prospective free trade agreement as well as five other trade liberalization scenarios for Morocco. Among their most important findings:

- The welfare benefits to Morocco from a free trade agreement with the European Community would be about 1.5 percent of GDP. Such substantial welfare gains partly reflect the benefits of reducing dispersion in the tariff regime.
- Welfare benefits of about 2.5 percent of GDP would accrue from liberalizing trade with the rest of the world — with only slightly higher adjustment costs. Liberalizing trade with the world would provide greater benefits because it would eliminate the trade diversion costs associated with discriminatory trade liberalization. (Although the fact that significant benefits would accrue from discriminatory liberalization against imports from either the European Community or the rest of the world indicates that trade diversion is not dominant.)
- As a result of improved access to the European Community, employment and output in the vegetable and citrus fruit sectors would expand. But the phosphate sector stands to gain most from the free trade agreement because liberalization would induce a depreciation in the real exchange rate.
- Morocco's cereal, meat, dairy, and sugar sectors would lose most in terms of employment, because of significantly lower import prices from the European Community. The nontraded goods sector would also contract slightly.
- The value-added tax would have to be increased to compensate for the loss in tariff revenues, on which Morocco depends.

Estimates are provided as ranges, with probability assessments, because of the element of uncertainty.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to investigate the consequences of regional integration. The study was funded by the Bank's Research Support Budget under the research project "Impact of EC '92 and Trade Integration on Selected Mediterranean Countries" (RPO 675-64). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nellie Artis, room N10-013, extension 38010 (27 pages, plus 18 pages of appendices).

1174. Asian Trade Barriers Against Primary and Processed Commodities

Raed Safadi and Alexander Yeats
(September 1993)

Tariff escalation to protect domestic industries against more efficient producers is not limited to industrial countries. Protection of domestic industries is also common in Asian developing countries and in intra-Asian trade.

Many developing countries are being encouraged to shift toward increased processing and exports of domestically produced natural-resource-based products now exported in primary form. But in many major import markets, the structure of tariffs and nontariff barriers militate against such efforts.

Zero or low tariffs are generally applied to industrial countries' imports of primary (unprocessed) commodities; duties increase, or "escalate," as the level of processing or fabrication increases. Tariff escalation produces a trade bias against processed goods.

In the past, such trade barrier escalation has been attributed chiefly to industrial countries. Safadi and Yeats examined the structure of restrictions in Asian countries and found that most Asian countries' tariffs incorporated more escalation than do tariffs in industrial countries. Apparently tariff escalation is also often reinforced by nontariff barriers on processed goods, although supporting data for this finding are less firm.

This issue should not be viewed as a North-South issue, contend Safadi and Yeats. A bias against imports of processed goods is built into trade barrier escalation *among* Asian countries and should be addressed in regional initiatives to liberalize intra-Asian trade barriers.

Safadi and Yeats make three recommendations for dealing with escalation issues in multilateral negotiations:

- Japan and, to a lesser extent, the Republic of Korea are the key to successful negotiations on these issues, as they have a far greater import bias against processed commodities than do all other countries with which Safadi and Yeats compare them. That is, Japanese and Korean trade barriers incorporate far more escalation than do trade barriers in other countries studied.
- Disproportionately high cuts in trade barriers for unprocessed commodities are not the solution, as they would increase effective protection for processed goods.
- Any approach to trade liberalization should deal with both tariffs and nontariff barriers, to ensure that a reduction in one type of restriction is not offset by a further tightening in the other. Several Asian countries apply both types of restrictions to commodity imports.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and predict structural changes in trade and to identify factors affecting developing countries' exports. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-037, extension 33710 (29 pages).

1175. OECD Trade Barriers Faced by the Successor States of the Soviet Union

Bartlomiej Kaminski and Alexander Yeats
(September 1993)

Opportunities to expand investments and exports in the former Soviet Union are unlikely until the OECD governments, especially in the European Community,

reduce tariff and nontariff barriers enough to put the newly independent states of the former Soviet Union on an equal footing with other countries.

Using a comprehensive World Bank–UNCTAD data base on tariff and nontariff barriers (NTBs), Kaminski and Yeats examine the incidence of OECD trade barriers to exports of the former Soviet Union (FSU). OECD markets have grown steadily in importance in the past decade and now receive more than half of FSU exports. And additional trade could help the FSU republics make the transition to market economies.

Overall, OECD tariffs that the FSU republics face are 70 to 90 percent higher than the average paid on all goods imported, but their worst effect is the result of the *margins of preference* they give other (non-FSU) exporters. For example, because of a special EFTA-EC protocol, manufactures are traded duty-free between countries in these two blocs, while similar (competing) FSU goods may face duties of 20 percent or more.

No significant trade expansion will occur until nontariff barriers are liberalized in NTB-"ridden" product groups of interest to FSU exporters. Sectors in which NTBs are particularly important include fish, fruit, sugar, vegetables, beverages, textiles, clothing, and ferrous metals. OECD trade barriers on some FSU commodity exports provide high levels of "effective protection" that constrain the efforts of the newly independent states of the FSU (NISs) to increase domestic commodity processing.

Although the United States has granted most-favored-nation status to the NISs (excluding Azerbaijan), and the European Community recently signed the Agreements on Trade, Commercial, and Economic Cooperation with the Baltic states, these developments have not substantially improved their market access. Because of geographic proximity and the existing transportation network, the European market is the most important OECD market for most NISs. But under present EC arrangements, NIS products are subject to higher tariffs and more restrictive nontariff barriers than exports from EFTA members, Lomé Convention signatories, or former European CMEA members (the Czech Republic, Hungary, Poland, Romania, and Slovakia). Lower wage rates in many NISs may not be sufficient to compensate for their generally lower productivity and the losses in value added (triggered by higher tariffs) that exporters have to absorb to compete in protected markets.

Except for exports of energy and industrial raw materials, trade opportunities for many products in which the newly independent states of the former Soviet Union might have a comparative advantage are greatly restricted by OECD tariffs and nontariff barriers.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze and predict structural changes in trade and to identify factors operating to restrain trade. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jean Jacobson, room S7-035, extension 33710 (35 pages).

1176. Cash Social Transfers, Direct Taxes, and Income Distribution in Late Socialism

Branko Milanovic
(September 1993)

The formerly socialist countries of Central and Eastern Europe are ill-prepared to identify the needy and deliver social services to them. The question is, toward which world of welfare capitalism are Eastern European countries likely to evolve?

Milanovic analyzes the impact of direct taxes and cash social transfers on income distribution in Bulgaria, Czechoslovakia, Hungary, Poland, and Yugoslavia in the years before the collapse of communism. He contrasts the results for socialist and market economies.

Cash social transfers accounted for about a fifth of gross income, a proportion comparable with that in developed welfare economies. Generally, cash transfers were unrelated to income in socialist countries, in marked contrast with market economies, where such transfers go mainly to low-income households.

Direct taxes played almost no role in income redistribution. They were small — 1 to 2 percent of gross income, except in Hungary — and proportional to income. Most taxes were paid by enterprises, as payroll taxes, and most workers were unaware of the taxation and that public spending could not permanently exceed public revenues from taxation.

In socialist countries, social support was built into the system through full employment guarantees, state-run pension schemes, and free public education and health care. The only explicit policy toward poverty involved alcoholics, handicapped people, and other special categories.

