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The World Bank Research Observer

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THE DEBT CRISIS:
WHERE DO WE STAND
AFTER SEVEN YEARS?

Jeffrey Carmichael

In August 1982, Mexico declared itself unable to service its external debt. As a result, commercial lending by international financial markets to developing countries evaporated. Within a few months, Mexico was joined by other large debtors, including Argentina, Brazil, and Chile. Thus began the developing world's debt crisis.

Since 1982 there have been maneuvers and concessions (both official and private) by debtor nations and their creditors. This muddling through has been aimed at buying time and warding off large-scale debt repudiation, which would lead to bank failures and the exclusion of most developing countries from world financial markets.

On the positive side, the period since 1982 has given rise to conditions favorable to the debt situation. The recession of the early 1980s was followed by a period of sustained low-inflationary growth in industrial countries. At the same time, there was a steep decline in real interest rates. On the creditors' side, commercial banks have strengthened their balance sheets with additional capital and loan loss provisions. Secondary markets in developing country debt have also emerged. Among the debtors there have been some notable successes, such as the Republic of Korea and Turkey. Even among the less successful, export volumes have grown strongly, noninterest budget deficits have declined, and creative techniques for reducing the debt burden have been tried. There has also been an important shift toward rather than away from democracy (Fischer 1988).

The world debt problem is nevertheless as far from resolution as it was seven years ago. Indeed, the problem has worsened in some
ways. The real output per capita of the highly indebted countries has shrunk by an average of almost 10 percent since the start of the 1980s. Some of these countries are worse off now, by this measure, than they were in the mid-1970s. Big improvements in export volumes were offset for many such countries by falling commodity prices and the consequent deterioration in terms of trade. The large net improvement in the combined trade account of this group still left most debtors unable to cover debt service, with the result that debt continued to grow. By the end of 1987, the combined debt of highly indebted countries had increased to $485 billion (one billion equals 1,000 million) from $350 billion at the end of 1982; at this writing, the debt for all developing nations stands around $1.2 trillion. With debt continuing to rise, there was little or no improvement in indicators of debt burden such as the ratios of debt and debt service to exports.

Since 1982 there has been no shortage of suggestions for solving the debt problem; there have been close to seventy proposals in the past five years. The commonly accepted policy, although it seems to lack a clear long-term goal, has nonetheless responded to debate. Three phases may be discerned: the initial reaction, which emphasized adjustment through demand contraction in debtor countries; the early Baker plan, which emphasized growth and new lending; and the later Baker plan, which extended the growth framework to embrace market-based instruments. More recently, U.S. Treasury Secretary Nicholas Brady has signaled a new direction for official policy, with a greater emphasis on debt reduction and involvement by multilateral institutions. This article reviews the various plans and proposals (see, for example, Fischer 1987, Cline 1987, Williamson 1988, Wertman 1986, and Krueger 1988). It also assesses what we have learned in the past seven years.

Assessing Proposed Solutions: Some Points of Reference

What is meant by "resolving the debt crisis"? Few of the existing proposals address this question. One exception is Fischer (1987), who suggests that the crisis will be over when the debtor countries again have normal access to international capital markets.

One resolution of the crisis might be the establishment of a situation in which the debt levels of developing countries are no longer a threat to world trade or to world political and financial stability. The problem is thus seen as one for both debtor and creditor countries.

A resolution will not necessarily mean that developing country debt will be eliminated. Not only is it reasonable for countries to borrow to finance growth and development, it is economically ra-
tional. Avoiding a debt problem means keeping debt within a country's capacity to service it from current and future trade flows. A sustainable debt situation is one in which there is confidence in the country's ability to service its debt over time, under a reasonable range of economic conditions. Although such a situation might involve short periods of heavy borrowing, the ratio of debt to real per capita output should generally decline or remain steady.

To ensure that debt does not threaten political stability, the burden of debt service should not leave the debtor in a state of long-term economic stagnancy. To guarantee financial stability and world trade flows while resolving the debt crisis, international banks must be left sound enough to direct financial flows to the investments with the greatest promise of return. A resolution should achieve these goals without creating undue pressure for increased protection of either goods markets or financial markets. It should be noted, however, that removing the threat to global political and financial stability does not necessarily require the restoration of all debtors to sustainable debt positions.

Proposals that meet these criteria can be further evaluated according to two standards: efficiency and equity. There appears to be general agreement about the requirements for an economically efficient solution. In pragmatic terms, an efficient solution would be one that:

- stimulated investment and, through investment, economic growth in developing countries
- reduced trade protection in industrial countries
- implemented reform of domestic policies in developing countries at both the macroeconomic level (especially fiscal restraint and sound management of exchange rates) and the microeconomic level (liberalization of markets, removal of distortions, and so on).

There is less agreement about the equity of various solutions to the debt problem. Any resolution involves accepting the burden of past errors. All proposals to resolve the crisis involve judgments about how this burden should be distributed among developing countries, industrial countries, and the shareholders of commercial banks.

Proposed solutions can be categorized in many ways. Fischer (1987), for example, groups plans according to whether they change the form of claims against debtors while leaving their present value unchanged; reduce the present value of those claims; or maintain the present value of the claims, while making it easier for debtors to
service them. Another approach would be to group programs according to whether they aim to provide new money, stabilize debt levels, or reduce debt levels.

There are at least four ideas that recur consistently as elements of solutions to the debt crisis: procedural reform, policy reform in debtor countries, increased investment in debtor countries, and debt forgiveness.

**Procedural Reform**

Few would view procedural reform as the sole solution to the debt crisis, but it is often suggested as a way of reducing the aggregate burden and improving efficiency. Fischer (1987) lists five reforms that offer the prospect of greater efficiency:

- offering multiyear rescheduling to reduce the resource cost of complicated debt negotiations
- using exit options to reduce the size of banking syndicates and thereby increase the efficiency of debt renegotiations
- altering accounting rules to allow partial debt write-downs and gradual amortization, thus further encouraging banks to strengthen their balance sheets
- providing information from government agencies on foreign bank accounts in the United States to help debtors recoup tax revenue on flight capital and to reduce the tax incentive for capital flight
- taxing foreign bank accounts in the United States to reduce incentives for capital flight.

Of these reforms, the first two deal with reducing existing inefficiencies, the third with stimulating activity in the secondary market for developing country debt, and the last two with discouraging, or even reversing, capital flight.

Implementation of these reforms has been limited. Only multiyear rescheduling agreements (MYRAS) have been widely used. Their longer grace periods and extended maturities have given debtors breathing space to work on domestic policies, as well as to avoid time-consuming annual negotiations. Some MYRAS have also reduced interest costs to a level below those on the original loans, thereby offering some debt relief. (For more details on these reforms, see Fischer 1987.)

**Policy Reform**

The need for structural policy reform in debtor countries, at both the macro and the micro levels, is a consistent theme in most anal-
ysis of the debt crisis. As noted earlier, policy reform and investment are acknowledged as essential to an efficient solution to the debt problem. Many regard mismanagement of fiscal and exchange rate policy as the primary contributor to the current situation. Entrenched inefficiencies are also seen as handicapping future investment and growth.

Recognizing these considerations, the Baker plan—which was announced by then U.S. Treasury Secretary James A. Baker in September 1985 and which has formed the nucleus of debt policy since then—recommended broad reform as a precondition for access to new funds. The plan called for liberalizing trade and investment, reforming tax systems, eliminating government subsidies, privatizing public sector enterprises, and increasing the efficiency of domestic financial markets (Wertman 1987).

That a debtor should adopt responsible domestic policies has long been a tenet of the International Monetary Fund (IMF) in country lending. Many proponents of a new multilateral debt facility view the benefits of such an institution partly in terms of the added credibility it could bring to policy reform (see, for example, Islam 1988, Sengupta 1988, and Robinson 1988).

Others believe policy reform should be the critical element in resolving the crisis. According to Krueger, “Longer-term resolution of the problem requires first and foremost, a realignment of domestic policies to achieve greater productivity from existing resources and higher returns from resource accumulation” (1988, p. 8).

Structural adjustment policies have been put in place in a number of countries since 1982. The most far-reaching reforms have been implemented by Chile. In other countries, including Argentina and Brazil, reforms have met with less enthusiasm and, in some cases, have been overrun or overturned.

Despite widespread support for policy reform, implementation faces several hurdles. First, reform can involve substantial reduction of consumption, particularly in the case of macroeconomic realignment, including fiscal contraction and real exchange rate depreciation. Second, these costs often fall on lower-income groups. Third, the size of the debt overhang can act as a tax on policy reform. The cost of structural adjustment falls squarely on the debtor. If the benefits, particularly the greater capacity to service debt, accrue largely to creditors, debtor countries face a disincentive to implement such reform.

Investment

The need for investment to stimulate growth in debtor countries was an important element of the 1985 Baker plan. Between 1982
and 1985, efforts at adjustment emphasized austerity and demand restriction. This strategy failed to produce a substantial reduction in debt, despite severe recessions in debtor countries. It was a sharp reminder that supply expansion can be more effective and less painful than demand contraction as a means of servicing external debt and restoring external balance. As growth came to be considered more important so too did investment. As with policy reform, however, a debt overhang can act as an effective tax on investment to the extent that the rewards of successful investment can accrue largely to foreign creditors.

Partial Debt Forgiveness

From the emergence of the crisis in 1982, partial debt forgiveness has been suggested as a component of solutions to the debt problem. Over time, this concept has attracted more adherents.

Debt forgiveness can be applied to principal or interest. If a debtor does not have access to further loans, interest forgiveness provides more relief than principal forgiveness, the present value of the write-offs being equal.

Forgiveness can be voluntary or mandatory. Mandatory debt forgiveness is the cornerstone of various proposals to create new international debt facilities. It also plays a key role in the Bradley (1986) and Sachs (1986) plans, which seek to build on the Baker framework.

Bradley argues that further lending by commercial banks would compound the crisis by adding to the debt overhang. He proposes that banks annually forgive three percentage points of both principal and interest for three years. In return, debtor countries would be required to adopt economic reforms. The plan also suggests an annual trade relief summit that would include the World Bank, commercial banks, and creditor governments. The Sachs plan proposes much more extensive interest forgiveness, but for a smaller group of countries. This would provide outright debt relief for countries that have experienced falls in gross national product (GNP) per capita since 1980 in excess of 15 percent. Countries with declines between 15 and 25 percent would have all interest obligations forgiven for a period of five years; those with declines greater than 25 percent would be forgiven interest obligations for ten years.

To date, the most wide-ranging proposal for mandatory debt forgiveness is the suggestion of the United Nations Conference on Trade and Development that there be an across-the-board write-down of 30 percent of the commercial bank debt of the "Baker fifteen" countries (UNCTAD 1988). The cost of the action is esti-
mated to be consistent with the banks’ existing provisions. In return for the write-down, debtor countries would be required to allocate the entire interest saving to investment in export industries.

Voluntary forgiveness is a more recent and controversial idea. Krugman (1988a and 1988b) and Sachs (1988) make an interesting case that partial debt forgiveness will, in some situations, be in the interest of both debtor and creditor. They argue that policy reform and the allocation of resources to investment are costly in terms of political support and current consumption. If the debt overhang is so great that the main benefits of these sacrifices accrue to foreign creditors rather than to the debtor, the debtor country will be reluctant to take unpalatable measures. In effect, the debt places a heavy marginal tax on behavior that is otherwise globally optimal.

Krugman illustrates this point on a graph he calls the debt relief Laffer curve. This curve is illustrated in figure 1, where the total level of debt, \( D \), is shown on the horizontal axis and the total value, \( V \) (that is, the expected total payout) is shown on the vertical axis. Krugman’s proposition is that beyond a certain point, \( B \), the disincentive effect of additional debt is so great that the total expected payout from the country begins to decline. Ultimately, debt could become so high that repudiation is inevitable and the value of the debt falls to zero. For low levels of debt, between zero and \( A \), full repayment is expected, and so each increment of debt is valued at full face value; debt levels up to \( A \) are sustainable.

According to this analysis, debt forgiveness (for example, if creditors write down their claims from \( D_0 \) to \( D_1 \)) provides a clear gain to the debtor since it reduces foreigners’ claims on domestic resources if events become favorable and the ability to service debt rises. The outcome for creditors is ambiguous: partial debt forgiveness reduces creditors’ claims on favorable outcomes in the debtor country; by reducing the size of the implicit tax, however, the probability of a favorable outcome is increased. If a country’s debt falls to the right of point \( B \) on the curve, the latter effect outweighs the former, and creditors are better off forgiving some (but not all) of the debt.
Many refinements could be made to this simple analysis. The basic message, however, remains that there are levels of debt so burdensome as to discourage remedial action by the debtor. In such situations it is in the interest of both creditor and debtor that the creditor forgive a portion of the outstanding debt. Forgiveness works when debtors are on the “wrong side” of the debt relief Laffer curve (debt levels greater than B) because it improves incentives to debtors.

**Categorizing the Proposals**

Most proposed solutions to the debt crisis involve a different combination of the elements just outlined, but in their philosophical bases most fall into two broad groups.

The first group reflects the belief that resolution is best handled by the market (commercial banks and debtor governments). The governments of industrial countries could play a catalytic role (by removing market impediments, legal and accounting restrictions, and so on) but would stop short of mandating a solution or committing their own taxpayers to bailing out either the banks or the debtors. The Baker plan is an example of a market-oriented solution in that it suggests desired contributions from debtors and creditors but stops short of imposing them.

The second group of solutions assumes that government intervention is necessary or optimal, or both. These proposals typically involve official mediation and a commitment of public resources. The Brady plan, which envisages debt service guarantees by multilateral agencies, would fall in this category. Also included in this group are proposals that may be referred to as comprehensive because they treat all creditors and all debtors in a uniform way. I would also include mandated solutions (such as uniform involuntary debt forgiveness) and voluntary schemes involving a significant commitment of public funds (such as the establishment of a multilateral debt facility).

**The Market-Based Strategy**

Supporters of handling the debt crisis case by case point to the evolution of secondary markets for buying and selling loans to indebted countries and of new financial instruments as evidence that innovation in the market is ameliorating the problem. Although these markets are still relatively thin, they at least allow banks to trade what otherwise would be untradeable loans. As such, they improve the characteristics of these loans. They also provide some information about the market’s perception of the probability of repayment.
Secondary markets in developing country debt have enabled creditors to strengthen their balance sheets by improving the mix of country and maturity risks in their portfolios. In some cases this has been possible to the mutual benefit of creditors, with no negative effect on debtors, which suggests that the aggregate burden may have been reduced. In other cases, debtors have participated in creative financial schemes to reduce their burdens.

There are many kinds of market instruments, both proposed and extant, that could play a role in resolving the debt crisis. Fischer (1987) lists ten ways of changing the nature of claims on debtors so as to help resolve the crisis: development of secondary and insurance markets, indexed loans, contingent lending obligations, longer-maturity debts, debt-equity swaps, debt service in local currency, return of flight capital, country funds, debt subordination, and interest capitalization. To the extent that the crisis for debtors is one more of debt service than of debt level, the benefit of these instruments to the debtor nations lies in their capacity to reduce debt service or the variability of debt service, or both.

Debt service insurance is potentially useful as a means to hedge the variability of debtors' external exposure, as is indexation of debt service to various measures of performance by the debtor (see Lessard and Williamson 1985 for a description of several market instruments). That these markets have not grown significantly suggests that the cost of such a hedge may at present be too high.

Buybacks. Among the instruments of debt reduction, of particular significance was the recent repurchase, or buyback, by Bolivia of almost half its outstanding bank debt. The motivation behind a buyback is an attempt by the debtor to take advantage of the large discount available in secondary markets to reduce its debt.

Standard international debt contracts, however, prohibit repurchase by the issuer (see Bulow and Rogoff 1988). Thus a debt repurchase necessarily involves extensive negotiations between debtors and creditors and even then ventures into untried legal territory. These negotiations may involve some costs for the debtor. These could be explicit costs, such as the commitment of existing or future foreign reserves in the form of guarantees. The costs could also be contingent, such as sanctions paid for under performance on policy reform. In evaluating buybacks, it is important that all costs be accounted for by both debtors and creditors.

Bolivia negotiated the repurchase of its debt with its creditors early in 1987. Funds totaling $34 million were raised from a group of anonymous donor countries. With these funds, Bolivia repurchased $308 million (at an implicit discount of around 90 percent) of its outstanding foreign commercial bank debt; the repurchase
represented about 46 percent of Bolivia's commercial bank debt. Of the total, $268 million was purchased outright, while the remaining $40 million was exchanged for local-currency bonds that can be converted into Bolivian equity later.

As will be discussed later, there are various opinions about the distribution of benefits from the Bolivian buyback. In any event, the opportunities to extend this type of operation to many highly indebted countries are quite limited. With outstanding debt of only $4.6 billion (about 15 percent of which was owed to commercial banks) and an extremely low secondary-market price, Bolivia was an ideal candidate for such a scheme. It is doubtful whether any large debtors could muster enough reserves or foreign aid to have more than a minor effect on the total debt outstanding.

DEBT SWAPS. Debt swaps have already been used by Brazil, Chile, Mexico, and Venezuela, among other countries (debt swap programs are described in Regling 1988 and Euromoney 1988). Between 1984 and 1988, these countries converted roughly $6 billion of bank debt into domestic equity. Chile stands out as having made significant progress in reducing its debt through swaps, having retired more than 13 percent of its debt by this method.

Roberts and Remolona (1987) identify three different types of debt swaps: debt-debt swaps, debt-peso swaps, and debt-equity swaps. Deals often combine one or more of the three types.

Debt-debt swaps involve a direct exchange of ownership between existing creditors. For example, a Mexican bank may swap Argentine debt to a U.S. bank in return for Mexican debt. In a debt-peso swap, a resident citizen of the debtor country first sells a foreign asset to purchase his own country's foreign-currency debt in the secondary market. He then exchanges that claim for domestic currency, domestic debt, or domestic equity. These usually involve concessionary terms and are intended to repatriate capital that would otherwise flow out of the country.

Debt-equity swaps have attracted most analytic attention. In these transactions, a foreign creditor exchanges his claim on the debtor for equity in a domestic firm. These swaps serve as a vehicle for foreign direct investment and usually involve concessionary terms.

Most debt swaps have been voluntary. In contrast, a proposal by the Bank of Nova Scotia (1987) involves a mandatory debt swap. Under the proposal, debt relief in the form of limited interest rate reductions would accrue to creditors in local currency and would be available for conversion into equity in the debtor country. Dornbusch (1988) makes a similar suggestion but extends the coverage to all interest payments due in foreign currencies.
DEBT DEFEASANCE. Yet another version of debt swap, with elements of a buyback, is debt defeasance, which involves replacing existing debt with new debt (typically exit bonds). In essence, defeasance is the issuance of new securities, usually on concessionary terms to the debtor, which exempt the creditor bank from participation in future rescheduling. An attempted issue by Argentina in mid-1987 attracted little interest. Mexico carried out a more successful issue in early 1988, redeeming $3.5 billion in face value of its outstanding debt. The new bonds carried a guarantee of principal provided by U.S. Treasury zero coupon bonds with the same maturity as the new Mexican issue; the Treasuries were purchased from Mexico's foreign reserves. Thus the new debt was partially senior to the remaining undefeased debt. That the Mexican issue was not more successful may have resulted from ambiguity about the seniority of the new debt with respect to interest payments. (For a fuller discussion, see Williamson 1988.)

A recent proposal by First Interstate Bank (1988) incorporates some of the features of Mexico's defeasance scheme. New lending from commercial banks would be extended to highly indebted countries provided that part of the proceeds be set aside to purchase U.S. government zero coupon bonds to collateralize the eventual repayment of principal.

The Miyazawa plan (1988), presented at the 1988 Toronto Summit, proposes that debtors convert part of their debt into securities. Principal would be guaranteed by liens against debtors' foreign exchange reserves and against receipts from the sale of state-owned assets.

REFLECTIONS ON MARKET-BASED SOLUTIONS. A key to the appeal of market-based solutions is that nearly all of the instruments involve some reduction in debt and debt service. These instruments could provide an incentive for growth and efficiency by reducing the implicit tax on investment and policy reform.

There has been some dispute over the distribution of gains from market-based instruments, particularly when the action creates little incentive for investment and reform. The conventional case, that debtors gain from market-based debt reductions, has been argued elegantly by Froot (1988) and Helpman (1988). Bulow and Rogoff (1988), however, maintain that creditors receive most of the benefit. What kind of role market-based solutions will play depends on how well these differences can be resolved.

As an example of the divergence of views, consider a buyback in which the debtor uses its foreign reserves to repurchase some debt. Assuming that the country is not so indebted that banks have given
up thinking they will be repaid, this buyback has two components. First, it reduces the level of outstanding debt with a claim on the debtors' future resources. Second, by paying for that debt reduction with current reserves, it reduces the resources from which the remaining debt can be paid.

If the value of reserves is factored in to the valuation of debt, the value of the remaining debt should fall by the amount of the reserves spent on the buyback. As long as the debt repurchase takes place at a discount, the debtor decreases its liabilities by a greater amount than the reserves it spends.

The creditors gain the reserves (on which they already have a claim), which they pay for in discounted debt. Since reserves are claims on industrial countries, they are of higher quality than the debtor's remaining assets. All things being equal, creditors would prefer to pay for reserves with undiscounted debt and offer a deeper discount for the remaining lower-quality assets, but the equilibrium discount on the buyback must ensure that the options of selling out or holding remaining debt carry the same average price for the creditor. Since remaining debtors hold claims on less attractive assets, the price of their debt is likely to fall, thus raising the discount on the buyback. A buyback from existing reserves therefore appears to offer a gain for debtors and a loss for creditors.

Exit bonds, or buybacks financed with future savings, are the same as buybacks financed with current resources, provided the exit bonds have seniority over nonexit debt. The loss to creditors again arises from debtors' ability to sell off high-quality assets at favorable prices.

This interpretation of buybacks is consistent with the models of Froot and Helpman. Bulow and Rogoff carry out essentially the same analysis but reach the opposite conclusion: creditors gain nearly all the benefits, whereas debtors gain little. Indeed, when the opportunity cost of resources is considered, debtors lose from buybacks.

The divergence arises from different assumptions about how creditors perceive the value of their assets. Whereas Froot and Helpman assume that foreign reserves are fully discounted into the value of debt, Bulow and Rogoff assume the opposite: that the expected future payoff to creditors is independent of reserves. Not surprisingly, in the Bulow and Rogoff analysis, creditors come out ahead because they receive what they see as a windfall equal to the reserves used in the buyback. According to Bulow and Rogoff, the transaction does not introduce any additional resources, so that if creditors gain, debtors must lose.

How creditors perceive the value of reserves is a difficult question. There is, however, a more fundamental point about perceptions.
Bulow and Rogoff, Froot, and Helpman all assume that debtors perceive the burden of the debt (in terms of its resource cost) as equal to its market value—that is, that they view it in the same way as creditors. This would be a reasonable assumption if debtors were allowed to trade their debt freely in secondary markets, but they are not. Thus the marginal cost of debt to debtors could be quite different from the marginal value to creditors.

If, as Bulow and Rogoff assume, creditors regard the value of debt as independent of current reserves, a buyback financed from reserves raises the price of remaining debt, thereby raising the creditors' welfare. If the debtor intends to repay its obligations in full, to the debtor, the burden of the debt is its full face value. If the market price is at a discount then, by implication, creditors either do not realize the debtor's intention or do not believe it. Any buyback at a discount necessarily reduces the debtor's perception of debt burden. Thus, even in the view of Bulow and Rogoff, both debtor and creditors can gain if the debtor's perception of the debt burden is greater than the creditors' perception of its value. Conversely, if the debtor regards the burden as below the market value (that is, if it plans to repudiate), then a buyback is a waste of its resources.

There are other ways buybacks can benefit both debtors and creditors. Bulow and Rogoff play down the incentive effects that are central to the case made by Krugman and Sachs for mutual gain. Froot actually argues that, in the case of a buyback from current resources, the incentive effects could be reduced. This, however, rests on the unlikely assumption that intertemporal substitution effects are sufficient to reduce desired savings. Williamson (1988) argues that creditor banks can derive benefit from different courses of action. Some banks may offer a high discount to eliminate risk; others, believing payouts will be higher, prefer to hold on.

In their analyses of market-based transactions, Bulow and Rogoff, Krugman, Froot, and Helpman introduce some interesting insights by looking at the components of market transactions. Most instruments contain an element of debt forgiveness, which, in its pure form, is equivalent to a buyback from donated resources (as in the Bolivian buyback).

Similarly, a debt-equity swap can be broken down into a sale of assets to a company through a conventional foreign investment program, plus a buyback financed with the proceeds. The buyback should increase the debtor's welfare in proportion to the discount received. If the entire discount is returned to the creditor as a concession, the net improvement for the debtor will depend largely on whether the incentive creates a net increase in aggregate investment (allowing for the substitution of subsidized investment in projects...
that would have been made in any case). This net increase in aggregate investment has been referred to as additionality and is often considered necessary if a debt-equity swap is to be in the debtor's interest. This is an important consideration but not the only one. Gains from differences in perceptions could, for example, still leave the debtor better off even if additionality were zero.

Breaking market transactions into their component parts also shows that particular transactions should not be dismissed on grounds of being domestically adverse (for example, debt-equity swaps are often called inflationary). Typically, transactions involve a pure instrument plus a domestic policy action; it is often the policy action that needs correcting.

In some cases the component parts of a transaction may be separable and obtainable at lower cost in some other way. This may not be so in other cases. For example, it is questionable that Bolivia would have received its grant of $34 million in aid had it not been tied to the debt buyback. The feasible combination of elements will often reflect practical or political considerations. The debtor is concerned primarily with extracting as much value as possible from a transaction.

Some degree of debt forgiveness can be achieved through the market, but the market may not be able to provide enough forgiveness, and quickly enough, to resolve the crisis. If creditors could benefit from outright forgiveness—an option always open to them, and one that does not require complex financial instruments—why have they not already done so? In terms of the debt relief Laffer curve, why have creditors not moved quickly to point B, where no further forgiveness is in their interest? It is possible that few, if any, debtors are on the wrong side of the debt relief Laffer curve. Given the deep discounts evident in secondary markets, however, this seems unlikely.

**The Free-Rider Problem.** A more important reason that more outright forgiveness has not been seen is the so-called free-rider problem. Each creditor, acting on its own, can have only a minimal impact on the total debt of a given debtor. If one creditor expects others to forgive part of their debt, that creditor is better off letting its loans stand, because the average price of the debt will rise. Correspondingly, if the creditor expects no one else to forgive, then it stands to lose heavily if it forgives part of its debt, since it can raise the price by only a small amount. Clearly, when the debtor is on the wrong side of the debt relief Laffer curve, a cooperative solution, in which all creditors agree to forgive part of the debt, is superior to the situation in which each stands back hoping the others will move first.
The difficulty is in getting creditors to act as a group, even when it is in their interest to do so. But if the debtor initiates a market-based debt reduction scheme, the prospect for extracting debt forgiveness should be quite good. In such a case, each creditor faces an incentive to participate (provided the price is appropriate) rather than to hold back; thus the free-rider problem is removed. Consider, for example, the case of exit bonds with seniority. Seniority is all or nothing. If any one creditor refuses seniority then the exit bonds are worth exactly the same as the old debt. If any one creditor agrees to seniority, then the value of the old debt rises (due to the incentive effects) if the debtor is on the wrong side of the debt Laffer curve. Thus no creditor faces a penalty by granting seniority, even if others choose not to.

There is, then, a sound case that market-based instruments can extract debt forgiveness more effectively than creditors acting unilaterally. Furthermore, the forgiveness extracted could be in the creditors' interest anyway.

There remains the question of whether such relief will be sufficient to resolve the crisis. It is possible that, even if all debtors were restored to the right side of the debt Laffer curve, the situation would still be unsustainable. After all, the analysis of incentives shows only the direction of change in policy reform and investment; it says little about the adequacy of the size of these changes or about the bases from which the changes occur. It is also possible that debtors' resources to activate the market-based programs are inadequate. Finally, relief brought about by the market might be too slow in coming to avert political disruption in debtor nations or financial instability in general.

**Intervention as an Alternative**

Official intervention can take one of several forms. By far the most commonly proposed solution to the debt problem is that a multilateral agency should mediate between debtors and creditors. In such proposals the intermediary is seen as being able to achieve debt reduction and consolidation in a way that the market cannot.

**Multilateral institutions as intermediaries.** In the aftermath of the Mexican default, Kenen (1983) and Rohatyn (1983) proposed the formation of a new institution to intermediate between debtors and creditors. The new entity would purchase debt from the banks at a discount in exchange for its own debt. The discount would then be passed on to the debtors.

There have been numerous variations on this generic plan. The variables include what form of debt forgiveness is involved, whether
the involvement of banks is voluntary or mandatory, whether debtors are treated uniformly or case by case, whether the institution buys the debt or simply provides a guarantee for new lending, and how the institution is organized (how it is funded, whether it is a function of existing institutions or a new entity, and so on). All proposals have in common the establishment of an official intermediary between debtors and creditors, and the explicit or implicit commitment of taxpayers’ money. Most view the intermediary as having greater power than the commercial banks to enforce policy reform in debtor countries.

While the major proposals are briefly described below and summarized in table 1, there are many more proposals than can be covered here. Summaries of some of the other proposals can be found in the “Debt Plan Scorecard” (The International Economy, July–August 1988) and in Wertman (1986).

Several of the more modest proposals focus on the role of international institutions in providing credit enhancement. Lever and Huhne (1987) suggest a partial guarantee scheme to export guarantees. The guarantees would be administered by national credit agencies in conjunction with the IMF. Creditors would pay for the guarantee up to a ceiling, which would leave some risk uncovered. Loans covered by these guarantees would be subject to conditions laid down by the IMF.

Rotberg (1988) suggests a similar scheme, in which the World Bank would play the role of guarantor. The guarantee, limited to repayment of principal, would be in the form of a twenty-year put option (that is, the World Bank would offer new lenders the right to

### Table 1. Features of Proposals for a Multilateral Agency to Intermediate between Creditors and Debtors

<table>
<thead>
<tr>
<th>Author of proposal</th>
<th>Reduce debt principal</th>
<th>Reduce debt service</th>
<th>Use existing agencies</th>
<th>Create new agency</th>
<th>Provide guarantees</th>
<th>Require adjustment programs</th>
<th>Generate new financing</th>
<th>Handle debtors case by case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islam</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Kenen</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Lever/Huhne</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Robinson</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rohatyn</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rotberg</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sachs</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sengupta</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Weinert/La Falce</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

sell their loans to the Bank after twenty years). If the option were
exercised, the creditor would be obligated to reinvest the proceeds
with a World Bank affiliate that would have been established for
this purpose.

More comprehensive schemes involve direct purchase of the debt
of developing countries. Kenen (1983) suggests the establishment of
an International Debt Discount Corporation (IDDC). Capital of the
IDDC would be subscribed by the governments that create it. The
IDDC would open its discount window for a short, fixed period. Any
bank wishing to use the window would be required to discount (at
a fixed rate of 10 percent) a uniform fraction of all its developing
country debt. In return, the bank would receive long-term guaran-
teed IDDC bonds that would pay the market interest rate. The dis-
count received on incoming debt would be passed on as modest debt
relief to debtors. This scheme transfers the risk of default from the
banks to the industrial countries backing the IDDC; its viability rests
on the ability of the IDDC to convince debtor countries to adopt
policy reforms and meet their obligations.

Rohatyn’s proposal differs from Kenen’s mainly in the form of
funding specified for the IDDC. In Rohatyn’s proposal, the new
institution would borrow from the market as well as from creditor
governments. His plan also differs from Kenen’s in that it extracts
relief for debtors in the form of concessionary interest rates rather
than as a discount on face value. In late 1986, U.S. Senator Paul
Sarbanes proposed a similar scheme, except that funding would
come from Japan’s large external surplus. The Japanese commercial
banks have established an IDDC of sorts, but the scheme appears to
have no debt relief involved (see Krueger 1988 and Fischer 1987).

Variations on the IDDC plan, specifying different sources of capital,
have been suggested by Islam (1988), Sachs (1987), and Sengupta
(1988).

After the Sarbanes proposal, Weinert (1987) proposed an IDDC-
type scheme using secondary market prices as a guide to the extent
of discounting. U.S. Representative La Falce (1987) proposed legis-
lation based on this strategy. The La Falce plan suggested using
approximately $4 billion of the IMF’s holdings of gold to capitalize
the new institution. In contrast to the take-it-or-leave-it rules of the
Kenen proposal, La Falce’s idea was that banks would voluntarily
participate.

Robinson (1988) has put forward a more ambitious proposal that
seeks to combine Kenen’s notion of debt reduction with a plan to
promote new lending. Robinson’s new agency, the Institute of Inter-
national Debt and Development (I2D2), would be jointly funded by
the World Bank and the IMF. The I2D2 would seek to extract
growth-oriented policy reform from debtors case by case. It would
purchase debt from creditors at a discount, offering in return either perpetual debt or preferred stock. In a gambit aimed at new lending, the 12D2 would reserve the right to subordinate existing debt to future debt incurred by the same debtor. To maintain discipline, the debt relief concessions and the subordination would be suspendable if debtors failed to adhere to agreed adjustment plans.

PROPOSALS FOR A MULTILATERAL DEBT AGENCY. The number of proposals involving official intervention and the commitment of public money is an indication that at least some are unconvinced that the market can generate enough debt reduction on its own to stabilize the situation. Although official intervention offers the prospect of quicker action (that is, once all involved parties agree on the desirable form of intervention), most proposals in this group face serious implementational difficulties, which are generally recognized by the authors (see, for example, Kenen [forthcoming]).

First, official intermediation schemes that establish an institution to purchase bank debt face free-rider problems of their own. As with debt forgiveness, official intermediation should bring about a greater ability to service debt. This will happen if the new intermediary commits public money (which would be similar to aid) or effectively monitors policy reform, or both. If the capacity to service debt improves, the value of claims not included in the scheme should increase. By implication, the more successful the intermediary appears before the fact, the more it will have to pay to induce creditors to participate. If not enough creditors participate, these schemes are not likely to work.

The alternative is to make participation mandatory or institute a system of seniority among participants (as suggested by Robinson). Both of these courses of action raise a host of legal problems. Some of the most difficult legal issues arise from the involvement of creditors from many countries, each with its own legal code. These considerations become particularly tricky under proposals that alter the rights of parties to existing contracts.

A second problem with official intermediation is the question of pricing. Given economic events since 1983, it is probable that, had an official intermediary been set up with the pricing structures that were then being discussed, it would now be in financial difficulty. Uniform pricing would discriminate against some countries and, in a voluntary scheme, would encourage oversubscription of bad risks and undersubscription of better risks. Secondary markets are too thin to be a reliable guide in pricing. Furthermore, the discounts implied by current secondary markets would involve a greater loss to commercial banks than most could bear.
A third problem involves moral hazard. The prospect of relief through an official agency could encourage debtors to erode their debt-servicing capacity in order to attract more aid. Any official solution involving public money penalizes, to a certain extent, those debtor countries that have worked hardest to restore sustainability. If cases are evaluated on their own merits rather than handled according to uniform rule, there is more leeway to reward good performers.

Finally, there is the question of equity. Any intervention involving public money shifts the burden, at least partially, from debtors and creditors to taxpayers in industrial countries. Unless the stakes were extremely high, this could be hard to justify.

In his speech to the Bretton Woods Committee in Washington, D.C., on March 10, 1989, U.S. Treasury Secretary Brady signaled yet another change in official policy for dealing with the debt problem. Although Brady sought to play down differences with the Baker plan, his program appears to accept debt reduction as an essential ingredient. Significantly, it also includes the World Bank and the IMF as intermediaries in debt reduction.

The plan, which still has not been described in detail, has multilateral intermediaries facilitating buybacks by heavily indebted countries. Funds are to be provided through the intermediaries to guarantee interest payments. The new plan retains the case-by-case emphasis of the Baker plan, along with its emphasis on policy reform in debtor countries.

In the absence of detailed information, it is difficult to assess the plan's chances of success. It faces many hurdles, not the least of which is winning the cooperation of industrial countries, commercial banks (which must agree to a general waiver of loan conditions that prohibit repurchase of debt by debtors), and debtor countries. Beyond that, there are the questions of funding the plan, ensuring the continuation of new lending, and seeing that debtor countries adhere to policy reform.

In surveying the literature published since the debt crisis erupted in 1982, it is interesting to note the convergence in views on some of the principal issues.

Few would argue that the debt situation has improved since 1982; to many it has become more urgent. There is also growing agree-
ment that resolution of the crisis will involve some debt forgiveness, whether it comes voluntarily from the commercial banks, is extracted from the banks with market-based instruments, or is mandated by the governments of industrial countries.

There is also little disagreement that efficient resolution of the problem requires economic growth in the developing countries. Belt tightening by itself, which was tried between 1982 and 1985, is unlikely to solve the problem. Indeed, the case for partial debt forgiveness usually emphasizes the positive incentives it creates for both investment and structural adjustment of domestic policy in debtor countries.

The principal point of disagreement is whether the necessary debt reductions and consequent adjustments in policy in developing countries can be generated by market forces alone. The alternative is usually seen as intervention by governments and the possible commitment of public funds.

The growth of secondary markets for debt and the engineering of market-based instruments that provide some degree of debt relief are encouraging signs that the market may be working toward a solution. Theoretical analyses support the argument that these transactions are moving the system in the right direction. Those who suggest that the market should be left to find its own solution to the problem also point to recent recoveries in some commodity prices and the possibility that the international economic environment could turn out to be more favorable for developing countries than is currently believed.

Another strategy is to provide quick relief through official intervention. Of the many proposals of this type, most involve establishment of a new international institution, capitalized by industrial countries, to intermediate between debtors and creditors. These schemes offer a more comprehensive solution, but the complexity of operations presents obstacles. These difficulties are not necessarily insurmountable, but they could lead to substantial inefficiencies and increased cost to taxpayers. The recent shift of U.S. policy in the direction of official intermediation of the crisis suggests that there may be a growing willingness to bear these costs.

There is no one correct solution to the international debt problem. Plans of attack vary widely in their implications for efficiency and equity as well as in their ability to get the job done, and done quickly. Policymakers may be willing to sacrifice efficiency and equity for expediency if the situation worsens. What is clear is that the debt problem remains the most significant threat to international political and financial stability. The lessons learned at great cost in the 1980s should not be quickly forgotten.
The past seven years have seen little improvement in the world debt situation. During this period, policymakers have shifted their attention from demand reduction by debtor nations to supply expansion. Most recently, debt reduction has become the principal issue.

This article reviews various ways of resolving the debt problem. There is widespread agreement among competing proposals that an efficient solution requires both debt reduction and economic growth in debtor countries. Disagreement arises over whether the necessary debt reduction and consequent adjustment in policies in developing countries can be generated by market forces alone. The alternative is usually thought to be intervention by governments and commitment of public funds. This article groups and analyzes proposed solutions according to their relation to these two positions.

The survey concludes that there is no clear-cut solution to the problem. Methods vary widely in their implications for efficiency and equity as well as in their capacity to improve the situation and to do so quickly. Inevitably, official policy will continue to be determined less by economic ideals than by exigencies. The more urgent the problem becomes, the more likely the balance is to swing from reliance on the market to direct intervention.


COMMODITY EXPORT BOOMS IN DEVELOPING COUNTRIES

John Cuddington

Many developing countries rely heavily on one or two primary commodities for national income and foreign exchange. As table 1 shows, the share of primary commodities in the exports of developing countries was less than 50 percent in 1986. Although this ratio has fallen from 80 percent in 1965, primary commodities continue to loom large in the exports of low-income and middle-income developing countries.

In nearly all these countries, developments in commodity markets strongly affect the economy as well as the budget. Trade taxes generate a large portion of government revenue, and many governments have a direct stake in the production of commodities, especially fuels, metals, and minerals. Others earn profits (or incur losses) as international marketing agents for private producers.