This system is being replaced by a market system in which the labor market is key and those who cannot earn enough must be supported by the state. To counteract increasing income disparities, social transfers must be focused more on the poor. Eastern European states are ill-prepared for this role. They have no experience in identifying the needy and targeting support to them. The question is, toward which world of welfare capitalism are the formerly socialist countries likely to evolve?

Milanovic contends that the Central European countries will probable evolve toward the corporatist model of continental Europe. Capitalist countries in Europe tend to have large social transfers that are often related to previous earnings, so they have relatively limited roles in income redistribution. Transfers are closer to social insurance than to social assistance.

The evolution of more agricultural Balkan countries and the Slavic republics of the former Soviet Union is more difficult to predict. Poorer and more agriculture-based countries are generally less able to administer welfare schemes, gauge individual incomes, and deliver social support — and their finances may be even more strained than those of their Central European counterparts.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to study income distribution in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Martin, room N11-043, extension 39065 (33 pages).

1177. Environmental Taxes and Policies for Developing Countries

Neil Bruce and Gregory M. Ellis
(September 1993)

Command-and-control environmental policies and market-based incentive poli-

s differ in administrative cost, level of ntrol over polluters, monitoring and npliance requirements, incentives for lluters to invest in pollution abatement, d fiscal consequences to the government.

creasing urbanization and industrialtion can exacerbate pollution problems developing countries. Tax revenues in veloping countries are too low to suprt adequate infrastructure for treating d disposing of wastes, but the problem also attributable to the classic problem externalities in production and conmption. "Externalities" means that the ts of environmental degradation are t considered by the private isionmakers undertaking the activities at cause the problems.

Two types of policies are commonly conlered to correct this market failure and prove the allocation of resources: *comnd-and-control policies* (such as emisn and abatement standards) and *mar-based incentive policies* (such as emisns charges, taxes on production and sumption, and marketable pollution otas), which raise the price of such acities for the perpetrators.

Market-based incentives theoretically luce pollution at least cost and increase vernment revenues, but may require tly monitoring to be effective, and are ally implemented in an environment imperfect information about the costs abatement. Sometimes command-andtrol policies make more economic sense this environment.

Efficiency gains from curbing pollution developing countries may be large. ne polluting activities are subsidized, curtailing them brings both fiscal and vironmental benefits. Taxing polluting uts and outputs is a particularly attrae policy in developing countries, which en lack experience in administering l enforcing other types of environmenregulation. Corrective taxes make use xisting administrative structures and rease tax revenues, which can be spent public goods to improve environmenquality (including treatment facilities water and sewage, waste disposal, and itation) or can be used to reduce other es (which are often highly distortionary countries with a narrow tax base).

Which goods and inputs to single out for rective taxation depends on the main rces of pollution, which varies from ntry to country. Air pollution from hicles is growing in many countries, where increased fuel taxes, perhaps coupled with improved regulations for vehicle maintenance, may be desirable. Higher taxes on high-sulphur coal would curb both industrial and household emissions of sulphur dioxide. Charges can be implemented for fixed-site easy-to-monitor industrial emissions. Subsidies to industries that cause pollution should be phased out and those industries should be subjected to higher-than-average tax rates.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to evaluate fiscal instruments for environmental protection. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (74 pages).

1178. Productivity of Public Spending, Sectoral Allocation Choices, and Economic Growth

John Baffes and Anwar Shah
(September 1993)

The model results suggest that reshaping public spending priorities in favor of human resource development and away from military spending would positively stimulate world economic renewal.

Baffes and Shah examine the composition of public spending and its implications for economic growth.

They use a translog production function by treating gross domestic product as the output and labor, private capital, and several types of public sector capital stocks as the inputs, using time-series data for 25 countries for 1965-84.

The production functions of all but four countries exhibited increasing returns to scale. The highest output elasticity was for human resource development capital, followed by private capital and labor. Output elasticity of infrastructure capital was found to be relatively small, with the exception of Latin American countries where it exhibited relatively high values. Military capital had negative output elasticity in slightly more than half of the cases considered.

The results suggest that reshaping public spending priorities in favor of human resource development and away from military spending would positively stimulate world economic renewal.

This paper — a product of the Public Economics Division, Policy Research Department — was presented at the 1993 Annual Meetings of the American Economic Association in Anaheim, California, in January 1993. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (15 pages).

1179. How the Market Transition Affected Export Performance in the Central European Economies

Bartlomiej Kaminski
(September 1993)

There appears to be a close link between export performance and the decision to move quickly to a market-based economy. Countries that removed administrative controls on prices, devalued currency, introduced unified exchange rates, and liberalized trade also expanded exports. The driving force of export growth in five Central and Eastern European countries was manufactures, some of them redirected from CMEA markets, primarily to Germany.

Empirical studies have paid little attention to the supply-side forces behind the export performance of the Central and Eastern European countries of Bulgaria, Czechoslovakia, Hungary, Poland, and Romania (CEE-5) in OECD markets after the collapse of central planning.

Kaminski examines export developments in these countries in 1980-91, focusing on how transformation programs affected trade. OECD markets now receive three-fourths of CEE-5 exports. Sustaining this market penetration is crucial for countries making the transition to market-based economies. Kaminski provides insight into the impact of transformation-cum-stabilization programs on export performance. These insights are relevant to former centrally planned economies that have yet to restore macroeconomic equilibrium and to liberalize prices.

Kaminski examines the export performance of the CEE-5 before and after the collapse of central planning. He finds a close link between export performance and the decision to move quickly to a

market-based economy. Countries that removed administrative controls on prices, devalued currency, introduced unified exchange rates, and liberalized trade also expanded exports. Bulgaria and Romania, crippled by macroeconomic chaos and vacillating macroeconomic reform, registered drops in both exports and imports.

Kaminski suggests that differences among Czechoslovakia, Hungary, and Poland (CEE-3) had little to do with previous trends in export performance, external economic factors, and earlier attempts at trade reform. The expansion of exports in 1990-92 represented a dramatic reversal of trends prevalent in the prior two decades. The surge in exports is explained neither by the length of time experimenting with foreign trade under central planning nor by earlier trends in competitiveness in OECD markets.

The driving force of export growth was manufactures, some of them redirected from CMEA markets, primarily to Germany. The severing of links that used to bind the economies of the CMEA had a less destructive impact on the foreign trade performance of the CEE-3 than one might have expected.

The fact that exports to the CMEA fell at the same time that exports elsewhere (often of the same products) increased suggests a causal relationship.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the transition from central planning to market-based economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Pauline Kokila, room S7-040, extension 33716 (38 pages).

1180. The Financing and Taxation of U.S. Direct Investment Abroad

Harry Huizinga
(September 1993)

A reduction in average tax rates on U.S. investment abroad and a relative shift of U.S. investment toward industrial countries, rather than developing countries, suggests a tougher climate ahead for developing countries that wish to attract foreign direct investment.

Huizinga examines the financing of U.S. direct investment abroad. Using a theoretical model, he first examines how home country investors can use debt finance to reduce their host country tax liability and to reduce the capital investment distortion attributable to foreign taxes.