This article surveys the experience of countries whose commodity exports have boomed because of either discoveries of natural resources or increases in world prices. By capitalizing on such developments, some countries have improved their growth while servicing their debt. Others have mismanaged the booms and as a result have lost opportunities and (arguably) reduced their economic welfare. The article reviews the theoretical literature on resource booms and the "Dutch disease" and then discusses the experiences of Colombia, Cameroon, Kenya, Nigeria, and Jamaica in the 1970s. In drawing some conclusions from the country studies and other recent empirical research, the article highlights aspects of booms that are underemphasized in the literature on the Dutch disease.
Table 1. Structure of Merchandise Exports
(percentage of total merchandise exports)

<table>
<thead>
<tr>
<th>Economic group</th>
<th>Fuels, minerals, and metals</th>
<th>Other primary commodities</th>
<th>Total primary commodities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income economies</td>
<td>17</td>
<td>15</td>
<td>57</td>
</tr>
<tr>
<td>China and India</td>
<td>8</td>
<td>12</td>
<td>45</td>
</tr>
<tr>
<td>Other low-income</td>
<td>25</td>
<td>21</td>
<td>69</td>
</tr>
<tr>
<td>Middle-income economies</td>
<td>31</td>
<td>28</td>
<td>48</td>
</tr>
<tr>
<td>Lower middle-income</td>
<td>29</td>
<td>38</td>
<td>63</td>
</tr>
<tr>
<td>Upper middle-income</td>
<td>39</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>Developing countries</td>
<td>27</td>
<td>26</td>
<td>51</td>
</tr>
<tr>
<td>Oil exporters</td>
<td>58</td>
<td>72</td>
<td>35</td>
</tr>
<tr>
<td>Exporters of manufactures</td>
<td>9</td>
<td>8</td>
<td>45</td>
</tr>
<tr>
<td>Highly indebted countries</td>
<td>38</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>33</td>
<td>48</td>
<td>59</td>
</tr>
<tr>
<td>High-income oil exporters</td>
<td>98</td>
<td>88</td>
<td>1</td>
</tr>
<tr>
<td>Industrial market economies</td>
<td>9</td>
<td>8</td>
<td>22</td>
</tr>
</tbody>
</table>


To specify when and how government intervention might be beneficial, an analysis of commodity booms needs to consider both their microeconomic and their macroeconomic consequences. At the micro level, the effect is initially on the sector that produces the booming commodity, but it spreads to other sectors as domestic demand increases and factor markets adjust. In prolonged booms, considerable structural change may be needed. At the macro level, external shocks have important monetary effects through their impact on foreign exchange reserves and access to foreign capital markets.

The consequences of the boom for allocations can be summarized by focusing on two effects: the spending effect and the resource movement effect. For short-lived booms, the spending effect is more important. It refers to the higher level of domestic spending on both tradable and nontradable goods as the boom raises domestic wealth. This in turn causes an appreciation of the real exchange rate—that is, the relative price of nontradables rises in terms of nonbooming tradables. Unlike tradables, the supply of nontradables is generally not perfectly elastic at the preboom price. Hence, the spending effect usually causes the price of nontradables to rise in relation to that of tradables.

The boom also results in a contraction of the nonbooming tradables sector as relative prices adjust. This is often referred to as
deindustrialization or deagriculturalization—an economic mechanism that helps to restore market equilibrium. Even so, it is often considered undesirable by policymakers, particularly if it occurs on a large scale and the boom is expected to be short-lived. For example, the temporary loss in production may mean a loss of development momentum, if the lagging sector provides benefits that spill over to other industries. Such spillover benefits might include learning by doing, which generally depends on cumulative production experience. The best policy in such cases is a production subsidy to the lagging sector. If the capital market functions imperfectly, it is usually optimal to increase this subsidy during temporary booms to prevent an excessive contraction of the lagging sector (see van Wijnbergen 1984). A second reason for intervention is the possibility of temporary unemployment in the lagging sector caused by nominal wage and price stickiness.

In economies where the booming sector is not an enclave, isolated from other parts of the economy, higher prices and profits induce producers in the booming sector to draw resources from the lagging tradables sector, the nontradables sectors, or the pool of unemployed. This resource movement will result in more severe deindustrialization and appreciation of the real exchange rate than would occur if the booming sector were an enclave. This is likely to heighten the concern of policymakers over the potentially adverse consequences of the boom.

Finally, it should be noted that export booms involving increases in the world price of exportables (that is, an improvement in the terms of trade) have an ambiguous effect on the current account of the balance of payments, depending on the boom’s impact on saving and investment. For booms that are expected to be temporary, the presumption is that the short-lived rise in income will cause current spending to rise, but by a smaller amount, so that the current account improves. The optimal borrowing or lending strategy becomes more complex if the country faced credit constraints in international capital markets before the boom (Cuddington 1987).

This section highlights some key aspects of the boom experiences of five countries—Colombia, Cameroon, Kenya, Nigeria, and Jamaica—in order to put into perspective generalizations made in the following section. Although Colombia’s policy response to the 1976–80 coffee boom had shortcomings, it compares favorably with that of other booming commodity exporters in the 1970s. Cameroon was adept and timely in its macroeconomic management of...
booms. Kenya, Nigeria, and Jamaica are examples of countries where rather poor fiscal management led to long-term structural problems.  

**Colombia: Macro Effects of the 1976–80 Coffee Export Boom**

Colombia's 1976–80 coffee boom, caused by an increase in world prices, improved the country's current account from a deficit of 2.8 percent of gross domestic product (GDP) in 1974 to a surplus that peaked at 2.3 percent in 1977. GDP growth fleetingly exceeded its postwar average in 1978. More important, the coffee export boom caused a huge buildup in foreign exchange reserves. This situation was accentuated by foreign exchange regulations requiring exporters to convert foreign exchange earnings into domestic currency. Import restrictions that limited the demand for foreign exchange were relaxed gradually. The country's reserves, excluding gold, rose tenfold from US$475 million in 1976 to US$4,831 million in 1980.

The increase in foreign reserves had important consequences for Colombia's inflation and its real exchange rate. When coffee prices peaked in 1977, Colombian inflation (according to the consumer price index) reached 33.1 percent a year, compared with world inflation of 11.3 percent. Thus Colombia's inflation differential relative to that of the rest of the world tended to widen during boom years. That also happened in other countries experiencing commodity export booms in the 1970s (see Davis 1983).

Because the rise in the inflation differential (in relation to the United States and the world) was not matched by an equal increase in the rate of crawl of the Colombian peso, a sharp appreciation of the real exchange rate occurred. The index of the trade-weighted real effective exchange rate appreciated more than 30 percent from 118.6 in 1975 to 87.4 in 1982, when the monetary authority belatedly began to engineer a real depreciation of the peso. The peso appreciation and strong real wage increases during the boom drastically reduced the international competitiveness of noncoffee exports.

Evidently, these factors more than offset slow progress on trade liberalization during this period, because the growth of noncoffee exports slowed significantly. As a result, Colombia experienced the sort of slowdown in its nonbooming tradables sector discussed in the literature on Dutch disease. The ratio of noncoffee exports plummeted from 10.7 percent of GDP in 1976 to 6.6 percent in 1983, roughly the same share as in the mid-1960s, before the drive for export diversification began. Thus the slow steady progress in diversifying the country's export base between 1967 and 1974 was
reversed during the coffee boom. This lack of diversity in the export base contributed to the severity of the economic downturn when the coffee boom ended.

It has been claimed that inflation is an unavoidable side effect of export booms because the surge in foreign exchange earnings leads to rapid growth in foreign exchange reserves. This is particularly true if exporters are legally obliged to convert foreign exchange revenue into domestic currency, as in Colombia. The foreign exchange inflow causes an increase in the domestic monetary base, which is allegedly difficult to sterilize in the absence of well-developed financial markets. In Colombia, however, the link between foreign reserve inflows and the monetary base appears to have been loose. In fact, the simple correlation coefficient between the series over the 1951–84 period was slightly negative (−0.094), not positive, as the argument would suggest.

Even without a mature government bond market, which would permit contractionary open market operations, there are other ways to sterilize foreign reserve inflows. To reduce net credit from the central bank to the government (which is what contractionary open market operations do), the government can repay loans from the central bank in periods when foreign reserve inflows are large. Alternatively, the government can reduce its net liabilities from the central bank by running a fiscal surplus and either depositing this surplus in its accounts at the central bank or repaying loans from the central bank.

Another way to reduce the monetary impact of export booms is to raise the reserve requirements on commercial bank deposits. From a fiscal policy standpoint, reserve requirements are a tax on the financial system. From a monetary perspective, increases in reserve requirements reduce the money multiplier. Thus, even if export booms cause an increase in the monetary base, their effect on broader monetary aggregates will be reduced. This mechanism for sterilizing foreign reserve inflows has been used extensively during export booms in some developing countries. For example, in 1977 the monetary authority in Colombia introduced marginal reserve requirements of 100 percent to reduce the monetary impact of the coffee boom. Nevertheless, the monetary aggregates grew well in excess of growth in real GDP. Initially, the rapid monetary expansion caused real interest rates to drop to negative values, but the rates returned to positive levels by 1979, as the public investment program expanded and inflation remained high.

The budgetary consequences of Colombia’s 1976–78 coffee export boom are typical of those experienced during export booms in developing countries. In the early 1970s the Colombian government was running small fiscal deficits of around 2 percent of GDP.
Initially, the coffee boom of 1976 produced a small fiscal surplus of 0.8 percent of GDP. Government revenue grew by 28.9 percent—slightly less than the growth in nominal GDP (31.4 percent). At the same time, expenditure was slow to adjust upward, presumably because of lags in the budgetary process. This situation was temporary, however. Rapid growth in government spending began in 1977 and accelerated even after the boom peaked in 1978. Government expenditure grew at annual rates of 29.9, 35.8, 39.4, and 49.7 percent, respectively, from 1977 to 1980. These growth rates, which were well in excess of nominal GDP growth, caused the ratio of government expenditure to GDP to rise from 8.3 percent in 1976 to 10.8 percent in 1981. Consumption expenditure accounted for a substantial part of this increase; public investment, however, also increased sharply after 1979.

The effect of the boom was less pronounced on government revenue than on expenditure. Revenue climbed from 8.1 percent of GDP in 1974 to 9.5 percent in 1975, reflecting tax reforms in 1974 and 1975. During the coffee boom, revenue growth was only slightly greater than the growth in GDP. Thus the government failed to generate the additional revenue needed to pay for the aggressive increase in spending, and the fiscal surplus at the beginning of the boom quickly eroded. Within three years, a deficit had reappeared. It grew steadily to 3.5 percent of GDP in 1984, as the divergence between the growth in revenue and expenditure continued.

Because sharing arrangements among different levels of government and publicly operated commodity stabilization accounts are widespread, only the consolidated public sector accounts give a complete picture of the budgetary impact of export booms. In Colombia, the consolidated public sector budget showed the same inability to match revenue growth to the runaway increases in spending as did the central government budget. Public revenue rose from 26.8 percent of GDP in 1975 to a peak of 39.5 percent of GDP in 1980, before falling somewhat when the economic slowdown began. From 1976 to 1981, however, the growth in current expenditure exceeded revenue growth. As a result, public saving declined during the boom from 7.0 percent of GDP in 1976 to 3.4 percent in 1981.

Capital investment also increased sharply, particularly after 1978. Public investment as a percentage of GDP rose from 4.0 percent in 1977 to 7.5 percent in 1981 and 1982. This rise reflected expansion in the electric and transportation sector as well as joint ventures with foreign companies in the coal and oil industries. Because public saving was falling throughout the boom, the budget of the consolidated public sector moved from a small surplus of 1.3 percent of GDP in 1976–78 to a deficit of 4.1 percent of GDP, as the public
investment program expanded. These investments were financed by more public sector borrowing abroad.

The Colombian government concentrated these investments on large-scale projects in noncoffee export businesses, such as coal and oil. If these investments had met standard profitability criteria (using the true opportunity cost of capital), this strategy could have fostered the country's aim of export diversification. Unfortunately, the full potential was not realized. In fact, the boom saw a collapse in nontraditional exports, which suggests that the investment policy's favorable impact on nontraditional exports was overwhelmed by the effects of the growing overvaluation of the exchange rate during the boom.

Cameroon: A Case of Adept Boom Management

Cameroon experienced two commodity export booms: a coffee price boom in 1976-77 and an oil boom in 1979-80—before which Cameroon did not export oil. The former was a price shock; the latter a result of exploitation of new offshore oil reserves beginning in 1978. These two external shocks had different effects on the growth of real GDP, as explained below. Cameroon’s management of these back-to-back booms, through prudent fiscal policy, was exemplary.

Assessing Cameroon’s economic growth performance is difficult because of unreliable statistics. Available data, however, suggest that real GDP growth dropped during the 1976-77 coffee boom. In fact, a sharp rise in the world price of a country’s export commodities often results in little or no surge in real GDP. Why? Although there may be some reallocation of resources, the level of capacity utilization may not be greatly affected, particularly if the economy is near full employment or if unemployment is structural. Thus even though real national income rises because of a change in the terms of trade, real domestic product shows little change.

In contrast, the 1979-80 oil boom was caused by an expansion in productive capacity, not just an increase in world prices. The boom caused real GDP to increase sharply—from 2.9 percent in 1975-78 to 14.9 percent in 1979-80—before falling to 7.3 percent in 1981-83, as world oil prices declined from their peak.

In their comparative study of boom management in Cameroon, Côte d'Ivoire, and Senegal, Devarajan and DeMelo (1987) conclude that Cameroon's macro management during the 1970s was first-rate. The increase in spending associated with the booms was modest; the government’s budget, which was conservative before the booms, remained so throughout the 1970s. The real exchange rate
did not appreciate sharply, in contrast to the pattern in other booming economies (including Côte d'Ivoire and Senegal). The authors point out that the initial windfall from the coffee boom in Cameroon and from the coffee and cocoa boom in Côte d'Ivoire accrued to the countries' commodity stabilization funds, as prices paid to domestic producers were kept below world prices. Whether this policy moderates the spending effect of the boom depends on how the government uses the additional resources. In Cameroon, current government expenditure was restrained so that substantial public saving occurred, and a large part of the windfall was invested in domestic capital formation, thereby minimizing the need to borrow abroad. According to Devarajan and DeMelo,

The post-1978 oil boom was of much greater significance but elicited a similar response. While estimates vary, there is reason to believe that up to three-fourths of the oil revenues were saved abroad. . . . In fact, the government has used the oil revenues to retire a small part of its foreign debt. Consequently, in contrast to other oil exporters' experiences, Cameroon's real exchange rate continued to depreciate . . . in the first few years of the oil era. To the extent that this windfall was spent domestically, it was channeled into investment rather than consumption; while the share of public expenditure in GDP fell slightly between 1978 and 1982, that of public investment almost doubled (1987, p. 451).

In fact, capital expenditure grew fourfold between 1978 and 1981 but then ceased to grow in real terms because the authorities recognized the limits on their capacity to absorb investment efficiently at these levels.

Cameroon was able to prevent the sharp currency appreciation that typifies commodity export booms even though, as a member of the Communauté Financière Africaine zone, it has a fixed exchange rate. In fact, gradual real depreciation occurred, implying that either internal prices of tradables were rising or prices of nontradables were falling. Cameroon's inflation rate dropped slightly during the 1979–80 boom, although it rose sharply afterward. This suggests that prices of nontradables were rising, but at a slower rate than prices of tradables and, hence, the overall price level. The government used some of its revenue from the oil bonanza to raise producer prices of cash crops, keeping the real exchange rate from appreciating and preventing the traditional export sector from contracting Dutch disease (Devarajan and DeMelo 1987).

Although government revenue reflected royalties and taxes on the four oil companies operating in Cameroon, the revenue from production sharing was channeled into extra budget accounts. The
amount of revenue was not divulged. Although such secrecy has potentially dubious effects on responsibility and accountability for public revenue, it has the benefit of reducing pressures to increase government spending, which emerge once it becomes clear that the government is flush with funds. (This was a major problem in Nigeria and Mexico, where there were breakdowns in budgetary controls as oil revenue flowed in.)

In spite of the overall success of Cameroon's policies, the public expenditure response to the oil boom in a couple of areas was less than ideal. Between 1979 and 1985 current expenditures rose in tandem with receipts. There was a sharp rise in "subsidies and transfers," made up largely of operating subsidies to the public enterprises, many of which generated losses as a result of poor management. Another source of concern was the rapid increase in the number of permanent civil servants, which could create a heavy burden when oil revenue declined.

Kenya: The Distribution of the Windfall and Fiscal Control

The Kenyan coffee boom in the late 1970s shows that fiscal control problems can arise even when the initial windfall accrues to the private sector. Kenya's situation was unusual in that farmers received the full world price for their coffee, after deducting marketing and processing costs. Bevan, Collier, and Gunning note, "There were no attempts to sterilize the coffee money by putting it in, for example, some form of stabilization fund, although the Central Bank argued for this and also the IMF [International Monetary Fund] suggested something of that nature. The government, however, refused to take any such action and decided to let all the gains be passed on to the farmers" (forthcoming, p. 32). Although the government was not a direct recipient of the coffee windfall, its revenues from other taxes rose substantially. Unfortunately, this contributed to (and accelerated) the breakdown in the government's control over public expenditures. Bevan, Collier, and Gunning stress the political economy aspect of the budget process.

[It] reflected the political difficulty of holding back expenditures in an economy with many obvious needs, when it was widely known that the Treasury had access to extra money. In an attempt to make it more difficult for the Treasury to cut down their requests, spending ministries refused to rank projects in any priority. The Treasury therefore had to enforce spending ceilings on ministries with little guidance about the relative merits of proposals. Not only did many bad projects thus come

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to be retained, but the net effect was for the Treasury to err on the side of extravagance (forthcoming, p. 35).

This lack of budgetary control led to an economic crisis in the early 1980s.

Our interpretation of the events . . . [is] that the coffee boom was the root cause of the 1981 crisis, while the crisis of the mid-1970s was a smaller adjustment problem. The boom led to a breakdown of control over public expenditure, which was not restored until 1983. There was an expansion of the public sector considerably in excess of what was sustainable under normal circumstances, and additionally private demand expanded too rapidly. The boom thus caused the serious disequilibrium in the economy. As a result of the boom the government became unable to handle its finances in an efficient and responsible way, and in consequence was unable to handle the second oil [import] price shock efficiently (Bevan, Collier, and Gunning, forthcoming, p. 53).

Clearly, the Kenyans suffered not from the coffee boom itself but from an inappropriate fiscal response to the boom. In retrospect, the coffee boom of the 1970s must be seen as a missed opportunity to accelerate Kenya's economic development.

Nigeria: The Link between the Exchange Rate and Revenue

Nigeria is another example of fiscal dependence on primary export earnings and lack of expenditure restraint during export booms. According to Rajaram, "In the nine-month period before mid-1974, Nigerian government oil revenues almost quadrupled, the rise being due to the oil price increase, increased production and greater tax, royalty and ownership shares in oil revenue. The balance of payments surplus increased by a factor of 20 correspondingly" (1985, pp. 15–16).

The government responded with a large increase in nontradables expenditures.

A very large part of the spending was on education, transport and communication, and construction (military barracks, conference centers). The Udoji Commission's recommendations also increased the public sector wage bill by almost 60 percent. . . . The income created by the spending increased demand for food and with domestic supplies being inelastic in the short run this quickly spilled over into imports. Port and transport bottlenecks were quickly reached and food prices began rising. Inflation received further impetus from the high level of government
expenditure which, having overtaken revenue, had pushed the budget into a deficit. The monetary expansion fueled the inflationary spiral (Rajaram 1985, p. 16).

As foreign exchange reserves began to decline in 1981, the government took on large external loans rather than curtail expenditures. In 1981–86, government oil income, mainly from the oil profits tax, royalties, and profits of the Nigerian National Petroleum Company, averaged 68 percent of total retained revenue (that is, after subtracting revenue collected by the federal government and passed on to state and local governments under revenue sharing agreements). After a 22 percent increase in 1980, oil revenue declined by 30 percent in 1981–83 as world oil prices fell. In 1984, however, revenues jumped 30 percent as a result of a sharp increase in production and changes in the exchange rate.

The Nigerian experience demonstrates the link between exchange rate policy and state revenue where the government is a net supplier of foreign exchange to the economy. When export booms lead to exchange rate appreciation, the government revenue base is eroded. Besides reducing the naira value of oil revenues, Nigeria's currency appreciation lowered revenue from ad valorem import duties. It also switched profits from the relatively taxable manufacturing sector (tradables) to the untaxed commercial and distribution sectors (non-tradables). Consequently, federally collected revenue fell from about 25 percent of GDP in 1981 to 20 percent of GDP in 1985. However, the revenue to GDP ratio improved sharply to 24 percent in 1986, as a result of devaluation in the last quarter of the year and efforts to widen the tax base. The sensitivity of government revenue to the exchange rate suggests that avoiding overvalued exchange rates during booms will help prevent fiscal problems—provided the government succeeds in limiting expenditure if revenues remain intact.

**Jamaica: Booms and Economic Stagnation**

Jamaica's growth in the 1960s is in sharp contrast to its economic stagnation in the 1970s and first half of the 1980s. The country experienced positive economic growth during every year of the 1960s except 1963, when the growth rate dropped slightly before surging ahead at 12.3 percent in 1964. In 1970–85, real growth languished, and GDP dropped by 5 percent to 6 percent in some years. This stagnation was accompanied by higher inflation than in the 1960s—or in the industrial countries during the 1970s.