Empirically, U.S. affiliates are shown to use leverage in high tax environments and in situations where the affiliates face high foreign wage bills relative to assets. This confirms the notion that leverage can be used to ward off host country tax and wage pressures on the firm.

Huizinga examines what characteristics of foreign direct investment determine the average host country tax rate paid. Generally, the taxation of foreign direct investment is positively related to the ratio of a firm's plant and equipment spending to its assets, and negatively related to the size of the wage bill. Host countries appear to charge lower taxes in cases where U.S. direct investors abroad pay high wage bills to labor within the host country.

Certain trends emerge from the data:

- There is a relative shift of U.S. direct investment abroad toward the industrial countries.
- Debt finance of direct investment is becoming more important in industrial countries and less important in developing countries.
- The tax benefits that industrial and developing countries get from U.S. affiliates, as measured by average income and payroll tax rates, are waning. The downward trend in tax rates suggests an increased international competition to attract foreign direct investment.

The reduction in average tax rates on U.S. investment abroad and the relative shift toward investment in industrial countries suggests a tougher climate ahead for developing countries that wish to attract foreign direct investment.

One strategy for attracting foreign investment would be to deepen the domestic financial market so a multinational can attract additional lending capital in the host country itself. Another approach is local equity participation in foreign direct investment to lessen the incentives for host countries to tax foreign investments highly.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the effect of taxation of foreign direct investment. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047 (29 pages).

1181. Reforming Health Care: A Case for Stay-Well Health Insurance

Zeljko Bogetic and Dennis Heffley
(September 1993)

Many health care reform proposals expand insurance coverage without fundamentally changing the structure of health insurance. The stay-well plan used in Mendocino County, California, since 1979, offers an alternative insurance structure that provides direct incentives for consumers to control utilization and adopt healthier lifestyles.

All countries — whether industrial, developing, or in transition to a market economy — are interested in health care reform. A central focus of reform everywhere is to make patients more responsive to health care costs without diluting the protection offered by public or private insurance.

Conventional insurance offers customers little incentive to monitor their own use of health care services or to adopt and maintain better health habits.

Bogetic and Heffley describe an alternative health insurance structure first adopted in Mendocino County, California, in 1979, and compare it with conventional forms of insurance. The Mendocino or "stay-well" plan offers consumers direct incentives to control their use of health care services and to adopt healthier lifestyles. How well this insurance can contain health care costs depends on the size of the incentives and consumer responsiveness to them.

Conditions in some developing countries and in many countries moving to market-based economies — overuse of services, poor health habits, and declining real incomes — improves the likelihood of a favorable response to such incentives.

How to structure the stay-well system depends on the country, but the stay-well plan is a general, flexible form of insurance that subsumes most conventional plans as special cases. The rewards for low use might take many forms. As in the Mendocino plan, the rewards might be a

credit to a retirement account, but they could just as easily be annual cash rebates or credits against out-of-pocket expenses that exceed an individual's or family's spending goal in a future period.

Administration of the stay-well plan appears not to be unduly complex. If anything, incorporating stay-well incentives in a single-payer or national health care system would be simpler than incorporating them in a self-insured fund. The success of the plan hinges on whether incentives shift the frequency distribution of health care spending by reducing unnecessary utilization in the short-run and through better health care habits, reducing long-run costs.

Despite additional payments to low users, the stay-well plan could be less expensive than conventional plans with similar coverage. As in any insurance plan, solvency is enhanced by larger groups, better risk-pooling, economies of scale in administration and claims processing, and greater bargaining power with health care providers.

This paper — a product of the Country Operations Division, Europe and Central Asia, Country Department I — is part of an effort in the region to strengthen the emphasis on the analysis of social sector issues. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faith Smith, room H5-245, extension 36072 (17 pages).

1182. Corporate Governance In Central and Eastern Europe: Lessons from Advanced Market Economies

Cheryl W. Gray and Rebecca J. Hanson
(September 1993)

The countries of Central and Eastern Europe need to err on the side of stronger and more active corporate governance. German and Japanese models may offer some clues.

Patterns of corporate ownership and governance in advanced market economies vary immensely, the result not only of policy choice but of cultural and political differences and historical accident. None of those patterns can be copied wholesale onto the Central and Eastern European scene. But the experiences of Germany, Japan, and the United States do point to certain lessons and tradeoffs that the Central and Eastern European countries should consider.

First, there is probably some tradeoff between the distribution of wealth and the efficacy of corporate governance in an economy. Theory and to some extent practice support the view that tighter ownership patterns lead to better corporate performance. But more widely dispersed ownership patterns clearly have other economic and social benefits that are important in the Central and Eastern European context and to some extent (along with speed) motivate the "mass privatization" plans. The use of institutional intermediaries and creative legal frameworks to concentrate voice more than ownership may be a partial solution to the dilemma. Stronger and more committed voice might also be gained by encouraging ownership by parties with other long-term contractual interests, whether as suppliers, employees, or creditors.

Second, there is likely to be some tradeoff between industrial structure and the efficacy of corporate governance. Given a certain dispersion of ownership in an economy, smaller firms mean fewer owners, greater stakes per owner, and greater incentives and lower costs for shareholder monitoring. Yet Central and Eastern European industrial structures tend to be quite highly concentrated. There may be other benefits to preserving such concentration in some industries, but antimonopoly and privatization policies should not leave the governance issue out of the equation.

Finally, there is clearly an important and difficult tradeoff between the efficacy of corporate governance and concerns of safety and soundness in financial intermediaries. The United States represents one extreme, where concerns of safety and soundness dominate, limiting active participation in corporate governance by banks, insurance companies, pension funds, and mutual funds. Germany and Japan are on the other side, allowing financial intermediaries (and other related firms) a major voice in corporate governance. Unfortunately, this tradeoff is even more difficult in Central and Eastern Europe because of the lack of alternative tools to achieve either goal. On the one hand, legal and information systems are relatively weak, making it difficult to identify and eliminate irresponsible self-dealing by fiduciaries in the intermediary institutions. Furthermore, the high degree of risk in these economies argues strongly in favor of diversification on the grounds of safety and soundness. On the other hand, product, capital, and labor markets are often underdeveloped, so there may be few other constraints to discipline company managers in the absence of active shareholder monitoring.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to analyze the economic impact of legal reform in Central and Eastern Europe. The study was funded by the Bank's Research Support Budget under the research project "Corporate Governance in Central Europe" (RPO 678-42). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Maxine Berg, room N11-057, extension 31450 (30 pages).

1183. Who Would Vote for Inflation in Brazil? An Integrated Framework Approach to Inflation and Income Distribution

Cheikh Kane and Jacques Morisset
(September 1993)

Are Brazil's delays in adopting a stabilization program related to the finding that Brazil's high inflation hurts the lower and middle classes far more than the rich, who insulate themselves from its effects by taking advantage of high real interest rates on demand deposits?

Most studies of how inflation affects income distribution focus only on wages or the inflation tax. Kane and Morisset argue that this approach could be misleading as it ignores important channels through which inflation affects income distribution.

The authors present an integrated framework that combines interest-bearing assets with labor income and cash holdings. This allows them to describe clearly the conditions under which inflation will create gainers and losers.

They apply the model to Brazil, which is a prime candidate for this exercise because its economy combines skewed income distribution and high inflation. They show that in Brazil inflation helped worsen income distribution in the 1980s. Their major findings are as follows:

- In 1980-89, the inflation-induced income loss for the lowest quintile in Brazil

was an estimated 19 percent a year, of which 16 percent is attributable to the erosion of real wages and the rest to the inflation tax.

• During the same period, Brazil's middle class, which lost close to 30 percent of its annual income, was devastated because of its limited access to indexed assets.

• But the richest quintile managed to insulate itself from inflation by taking advantage of high real interest on demand deposits — without losing from reduced labor income. Had real assets and subsidized credit been considered in the analysis, the regressive effects of inflation would probably have been even worse, say Kane and Morisset.

This raises a question: Do these findings about the distributional effects of inflation help explain Brazil's delays in adopting a stabilization program?

This paper — a product of the Latin America and the Caribbean, Country Department I — is part of a larger effort in the department to understand the social dimensions of inflation. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Tania Hollestelle, room I7-041, extension 30968 (29 pages).

1184. Providing Social Benefits in Russia: Redefining the Roles of Firms and Government

Simon Commander and Richard Jackman
(September 1993)

Providing for workers' social benefits is a brake on the competitiveness of Russian firms. But paying taxes that allow the government to provide benefits is not a solution either. The main problem is housing and a systematic program of divestiture may be the critical first step. This will involve tackling issues of financing, ownership, and common property.

Russian firms commonly provide many nonmonetary benefits to workers, including such social benefits as housing and some aspects of education and health care. Nonmonetary benefits may amount to 35 percent of labor costs, which is high compared with OECD countries. In a market economy, most of these benefits would be provided by local governments.

Commander and Jackson explain why the obvious solution — transferring social benefits and services from firms to local government or other agencies — is not so simple. At the same time, they outline the inefficiencies associated with firms providing such services and benefits. They explore the issues involved in calculating how social benefits should be divided between firms and the government and identify problems and options associated with the transition to a new division of rights and responsibilities.

The main problem is housing. After a government decree in February 1993, steps have been taken to accelerate privatization, but they have been piecemeal. The main stumbling block is the financing and management of common property. The problem of free riders and the lack of an appropriate institutional setting is likely to exacerbate problems of who handles and pays for common maintenance.

Commander and Jackson argue that a more systematic general program of divestiture in housing is essential. Part of this must be an explicit new institutional arrangement for addressing the management problem. The quality of the housing stock varies greatly, so they suggest a scheme and possible financing for dampening the large-scale effects of privatization and for ensuring a minimum level of quality for divested housing stock.

They discuss the divestiture and related financing problems in a number of settings. What happens, for example, in a company town when the company ceases operation? Who covers benefits for the workers left without a job? What compensatory financial supports are provided in such a town, given existing budget arrangements?

This paper — a product of the National Economic Management Division, Economic Development Institute — is part of a larger effort in the Bank to understand the functioning of labor markets in transitional economies. The study was funded by the Bank's Research Support Budget under research project "Labor Markets in Transitional Socialist Economies" (RPO 677-30). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Olga del Cid, room M3-047, extension 35195 (41 pages).

1185. Reforming Hungarian Agricultural Trade Policy: A Quantitative Evaluation

Morris E. Morkre and David G. Tarr
(September 1993)

Import protection, export subsidies, and a potential common agricultural policy (CAP) system are all shown to be costly to Hungary in terms of lost welfare. The proposed CAP system would also significantly increase the government's fiscal problems.

Morkre and Tarr quantitatively assess the consequences for Hungary of three types of policies:

• Removing quantitative import restraints in agriculture, both for all of agriculture and for each of five separate agricultural products.

• Removing the export subsidy program in agriculture.

• Adopting a European Community–type common agricultural policy (CAP) system in Hungary.

The authors estimate the consequences of all policies by using a small open-economy computable general equilibrium model for Hungary, calibrated to the year 1990.

They estimate the tariff equivalent of the import licenses through a detailed study of price comparisons, the first of its kind for Hungary.

Imposing a CAP system, they find, would be a costly step backward for Hungary, especially as the long-run trend in Hungarian agricultural policy has been toward less intervention and more reliance on the market. A CAP system would significantly increase the government's fiscal problems.

Import protection and export subsidies are costly, inefficient policies. The most important policy conclusion, they contend, has to do with the piecemeal sequencing of reforms in the presence of both export subsidies and import licenses. Removing import licenses while export subsidies remain would generate byproduct distortions in the export market and little gain in welfare. The piecemeal removal of export subsidies, however, would not generate byproduct distortion, so substantial gains could be expected — but at the expense of greater adjustment costs.

To facilitate understanding of this commonly used type of general equilibrium model, they explain the results by using supply-and-demand graphs of the agricultural sector.

This paper — a product of the Trade Policy Division, Policy Research Department — is part of a larger effort in the department to assess the impact of trade liberalization in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Nellie Artis, room N10-013, extension 37947 (28 pages, plus 11 pages of appendix).

1186. Recent Estimates of Capital Flight

Stijn Claessens and David Naudé
(September 1993)

Estimates of capital flight calculated using several methodologies do not differ widely. Capital flight is more widespread than commonly assumed and, relative to GDP, evenly distributed. The capital flight-GDP Lorenz curve is close to the 45-degree line.

Researchers and policymakers have in recent years paid considerable attention to the phenomenon of capital flight. Researchers have focused on four questions: What concept should be used to measure capital flight? What figure for capital flight will emerge, using this measure? Can the occurrence and magnitude of capital flight be explained by certain (economic) variables? What policy changes can be useful to reverse capital flight?

Claessens and Naudé focus strictly on presenting estimates of capital flight using a number of alternative methodologies. In their discussion of these methodologies, they show that although the approaches to measuring capital flight differ, the identities used in balance of payment data make them close in final measurement. In particular, the so-called World Bank residual and Dooley methods — presented in the past as very different approaches to measuring capital flight — actually produce similar measurements.

Claessens and Naudé discuss the data used for calculating capital flight and the adjustment that must be made. They present aggregate capital flight figures using the various measures for 84 developing countries.

The figures show a pattern of increasing capital flight until 1988, followed by a return of flight capital between 1989 and 1991.

Claessens and Naudé present regional aggregates of capital flight and rank countries and regions by the level of capital flight relative to GDP. They find that capital flight is more widespread than commonly assumed and, relative to GDP, is rather evenly distributed. The capital flight-GDP Lorenz curve is above the 45-degree line, indicating that countries with a smaller GDP have more capital flight than one would expect if it were distributed proportionate to GDP.

This paper — a product of the Debt and International Finance Division, International Economics Department — is part of a larger effort in the department to study the integration of developing countries in world financial markets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-042, extension 31047. (27 pages). For individual country data, available on a floppy disk, contact Shelley Fu, extension 33885 (fax 477-0661).

1187. How Should Sovereign Debtors Restructure Their Debts? Fixed Interest Rates, Flexible Interest Rates, or Inflation-Indexed

Andrew M. Warner
(September 1993)

The presumption that fixed-rate debt is, in general, less risky than flexible-rate debt is historically inaccurate. In some common circumstances, flexible-rate borrowing actually reduces net risk — whether debt service payments are indexed to nominal interest rates or to inflation in industrial countries.