It is useful to examine Jamaica's fiscal situation during this period. The ratio of the fiscal deficit to GDP was 2 percent to 3 percent in the 1960s. It climbed in the early 1970s, from 2.7 percent of GDP
in 1970 to 5.3 percent in 1973. Even though Jamaica's bauxite earnings soared in 1974–75, the fiscal deficit rose to 7.9 percent of GDP. When the boom ended, the deficit ballooned to 15.5 percent of GDP, as revenues fell and expenditures increased sharply. A second bauxite boom in 1979–80 did nothing to improve the fiscal balance. The deficit rose to 20.8 percent of GDP in 1980, as expenditures outstripped increased revenue.

Conventional stabilization policy would have dictated a reduction, not an increase, in the deficit ratio. Yet Jamaica's fiscal deficit to GDP ratio rose during both the 1974–75 and 1979–80 booms compared with its level before the booms. This fiscal performance was anything but stabilizing. Moreover, the secular deterioration in the country's fiscal position has been a major contributor to the unsustainable external imbalances plaguing the Jamaican economy during the 1980s.

Despite two export booms in the 1970s, Jamaica's fiscal position worsened dramatically. Control over public expenditure waned, and slow revenue growth was accompanied by heavy dependence on foreign borrowing. Between 1970 and 1980, Jamaica's public and publicly guaranteed long-term debt rose from 30.2 percent of exports and 12.0 percent of GDP to 101.2 percent of exports and 60.0 percent of GDP. The debt became even more onerous in the early 1980s, as demand from traditional export markets for bauxite and alumina stagnated and the government failed to correct growing fiscal imbalances and an overvalued exchange rate.

A new government, which came to power in October 1980, attempted to reduce the role of the public sector and create a policy environment more conducive to rapid growth in the export-oriented sectors. From 1980 to 1985, however, progress was minimal. Management of the economy became the primary concern of policymakers, who were faced with reduced capital inflow from abroad and the need for repeated rescheduling of existing external obligations. Given the country's heavy debt-servicing burden, the fiscal authorities had little financial or fiscal flexibility to conduct countercyclical stabilization policy in the recessionary domestic environment of the first half of the 1980s. Even the narrower objective of restoring fiscal balance was made considerably more difficult by the large debt overhang.

**Generalizations from Country Experiences**

In practice, there has been a tendency to overspend during and following export booms, which has considerably reduced realizable welfare gains. Overspending may be the result of excessive increases in consumption by either the private or the public sector, or overly
ambitious and inefficient capital investment programs. The ratchet effect of increased government spending during booms, which proves difficult to reduce once the booms subside, is common.

It is naturally equilibrating for the real exchange rate to appreciate during booms and to cause contraction in the nonbooming tradables sectors. A number of points can be made about this phenomenon as it relates to exchange rate management. First, if the exchange rate is overvalued at the start of the boom, further appreciation may not be needed to restore equilibrium. This was the case in Colombia, Nigeria, and Jamaica during the late 1970s, as these countries entered their second booms of the decade. Second, if excessive spending results from an export windfall, the equilibrating appreciation of the real exchange rate will have to be greater than would have been required under optimal expenditure levels. Third, contraction of the lagging sector may have some negative effects if cumulative development benefits from continuous production are lost. This situation may have occurred in Colombia, where the 1976–80 coffee boom erased much of the gradual expansion in nontraditional exports fostered by policies over the decade before the boom. Finally, the monetary impact of the boom, through its effect on the inflow of foreign reserves, may cause a temporary surge in inflation, while the real exchange rate overshoots its equilibrium level (see Edwards 1985).

In many cases, the size and the persistence of the real exchange rate appreciation following export booms appear excessive from a social standpoint, although determining the socially optimal path for real exchange rates is virtually impossible. The high value of the domestic currency often persists long after the boom has subsided, hampering the readjustment of the nonbooming tradable goods sector. The overvalued exchange rate may be sustained for a while because of the large accumulation of foreign exchange reserves during the boom. This situation reduces pressure on the central bank to depreciate the real exchange rate quickly after the boom. Permanently higher levels of government spending, which are often initiated during temporary booms, also contribute to sustained overvaluation. This occurred in the coffee boom in Colombia and the oil boom in Nigeria in the late 1970s.  

Several features are common to booming economies, in addition to the tendencies to overspend and to allow exchange rate overvaluation to become acute. The following patterns are typical of the developing countries examined in this study and elsewhere:

- Periodic surges in exports lead to large, but often short-lived, trade surpluses or even current account surpluses, as well as overall balance of payments surpluses and a large inflow of foreign exchange to the central bank.
Expenditure and imports respond to the rise in foreign exchange earnings and increased national wealth with a lag of a year or two. In many cases, the monetary authority responds to the massive inflow of foreign exchange reserves by relaxing quantitative restrictions and other regulations; usually the import of capital goods and intermediate inputs is given priority. The increased availability of foreign exchange and the overvaluation of the exchange rate, particularly if they are perceived as temporary, both contribute to rising import demand.

Higher export prices cause a rise in real gross national income (and wealth) through the improvement in the terms of trade, even in the absence of any changes in output volumes. There may or may not be an impact on real GDP, that is, real output measured in volume or constant-currency units.

The last point suggests that in commodity price booms, it is important to distinguish between the effects on real income and real output (GDP). The extent to which real output rises during an export boom depends on the following factors:

- The availability of idle capacity in the economy.
- The expansionary monetary consequences of the boom (as discussed in the Colombian case), which may contribute to the increase in aggregate demand.
- The extent to which unemployment in the economy is Keynesian (rather than classical or structural). This determines whether the boom-induced stimulus to aggregate demand will, in fact, raise output.
- The extent to which imports are allowed to expand to meet higher aggregate demand. If the rise in exports is more or less matched by an increase in imports, the net impact on aggregate demand will be minimal. In cases such as this, where net exports are unchanged, the export boom will not succeed in raising real GDP even if there is idle capacity.

Empirically, the effect of the export price surge on real output growth is often small and short-lived. In his seminal book, MacBean (1966) explored the link between export price shocks and national output in detail, using time series and cross-country analyses for a number of commodity-exporting developing countries. The author found little evidence of a statistically significant correlation between the two variables. Most later researchers have concurred with MacBean's findings.

Data for the developing countries in this study also indicate that the responses of real GDP were small. In some cases, GDP growth was actually negative, as in Jamaica during its 1974–75 and 1979–80 bauxite price surges. Generally, the commodity price booms did not raise real GDP. Inflation (measured using the GDP deflator) did
surge during most booms and remained high in postboom periods. The evidence suggests that governments interested in short-term stabilization policy should focus on the inflationary consequences of the boom.\textsuperscript{25}

This may seem surprising given the widespread policy concern over the impact of commodity booms on real GDP and employment in developing countries. How can this concern of policymakers be reconciled with the statistical insignificance of the relation between export booms and real GDP obtained by econometric research? Perhaps by distinguishing between export booms caused by favorable terms of trade and those caused by natural resource discoveries. In the latter case, the impact on real GDP (and hence on real gross domestic income) ought to be significant, because the potential volume of production and thus also exports is expanded. In contrast, terms of trade shocks may alter the composition of output to the extent that resources may be reallocated or reemployed in response to (perhaps short-lived) changes in export prices. Yet the impact on the total real value of output (GDP) may be minimal, because the change in prices causes a steady movement along the production frontier rather than an expansion of it. As a result, an increase in gross domestic income, but little increase in real GDP, would be expected.

The comparison in the previous section of Cameroon's two boom episodes during the 1970s is consistent with the conjecture that commodity price booms (as opposed to booms caused by increases in productive capacity) often have only modest effects on real output. In the face of price or terms of trade shocks, therefore, stabilization policies should focus on the consequences of booms on inflation and external balances rather than on output and employment. In the case of booms caused by resource discoveries, the opposite is true, with more emphasis warranted on the output and employment effects.

The central bank's foreign reserves usually surge at the outset of a boom. Unless the monetary authority is equipped with effective mechanisms for sterilizing the monetary impact, this inflow will cause the domestic monetary base and the broader monetary aggregates to rise sharply. The export boom should induce the usual spending effect, even if heavy monetization of the foreign exchange inflows does not occur. If the real output (supply) response to this surge in aggregate demand is small, then the primary impact of the increase in aggregate demand is increased inflation. (Any increase in real money demand is likely to be modest in cases in which the real output growth is low and the inflation rate rises.) The inflationary impact of the boom can be exacerbated by the stance of the monetary authority. Attempts to maintain a fixed nominal exchange rate,
particularly when coupled with foreign exchange controls that force exporters to convert proceeds into local currency soon after transactions, generally lead to higher inflation relative to countries where upward adjustment of the nominal exchange rate is allowed.26

The boom’s impact on the structure of demand (that is, on consumption and investment and private and public expenditures) depends on initial distribution of windfall gains. National practices vary. Countries that export mineral products tend toward public ownership of booming resources—as in Indonesia, Mexico, and Nigeria, where oil, the primary export sector, is controlled by public enterprises. With agricultural commodities, private ownership is more common, although governments often have a hand in setting producer prices. This type of government involvement affects how much of the increase in export earnings remains in the hands of producers and how much is taxed and redistributed. In Colombia the powerful coffee lobby insisted that export gains during the 1976–80 boom and the 1985–86 miniboom remain in the coffee sector. Through agreements between the National Coffee Federation and the central bank and government, however, mechanisms were devised to facilitate financial intermediation of the windfall from coffee exporters toward priority investment projects elsewhere in the economy. In contrast, the coffee windfalls in Kenya and Tanzania were distributed between producers and government.

In Kenya, the coffee boom amounted to a terms of trade gain of K£339m [m=million; 1975 prices] in the 1976–79 period, equivalent to 32 percent of 1975 gross domestic product (GDP). While in Tanzania the price increase was largely taxed away, in Kenya the producer price of coffee rose almost as much as the world price so that coffee producers, predominantly smallholders, were the initial beneficiaries of the boom (Bevan, Collier, and Gunning 1987, p. 491).

Even in countries where the government is not the direct recipient of boom income, its revenues from import tariffs and income and sales taxes will generally rise as private spending increases. Government policy can have a profound impact on the ultimate distribution of the windfall, even when the boom income accrues initially to the private sector. Bevan, Collier, and Gunning emphasize this point in their study of Kenya:

On theoretical grounds we would expect the use made by private agents of a temporary windfall to be strongly influenced by the presence of government controls on assets and international trade. Our investigation of the Kenyan coffee boom has lent support to the theoretical analysis and has indicated that such considerations may be quantitatively important. Kenyans

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indeed appear to have attempted to save a high proportion of their windfall incomes (around 60 percent), but their asset choices were so restricted that this drove up the relative price of nontradable capital goods. Similarly, as their attempts to increase consumption were constrained by import controls, there were short-run redistributions in favor of domestic producers of import-substitutes. In the longer run, the skewed sectoral allocation of windfall investment produced further powerful redistributions. . . .

Conventional wisdom would imply that most of the benefits would accrue to coffee and tea growers since the Kenyan government chose to pass the rise in world prices on to farmers. Yet our model indicates that the effects of the boom depend critically not just on producer pricing, but also on trade policy and investment allocation. The distortions created by these policies cause a very large part of the total gain to end up in urban rather than rural hands (1987, p. 510).

In each of the country experiences reviewed in this article, the budgetary consequences of the boom and the policy response of the public sector played an important role. As Tanzi noted, “the automatic impact of external shocks [such as changes in the terms of trade, major import prices, or the cost or availability of foreign capital] on the fiscal variables is likely to be much more important in developing countries than in industrial countries. At the same time the ability of developing countries to neutralize these effects, if they wished to do so, is much more limited” (1986, p. 88).

It is important to remember that changes in a government’s tax revenues and expenditures occur directly and automatically and do not necessarily represent discretionary policy responses to external shocks. Among the reasons Tanzi gives for the link between the budget deficits or surpluses and current account deficits or surpluses in developing countries is the high proportion of foreign trade taxes in government revenue. He estimates that “more than 50 percent of the tax revenue of developing countries may be directly related to the foreign sector” (1986, p. 89). Tanzi is saying that endogenous changes occur in the budget in response to exogenous shocks and that, rather than acting like automatic stabilizers, these changes may worsen the disequilibrium initiated elsewhere in the economy.

Tanzi’s analysis of the impact of higher export prices on government revenues and expenditures of developing countries during the 1970s distinguishes three types of response.

- A small group considered the increase a temporary windfall that would marginally affect the government’s (and the country’s) permanent income. These countries used the extra reve-
nue to pay off foreign debt or to accumulate foreign assets (either foreign exchange or real assets). When foreign earnings declined, these assets were liquidated and used to maintain the level of domestic spending. This response is an application of the permanent income hypothesis of consumption.

- A larger group accumulated capital at home by expanding public investment—a sensible course, Tanzi argues, provided that (a) the return on investment is as high as could be received from foreign assets, (b) the additional investment spending is limited to windfall income, and (c) this spending can be phased out when the windfall income disappears. Because of poor management and political influences, however, these criteria were not always met.

- The largest group raised public spending by increasing public employment, the size of transfers, and investment. When foreign earnings declined, these countries were tied to patterns and levels of spending that were difficult to change. Foreign loans were used to maintain the level of spending that could no longer be met from ordinary revenue. When the loans were no longer available, these countries were faced with huge foreign debts, in addition to spending levels that were out of control.

Shocks that reduce government revenue can pose even more problems. Countries are often unable to make up the revenue losses in the short run. In theory, the loss of foreign trade taxes can be compensated for by increasing income taxes or taxing domestically produced products. It takes time, however, to introduce and collect income taxes, and their scope in developing countries is limited. Therefore, countries have been forced to rely on inferior revenue sources, such as inflationary finance, regressive excises, or the building up of arrears (Tanzi 1986, pp. 90–91).

Tanzi’s discussion favors the first and second strategies of the three just described, without specifying when each is preferred, whereas Cuddington (1986, 1987, 1988a, 1988b) suggests that, based on the permanent income theory of consumption, the first strategy is better for countries that do not (a) impose foreign exchange controls on capital inflows and outflows or (b) face borrowing from external creditors. The bulk of the temporary windfall should take the form of increased holdings of foreign assets or a reduction in foreign liabilities, or both. Small amounts of revenue should be allocated to increase domestic capital formation while the boom is occurring.

Yet if the country has binding capital controls or faces credit rationing, the shadow domestic interest rate and the marginal productivity of domestic investment may be considerably greater than the world interest rate. In these cases, it is optimal to allocate much
of the windfall saving to domestic rather than foreign investment. Timing, however, is important. If the absorptive capacity of the economy is limited, the optimal strategy may be initially to invest the windfall saving in foreign assets and then gradually to undertake domestic capital formation, recognizing its impact on aggregate demand and absorptive capacity.

The problems in controlling public expenditure associated with booms have long been recognized. For example, Corden comments, "It might be argued that the true Dutch Disease in the Netherlands was not the adverse effects of real appreciation but rather the use of Booming Sector revenues for social service levels which are not sustainable, but which it has been politically difficult to reduce" (1984, p. 359). In a study of booms in Sub-Saharan Africa, Rajaram (1985) reaches similar conclusions. At the end of the booms, when foreign exchange earnings and government revenue declined, the typical policy response was to continue boom spending levels. This meant large budget deficits, monetary expansion, and rising inflation.

Some generalizations can be drawn from the experiences of the developing countries studied here. During booms, the ratios of both government spending and revenue to GDP typically rise, with the expenditure to GDP ratio growing faster than the revenue to GDP ratio. In spite of the extra revenue secured during booms, increases in government spending quickly outstrip the gain. Therefore, booms are accompanied (with a slight lag) by a rise in the fiscal deficit—just the opposite of what would be expected based on the permanent income consumption strategy discussed above. As the boom subsides, government revenue collapses, but spending remains at pre-boom levels (or even increases), setting in motion long-term fiscal problems.

In sum, lack of fiscal control is a major problem in booming economies. It can significantly reduce or even negate the economic gains realized from commodity export booms.

The booming world commodity markets of the 1970s and the postwar lows for real commodity prices in the mid-1980s have created complex economic management problems for commodity exporters. Although potentially beneficial, export booms can cause major internal and external economic imbalances. Many countries have responded to booms in ways that have not been optimal.

Coping with the commodity busts of the 1980s has become more difficult because of earlier boom mismanagement, which left many developing countries with overextended and inefficient investment...
programs, excessive foreign debt, and large structural fiscal deficits. As a result, fiscal and exchange rate policies have been unable to play a stabilizing role in the 1980s, as per capita income growth and employment slowed and, in many cases, turned negative.

Concern about poor management of booms is based on evidence from the past twenty or thirty years, not just the 1970s. Many developing countries overconsumed during boom periods and experienced liquidity crises when the booms ended. In many cases, foreign reserves were not much larger, or were even smaller, after the boom than before (see Davis 1983). Regulated price structures, and particularly exchange rates, were often allowed to deviate substantially from free market levels, discouraging efficient resource allocation and compounding the problems of adjustment to subsequent drops in export prices. Countries that managed booms well were typically those that (a) did not allow fiscal variables, exchange rates, agricultural producer prices, and wages to get badly out of line, (b) avoided indulging in wasteful and inefficient investment or investment that involved burdensome recurrent (such as ongoing maintenance) costs, (c) limited increases in government spending to levels consistent with long-term trends in revenue collection, and (d) maintained prudent external borrowing and foreign exchange reserve policies.

Abstract

This article surveys the experiences of commodity-exporting countries faced with resource discoveries and widely fluctuating world prices. Favorable developments of the commodity export market often prove to be a mixed blessing, as poor boom management leads to major internal and external economic imbalances. Many developing countries overconsume during boom periods. More often than not, the unsustainable increases in spending are initiated by the public sector. When the boom ends, tardiness in decreasing government spending and in increasing revenues from nonbooming sectors creates fiscal deficits and monetary control problems.

In the 1970s many booming economies allowed regulated price structures, and particularly exchange rates, to deviate substantially from free market levels, discouraging efficient resource allocation and greatly compounding the problems of adjustment to subsequent drops in export prices. Countries that managed booms well were typically those that (a) did not allow fiscal variables, exchange rates, agricultural producer prices, and wages to get badly out of line, (b) avoided indulging in wasteful and inefficient investment or investment that involved burdensome recurrent costs, (c) limited increases in government spending to levels consistent with long-term trends in revenue collection, and (d) maintained prudent external borrowing and foreign exchange reserve policies.

Notes

This article is based on section IV of Cuddington (1988a), which was prepared as a background paper for World Bank (1988). It also draws heavily on my previous work on coffee boom management in the Colombian economy.

1. See Corden 1984 or Neary and van Wijnbergen 1985 for excellent overviews of the theory.
2. In this article, "tradable goods" should be understood to mean tradables other than the booming sector's output. In many applications, the term includes nontraditional exports and import-competing sectors of the domestic economy. Tradable goods are goods that are freely available at prevailing world prices plus any domestic tariff levy. Goods that are sheltered by quotas behave like nontradables because their domestic prices rise as a result of the additional spending induced by the boom.

3. The real product wage in terms of tradables rises, but the real product wage in nontradables falls (as the marginal productivity of labor declines). In the presence of real wage stickiness, this sectoral reallocation of labor may be accompanied by a transitional increase in unemployment. See Neary and van Wijnbergen 1985 for a detailed discussion of the implications of real wage rigidity.

4. In practice, it is difficult to determine whether shocks are permanent or temporary until long after they have occurred. For a detailed discussion of this issue, see Cuddington 1988a, section III.

5. The net effect of the boom on nontradables output and employment, in contrast, becomes ambiguous once the resource movement effect is introduced.

6. Svensson and Razin 1983 show that this must be the case in a model with optimal intertemporal saving behavior by households, but where decisions by firms and all government activities are ignored.

7. The generalizations are drawn from the examination of data on a broader range of countries. Data are drawn from a study of Colombian management of coffee export booms in 1976-80 and 1983-86, as well as comparisons of changes in key macro variables before, during, and after booms in Cameroon (oil, coffee), the Dominican Republic (sugar), Ghana (cocoa), Indonesia (oil), Jamaica (bauxite), Mexico (oil), Nigeria (oil), Papua New Guinea (copper), and Zambia (copper). The underlying data for each of the countries on which the generalizations are based are provided in appendix E of Cuddington 1988a.

8. See Larreccq (undated) for a detailed analysis of the much more varied experiences of commodity exporters in West Africa.


10. For the measure of world inflation used here, see International Monetary Fund (various years), line 64x.

11. Colombia had a crawling peg exchange rate system at the time. As a member of the Communauté Financière Africaine zone, Cameroon had a fixed nominal exchange rate, and yet it managed to avoid real exchange rate appreciation.

12. This concept of the real exchange rate differs from that in the conceptual model in the previous section, but the two measures move in the same direction unless the price of the booming commodity enters the domestic price index used in the calculation with a very large weight. This is seldom an issue in practice.

13. This statement implies that the growth in money demand caused by the boom-induced increase in national income typically falls short of the growth in money supply caused by the inflow of foreign exchange earnings.