Can developing countries affect the variance of real imports solely by altering the way debt service is paid? The answer, says Warner, is a qualified yes.

The presumption that fixed-rate debt is less risky than flexible-rate debt is historically inaccurate as a general proposition. Using annual data for 1970-90, Warner shows that for many developing countries, flexible-rate borrowing actually reduced net risk — whether debt service payments were indexed to nominal interest rates or to inflation in industrial countries. The covariance terms are larger and more often positive with inflation than with nominal interest rates.

Warner presents a macro-model of the industrial countries to organize thoughts about the comovements of these variables in response to shocks. The terms of trade of developing countries are linked to this model by the assumption that the level of demand in industrial countries positively affects the terms of trade of developing countries.

The worst-case scenario for developing countries is flexible interest rate borrowing combined with monetary contraction in the industrial world, which raises nominal interest rates, reduces inflation, and worsens the terms of trade of developing countries. To the extent that developing countries want to avoid this scenario, borrowing at either fixed interest rates or inflation-indexed rates would be preferable to borrowing at flexible nominal interest rates.

To reduce risk, countries should seek debt contracts in which debt service payments vary positively with their terms of trade. Results indicate that inflation-indexed debt is most desirable on this score.

Warner examines only extreme options, with all debt of one type. The optimal strategy would probably entail all three kinds of borrowing. And the paper does not examine options for efficient international risk-sharing.

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — is part of a larger effort in the department to understand the links between the international economic environment and the growth process in developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Jacquelyn Queen, room S8-216, extension 33740 (35 pages).

1188. Developmentalism, Socialism, and Free Market Reform: Three Decades of Income Distribution in Chile

Mario Marcel and Andrés Solimano
(September 1993)

How do the poorest 40 percent fare under market-oriented reform? Lower income groups suffer when real wages fall and unemployment increases. Then their situation improves as medium-term growth takes off and conditions improve in the labor market. A sort of Kuznets relation can be traced between reform and distribution.

After relatively stable income distribution in the 1960s, and a redistribution toward

low-income groups under Allende, income shares declined for the 40 percent of the population (low- and lower-middle income groups) under Pinochet. The top 20 percent benefited most from the income shift away from low-income groups. Under Aylwin, the income share of the bottom 40 percent returned to previous levels, but the share of the top 20 percent remained above its pre-1973 historical average.

Marcel and Solimano show that in the first years of market-oriented reform income for the poor deteriorated, chiefly because of persistent high unemployment and a squeeze on the real minimum wage and other wage categories.

The share of the middle class (the third and fourth quintiles) in national income declined by an average 3 percentage points during 1974-89 — because of cutbacks in public sector employment and steadily declining public sector wages.

Recession with high unemployment especially hurts the poor, and growth does not equalize conditions until it strengthens labor markets. Only when Chile's economy approached full capacity, when wages rose and unemployment dropped to a historic low in the early 1990s, did income distribution for the poor improve. If growth continues and investment grows even faster, as in the past two years, the labor market will remain tighter than in any period in the past 30 years and distribution may improve more significantly.

Is a liberalized economy compatible with social equity? Marcel and Solimano show that initially income distribution deteriorated under reform, chiefly because of macroeconomic crises and subsequent high unemployment and depressed real wages. However, it is not clear that trade liberalization and deregulation are socially regressive, though the market outcomes that dominate in a liberalized economy may generate a failure in the labor market that social policy should correct.

There is more potential for improving the quality of social services today than in the past, but targeting of social services should be designed to prevent the "poverty trap." Targeting and social policies should be designed to encourage personal efforts to escape poverty and to avoid alienating middle-income groups.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — was prepared for the conference "The Chilean Economy: Policy Lessons and Challenges," organized by the Brookings Institution and held in Washington, DC in April 1993. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Susana Florez, room N11-017, extension 39075 (48 pages).

1189. Can Communist Economies Transform Incrementally? China's Experience

Alan Gelb, Gary Jefferson, and Inderjit Singh (September 1993)

How does China's approach to reform — incrementally removing constraints on market behavior — square with the opposing "big bang" thesis that partial reform is probably worse than no reform because it leaves economic agents constrained neither by plan nor by markets? Are there rational bases for these widely different approaches to fundamental economic change? If so, what is transferable from China?

Gelb, Jefferson, and Singh try to answer important questions: How important is the phasing of political and economic liberalization and the active (versus passive) role of the state in reform? What lessons can be learned about comprehensive top-down reform as opposed to experimental bottom-up reforms? About fast versus slow liberalization and opening up of the economy? About the need to establish full private property rights at the beginning of reform? About reform's implications for welfare and distribution? Can China's excellent performance be linked to particular reform measures, or does it reflect distinctive initial conditions or social and demographic factors? Is China's performance sustainable without more comprehensive transformation, or does it reflect transient gains that are substantially exhausted? Among lessons China offers are the following:

- Partial reform can succeed in raising productivity in agriculture and industry; industrial productivity has grown very rapidly in the nonstate sector but also in state enterprises.
- A "big bang" is not economically necessary unless justified by the need to address macroeconomic imbalances.
- There may be virtue in a decentralized, "bottom-up" approach to reform.
- Rapid privatization is not necessary for successful reform, but it is important to diversify ownership and encourage the entry of new firms.
- Small-scale privatization and the liberalization of distribution and service sectors are likely to have the fastest payoff in the reform of property rights.
- China's rapid growth momentum and macroeconomic stability cannot be sustained without further reforms, including the reform of banking, taxation, and property rights.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of two Bank research projects: "Enterprise Behavior and Economic Reforms: A Comparative Study in Central and Eastern Europe," and "Industrial Reform and Productivity in Chinese Enterprises" (RPO 675-38). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact PRDTM, room N11-065, extension 37471 (49 pages).

1190. The Government's Role in Japanese and Korean Credit Markets: A New Institutional Economics Perspective

Yoon Je Cho and Thomas Hellmann (September 1993)

Government-led credit allocation in the early stages of Korea's and Japan's economic development helped overcome pervasive market imperfections but increased the risk of entrenched interests and institutional inertia. In both countries, government involvement diminished as competitive capital markets and large conglomerates expanded with economic growth.

Cho and Hellmann discuss the effectiveness of credit policies in the early stages of economic development in Japan and Korea. They examine the importance of institutional arrangements for managing credit policies in the two countries.

They emphasize participatory government intervention, wherein credit policies could be viewed as part of an internal allocation mechanism: Government, banks, and large industrial firms may be said to have formed what the authors call a "government-led internal organization" (GLIO). They examine the theoretical foundations for this view and discuss the implications for the efficiency of credit allocations.

They argue that in early economic development such a participatory approach may have helped overcome pervasive market imperfections. But there were also significant dangers: problems of entrenched interests and institutional inertia.

In both countries, the relative importance of GLIO gradually diminished as competitive capital markets and large conglomerates ("privately led internal organizations") expanded with economic growth.

This paper — a product of the Financial Sector Development Department — is part of a larger World Bank research project on the effectiveness of credit policies in East Asia. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Tomoko Ishibe, room N9-037, extension 37665 (30 pages).

1191. Rent-Sharing in the Multi-re Arrangement: The Case lexico

Trey J. Bannister
tember 1993)

ket power affects the distribution of ta rents in the market for Mexico's ex- s of apparel and textiles to the United es under the Multi-Fibre Arrange- t. Although rents from quotas on ap- l are probably small in the case of ico, a significant share goes to U.S. orters for such product groups as un- vear and woven shirts.

nister investigates market power and distribution of rents in the market for ico's exports of apparel to the United es under the Multi-Fibre Arrange- t (MFA).

Conventional wisdom holds that volun- export restraints, such as those under MFA, are superior to other kinds of e barriers because they allow develop- countries to receive the scarcity rents quantity restrictions. Recently a num- f studies have questioned this orthodoxy.

Erzan, Krishna, and Tan (1991), in par- lar, have pointed out that if market er exists only on the side of the import- they can acquire some of the fixed s resulting from quotas, in a form of t-sharing."

In Mexico's case, rents resulting from restrictions are probably small, since few of the quotas imposed are binding. And other institutional arrangements — such as production-sharing under HTS 9802 and a liberal quota regime for goods made with U.S. inputs — further mitigate the MFA's restrictiveness.

Mexican exporters probably receive only a fraction of available rents, says Bannister. The welfare implications of MFA restrictions, and of market imperfections that might lead to rent-sharing, are thus not as significant in Mexico as they might be in countries for which conditions are more restrictive. But even for the few rents generated in Mexico's case, some rent-sharing is taking place.

Bannister tests the existence of perfect markets and rent-sharing for six groups of Mexican apparel exports to the United States between 1981 and 1990: sweaters, trousers, men's coats, women's coats, woven shirts, and underwear.

There are consistent differences between the unit value of U.S. production and the Mexico export f.o.b. price of apparel in the U.S. market adjusted for tariffs and transport costs. The adjusted price of Mexican exports is consistently below the price for U.S. production, which suggests that rent-sharing may be taking place.

Using modifications of the methods of Erzan, Krishna, and Tan (1991), Bannister tests alternative explanations for the price difference — differences in the composition of Mexican exports and U.S. production, and differences in the quality of Mexican exports and U.S. products.

The existence of differences in composition between Mexican exports and U.S. production is rejected for three of the six groups. Bannister also controls for the existence of significant quality differences.

The results indicate that rent-sharing may exist for woven shirts and underwear (two of the three groups in the sample that are consistently quota-bound). U.S. importers may receive up to 49 percent of available rents.

This paper — a product of the International Trade Division, International Economics Department — is part of a larger effort in the department to analyze the effects of the Multi-Fibre Arrangement on developing countries. The study was funded by the Bank's Research Support Budget under research project "Licence Prices and Rent Sharing in the Multi-Fibre Arrangement" (RPO 676-69). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Aban Daruwala, room S7-042, extension 33713 (35 pages).

1192. Effects of Tax Reform on Argentina's Revenues

Jacques Morisset and Alejandro Izquierdo
(September 1993)

In Argentina, changes in tax legislation, tax administration, and individual taxpayers' attitudes toward tax evasion improved tax revenues. Here is a method to measure how much.

Too often, a good tax policy proposal is considered sufficient to improve the tax system — too little consideration is given to weaknesses in tax administration, perhaps because of measurement problems. Analyzing legal and administrative measures and quantitatively evaluating their impact on tax revenues is generally arduous.

Morisset and Izquierdo develop a simple approach to assessing how tax effort affects tax revenues (performance). By "tax effort" they mean changes in tax legislation (except changes in nominal taxes), tax administration, and individual taxpayers' attitudes toward tax evasion. Changes in tax administration include increasing tax penalties, new technologies, and administrative reform.

They measure tax effort as a residual: the variations in tax revenues that cannot be explained by changes in economic variables and tax structures. Using this approach, one can easily identify factors that influence tax revenues over time, and understand the behavior of tax revenues in developing countries, particularly where macroeconomic conditions are volatile.

The authors apply this approach to Argentina; it can as easily be applied to other countries. Their main conclusions in this application:

- The administrative dimension of tax reform is at the heart of Argentina's recent fiscal adjustment. Since 1991, tax effort is an average 80 percent higher than during the preceding (temporary) successful adjustment period (under the Austral Plan).
- An efficient tax administration and an improvement in taxpayer compliance levels appear to precede rather than follow increases in tax revenues.

• Tax effort is influenced significantly by such macrovariables as GDP growth and inflation, as well as by political (in)stability. It is influenced less by such fiscal variables as alternative sources of financing.

• In Argentina, the sequence of the tax effort was, first, to broaden the potential value-added tax base, and then to reduce tax evasion through higher tax penalties and improvements in the basic functions of tax administration (inspection, audits, tax management, and personnel policy).

This paper — a product of the Country Operations Division, Latin America and the Caribbean, Country Department IV — is part of a larger effort in the department to understand fiscal reforms in Argentina. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Gerald Carter, room I6-020, extension 30603 (23 pages).

1193. The Armenian Labor Market in Transition: Issues and Options

Milan Vodopivec and Wayne Vroman
(September 1993)

Armenia, like all of the economies of the former Soviet Union, faces a host of problems in reforming the labor market: choosing the right pace for reallocating labor, setting up a well-functioning wage determination system, fostering geographic mobility, providing adequate income support to the jobless and the poor, and designing appropriate active policies for the labor market.

Reform of the labor market in the former Soviet Union (FSU) is essential to increase productivity. The transition of the FSU economies to a market economy must involve a massive displacement of workers, and will entail labor shortages for certain skills. A key challenge will be to reallocate labor at the lowest social costs.

Vodopivec and Vroman identify key labor market issues in Armenia, reflecting on the dilemmas and options policymakers face both in Armenia and elsewhere in the FSU.

Armenians are ardent advocates of radical reform and have already made progress in several areas (including successful privatization of land in 1990). But the Armenian transition is taking place in particularly unfavorable circumstances — including a severe energy crisis because of an economic blockade imposed by neighboring Azerbaijan.

In Armenia, current labor policies represent a step in the right direction because they leave primary responsibility for finding a job to the individual. The state's role is simply to provide a social safety net and to create an environment that generates jobs. Tangible progress has been made but the adjustment process has just begun and is hindered by inconsistent labor policies — in some areas too radical and in others smacking of the old interventionism.

Vodopivec and Vroman offer several general policy guidelines:

• Undertake several initiatives, not just one — possibly worker training as well as job search assistance, self-employment grants, and temporary public employment.

• Use some resources to monitor and evaluate interventions, so you find out "what works."

• Coordinate active policy interventions and the interface between active and passive instruments.

• Be prepared to change as the macroeconomic environment changes, and take advantage of the current climate. Under high inflation, for example, consider widening the wedge between wages and various cash and in-kind transfers. When inflation abates, consider paying cash benefits on the basis of prior earnings.

• Above all, be flexible and sensitive to signals and changes in signals. Among policy options, one size does not fit all.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger effort in the department to investigate how labor markets work during the transition of socialist economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Susana Florez, room N11-017, extension 39075 (34 pages).

1194. How Fast Has Chinese Industry Grown?

Tom Rawski
(September 1993)

An upward bias in measures of China's real industrial output in the past decade may substantially alter our perception of the rate and pattern of Chinese industrial growth. The extent of such bias should be investigated and analyzed for possible links with other economic patterns that may be more readily measurable.