14. This is a dominant theme in writings on the monetary approach to the balance of payments. See Frenkel and Johnson 1976.

15. See Cuddington 1986 for a more detailed analysis of the link between foreign reserve inflows and the domestic money supply during Colombia's coffee export boom.

16. Although open market operations were used sparingly during Colombia's 1976-80 boom (changes in reserve requirements being the main monetary policy instrument), they were used extensively during the 1985-86 miniboom. Because the market for government securities was still relatively small, policymakers were concerned that the feasibility of open market operations would be inhibited by interest rate ceilings if interest rates continued to rise as sterilization occurred.

17. The ratio of reserve money (that is, the monetary base) to M1 rose sharply from 0.61 in 1974 to 0.93 in 1981. The reserve money to M2 ratio also increased—from 0.47 in 1974 to 0.67 in 1979—as reserve requirements were increased in response to the surge in foreign reserve inflows.

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18. See Cuddington and Urzúa (forthcoming a) for an econometric analysis of Colombia’s fiscal response to temporary surges in real GDP.

19. Davis 1983 (p. 129) suggests that this experience was atypical among the countries that benefited from the 1975–78 rise in beverage prices. In most of the countries, current expenditure growth was reasonably restrained while capital spending increased sharply.

20. The revenues from Cameroon’s new oil export capability, however, were greatly enhanced by the sharp rise in world petroleum prices in 1979–80.


22. In the national income accounts, real gross domestic income equals real GDP plus the terms of trade effect (when positive). Adding net factor income from abroad to gross domestic income yields gross national income.

23. See Krueger 1984 for a recent survey.


25. It might be argued that the evidence on the relative stability of real GDP in the face of commodity booms shows how successful stabilization policy has been. Movements of monetary and fiscal policy variables do not, however, exhibit strong countercyclical changes, so this hypothesis must be rejected.


References


For nearly two decades, the World Bank has had an abiding interest in the political economy of income distribution and economic growth. Research on income distribution that has emerged over the years has sought to increase the understanding of donors, policymakers, and academics on the important questions of who benefits from economic development, who is hurt by economic decline, and why.

How has income distribution changed with economic growth in the countries for which information is available? In 1985, the World Bank launched a research project on the political economy of poverty, equity, and growth. Its purpose was to "explore the processes of interactions between growth, equity and poverty alleviation particularly as they are affected by different types of public policies, using a combination of 'analytical history' and 'political economy.'"

This article summarizes data from the political economy project as well as other evidence. The results should be viewed as establishing the stylized facts of poverty, inequality, and growth rather than as tests of formal theories or of rigorous econometric models. In this article, the term "the poor" refers to those whose income falls below a figure established as the poverty line. "Poverty" may be used to indicate the extent to which the poor lag in income. The term "inequality" refers to disparities in income or income growth rate among groups. Some groups may experience greater proportional gains in income than do others. Inequality increases if the income of the rich rises at a higher rate than that of the poor.

In the example of a country that experiences economic growth,
suppose that growth takes place in the aggregate and that everybody’s real income increases. If the poor gain 5 percent in income and the rich gain 20 percent, poverty has decreased (because the poor are less poor) but inequality has increased (because the ratio of the income of the rich to that of the poor is higher than it was).

The conclusions drawn about the change in income distribution depend on whether absolute poverty or relative inequality takes precedence in the evaluation. This article gives the two criteria equal weight.

Early research on income distribution emphasized natural economic laws intended to describe how income distribution changes with economic growth. Probably the best known is Kuznets’ law, commonly but inaccurately paraphrased as follows: Income distribution must get worse before it gets better.

Kuznets’ law dealt with relative inequality, not with absolute poverty. Other early studies of the effect of economic growth on poverty and inequality followed a similar methodology, which was to look across countries and relate income distribution to level of national income. The cross-section method entailed two assumptions: that the pattern of income distribution at any given time reflected the time path followed by the then developed countries in their growth, and that the time paths followed in the past could be followed in the future. The reason for this methodology and its accompanying assumptions was quite practical: cross-sectional data were the only ones then available for developing countries. This precluded answering questions about growth and distribution by using intertemporal data. Some such data were then available for more industrialized countries (Kuznets 1963).

Studies in the early 1970s (such as Weisskoff 1970 and Fishlow 1972) began to present data on changes over time in inequality and poverty for individual developing countries or groups of countries. With these data available, the research task became one of synthesizing the findings on individual developing countries. Fields (1980) conveys data on changes in inequality and in poverty for thirteen developing countries. Fields (1988) reviews the major studies of this type. The data underlying this paper are presented in Fields (1989a), and the analysis is detailed further in Fields (1989b).

For reasons of practicality I measure poverty by the headcount ratio and inequality by the Lorenz curve and the Gini coefficient. A poverty line is a level of income or expenditure below which a recipient (expressed as household, individual, or per capita) is said to be poor. The headcount ratio is the fraction of all recipients who fall below the poverty line. The Lorenz curve is a method commonly used to show income distribution. The inequality of a country’s income distribution in one year may be ranked against the inequality
in another year by comparing Lorenz curves. Possible outcomes are Lorenz improvement (inequality has decreased according to the most common measures of inequality), Lorenz worsening (inequality has increased according to these measures), and Lorenz crossing (inequality has increased according to some measures and decreased according to others). The most common measure of inequality is the Gini coefficient. In principle, it ranges from zero (perfect equality) to one (extreme inequality); in practice, the approximate range of Gini coefficients is 0.3 to 0.7.

Academic economists and statisticians debate the merits of various indexes of inequality and poverty, but to use any inequality index other than the Gini coefficient would require painstaking work to gather the data and compute, say, a Theil index. More sophisticated poverty indexes, such as the Sen family of indexes or the $P_a$ class, do not exist for developing countries, nor can they be produced, given the highly aggregated level of published income categories. Some of the more refined measures of inequality and poverty will probably not exist for developing countries until the twenty-first century.

It must be recognized that the findings in this study are based on less than ideal data. Although the use of micro survey time series data is a large step forward from the use of aggregative cross-section data, it is only an initial step, and it does not resolve some critical problems. Most serious among these problems is that Kuznets posited long-term relations, spanning several generations, whereas the periods for which data are available are seldom longer than two decades and, on average, are closer to ten years. There might be evidence of trends, but the variation within those trends may obscure longer-term movements.

Similarly, the number of years of data available for each country is limited. Gini coefficients, for instance, are calculated using, on average, three observations per country (there are fourteen countries for which there is only one observation, and one country for which there are eight). The trends uncovered will depend on the years for which data are available; if, in the last year or two for which data are available, a country experiences a natural resource boom or election year expansion, this tends to suggest stronger overall growth than that which actually occurred.

Most of the measures of poverty and inequality on which I draw are based on estimated monetary income, which has two implications for the analysis. First, it does not deal with the issue of quality of life, which arises from the definition of poverty. It also accepts income as the best available measure of poverty. Given these issues, and the difficulty in measuring and comparing across countries, some researchers use nonmonetary indicators of poverty, such as

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rates of birth, infant mortality, child and adult death, literacy, and school enrollment; life expectancy; availability of safe water and medical services; and caloric and protein intake (World Bank a and b, various years). Second, income measures may not adequately capture informal sector income, the value of food grown and consumed by the family, and other economic activity that goes unreported or unestimated. As an economy develops, however, it is expected that a larger share of income will be generated through the market and thus measured, so that the bias should be one of extent of movement, rather than direction. Some of the technical aspects of measurement and data collection are discussed in the annex.

Findings on Poverty, Inequality, and Growth

This section presents seven hypotheses and findings using the data on inequality and poverty compiled in Fields (1989a) and analyzed in Fields (1989b).1 Many hypotheses causally link economic growth to inequality. Some researchers speculate that inequality may tend to increase systematically with economic growth (this is designated hypothesis 1 in the following discussion), that this may occur more frequently in low-income countries than in high-income countries (hypothesis 6), and that it may occur more often in Latin America than in Asia (hypothesis 7). Two hypotheses relate the extent of inequality to the extent of economic growth. One (hypothesis 2) holds that inequality is more likely to increase the more rapid is economic growth, and another (hypothesis 3) is that greater inequality in the initial distribution of income facilitates more rapid economic growth. Many of these hypotheses are not supported by the empirical evidence.

Other hypotheses, relating to poverty, are less controversial: that poverty tends to decrease with economic growth (hypothesis 4) and especially with rapid economic growth (hypothesis 5). These hypotheses are supported by the data.

In what follows, the discussion of a given country is based on data on that economy from the earliest date for which information is available. A spell is a period from a base year to a terminal year (both chosen according to the availability of data on income distribution). A growth spell is a spell in which a country experienced a positive rate of growth of gross national product (GNP) per capita. See "Units of Analysis," in the annex, for details.

Hypothesis 1. There is a systematic tendency for inequality to increase with economic growth.

Discussion and evidence. The earliest studies of the change in inequality in developing economies concluded that inequality had increased in Argentina, Mexico, and Puerto Rico (Weisskoff 1970)
and in Brazil (Fishlow 1972). This led many to conclude that in-
equality might tend to rise with economic growth in the developing
world. Adelman and Morris (1973, pp. 1–2) did not equivocate:
"Indeed, it has become clear that economic growth itself . . . is one
of the prime causes of income inequality." Loehr and Powelson
(1981, pp. 133–34) fit a linear regression relating the Gini coeffi-
cient in fifteen developing countries to their per capita GNP and
found an upward-sloping relationship.

Both Adelman and Morris and Loehr and Powelson drew their
conclusions from cross-sectional rather than time series data. Studies
using time series data have found little evidence to link inequality
and growth. Ahluwalia (1974) reported data on changes in the
income share of the poorest 40 percent of the population in thirteen
developing countries. He found six in which inequality increased,
six in which inequality decreased, and one in which inequality was
unchanged. Later evidence, compiled by Fields (1980) for a some-
what different set of countries, found that inequality rose in seven
countries, fell in five, and seemed unchanged in one. Judging from
these time series findings, inequality seems to have increased with
economic growth of developing countries about as often as it has
decreased.

I have compiled new evidence on the change in inequality for
twenty-two developing countries, consisting of seventy spells. In-
equality is measured in two ways: by the Lorenz curve, which allows
researchers to compare relative inequality regardless of the specific
inequality index used; and by the Gini coefficient, which, despite
being controversial, is available in many more cases.

The data show ten countries in which the Gini coefficient in-
creased over time, eleven in which it decreased, and one in which it
was unchanged. When spells are measured, the Gini coefficient in-
creased in thirty-one spells, decreased in thirty-five, and was un-
changed in four. Thus, with the Gini coefficient as the basis for
comparing inequality, the number of countries and spells in which
inequality increased is nearly the same as that in which inequality
decreased.

Lorenz curves are available for fewer countries than are Gini
coefficients, so fewer inequality comparisons can be made. Those
that can be made, however, are unambiguous for the class of Lorenz-
consistent inequality measures. The evidence reveals five countries
in which inequality increased, six in which inequality decreased,
and six in which the results were ambiguous because the Lorenz
curves crossed. Inequality increased in seventeen spells and de-
creased in twenty-one; the results for fifteen spells were ambiguous
because of crossing of curves. The analysis by Lorenz curve yields
the same conclusion as that by Gini coefficient: inequality increases about half the time and decreases about half the time.

Finding. Contrary to the hypothesis, the evidence shows no tendency for inequality to increase or decrease systematically with economic growth. Whether the study examines countries or spells, uses Lorenz curves or Gini coefficients, inequality appears to increase as often as it decreases.

Hypothesis 2. Inequality is more likely to increase the more rapid is economic growth.

Discussion and evidence. Ahluwalia (1976) attributed the relation between a high economic growth rate and increased income inequality to short-term pressures associated with high growth rates. Among these pressures were lags in factor mobility and consequent dispersion of income differentials. This, he believed, explained the increase in income inequality in Brazil between 1960 and 1970.

One set of tests by Ahluwalia was based on cross-country data. For each country the dependent variable was inequality as of the most recent date. To test the hypothesis, he included the rate of growth of gross domestic product (GDP) in the ten preceding years as an additional explanatory variable in the cross-section regressions. The coefficient of the growth rate variable was never statistically significant. He concluded that a higher rate of growth of GDP is not responsible for higher inequality. The same conclusion was reached in a more recent study by Papanek and Kyn (1987), also using cross-sectional data.

When intertemporal data were used in tests, the results were similar. Ahluwalia (1974) examined the change in inequality in eighteen industrial and developing countries and related the changes to the rate of growth of national income. He found that "there is no strong pattern relating changes in the distribution of income to the rate of growth of GNP. In both high-growth and low-growth countries, there are some which have experienced improvements and others that have experienced deteriorations in relative equality" (p. 13). Subsequently, I reached the same conclusion, using a sample of six developing countries for which the data on changes in inequality over time were more reliable (Fields 1980, table 7.2). Thus the intertemporal data and the cross-sectional data yield the same result: "the absence of any marked relationship between income growth and changes in income shares" (Ahluwalia 1974, p. 13).

To see whether newer data support the hypothesis linking economic growth with income inequality, data were divided into spells in which the Gini coefficient increased, spells in which it decreased, and spells in which it was unchanged. Growth rates of GNP per capita and of internationally comparable purchasing power (ICP)
were calculated for as many of these spells as possible. The growth rates among spells in which the Gini coefficient increased vary widely, as do the growth rates among spells in which the Gini coefficient decreased. This result suggests that inequality need not increase with rapid economic growth.

Despite the lack of a pattern, there may be some tendency, as seen by comparing the average growth rate during spells in which inequality increased with that during spells in which inequality decreased. The data show that the average growth rate of GNP is somewhat lower in those spells in which inequality increased than in those in which inequality decreased. If the average growth rate of IC is the criterion, the opposite seems true: the growth rate is higher in those spells during which inequality increased than in those during which inequality decreased. Further tests, however, showed no statistically significant relation between the rate of growth during a spell and the tendency for inequality to increase or decrease. (Probit analysis relating an increase in the Gini coefficient \( \Pr(D=1) \) to growth of GNP per capita and to growth of IC per capita produced probit coefficients of 3.14 \( [t\text{-statistic of } 0.64] \) and \(-1.96 \) \([0.37]\) respectively.)

**Finding.** The evidence is mixed. In tests using the growth rate of GNP as an indicator, more rapid economic growth is associated with lower inequality, whereas inequality is seen to increase when the growth rate of IC is used. Neither result, however, is statistically significant. These results do not support the claim that inequality is more likely to increase the more rapid is economic growth.

**Hypothesis 3.** The less even the initial distribution of income, the higher is the economic growth rate.

**Discussion and evidence.** According to the Harrod Domar model, if the rich save and invest much of their income and the poor spend most of theirs, then savings, investment, capital formation, and hence growth will be higher the larger is the initial income share of the rich. This argument has been repeated by others, including Griffin and Khan (1972) and Sheehan (1980), who argued that high growth requires the enrichment of high-income investors, managers, and landowners.

To test this hypothesis, the average growth rate of GNP per capita for each spell was plotted against the Gini coefficient for the initial year of the spell; these variables appear to be uncorrelated. (The Pearson correlation coefficient was \(-0.16\), not significantly different from zero.) A similar plot of growth rate of IC against initial Gini coefficient yields a correlation coefficient of \(-0.14\). Correlation coefficients so close to zero suggest that inequality in the distribution of income is not a force behind economic growth.
Finding: I uncover no statistically significant relation between inequality in the initial distribution of income and the subsequent rate of economic growth.

Hypothesis 4. Poverty tends to decrease with economic growth.

Discussion and evidence. Two views of poverty and growth are usually put forward. The optimistic position is that the poor do participate in economic growth and that absolute poverty is thus reduced. Development economists in the 1950s and 1960s assumed that growth would reduce absolute poverty, which is why growth consumed the attention of development economists, whereas poverty was rarely examined directly.

The more pessimistic position is that the poor do not necessarily, or even usually, participate in economic growth. At best, growth does not benefit all of the poor. Griffin (1977), for instance, showed which groups of poor did not enjoy income gains (absolutely or relatively) during economic growth in various countries. Even if the gains among the poor as a group outweigh the losses among them, resulting in a decline in the rate of poverty or in its severity, it is clear that not everyone benefits.5

A more interesting issue is whether the poor tend systematically to be excluded from economic growth and thereby to be rendered poorer. Adelman and Morris (1973), using cross-sectional evidence, wrote, “Our conclusions ... underline the urgent need to discard as outmoded the view that economic growth in low-income countries benefits the masses. ... Development is accompanied by an absolute as well as a relative decline in the average income of the very poor” (pp. 3, 189). Their methodology, however, has been severely criticized by many, such as Cline (1975), as being “indirect” and thus suspect. Their empirical claim that poverty rose in the cross-section was rejected by Ahluwalia (1976), who showed that when countries at different income levels were compared, the average absolute incomes of the poorest 20 percent, 40 percent, and 60 percent increased monotonically. The idea that absolute impoverishment arose from economic growth was laid to rest, at least in studies using cross-sectional data.

What about intertemporal data? After all, the hypothesis that growth reduces poverty is really one about changes in countries over time. Working independently, Ahluwalia, Carter, and Chenery (1979) and Fields (1980) found that economic growth accompanied by an increase in poverty is the exception. In the former study, data from twelve countries showed no instance of an increase in poverty: real per capita income increased among the poorest 20 percent in each case. In the latter study, poverty was found to decrease in ten out of thirteen countries, to increase in two, and to exhibit no clear change in one. In one of the two cases in which poverty rose,
economic growth was negative. In the case in which poverty was constant, economic growth was negligible. In only one case was poverty found to rise in a growing economy. Intertemporal evidence therefore indicates that economic growth tends to reduce poverty.

In the 1980s, many developing countries have had negative economic growth. If economic growth tends to lower poverty, then economic decline should increase poverty. A number of studies (for example, Addison and Demery 1985, World Bank 1986, Edgren and Muqtada 1986, ECLAC 1986, Tokman and Wurgaft 1987, Aboagye and Gozo 1987, Lee 1987, and UNICEF 1987) suggest that this is the case. The statistical basis for these claims, however, is considerably less than ideal.

Data compiled for this article can be used to test the hypothesis that economic growth tends to reduce poverty. Of the eighteen countries with consistent data on poverty over time, six poverty fell in fourteen, rose in three, and exhibited no clear tendency in one. In two of the three cases in which poverty rose, the economy had suffered an economic decline. In only one case was positive economic growth not accompanied by a fall in poverty.

Finding. The hypothesis is supported by the evidence considered here: In almost all cases poverty declines as the economies grow.

Hypothesis 5. Poverty is more apt to decrease the more rapid is economic growth.

Discussion and evidence. If there were a standard international poverty line, the extent of poverty reduction could be measured and related to countries' rates of economic growth. But it makes little sense to compare the percentage change in poverty across countries using each country's own poverty line; to do so would be like comparing apples and oranges. Given the limitations of the data, it is better to look at whether poverty increased or decreased rather than to try to determine the extent of change.

The data reveal that in all but one spell with a growth rate above 3 percent, poverty was found to decrease. The instances of increase in poverty or mixed evidence were concentrated in the spells with GNP decline or with growth rates of less than 3 percent. When the change in poverty is related to the growth rate of \( icP \), the data tell the same story.

Tests run on these findings reveal that the effect of high growth on poverty reduction is statistically significant at conventional levels. (Probits relating the decline in poverty \( \text{[one if there was a decline, zero if not]} \) to the growth rate of GNP or \( icP \) yielded probit coefficients of +0.325 \( [t\text{-statistic of 2.36}] \) for GNP and +0.420 \( [2.16] \) for \( icP \).)

Finding. The data suggest that poverty is more apt to decrease the more rapid is economic growth.
Hypothesis 6. Growth tends to raise inequality in low-income countries and to reduce inequality in high-income countries.

Discussion and evidence. Kuznets (1955) measured inequality in five countries and found greater inequality in industrial countries than in developing ones. This result was sustained in later studies of larger samples of countries, first by Kravis (1960) and then by Kuznets (1963). Both Kuznets and Oshima (1962) reasoned that developing countries had greater equality in their earlier stages of development because everyone was thought to be more or less equally poor. From this emerged the hypothesis of the Kuznets curve—the idea that income inequality increases in the early stages of economic development and decreases in the later stages, thus tracing an inverted U.

The Kuznets curve has received support in cross-sectional studies by Paukert (1973), Cline (1975), Chenery and Syrquin (1975), Ahluwalia (1976), and Papanek and Kyn (1987), among others. In an econometric study allowing for various functional forms, however, Anand and Kanbur (1986) found that the cross-sectional data were best fit by a U-shaped curve, not an inverted U. In any event, regardless of which cross-sectional pattern is correct, the hypothesis that growth raises inequality in low-income countries and lowers it in higher-income countries is a statement about change over time and is properly tested using intertemporal data. Only recently has there been sufficient data on changes in inequality over time in various countries' development experiences to permit this hypothesis to be tested intertemporally.