Data for recent years indicate an acceleration of Chinese industrial growth, from the annual rates of about 10 percent recorded in the quarter century before economic reform to figures approaching 15 percent in the mid- and late 1980s.

Evaluating the statistics underlying these reports requires an appraisal of how economic reform has affected the ability of China's statistical system to measure economic performance. Erroneous information about the rate and pattern of industrial growth could distort measures of productivity change considered to be central indicators of the effectiveness of Chinese industrial reform.

Rawski describes the statistical materials and procedures used to provide information on the growth of industrial output. He investigates sources of bias in the official statistics to indicate, whenever possible, how these biases affected reported output totals, and to appraise the impact of adjustments to reported output growth on measures of industrial productivity.

The specific consequences of decentralized decisionmaking, growing price flexibility, inflation, dual pricing systems, the emergence of enterprises with few or no ties to the system of state planning, and other emerging features of the industrial system may be unique to China but the broader issues raised are relevant in many countries.

Rawski finds considerable evidence of an upward bias in measures of China's real industrial output in the past decade. The issue is not whether such bias exists but whether its presence substantially alters our perception of the rate and pattern of Chinese industrial growth.

To clarify this issue requires investigating the extent of possible upward bias. This in turn calls for an analysis of possible links between upward bias — which is itself difficult to observe — and other economic patterns that may be more readily measurable.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of the division's research initiative, Industrial Reforms and Productivity in Chinese Enterprises. The study was funded by the Bank's Research Support Budget under

research project "Reforms and Productivity in Chinese Enterprises" (RPO 675-38). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room N11-065, extension 37471 (44 pages).

1195. The Enterprise Sector and Emergence of the Polish Fiscal Crisis, 1990-91

Mark Schaffer
(September 1993)

Increasing tax revenues from the enterprise sector alone will not solve Poland's budget crisis. As the state sector shrinks and the private sector grows, the tax net will get increasingly leaky. The budgetary problem could be ameliorated by controlling social security expenses and possibly by abolishing amortization deductions for state-owned enterprises.

Schaffer analyzes the causes of the collapse of profitability in 1991 of the Polish enterprise sector. He explores how it affected the government budget and assesses the forecasts of enterprise sector performance used to prepare the government's 1990 and 1991 budgets.

Schaffer attributes about half of the drop in profitability to the decrease in the inflation rate and the consequent decrease in the inflation bias in profits that results from historical cost accounting.

He attributes most of the rest of the collapse in profitability to higher labor unit costs and higher amortization allowances. When wages are endogenized in a simple model, nearly the entire collapse of profitability is explained by the changes in inflation bias and amortization allowances.

The decrease in the inflation bias and the increase in amortization allowances raised profits, and thus profit taxes, to fall, freeing up cash that could be spent on wages, causing profits and profit taxes to fall even further. This loss in government revenue was offset by increased revenues from wage taxes, which were in turn offset by an increase in wage-indexed government spending, notably on pensions.

As a result of all these changes, the government deficit increased about 4 to 5 percent of GDP — about half of the fiscal crunch between 1990 and 1991.

Policy options Schaffer recommends for increasing tax revenues include the following: (1) increasing the turnover tax and introducing the value-added tax that will replace it at rates that maintain the increased level of revenue; (2) increasing the social security tax rate; and (3) maintaining, but not raising, the historical cost-based profit tax, an automatic stabilizer.

An obvious alternative to the profit tax based on historical cost accounting is to redress a 1991 mistake, the indexing of amortization deductions. Schaffer recommends drastically reducing or even abolishing amortization deductions for state-owned enterprises for fixed capital acquired before 1990 (before the start of the transition from socialism). It is odd that these firms are given a tax break on top of the free use of state-owned capital. If anything, they should be paying for the use of the capital.

This paper — a product of the Transition and Macro-Adjustment Division, Policy Research Department — is part of a larger departmental study on Enterprise Behavior and Economic Reform in Central and Eastern Europe. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room N11-065, extension 37471 (32 pages).

1196. Corporate Tax Structure and Production

Jeffrey Bernstein and Anwar Shah
(September 1993)

Investment tax credits, investment allowances, and accelerated capital consumption allowances are more cost-effective in promoting investment than more general tax incentives such as corporate tax rate reductions.

Bernstein and Shah provide an empirical framework for assessing the effects of tax policy on an array of producer decisions about output supplies and input demands in Mexico, Pakistan, and Turkey. They specify and estimate a dynamic production structure model with imperfect competition for selected industries in these countries.

The model results suggest that tax policy affected production and investment and further that selective tax incentives such as investment tax credits, investment allowances, and accelerated capital consumption (depreciation) allowances are more cost-effective at promoting investment than more general tax incentives such as corporate tax rate reductions. The long-run cost-effectiveness of these incentives — except corporate tax rate reductions, which proved cost-ineffective in all cases — varies by country. In Turkey, investment allowances and capital consumption allowances were cost-effective. In Mexico, neither investment tax credits nor accelerated capital consumption allowances were cost-effective. In contrast, in Pakistan, both investment tax credits and accelerated capital consumption allowances were cost-effective. In the intermediate run, defined as tax policy impact after one year, only the investment allowances and accelerated capital consumption allowances available to Turkish industries proved cost-effective.

To make selective tax incentives more effective, investment tax credits must be refundable and carrying forward investment and depreciation allowances must be permitted. If stimulating investment expenditure is the sole objective of tax policy, reducing the corporate tax rate is not a cost-effective instrument to achieve this objective.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to evaluate public policies for private sector development in developing countries. The study was funded by the Bank's Research Support Budget under research project "An Evaluation of Tax Incentives for Industrial and Technological Development" (RPO 675-10). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (61 pages).

1197. Determinants of Inflation among Franc Zone Countries in Africa

Bruno Boccara and Shantayanan Devarajan
(September 1993)

Despite belonging to a monetary union with a common currency and pooled foreign reserves, the countries of Africa's franc zone (CFA) experience substantially different inflation rates, especially in the short run. This is partly explained by the fact that for primary exporters in general, and for CFA zone members in particular, the volatility of commodity prices implies a high variance in government revenues.

Despite belonging to a monetary union with a common currency and pooled foreign reserves, the countries of Africa's franc zone (CFA) experience substantially different inflation rates, especially in the short run.

Boccara and Devarajan develop a model of inflation differentials for the franc zone countries based on behavioral differences in fiscal policy responses to fluctuations in the price of the main export commodity. The model is based on the fact that for primary exporters in general, and for CFA zone members in particular, the volatility of commodity prices implies a high variance in government revenues.

The model identifies two effects: a monetary effect (commodity booms imply a surge in foreign reserves which, if unsterilized, is inflationary) and a fiscal effect (higher government revenues are, to varying degrees, accompanied by a marked increase in the level of spending, which is again inflationary).

The fiscal relationship is the key behavioral equation of the model, as the other relationships are essentially derived from accounting identities.

Boccara and Devarajan empirically test the model for Côte d'Ivoire. It tracks quite well the inflationary cycle that Côte d'Ivoire experienced after the boom in coffee prices in 1975–76.

Since the countries are in a monetary union, if some countries have expansionary fiscal policy (and thus inflation) the others must take a more contractionary fiscal stance. One issue for future research is what determines whether a member country has the freedom to follow an expansionary fiscal policy or whether it must contract because other members have already expanded. A discussion of potential "games" played by countries in a monetary union may shed light on these issues.