To determine the effect of growth on inequality in the high-income and low-income groups, a spell is included here if it is a growth spell (spells of economic decline are omitted). The division between high-income and low-income countries was set at US$728 in 1980 prices; this is the level of GNP in 1980 prices at which income inequality was found to have peaked in the cross-sectional study by Paukert (1973).7

In low-income countries, ten out of twenty-one growth spells (48 percent) were marked by an increase in inequality. In high-income countries, it was nine out of twenty-two (42 percent). These two percentages are not significantly different from one another.

Finding. In the data considered here, inequality increased with growth as frequently in low-income countries as in high-income countries. There appears to be no tendency for inequality to increase more in the early stages of economic development than in the later stages.

Hypothesis 7. Growth tends to bring about an increase in inequality more in Latin America than in Asia.
Discussion and evidence. Inequality is higher in Latin America than in Asia (Ahluwalia, Carter, and Chenery 1979, p. 482; Loehr and Powelson 1981, p. 134). It is generally thought that the Asian economies with rapid economic growth (Japan, Hong Kong, the Republic of Korea, Singapore, and Taiwan) have had more equal distribution of land, capital, and education than have Latin American countries and that these Asian economies have engaged in much more labor-intensive production than have the newly industrializing countries of Latin America (Ranis 1981). It might be expected, then, that the fruits of growth are distributed more equitably in Asia than in Latin America.

The work of Ahluwalia, Carter, and Chenery (1979) supports this contention. Using data over time, these authors classified countries into three groups (with good, intermediate, and poor performance) based on the income share of the poorest 60 percent of the population in the latest year and the share of increase in income going to this group. The performance of Asian economies is generally good, and that of Latin American countries generally poor.

To test my data, I divided the growth spells (those in which GNP growth was positive) by region. In five out of the nine Latin American growth spells, the Gini coefficient increased; the Gini coefficient increased in twelve out of twenty-eight Asian growth spells. That is, the Gini coefficient increased in 55 percent of the Latin American growth spells and in 43 percent of the Asian growth spells. These differences, though notable, are not statistically significant.

Finding. Although inequality appears to have increased with growth more frequently in Latin America than in Asia, the results do not differ statistically.

In this analysis economic growth nearly always is associated with a reduction in absolute poverty. There are exceptions, but the tendency is for the poor to be rendered less poor by economic growth and poorer by macroeconomic decline.

No relation is found between the change in inequality and the rate of economic growth or between the change in inequality and the level of national income. This suggests that the decisive factor in determining whether inequality increases or decreases is not the rate of economic growth but rather the kind of growth.

No statistically significant relation is found between inequality in the initial distribution of income and subsequent economic growth. This suggests that countries need not maintain unequal income distribution to grow rapidly.

Most countries have had very modest changes in income inequal-

Conclusions and Directions for Future Work

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ity over time. This suggests that, in most cases, different income groups have benefited from economic growth (or suffered from economic decline) approximately in proportion to their original incomes.

It is hoped that future work on this subject will be able to take advantage of internationally comparable standards for inequality or poverty, so that cross-country comparisons will be more meaningful. Future data-gathering efforts should be more standardized.

It has not always been possible to confirm the comparability of sources within a country. Those more knowledgeable about a particular country’s household survey or census program may have good reason to question comparability. Further in-depth study of individual country sources is in order. In this study minimal criteria for the exclusion of data have been used. Yet even these criteria have been criticized as excessively stringent. I would not feel confident with findings based on anything looser.

At present, the data offer much more information on inequality in developing countries than on poverty. This does not reflect my personal priorities or those of many others—I would first calculate poverty rates and only later worry about inequality—but rather the priorities of the countries’ statistical offices or researchers themselves. For the world’s preeminent development institution not to have data on changes in poverty in developing countries is shocking. The improvement of the data base on poverty merits the highest priority.

**Annex: Data Used for This Article**

Data on income distribution in developing countries were sought in numerous sources, including papers from the World Bank’s research project on the political economy of poverty, equity, and growth (Bevan, Collier, and Gunning 1988; Bruton 1988; Favaro and Bension 1988; Findlay, Wellisz, and others 1988; Gonzalez-Vega and Cespedes 1988; Hansen 1988a, 1988b; Maddison and others 1988a, 1988b; Meesook, Tinakorn, and Vaddhanaphuti 1987; Pryor 1988; Urdinola and Carrizoza 1988; and Webb 1988); World Bank a 1988; World Bank b 1987; Jain 1975; Adelman and Morris 1973; Paukert 1973; United Nations 1981, 1985; International Labour Office 1984; Fields 1980; World Bank country economic memoranda; and statistical yearbooks, reports on censuses and household surveys, and research studies.

Data were found in one or more of these sources for seventy developing economies in Africa, Asia (including Oceania), and Latin America (including the Caribbean). For exactly half of these countries, no data were deemed usable, because they did not satisfy the criteria listed in note 8. Those that did are described in the following.
Units of Analysis

Different units of analysis were used to test the hypotheses in this article. The choice depended on the particular hypothesis and the availability of data with which to answer it. The following terminology is used:

- A country refers to the experience of an economy from the earliest possible date for which information is available until the latest date. “Costa Rica, 1961–82” is one such country.
- A spell refers to the experience of an economy from a base year (chosen for the availability of data) until a terminal year (chosen in the same way). The experience of a country may be divided into one or more spells. For instance, Costa Rica has four spells: 1961–71, 1971–77, 1977–79, and 1979–82.
- A growth spell is a spell in which the country experienced a positive rate of growth of GNP per capita. Costa Rica experienced positive economic growth in the intervals 1961–71, 1971–77, and 1977–79 and suffered a serious economic recession in the interval 1979–82. The first three of these are growth spells; the fourth is not.

Income Level and Income Growth

Although some of the hypotheses relate only to the passage of time, others relate to the level of GNP or to the rate of economic growth. These data were taken from various sources.

The GNP data are for GNP per capita, measured in 1980 U.S. dollars. These are taken from International Monetary Fund 1984.

The growth rates of GNP were calculated from data for 1960–86 from World Bank 1988. Comparable GNP figures for earlier and later years were unavailable. Most of the economies included in the data used in this article are also included in International Monetary Fund 1984 and World Bank 1988. The Bahamas and Puerto Rico, however, are not. Although GNPs and GNP growth rates for these economies are available elsewhere, in view of other noncomparabilities in GNP data, these other sources were not included here.

As an alternative basis for estimating economic growth, I used the data from the International Comparison Project, as reported in Summers and Heston (1988) and as described there and in Kravis (1986). These estimates avert a number of problems, the most important of which is the distortion introduced by using official exchange rates to convert GNP in local currency to GNP in dollars (the standard numeraire).

The countries, spells, and dates covered by the ICP growth rates differ from those for the GNP growth rates. The findings on in-
equality, poverty, and economic growth presented in the following
are more convincing insofar as the two growth estimates and the
two different sets of countries and spells yield qualitatively similar
results.

Availability of Data

Usable data on income distribution are available for a large num-
ber of developing economies. World Bank sources should be ex-
panded to incorporate more of these data.

Much of the available information fails to fulfill minimal criteria
of acceptability. It is impossible, however, readily to determine this
from the sources themselves. It is only by looking into more basic
sources, one country at a time, that the acceptability of the data can
be determined.

The information contained in the papers of the project on pov-
erty, equity, and growth proved to be quite limited. Of the papers
available at the time of this writing (on twenty countries), those on
only ten of the project countries were found to offer national data
on the change in inequality over time, and data on changes in
absolute poverty were available for only five countries. To assess
how growth affects inequality and poverty, we must turn elsewhere
for additional information.

When suitable income distribution data do exist, the form of
presentation of the data—especially of data on poverty—is very
limited.

Among the thirty-five countries for which suitable data on in-
equality or poverty (or both) were found, usable information was
located for at least two years in the case of twenty-two countries
and for one year in the case of thirteen. For many of these countries,
data for other years existed but were deemed unusable. A full listing
of the data on Gini coefficients and absolute poverty and of the
relevant sources may be found in an earlier report (Fields 1989a).

Desired Measures and the Practical Resolution

Academics who have been studying how growth affects inequality
and poverty have long wrestled with questions about conceptual
measurement that would need to be resolved if one were starting
from scratch and devising a time series on poverty or inequality or
both. Among the points to be decided are the preferred recipient
unit (individual, household, or per capita), the preferred income
concept (cash income, income including imputations, expenditure,
or per capita income), the preferred poverty measure (the headcount
ratio, the Sen index and generalizations therefrom, or the $P_\alpha$ class

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suggested by Foster, Greer, and Thorbecke 1984), and the preferred inequality measure (income share of the richest or poorest x percent, Gini coefficient, Theil index, Atkinson index).9

Inequality analysts wish to know about Lorenz curves and Lorenz-based inequality indexes. Lorenz curves are rarely presented, nor, often, is the information needed to compute Lorenz curves. As for the Lorenz-based inequality indexes, if we are lucky, Gini coefficients are already calculated. If we are less lucky, we have the information from which we can calculate our own Gini coefficients. Sometimes we cannot even do that.

As for poverty indexes, most countries have not published such data. In the few cases where this information has been published, it has typically been a headcount ratio—the fraction that is poor according to some poverty line. In some cases, the changes in different groups' real incomes are available instead. The fraction that is poor can be calculated for many more countries than it has been, but to do so will be difficult and tedious: the underlying income distributions, poverty lines, inflation rates, and intragroup distributions will have to be determined country by country, year by year. To have such information is essential. Not to have it is deplorable.

In sum, what we have are Gini coefficients to measure inequality and, typically, headcount ratios to measure poverty. Those data constitute the basis for the statistical analysis presented in this article.

Abstract

This paper presents new data on poverty, inequality, and growth in those developing countries of the world for which the requisite statistics are available. Economic growth is found generally but not always to reduce poverty. Growth, however, is found to have very little to do with income inequality. Thus the "economic laws" linking the rate of growth and the distribution of benefits receive only very tenuous empirical support here.

Notes

This work has been carried out with financial assistance from Cornell University and the World Bank. I acknowledge with great thanks the invaluable research assistance of Ann Ginsburg, Ping-Lung Hsin, and Chong-Hoon Rhee. This paper is adapted and condensed from a larger study (Fields 1989b).

The research reported here is very much work in progress. More studies and data sources fulfilling the requisite criteria are undoubtedly known to specialists on individual countries. The author would be grateful if such works were called to his attention.

1. For comprehensive reviews of the empirical literature on poverty, inequality, and development, see Fields 1980, 1988, 1989b.
2. Brazil has two entries as a country because it has two series on income inequality, one up to 1972 and another from 1976 on.
3. The reader unfamiliar with the advantages and disadvantages of Lorenz curves...
and Gini coefficients might turn to a number of sources, among which are Sen 1973 and Fields 1980.

4. Pakistan has two entries as a country because it has two series from which Lorenz curves are calculated.

5. In technical terms, the discussion is not about first-order dominance but rather about second-order dominance.

6. Costa Rica is counted twice because it has two separate poverty series, in which the data move in opposite directions.

7. Paukert's turning point was US$300 in 1965 prices. Prices were inflated using the U.S. inflation rate reported in World Bank 1988.

8. For a country's income distribution data to be deemed usable for inclusion in this study, four minimal criteria must be fulfilled:

(1) The data base must be an actual household survey or census. Excluded are synthetic estimates of income distribution from national accounts, government-stipulated wage rates, average crop yields per hectare, and the like.

(2) The data must be national in coverage. Estimates for particular cities or rural areas only are excluded.

(3) For comparisons across time, the income concept (whether income or expenditure) and recipient unit (whether household, individual, or per capita) must be constant.

(4) The data must be presented in enough categories to permit reasonable calculations of inequality and poverty measures.


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Women constitute half of any country's human endowment. In most countries, however, women contribute less than men toward the value of recorded production—both quantitatively, in labor force participation, and qualitatively, in educational achievement and skills. The underutilization of female labor has obvious implications for economic welfare and growth. Several factors, both economic and noneconomic, are responsible for this. In particular, the participation of women in the labor force appears to depend much more on the social environment than is the case for men. This dependency blurs the observed relationship between female behavior in the labor market and such economic variables as wages and incomes. This article looks at the conceptual and statistical limitations of the most widely used term of labor supply: the labor force participation rate. It then reviews some theories of women's involvement in paid production and examines the broad levels, patterns, and trends of female participation rates in different countries.

The labor force participation rate is, as the name suggests, the ratio of two numbers. The numerator refers to the individuals who are economically active—the labor force. This number includes those who are employed and those who are unemployed but seek work. The denominator consists of those who can work—those already in the labor force plus the "inactive" population. The inactive popula-

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tion excludes such "unemployable" persons as children, inmates of institutions, the disabled, and the elderly.

Although easy to define, estimates of labor force participation rates are controversial. In practice, the term "labor force" refers to those engaged directly in paid employment. Thus important segments of the population contributing to the country's production are excluded—such as those engaged in unpaid family work or domestic activities. The problem becomes more important for women whose activities fall by and large within these two categories. Although these activities are mostly economic, they are usually excluded from the analysis either because they escape statistical collections or because of cultural reluctance to admit them (El Shafei 1960, on the Middle East countries). In addition, national definitions about unpaid family work differ, and these differences make cross-country comparisons difficult. For example, in a developing country (Sri Lanka), all female unpaid family workers are deemed to be economically active (Central Bank of Ceylon 1974), whereas in an industrial country (Britain), such workers are at times included and at times excluded (Bowers 1975).

Two further complications aggravate the problem. First, work is a flow variable and has to be defined against a period of time. Here, one has in mind moonlighting, casual, and seasonal work which, though important, especially for women, often escape statistical enumeration. Second, it is difficult to establish which unemployed people are seeking work and which are not. The practice of checking unemployment benefit rolls is an unsatisfactory solution. Some countries do not have such benefits, and some exclude women from them.

There are similar shortcomings in the definition of the "potentially employable" population—the denominator of the labor force participation rate. For example, at what age does a person become employable? The convention is to use the minimum school-leaving age. In some countries, however, this requirement does not exist; in others, it is not rigorously enforced, especially among girls. In the past there has been practically no limit on child labor (Hobsbawm 1964, Mathias 1969), something also true in many developing countries today. At the other end of the age spectrum, some countries' life expectancy exceeds eighty years, while in others it is hardly more than forty-five years. In addition, unemployability may also be prevalent during a worker's prime years. For example, in some developing countries with shortages of food and medical services, up to 40 percent of working days a year are lost owing to acute illness or medical conditions (Correa 1963). In addition, childbearing implies that estimates of female participation rates are more
affected by these considerations than are those of male participation rates.

In conclusion, definitional and measurement problems of the labor force participation rate are particularly pertinent for women.

**Interpretation**

The obvious interpretation of labor force participation is the percentage of the population that works or is willing to work. This is appropriate for studies concerned with the utilization of labor in the economy (Rees 1957). So, if a country's female labor force participation rate is 50 percent, half the female population is working, the other half not. But this does not mean that half the individuals are always in the labor force and the rest never. It probably means that the same individuals are sometimes in and sometimes out of the labor force (Mincer 1962). This gives rise to an alternative interpretation of the labor force participation rate—that of probability. In this example, each person has a 50 percent chance of being in the labor force at one point in time.

The interpretation of the labor force participation rate as a strict quantitative measure has been questioned. Heckman and Willis (1977) found that not being in the labor force at one point in time is highly correlated with not being in the labor force at any point in time; hence, the labor force participation rate can also be appropriate as a proxy for permanent labor force participation. The qualitative aspect is also present when one refers to different countries. A low value in the participation rate may simply indicate the absence of formal markets rather than the absence of individuals who are willing to work. Obviously, agricultural economies based on family production (that is, where there is little wage employment) do not have a labor supply (participation rates) that would count in the official statistics.

Despite these shortcomings in both measurement and interpretation, economists use labor force participation rates extensively in analyzing labor markets, if only because these rates indicate, though within broad margins, the most quantifiable aspect of labor force supply—the proportion of people in the labor force.

**Theory**

Economists have tried to explain the labor force participation rate by age, sex, race, and income groups and to describe trends over time. According to the neoclassical school, individuals or household members enter the labor market because they want more income,
and they work as long as they think that the benefits from work exceed those from household activities. Time is split between work on the one hand and everything else lumped together on the other hand (called, for brevity, leisure). Hence the name of the theory: the income-leisure model.

The income-leisure model examines labor supply in relation to wages and incomes. It ignores noneconomic considerations that come into the analysis as “preferences” and that are assumed to be determined exogenously (to the model). Thus the decision to work—and, if so, for how long—depends on the remuneration from work (wage rate), other (nonlabor) income, and tastes. The higher the wage rate, the more attractive work becomes. This has two effects. First, for those not already working, a higher wage may induce them to join the labor force; thus higher wages unambiguously induce higher participation. Second, for those already working, a higher wage makes work more attractive than leisure, but it also makes additional work less desirable, since the same level of income can be achieved with less work. Therefore the effect of higher wages on the duration of work (and, indirectly, on participation rates) is ambiguous and differs from case to case according to preferences (that is, the value placed on more work relative to higher earnings). However, the other economic variable in the model—nonlabor income—always exerts a negative effect on labor supply. The higher it is, the less pressure there is to work. The same considerations apply to women either as individuals or as members of households. Empirical evidence, however, lends support to a positive wage effect on women’s participation; all things being equal, more women are drawn into the labor market as wages increase (for country surveys see Layard and Mincer 1985; for theoretical issues see Cigno 1989).

The income-leisure model provides explanations of labor force participation at one point in time. With respect to time trends, it is necessary to look at the movement of aggregate labor supply and demand (Long 1958). It is difficult to disentangle the two, as both supply and demand determine the equilibrium levels of wages and employment, and both change during the process of development. A typical scenario can be illustrated as follows. A subsistence economy is centered around agriculture, is home based, and makes heavy use of female labor. During the early stages of industrialization, agriculture loses its significance as the main employer of women. The expansion of industry is usually slower than the contraction of agriculture. These opposite, but not necessarily offsetting, movements usually result in an initial reduction of female employment. When the service and government sectors expand, women are pulled back into the labor force. Later, the economy may face labor shortages that lead to higher availability of part-time jobs and higher
wages for women. These conditions give rise to a U-shaped pattern of female employment in the process of development, as shown below.

Because most men are permanently in the labor force, estimates of labor reserves and projections of labor supply have focused on women. Standing (1981) notes that "any generalization about female labor force participation is liable to be misleading since level, patterns and trends vary widely between and within countries." A way out of this difficulty is to try to go beyond a blanket economic approach by identifying groups of countries that share some common social characteristics. In addition to the standard economic variables, such as education, experience, wages, and incomes, empirical studies have indicated that many noneconomic variables influence female labor supply functions. These include marital status and fertility, urbanization, landownership and farm size, head of household’s status, and employment structure.

In the following sections we examine the behavior of female participation rates by some key characteristics. These include income, demographics, religion, and education.

**Income**

The worldwide aggregate participation rate hides more information than it reveals. During the past twenty years, the global female participation rate has remained almost constant (table 1). Yet even a crude disaggregation of countries into two groups—industrial and developing—reveals that this almost constant rate has been a result of two offsetting movements; the percentage of working women in industrial countries increased 10 percent, while the corresponding statistic for developing countries decreased 7 percent.

Figure 1 provides a better insight into the relation between female participation and development (based on Sivard 1985). The vertical

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**The Evidence**

<table>
<thead>
<tr>
<th>Country group</th>
<th>Participation rate (percent)</th>
<th>Percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>Industrial</td>
<td>52</td>
<td>57</td>
</tr>
<tr>
<td>Developing</td>
<td>45</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: Sivard 1985, table II.

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George Psacharopoulos and Zafiris Tzannatos
axis measures the level of the participation rate in 136 countries using a twenty-country moving average. The horizontal axis proxies economic development by the countries' per capita gross domestic product. The data support a U-shaped relation between the level of development and female participation in the labor force.

The U pattern can be based on a number of considerations. During the early stages of industrialization, countries experience a decline in the subsistence sector, a prime employer of women. This decline is usually faster than the expansion of the industrial sector. Both factors are usually associated with an increase in urbanization that further restricts opportunities for unpaid female family work. At the same time, incomes are rising and the pressure on women to work may become weaker. Development is also associated with higher educational enrollments that delay women's entry to the labor market. Later in the process of economic development, a number of factors work toward greater female participation. One is the greater significance of the industrial and service sectors, which generate opportunities for additional labor. When the economy moves toward full employment, labor reserves are called into duty by higher wages. Unused female labor is the prime beneficiary of this shortage. Many studies on female participation rates in the industrial countries have attributed the rise in the number of female workers over time to a dominant substitution effect away from work at home to work in the market due to higher wages (Mincer 1962, Killingsworth and Heckman 1986). At the same time, new opportunities for the employment of women, both in terms of higher demand and composition of employment, have been stressed (Oppenheimer 1970).

The appeal of the U-pattern hypothesis has been significant. In the 1960s and 1970s, the International Labour Office used this hypothesis to project the size of the labor force for the 1980s. A number of scholars have also used this hypothesis, some correctly (Weller 1968, Sinha 1967, Collier and Langlois 1962), and some erroneously (Richards 1974, for example, applied the hypothesis to the British case, a proposition that cannot be sustained; see Tzan-
natos 1982, Joshi, Layard, and Owen 1985). Not every country followed a U pattern, however. The scale and amplitude of the U varied between countries and periods of time. Of course, observed behavior is the outcome of many interrelated factors that may mask and even outweigh the economic effects of growth. Some factors that can affect the female labor force participation rate are examined in the following sections.

Age and Fertility

Because children and work make simultaneous demands, the more time a woman spends on one, the less time is available for the other. Consequently, women's participation during the age of bearing and rearing children should be lower than that of women outside this age. In fact, this has been the broad pattern of age-specific female participation rates in Western economies.

One would be wrong to generalize from these data and assume the same rate for other countries, however. First, even among the industrial countries there are some notable exceptions. For example, in Sweden and Finland the female participation rate is exceptionally high—comparable to that of men—and varies little across age groups. In both countries the highest female participation rates are in the 25–44 age group, and in both countries the marital cycle starts relatively late. This should not be taken to deny the burden that the family cycle places on women: the explanation should rather be sought in the fact that the Scandinavian countries have well-developed social legislation as well as provisions for paternal (not only maternal) leave.

The influence of state provisions is also present in nonmarket economies. In the Soviet Union, the German Democratic Republic, and Poland, female participation is exceptionally high, and there is no evidence that the participation rate for women of childbearing age is lower than that of women forty years old or more.

Table 2 summarizes the age-specific participation rates of women in low-, middle-, and high-income countries in the 1980s. The U-pattern hypothesis is still supported: in each age group, the female participation rate is lowest for the middle-income countries. One should, however, bear in mind that the participation rate in high-income countries appears artificially high because of the availability of part-time employment in these countries. This kind of work is almost exclusively performed by women (Sivard 1985, p. 15). In contrast, the participation rate in low-income countries must be understated for statistical reasons, given the prevalence of unrecorded economic activities that are performed, by and large, by women.
In addition, theoretical considerations point toward an ambiguous relation between fertility and participation. First is the simultaneity of fertility and work. For example, more children mean more work by women either directly (more farming to feed the children) or indirectly (more paid work to support them). Second, in poorer developing countries, the specialization of activities does not permit a sharp distinction between work, leisure, and consumption. Fertility and consumption are intermingled with production, broadly defined to include reproduction (children can be thought of as investment goods). Finally, a single child requires a considerable amount of parental care. However, a second child, born a few years after the first, reduces the demand for care because the older child can look after the younger one and may even perform some household tasks.

Religion

The foregoing analysis rests on economic aspects of female labor supply, but noneconomic considerations may also be important. One such consideration is religion. Countries with the lowest participation rates are those with strong religious views about women in society, in general, and in the economy, in particular.

Table 3 shows the level of female participation by the country's major religion. Muslim and Roman Catholic countries have the lowest female labor force participation rates. An earlier comparative study by the authors of this article (Psacharopoulos and Tzannatos 1987) found that a regression of the female participation rate on religion explains more than a third of the difference in the female participation rates in ninety countries. The regression coefficients on the Muslim, Hindu, and Catholic religions were negative and highly significant. They implied that religion reduced the female labor force participation rate by more than half in Muslim countries, by 40 percent in Hindu countries, and by 30 percent in Catholic countries. Grouping countries by income and region, which can identify religion to some extent, produces a clearer picture of
Table 2. Female Labor Force Participation Rate by Age and per Capita Income (percent)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>40</td>
<td>48</td>
<td>50</td>
<td>50</td>
<td>51</td>
<td>50</td>
<td>49</td>
<td>47</td>
<td>44</td>
<td>38</td>
</tr>
<tr>
<td>Middle income</td>
<td>24</td>
<td>42</td>
<td>42</td>
<td>41</td>
<td>40</td>
<td>38</td>
<td>36</td>
<td>33</td>
<td>27</td>
<td>21</td>
</tr>
<tr>
<td>High income</td>
<td>39</td>
<td>70</td>
<td>65</td>
<td>61</td>
<td>63</td>
<td>64</td>
<td>60</td>
<td>55</td>
<td>41</td>
<td>24</td>
</tr>
</tbody>
</table>


how female labor force participation varies with economic development (see figure 2). (The regions shown, in ascending order of per capita income in 1980 U.S. dollars, are Sub-Saharan Africa, Asia, other Africa, Latin America, the Middle East, Western Europe, and North America.) The question remains, however, which of the two variables (income or religion) is more dominant? One can say little more in the absence of a clear understanding of the relations between values and economic development.

Education

The effect of education on women’s participation in the labor force is ambiguous. Do women decide to work before or after they decide to acquire education? The answer may be that they decide somewhere in between. Education and participation in the work force both depend on and affect a country’s economic and general development. The higher the participation rate and the educational level of workers, the higher is the country’s potential total product.

Table 3. Female Labor Force Participation Rate and Religion (percent)

<table>
<thead>
<tr>
<th>Country’s dominant religion</th>
<th>Mean female participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islam</td>
<td>23</td>
</tr>
<tr>
<td>Roman Catholicism</td>
<td>33</td>
</tr>
<tr>
<td>Hinduism</td>
<td>42</td>
</tr>
<tr>
<td>Buddhism</td>
<td>48</td>
</tr>
<tr>
<td>Confucianism</td>
<td>48</td>
</tr>
<tr>
<td>Christianity</td>
<td>49</td>
</tr>
<tr>
<td>No major religion</td>
<td>58</td>
</tr>
</tbody>
</table>

Note: A country is classified under a given religion if 30 percent or more of the population follows that religion.

Source: Based on Psacharopoulos and Tzannatos 1987, table A-2.
Education and participation affect (and are affected by) urbanization and other demographic variables, as well as cultural and socio-political factors. The issue is of immense complexity. Nevertheless, let us assume that the causation runs from education to participation and that feedbacks occur later to accommodate events which could not be (or were not) foreseen earlier. Next, distinguish between the decision to participate in the labor market and the decision of how many years will be spent working in the course of a lifetime. Both decisions affect the labor force participation rate. The latter can be thought of as the product of the probability of being in the labor force (the "how many" aspect of labor supply) times the average length of participation (the "how much" aspect). The net effect of education on the female participation rate depends on how education affects these two decisions.

With respect to the decision to participate in the labor market, education has a positive effect. If education has been undertaken as an investment, a woman has to work to recoup the cost of that investment in human capital. Even if education was undertaken as a kind of consumption, a woman will be more tempted than before to enter the labor market because, owing to her higher earning potential, the opportunity cost of not working (forgone earnings) has increased. Consequently, education exercises a positive effect on the decision to work.

With respect to "how much," the effect of education on how long a woman works depends on the relative strength of two forces working in opposite directions. On the one hand, education has a positive effect on the duration of participation because education raises earnings potential and increases the cost of not working. On the other hand, the higher remuneration for educated labor allows her to achieve her income target sooner; consequently, she may allocate part of the higher income to consume leisure, which means less work. Thus, the net effect of education will depend on which force dominates. Since empirical studies have shown that female labor supply is more responsive to wage considerations (substitution effect) than to income, educated females may have a higher involvement in the labor market than less educated or uneducated women.

Human behavior can very rarely be attributed to pure economic considerations. The patterns of female labor force participation are the complex outcome of a variety of economic and noneconomic factors. For example, marriages tend to involve people from the same or similar background. Hence, an educated woman may work less than an uneducated one since she benefits more from her husband's endowments. Although it may be considered a sexist question, one may ask: do women become educated to get a better job or a better husband? Although this appears to be a degrading com-
ment, in some countries educated women go into seclusion when they finish their education (Boserup 1970). Not so long ago in industrial countries, working-class (that is, mostly uneducated) women worked extensively, whereas their educated counterparts conspicuously abstained from the labor market.

Table 4 summarizes the findings of various studies on the effects of education on female labor force participation. Despite the fact that the decision to work is dependent on a large number of factors, evidence shows that education has a positive effect on women's participation more often than not. Beyond the participation effect, several studies have shown that investment in women's education can be more profitable than in men's (Psacharopoulos 1985, table 5).

This article began with some reservations about the statistics available on labor force participation and the notion that an economic activity must produce a marketable product or service. Because the distinction between a marketable and a nonmarketable

## Conclusions

<table>
<thead>
<tr>
<th>Country</th>
<th>Date</th>
<th>Observed relation</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>1960</td>
<td>Positive/none</td>
<td>Da Vanzo 1972</td>
</tr>
<tr>
<td>Chile</td>
<td>1965</td>
<td>Positive</td>
<td>Peek 1975</td>
</tr>
<tr>
<td>Ghana</td>
<td>1970</td>
<td>Positive</td>
<td>de Graft-Johnson 1975</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1970</td>
<td>Positive</td>
<td>Standing 1975</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1974</td>
<td>Positive</td>
<td>Standing 1975</td>
</tr>
<tr>
<td>Kenya</td>
<td>1974</td>
<td>Positive/none</td>
<td>Anker/Knowles 1977</td>
</tr>
<tr>
<td>Mexico</td>
<td>1970</td>
<td>Positive</td>
<td>Uthoff/Gonzalez 1976</td>
</tr>
<tr>
<td>Philippines</td>
<td>1968</td>
<td>Positive</td>
<td>Harman 1970</td>
</tr>
<tr>
<td>Philippines</td>
<td>1968</td>
<td>Unclear</td>
<td>Encarnacion 1974</td>
</tr>
<tr>
<td>Singapore</td>
<td>1973</td>
<td>Positive</td>
<td>Pang 1974</td>
</tr>
<tr>
<td>Sudan</td>
<td>1974</td>
<td>Positive</td>
<td>Sheehan 1976</td>
</tr>
<tr>
<td>Thailand</td>
<td>1960</td>
<td>None/negative</td>
<td>Maurer/Ratajczak/Schultz 1973</td>
</tr>
<tr>
<td>Thailand</td>
<td>1971</td>
<td>Positive</td>
<td>Pecht 1978</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1972</td>
<td>Positive</td>
<td>Standing 1976</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>1971</td>
<td>None/negative</td>
<td>Rasevic 1975</td>
</tr>
<tr>
<td>World(^a)</td>
<td>1980s</td>
<td>Positive</td>
<td>Psacharopoulos/Tzannatos 1987</td>
</tr>
</tbody>
</table>

\(^a\) Data are for 136 countries.

good is unclear, a number of conventions, often arbitrary, are necessary. In addition, national statistics on the size of the labor force are not comparable either through time or across countries. Thus few generalizations can be sustained.

Despite these qualifications, the economics of female labor force participation may have something to offer. Factors that appear to have no effect on male participation in the labor force do affect the level, pattern, and trend of female employment—factors such as the size and structure of the economy, education, fertility, religion, and other demographic and sociopolitical characteristics. Female employment is more dependent than male employment on the country's stage of economic development and on the country's noneconomic (cultural) characteristics. While the volume of research in this area should not be dismissed, it should be treated with care. The participation rate takes us as far as one can go in quantifying labor supply. Whether this is adequate depends on the purpose of the study. The differences between women's and men's employment patterns may be efficient in some social contexts. However, as the locus of production gradually moves from home toward the market and more specialization of labor, such differences in employment patterns are likely to reduce economic efficiency. To the extent that women are not allowed to compete with men, women's abilities—half of the country's intelligence—are underutilized. Economic efficiency losses, which are due to the overrepresentation of women in poorly paid, low-status jobs, have been estimated at between 3 percent and 10 percent of gross national product (Pike 1982, Tzannatos 1989). Because the total number of women in the labor force is still only a fraction of that of men, economic efficiency losses could be even greater than these studies indicate.

Although the relation between female participation and a number of economic variables appears to be ambiguous in theoretical terms and vague in empirical estimates, one variable—education—stands out. In theory, education has a positive effect on female participation and a negative effect on fertility. Of course, both labor force participation and fertility depend on a number of other factors, such as religion and demographics. The latter factors are, as a general rule, difficult to change through deliberate policy, and perhaps expensive, if they can be changed at all. In conclusion, if greater participation of women in the labor force is a desirable goal, education for women may be the prime policy option.
In most economies women are less attached than men to the labor force. This has important implications for development. This article examines definitions and theories of female labor supply and relates them to statistical evidence from 136 countries in the early 1980s. The findings support the view that, during the transformation from an agrarian subsistence economy, the participation of women in the labor force initially decreases and picks up later after a critical level of development has been achieved. Education is seen as a potential booster of the officially recorded female labor supply in developing countries.

Abstract

References


THE MULTIFIBRE ARRANGEMENT AND ITS EFFECTS ON DEVELOPING COUNTRIES

Junichi Goto

The textile and clothing (T&C) industry has played an important role in economic development. It is possible to begin T&C production with relatively small amounts of capital and access to a large low-skilled, low-paid work force. T&C products are “typically among the first items produced and exported by a newly industrializing economy as it begins to diversify away from primary production” (Park and Anderson 1988, p. 1). The T&C industry contributed to the early stages of industrialization in many countries, including Japan, the United Kingdom, and the United States. Today, T&C products lead manufacturing items in both domestic production and exports in many developing countries.

In spite of (or perhaps because of) its importance to developing countries, international trade of T&C products has been subject to trade restrictions for many years. As early as 1935, Japan announced (or, more precisely, was forced to announce) a voluntary export restraint (VER) on textile exports to the United States (see Goto 1988b for further details). Although the trend in world trade has been toward trade liberalization since World War II, T&C trade has remained an exception. Since 1961, when the Short-Term Arrangement Regarding International Trade in Cotton Textiles (STA) was adopted, special arrangements have been made for international trade of T&C. Restrictions on T&C trade were extended to include...
synthetic fibers and wool when the Arrangement Regarding International Trade in Textiles, better known as the Multifibre Arrangement (MFA), was adopted in 1973. Administered by the General Agreement on Tariffs and Trade (GATT), the MFA has been renewed three times; the current agreement—MFA IV—extends through July 1991.

Because of the importance of the T&C trade and the everlasting restrictions on it, the MFA has had a strong impact on both importing and exporting countries. For example, the MFA affects consumers in importing countries by increasing prices of both domestic and imported T&C products. Exporting countries are affected by a reduction in export opportunity. Although this is partly offset by the "quota rent," studies have shown that the export revenue of developing countries that is lost as a result of restrictions is substantial. In addition to its short-term impact, the MFA has some far-reaching effects on economic development. For example, the MFA contributes to the economic development of unrestricted or less restricted developing countries, which are often poorer than the restricted developing countries that are major T&C exporters, by encouraging foreign investment in the less restricted countries. At the same time, the MFA has a negative impact on economic development because the process of the dynamic division of labor through the shift in comparative advantage is delayed. Because of quota rent revenue, relatively high-wage economies, such as Hong Kong, can maintain their position as major producers of such labor-intensive goods as clothing. As soon as a poorer developing country, such as Bangladesh, shows success in exporting T&C products, importing countries discourage its efforts by imposing MFA quotas on its exports.

This article examines the dominant features of T&C exports from developing countries, summarizes MFA provisions and their development, surveys studies that have been conducted on the effects of the MFA on importing and exporting countries, and examines its long-term effects on the economic development of exporting countries.

In 1987 world trade in textiles and clothing amounted to more than $140 billion, or 10 percent of manufacturing trade (one billion equals a thousand million). Because clothing is relatively labor-intensive, developing countries have a comparative advantage in production (see table 1). By 1987 developing countries' share in world T&C exports was more than 50 percent, whereas their share in manufacturing exports was only 18 percent. Particularly strong
The share of T&C (especially clothing) in developing countries’ manufacturing exports is large. As shown in table 2, more than a quarter of manufacturing exports of developing countries are textiles and clothing—three times higher than the world average. The growth rate of textile exports from developing countries during 1976–87 was much slower than that of clothing exports. This is because industrial countries have regained some of their relative strength in the production of textiles, as production has become more capital-intensive following technological developments in the
industry (GATT 1984). Technological progress has been slower in clothing production, which is still relatively labor-intensive. Thus the share of textile exports in manufacturing declined substantially in developing countries, while that of clothing increased.

Remarkable differences between textiles and clothing are also found in the destinations of these exports from developing countries. As shown in table 3, almost all clothing exports—but only half of textile exports—go to industrial countries. According to Keesing and Wolf (1980), this heavy dependence of the developing country clothing industry on the industrial country market is partly because of low demand for factory-made clothing in developing countries and partly because of strong MFA import restrictions that most developing countries impose on clothing.

Although many developing economies export clothing to industrial countries, most clothing comes from Hong Kong, the Republic of Korea, and Taiwan (the Asian Big Three). The data in table 4 show this concentration and indicate an even more interesting phenomenon. Although the share of the Asian Big Three in clothing exports declined in 1973–84, the shares of China and other Asian countries increased. The following factors are at work: (a) the shift in comparative advantage in labor-intensive clothing production from developing countries that are more developed (that is, high-wage) to those that are less developed (that is, low-wage), just as Japan lost its comparative advantage to the Asian Big Three decades ago, and (b) the shift in clothing exports from the more restricted Asian Big Three toward developing countries that are less restricted as a result of the discriminatory nature of the MFA restrictions.

The dramatic growth of clothing exports from developing countries occurred in spite of a high level of tariffs and nontariff barriers. Table 5 gives the average tariff rates imposed by major importers of

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Table 3. Textile and Clothing Exports from Developing Countries by Destination (percent)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Textiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial countries</td>
<td>58.2</td>
<td>62.3</td>
<td>51.6</td>
<td>49.9</td>
</tr>
<tr>
<td>Developing countries</td>
<td>41.8</td>
<td>37.7</td>
<td>48.4</td>
<td>50.1</td>
</tr>
<tr>
<td><strong>Clothing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial countries</td>
<td>79.3</td>
<td>90.0</td>
<td>85.8</td>
<td>87.3</td>
</tr>
<tr>
<td>Developing countries</td>
<td>20.7</td>
<td>10.0</td>
<td>14.2</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Note: Eastern Europe and the U.S.S.R. are not included.
Source: Compiled from data from International Labour Office 1987, p. 11.
Table 4. **Textile and Clothing Imports into Industrial Countries from Selected Developing Economies** (percent)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian Big Three(^a)</td>
<td>29.3</td>
<td>26.8</td>
<td>67.7</td>
<td>61.1</td>
</tr>
<tr>
<td>China</td>
<td>11.6</td>
<td>17.8</td>
<td>2.6</td>
<td>8.7</td>
</tr>
<tr>
<td>Other Asia(^b)</td>
<td>29.2</td>
<td>22.4</td>
<td>7.7</td>
<td>13.4</td>
</tr>
<tr>
<td>Latin America and the Caribbean(^c)</td>
<td>7.2</td>
<td>9.2</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Other(^d)</td>
<td>22.7</td>
<td>23.8</td>
<td>19.2</td>
<td>13.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>99.9(^e)</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^a\) Hong Kong, Republic of Korea, Taiwan  
\(^b\) Bangladesh, India, Indonesia, Pakistan, Philippines, Sri Lanka, Thailand  
\(^c\) Argentina, Brazil, Colombia, Costa Rica, Dominican Republic, Haiti, Peru, Uruguay  
\(^d\) Greece, Portugal, Spain, Turkey, Yugoslavia  
\(^e\) Figures do not add to 100 because of rounding.

Source: Cline 1987, p. 141.

T&C. The tariff rate on T&C after the Tokyo round of GATT negotiations is almost three times higher than that on manufactured goods as a whole. Moreover, during the Tokyo round, T&C tariff rates were not reduced as much as the rates on manufactured products.