This paper — a product of the Public Economics Division, Policy Research Department — is part of a larger effort in the department to study structural adjustment in Sub-Saharan Africa. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Carlina Jones, room N10-063, extension 37699 (45 pages).

1198. Enterprise Reform in China: The Evolving Legal Framework

Natalie Lichtenstein
(September 1993)

How far legal reform has gone, and where it needs to go, to support enterprise reform and provide the legal environment needed for China's transition to a "socialist market economy."

Enterprise reform in China since 1979 has been supported by accelerated reform of China's legal framework. In the transition to a "socialist market economy," state enterprises will operate independently of the government, may no longer be fully owned or controlled by the state, and will deal with the state and other legal entities through market-based transactions. The number of collective (township and village) enterprises has grown rapidly, and in recent years so has the number of private enterprises.

This level of economic change requires a commensurate level of legal change. Lichtenstein describes the legal framework needed for enterprise reform in the world's most populous country.

First, it is essential to define the enterprise and its rights and obligations. To define and broaden the autonomy of enterprises, *enterprise law and company law and regulations* must be reformed. For state and collective enterprises, a goal of legal reform is also to effect the separation of ownership and management. To create a legal environment in which all enterprises — including state enterprises — participate as independent economic actors, reform is also needed in the following areas:

- *Bankruptcy and competition law*, to promote fair, effective competition among autonomous enterprises and to ensure the continued protection of the public interest even without direct state management of enterprises.
- *Financial laws, including securities laws and regulations*, so enterprise financing can take place in a market-driven system rather than through a planning mechanism.
- Laws governing *land use, mortgage financing, and pension and social security systems*, to separate employee housing and pension and social security systems from enterprise obligations and henceforth to provide housing, pensions, and social security through alternative means.
- *Contract law*, to protect the legal rights of enterprises and allow economic transactions between parties to replace administrative controls, and to ensure that the *court system and dispute resolution processes* function credibly and reliably, thereby making all other reforms enforceable.

To make these reforms meaningful, *property rights* must also be better defined. China's civil code currently offers only a limited definition of the rights of ownership and of an enterprise's rights to sell, transfer, or otherwise dispose of property.

Lichtenstein catalogs these pieces of the legal framework, suggesting where further reform is needed to support enterprise reform. She focuses on the reform of state enterprises but also discusses the reform of nonstate enterprises. She touches only lightly on the role of foreign investment but does not address the developing framework of patent, trademark, and copyright laws.

This paper — a product of the Legal Department — is the first in a series of staff publications intended to provide information and analysis of legal issues relevant to development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Malini Rangarajan, room MC6-367, extension 81710 (39 pages).

1199. Public Pension Governance and Performance: Lessons for Developing Countries

Olivia Mitchell
(October 1993)

Lessons U.S. pension analysts learned.

Mitchell examines the relationship between public sector pension plan performance and management practices to improve the design and governance of public pensions in developing countries. Understanding this relationship is important because better yields on public pension plan investments reduce the need for additional taxes to support retirees — and well-funded plans stand a better chance of paying promised benefits.

Her model relates investment returns on public pension assets, as well as plan

ıg status, to features characterizing ension systems' governance struc- ınd authority, using a new data set 3. state and local public sector plans. in findings stand out:

The higher the fraction of retirees d to the pension board, the stronger gative effect on investment return in and the more variable the returns.

Systems fared about the same ıer they had in-house or external y managers, or independent perfor- e analysis (even if the external man- were drawn from the "top 10"). But : pensions performed better when and actuarial computations were by professional actuarial and invest- couselors rather than relying on r or current employees to choose tment strategies.

Social investment rules hurt public on yields. Public pension plans which lated that a certain portion of invest- s be director to in-state projects gen- d much lower returns.

ne data show that many public pen- ystems funded their plans satisfac- but others did not. The results show

Fiscal stress reduced stock funding .

- Stock funding rates were lower, the r the fraction of elected retirees and d active workers represented on the on system board.
- Stock funding ratios were higher a system had in-house actuaries, the board authorized benefit levels, when board members had liability ance.

Stock funding rates were unaltered ıte statutes guaranteeing that ben- be guaranteed by law, or by legally nding requirements, or by the state's y to carry budget deficits from one to the next. Nor did they vary when ated or special taxes were earmarked ension revenue.

icymakers in developing countries rofit from the mistakes made and ıs learned by U.S. pension analysts. ugh no single package of pension practices can optimize investment rmance for all systems across all time ds, care must be taken when design- ıe regulatory and investment envi- ent in which these plans operate. loping countries should study the of the U.S. Government Accounting lards Board.

Mitchell discusses some of the complex issues that must be confronted when establishing funding norms for defined benefit pension plans in the public sector.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to investigate the complex issues related to old age security arrangements. The study was funded by the Bank's Research Support Budget under research project "Income Security for Old Age" (RPO 677-45). Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (73 pages).

1200. The Life-Cycle Distributional Consequences of Pay-As-You-Go and Funded Pension Systems

Jane Falkingham and Paul Johnson
(October 1993)

Flat-rate pay-as-you-go pension plans and funded pensions produce very different distributional outcomes, the single most important determinant of which is the different lifetime employment and earnings records of men and women.

Using a dynamic cohort microsimulation model (LIFEMOD), Falkingham and Johnson examine the life-cycle distributional consequences of a variety of pay-as-you-go (PAYG) and funded pension systems. This technique allows them to investigate both the socioeconomic characteristics and the number of people affected by a change in contribution or eligibility rules in any pension system.

LIFEMOD uses 1985 parameters for the United Kingdom so specific results are not valid for other countries. But winners and losers are likely to be similar across countries. They find that:

- Women benefit much more than men in a flat-rate PAYG system. In simulations, 84 percent of surviving women but only 33 percent of surviving men are net beneficiaries, because women have higher life expectancy and lower lifetime earnings.
- Imposing minimum contributions substantially reduces the number of women who qualify for a pension. Imposing a joint contribution rule on the earnings of married couples significantly increases the number of women qualifying without significantly reducing the proportion of qualifying men.
- In funded pension systems, on average men accumulate much more pension capital than women do because of men's higher earnings and more continuous paid work. Different rates of real interest and earnings growth affect individuals' fund accumulation differently. Women benefit more from high rates of return and low earnings growth because they tend to receive a higher proportion of their lifetime earnings when young. But some men and many women fail to achieve minimum pension levels. If the pension shortfall is compensated for by lump-sum capital top-ups, women receive 93 percent of top-ups (70 percent if joint contributions are used).
- In hybrid pension systems that combine both PAYG and funded elements, the higher the proportion of PAYG payments, the greater the replacement rate for people in the bottom 40 percent of the lifetime earnings distribution (the majority of whom are women). But replacement rates for people in the middle of income distribution are insensitive to any variant of the PAYG-funded combination.

In short, flat-rate pay-as-you-go pension plans and funded pensions produce very different distributional outcomes, the single most important determinant of which is the different lifetime employment and earnings records of men and women.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to investigate the complex issues related to old age security arrangements. The study is funded by the Bank's Research Support Budget under research project "Income Security for Old Age." Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-057, extension 37496 (75 pages).