The tariff rates on T&C products tend to increase according to the stage of processing. The average tariff rate on fibers imposed by major importers is around 1 percent, whereas on clothing it is often

Table 5. **Tariff Rates for Textiles and Clothing before and after the Tokyo Round** (percent)

<table>
<thead>
<tr>
<th>Country or group</th>
<th>T&amp;C Before</th>
<th>T&amp;C After</th>
<th>Manufacturing Before</th>
<th>Manufacturing After</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>23.5</td>
<td>19.0</td>
<td>7.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Canada</td>
<td>24.0</td>
<td>21.5</td>
<td>13.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Japan</td>
<td>14.0</td>
<td>11.5</td>
<td>10.0</td>
<td>5.5</td>
</tr>
<tr>
<td>European Community</td>
<td>15.0</td>
<td>11.5</td>
<td>8.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Austria</td>
<td>30.5</td>
<td>30.0</td>
<td>14.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Finland</td>
<td>30.0</td>
<td>29.0</td>
<td>7.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>13.0</td>
<td>12.5</td>
<td>6.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Switzerland</td>
<td>10.5</td>
<td>8.5</td>
<td>3.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Simple average</td>
<td>20.1</td>
<td>17.9</td>
<td>8.8</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Source: GATT 1984, p. 68.
Table 6. Tariff Levels for Textiles and Clothing after the Tokyo Round (percent)

<table>
<thead>
<tr>
<th>Country or group</th>
<th>Fibers</th>
<th>Yarns</th>
<th>Fabrics</th>
<th>Clothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>3.5</td>
<td>9.0</td>
<td>11.5</td>
<td>22.5</td>
</tr>
<tr>
<td>Canada</td>
<td>3.0</td>
<td>13.0</td>
<td>21.5</td>
<td>24.0</td>
</tr>
<tr>
<td>Japan</td>
<td>0.5</td>
<td>6.5</td>
<td>9.5</td>
<td>14.0</td>
</tr>
<tr>
<td>European Community</td>
<td>0.5</td>
<td>7.0</td>
<td>10.5</td>
<td>13.5</td>
</tr>
<tr>
<td>Austria</td>
<td>0.0</td>
<td>7.0</td>
<td>23.5</td>
<td>37.0</td>
</tr>
<tr>
<td>Finland</td>
<td>0.5</td>
<td>6.5</td>
<td>28.5</td>
<td>39.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.5</td>
<td>7.5</td>
<td>13.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.0</td>
<td>3.5</td>
<td>8.5</td>
<td>11.0</td>
</tr>
<tr>
<td>Simple average</td>
<td>1.1</td>
<td>7.5</td>
<td>15.8</td>
<td>21.9</td>
</tr>
</tbody>
</table>

Source: GATT 1984, p. 69.

more than 20 percent. The clothing tariff rates of Austria and Finland are especially high (see table 6).

In addition to tariffs, nontariff barriers (NTBs) are widely imposed on developing country T&C exports. Table 7 shows that the percentage of T&C imports subject to NTBS is two to three times that for manufactured imports as a whole. T&C imports from developing countries are more likely to be subject to NTBS than those from industrial countries because MFA restrictions are imposed only on low-cost suppliers.

The MFA and the GATT Principles

The MFA consists of a system of bilateral quotas against T&C exports from developing countries (see appendix). The basic idea of the MFA is the same as those of its predecessors—the Short-Term Arrangement Regarding International Trade in Cotton Textiles (STA), 1961–62, and the Long-Term Arrangement Regarding International

Table 7. Imports Subject to Nontariff Barriers, 1983 (percent)

<table>
<thead>
<tr>
<th>Country or group</th>
<th>T&amp;C</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From Total</td>
<td>From Industrial</td>
</tr>
<tr>
<td></td>
<td>From developing countries</td>
<td>countries</td>
</tr>
<tr>
<td>United States</td>
<td>57.0</td>
<td>31.1</td>
</tr>
<tr>
<td>European Community</td>
<td>52.0</td>
<td>15.6</td>
</tr>
<tr>
<td>Japan</td>
<td>11.8</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Trade in Cotton Textiles (LTA), 1962–73. Under these international agreements, signatories can impose quantitative restrictions to avoid "market disruption." The concept of market disruption in the MFA appeared as early as 1960, when the GATT's contracting parties met to discuss the U.S. proposal for an international agreement to restrict T&C trade. As agreed in 1960, market disruption occurs when (a) there is a sharp and substantial increase of specific products from particular sources, (b) the products are brought in at prices substantially below those in the importing country, (c) there is serious injury, or the threat of serious injury, to domestic producers. Of the three, (b) is the most important. As Sampson states, "in this manner, low-cost suppliers (that is, developing countries) can be selectively singled out for restraint—only they can cause market disruption as it is defined by the MFA" (1986, p. 71).

As many authors, including Choi, Chung, and Nicolas (1985), Keesing and Wolf (1980), and Sampson (1986), have pointed out, because the MFA provides for quantitative restrictions against T&C exports from developing countries, the MFA (as well as the STA and the LTA) derogates GATT principles of nondiscrimination and avoidance of quantitative restrictions except in special cases. Thus, although administered under the auspices of GATT, the MFA is contrary to the spirit of GATT.

How did the T&C industry in importing countries succeed in getting such exceptional protection as the MFA? Several authors, including Keesing and Wolf (1980) and Sampson (1986), speculate on the origin of the MFA. The answer lies in a series of developments in the cotton industry and the international trade of cotton products in the 1950s and early 1960s. The basic idea of the MFA was first incorporated in 1961 into the STA, which covered cotton products.

The United States played a decisive role in establishing the STA. By the 1950s, the U.S. textile industry had succeeded in obtaining some support for protection against imports of cotton textiles. Keesing and Wolf note that "two important ideas [were] especially strongly held in the United States, namely (i) that textiles were somehow special and fully deserving of exemption from general liberalization and (ii), a closely related idea, that without protection the industry could hardly survive" (1980, p. 10). Keesing and Wolf point out that there are both economic and political reasons for such special treatment of the U.S. textile industry. First, output and employment in the industry were stagnant and even declining in the 1950s. Although the stagnation could be attributed partly to international competition caused by the shift in comparative advantage toward low-wage countries, the main reason was a stagnant demand for textile products. The share of textile products in personal consumption expenditure in the United States fell from 14 percent in
1919 to less than 9 percent in 1959 (Keesing and Wolf 1980). Second, the industry was large—employing 17 percent of the total manufacturing work force in industrial countries—and well organized as a political pressure group. Third, the only countries affected adversely by the protection were Japan and developing countries whose political clout was then weak.

The protectionist idea was reinforced when Japan applied for accession to the GATT in 1955. Many countries worried about the potential of Japan, which was dramatically expanding exports of cotton textiles. As Sampson argues, “restraining all suppliers would require restraint of more economically powerful countries and could prompt retaliatory action or requests for compensation as provided for in Article XIX of GATT” (1986, p. 72). Therefore, in 1957 the United States, a major importer of Japanese cotton products, negotiated an agreement on the Japanese five-year VER on the shipment of cotton textiles to the United States. Although the United States succeeded in curbing Japanese cotton products, other Asian economies—especially Hong Kong—dramatically increased shipments to fill the gap (see table 8).

Such a diversion of sources of imports is common for T&C products, because the setup costs of production are small. Faced with such a diversion, the United States began negotiations with Hong Kong on the VER (in vain) and brought the issue to GATT in an attempt to obtain a multinational framework for the restriction on T&C products. Meanwhile, the United Kingdom formed bilateral agreements with Hong Kong, India, and Pakistan on the VER.

VERS are a derogation of GATT principles because they are discriminatory and quantitative restrictions. Therefore, the restricting countries—especially the United States—wanted to obtain international sanction for them. Exporting countries also wanted an international arrangement because, as Keesing and Wolf argue, “it was feared that uncontrolled restrictions, even if agreed on a ‘voluntary’

| Table 8. Shipment of Cotton Products to the United States (millions of U.S. dollars) |
|-----------------------|--------|--------|
| Exporter              | 1956   | 1961   |
| Japan                 | 84.1   | 69.4   |
| Hong Kong             | 0.7    | 72.0   |
| Other Asia            | 15.3   | 25.0   |
| Other                 | 54.2   | 36.9   |
| Total                 | 154.3  | 203.3  |

Source: Hunsberger 1964.
basis, would fundamentally impair the long-term opportunities of developing countries" (1980, p. 20). Although the MFA (as well as the STA and the LTA) provides that new quota levels are not to be lower than actual shipments before the imposition of the quota (see appendix for details), the level of VERS before 1960 was often substantially below the actual shipments of the previous year.

Thus the interests of importing and exporting countries partly coincided, and the international agreement on restrictions on T&C trade came into effect in 1961. Synthetic fiber and wool became important by the early 1970s and were included in the MFA when it was initiated in 1974.

Because the MFA gives only a framework for world T&C trade and actual restrictions are imposed by either unilateral or bilateral quotas, the severity of MFA restrictions depends on the administration of the individual quotas. Most studies agree that restrictions have become more comprehensive and more severe over time.

As the GATT (1984) pointed out, the period under MFA I (January 1974–December 1977) was characterized by a period of "relative liberalization" of trade in textiles and clothing. During this time, many previous restrictions were abolished, consistent with MFA article 2 (on the phasing out of pre-MFA restrictions). Not only had cotton textiles been subject to restrictions under the STA and LTA since 1961, but there were also trade restraints on wool and synthetic fiber products. Therefore, the period under MFA I "witnessed enhanced discipline in the regulatory measures compared to the autonomous and arbitrary methods of the past" (p. 78). The restrictions imposed during MFA I were more or less consistent with the spirit of the MFA text. Most importing countries preferred selective coverage of items (consistent with annex A of the MFA) rather than comprehensive restrictions; only the United States took comprehensive measures. Provisions of annex B (on the base level, growth rate, and flexibility; see appendix for details) were well observed by many importing countries.

MFA II (January 1978–December 1981) proved more restrictive, primarily because of European Community (EC) initiatives. During the period under MFA I, the EC’s T&C imports dramatically increased, possibly because T&C exports from developing countries shifted to the EC from the United States, where a comprehensive system of bilateral restriction had been set up in 1971. This increase occurred during a time of economic recession and high unemployment after the first oil crisis. Thus, although most of the MFA participants favored a simple extension of the MFA, the EC took a hard
line. The EC was responsible for a new provision included in the Protocol of Extension—the possibility of "jointly agreed reasonable departures" from particular elements in particular cases. Although reasonable departures were intended to be only temporary, they have, in fact, been used for long periods. The departures consisted of reductions in quotas from their previous levels (or actual trade), reductions in flexibility, and growth rates below 6 percent. During this period, the EC formed a system of comprehensive restrictions, dividing MFA products into 114 categories and five groups. In addition, it adopted a "basket extractor" mechanism whereby any exporter whose exports exceeded a threshold share of total EC imports would be subject to new controls.

Faced with the growing objections of exporting countries to the frequent use of departures under MFA II, the Protocol for MFA III (January 1982–July 1986) excluded the reasonable departures clause. Instead, more specific provisions were introduced. One of the most important was an "antisurge" provision concerning underutilized quotas. Most of the MFA quotas are unfilled except for those imposed on a few superstars of T&C exports (see the section "Effects of the MFA on Exporting Developing Countries"). The utilization ratio of other countries is sometimes as low as 10 to 20 percent. Importing countries thus added antisurge provisions to avoid sudden influxes of imports under unfilled quotas. To facilitate adjustment in importing countries, a permanent subcommittee of the Textiles Committee was established to monitor adjustment policies. In spite of these changes, MFA III led to a further tightening of restrictions. In December 1983, the Textiles Surveillance Body reported on the implementation of MFA III as follows:

On the basis of notifications reviewed in 1982 and 1983, the overall picture is one of a somewhat more severe implementation of the Arrangement since the coming into force of the 1981 Protocol of Extension:

- unilateral measures have been taken more frequently;
- a number of new bilateral agreements with previously unrestricted countries had been concluded;
- coverage in terms of products under restraint has increased;
- agreements concluded with large suppliers are again more and more restrictive.

Faced with dramatic import increases in the 1980s, the United States became even more restrictive. The most important change in U.S. policy was a "call" system, announced in December 1983. Under this system, consideration of a possible case of market disruption can be initiated when imports have (a) reached 20 percent of production or (b) risen by 30 percent in the preceding twelve
months, and imports from an individual supplier have reached 1 percent of production.

The United States invited more than a hundred consultation calls in 1984–85, and in almost all cases new restrictions were imposed on T&C exports from developing countries. The EC's policies toward T&C exports from developing countries, however, were less severe under MFA III than under MFA II. The EC did not invoke the antisurge provision during MFA III, and the basket extractor mechanism was invoked less frequently than before.

During MFA IV (August 1986–July 1991), provisions for even broader coverage and tighter restrictions have been introduced. The reasonable departures clause has been restored, the product coverage has been extended to include vegetable fibers and silk blends, and other small changes have been made to further restrict T&C exports.

The MFA has now been in effect for many years and there is little prospect of its being abolished when MFA IV ends, although the future of the MFA is being negotiated under the Uruguay round. Because of the everlasting nature of the MFA, it has profound long-term effects on economic development (see "Effects of the MFA on Exporting Developing Countries," later in this article).

Although this article concentrates on the effects of the MFA on exporting developing countries, major studies on the effects of the MFA (and other restrictions on T&C trade) on importing countries are briefly examined here, because they are an important part of the whole picture. Although policymakers in importing countries maintain that import restrictions are necessary to protect domestic industry and workers, most research has shown that import restrictions hurt not only exporting countries but importing countries as well.

Cost to Consumers and Domestic Job Creation

Some studies that examine the MFA's cost to consumers also consider domestic job creation as a result of import quotas. Most of these studies agree that, although consumers in importing countries incur huge costs from MFA quotas, the number of domestic jobs saved or created by the quotas is relatively small; therefore, MFA quotas are a poor way to protect workers from foreign competition.

Studies on the cost to consumers have been conducted by, among others, Cline (1987), Hufbauer, Berliner, and Elliott (1986), and Tarr and Morkre (1984) for the U.S. market; Jenkins (1980) for the
Canadian market; and Spinanger and Zietz (1986a) for the German market. These and other studies differ in their underlying assumptions about elasticities and other variables and in their coverage of (a) types of restrictions (for example, quota only, or quota and tariff), (b) exporters (for example, all foreign suppliers or Hong Kong alone), and (c) products. Even so, the basic framework of most analyses is the same. This framework is presented schematically in figure 1, which shows the relation between price and quantity, assuming an infinite elasticity of foreign supply (the following argument also holds if the supply curve slopes upward). Under free trade conditions, equilibrium is obtained at point C, where quantity $Q_F$ is supplied at price $P_F$. When a quota is imposed to limit the supply of imports to $Q_R$, there is an excess demand for imports at the price $P_F$. The price must then be increased to eliminate the excess demand. The new equilibrium is obtained at $A$, where quantity $Q_R$ is supplied at price $P_R$. The shaded area $P_RP_ABA$ represents quota rent. It is usually assumed that this quota rent is transferred to the exporting countries because the MFA quota is administered by the exporting countries. In addition to the quota rent they pay, consumers in the importing countries incur another loss from the restrictions. This additional loss, represented by the shaded triangle $ABC$, is often called a dead weight loss because it cannot be captured either by the consumer or by the producer. The quota protection of T&C from the exporting countries also affects the price of domestically produced T&C in the importing countries because the domestic T&C is produced to substitute for the foreign T&C that cannot be imported owing to the quota restrictions.

Using this approach, the studies just cited reported various consumer costs to importing countries. These estimated costs are included in the data presented in table 9. Estimated values of the consumer costs differ depending on coverage and underlying assumptions, but the cost to consumers of restrictions on T&C imports is high.

Some studies also estimate the number of domestic jobs created or saved by restrictions. Their technique is straightforward. First, the value of increased domestic production, dependent partly on the elasticity of substitution between domestic and imported products,
Table 9. Data from Studies on the Effects of Protection on T&C Imports

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1985</td>
<td>1986</td>
<td>1983</td>
<td>1979</td>
<td>MFA II period</td>
</tr>
<tr>
<td>Coverage</td>
<td>U.S. T&amp;C imports</td>
<td>U.S. T&amp;C imports</td>
<td>U.S. imports of selected clothing from Hong Kong</td>
<td>Canadian clothing imports</td>
<td>German T&amp;C imports</td>
</tr>
<tr>
<td>Method of protection</td>
<td>Tariffs and quotas</td>
<td>Tariffs and quotas</td>
<td>Quotas</td>
<td>Tariffs and quotas</td>
<td>Quotas</td>
</tr>
<tr>
<td>Consumer cost</td>
<td>$20.3 billion</td>
<td>$27 billion</td>
<td>$0.38 million-$0.5 million</td>
<td>$400 million</td>
<td>DM 600 million-700 million</td>
</tr>
<tr>
<td>Jobs saved</td>
<td>434,200</td>
<td>640,000</td>
<td>9,000</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Cost per job saved</td>
<td>$47,000</td>
<td>$42,000</td>
<td>$42,000-$57,000</td>
<td>n.a.</td>
<td>n.a.</td>
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n.a. Not available.
Source: See references.

is estimated. Second, the average value of domestic shipments per worker is determined. Then, the number of jobs created is calculated by dividing changed production by average production per worker. As shown in table 9, the number of jobs saved is relatively small, but the cost to consumers per job saved is $42,000-$57,000, which far exceeds the average wage of T&C workers in the United States. Consumers incur this cost each year that restrictions continue, while workers displaced in the absence of import restrictions might be able to find new jobs elsewhere.

Profits and Income Distribution

MFA restrictions have a big impact on profits of domestic producers in the importing country—because of import restrictions they can sell more products at higher prices. Jenkins (1980) reported that as a result of tariffs and quotas imposed on T&C imports, domestic producers in Canada gained by US$240 million in 1979, equivalent to about half the cost to consumers. One of the arguments in favor of protection is that because the T&C industry often employs relatively low-wage workers, protection might encourage more equitable income distribution by increasing the employment of these workers. To test this argument, Cline (1987) estimated the impact of MFA protection on five income groups. For each group, he compared the cost of increased prices of T&C with the benefits that result from increased employment and

Junichi Goto

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the increased transfers to producers. Contrary to popular belief, the
cost of the price increase exceeded the benefit for all incomes except
the top 20 percent. Thus it appears that the protection on T&C
imports widens rather than narrows the inequality in income
distribution.

<table>
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<th>Effects of the MFA on Exporting Developing Countries</th>
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| Because the MFA imposes discriminatory restrictions on the ex-
| ports from developing countries, and because the MFA seems eternal,
| it has a strong impact on developing countries both in the short run
| and in the long run. First, the MFA has a direct impact on restricted
| exporters in the form of forgone export revenue and quota rents.
| Second, the MFA affects trade patterns. Because individual quotas
| under the MFA are imposed on selected exporting countries, unre-
| stricted (often inefficient) countries may be able to increase their
| shipments at the expense of restricted (often efficient) countries.
| Third, because the MFA puts a cap on the quantity (not the value) of
| shipments, it encourages the upgrading of exports. Fourth, foreign
| investments by restricted suppliers (such as Hong Kong) are stimu-
| lated by the desire to evade MFA quotas. Investments in less re-
| stricted regions have helped economic development of countries in
| Asia, Latin America, and the Caribbean. Fifth, the MFA discourages
| new T&C exporters from becoming major T&C suppliers.
| Following is a review of existing studies on the effects of the MFA
| on developing countries.

Forgone Exports and Rent Transfer

The framework of the analysis of forgone exports and accrued
rent in the exporting country is essentially the same as that used to
analyze the effects on importing countries. In figure 1, the value of
the export shipment before the quota is the area $P_f Q_f C$ and the
value after the quota is the area $P_r Q_r A$; total decline in export
revenue is the difference between the two. Although the value of
shipments can decrease or increase, empirical studies show that
export revenues tend to decrease after the MFA quota.

Most empirical studies show that the magnitude of forgone ex-
ports by exporting developing countries is substantial. UNCTAD
(1986) reported that if all restrictions on T&C trade were removed,
T&C exports from developing countries to the EC, Japan, and the
United States would increase by $15 billion, an increase of 96
percent, which is almost equal to the actual level of exports. Of this
increase, 60 percent can be attributed to the removal of NTBs, of
which the MFA restrictions are the most important. Similarly, Kir-
man, Molajoni, and Mayer (1984) reported that the removal of both tariff and nontariff barriers would increase developing country exports to the main countries of the Organisation for Economic Co-operation and Development (OECD) by 82 percent for textiles and 93 percent for clothing. Whalley and Trela (1988), using a general equilibrium approach, estimated that developing countries as an aggregate are losing around $11 billion a year from the MFA because the value of forgone shipments as a result of quantity restrictions exceeds the transferred rent by that amount.

However, some doubt has been cast on the effectiveness of restrictions on developing country exports since the early 1970s.

There is a widespread perception that protectionist pressures increased significantly in the 1970s, and that those pressures resulted in a pronounced increase in protection in the form of NTBs against manufactured imports from developing countries. . . . [but] the incidence of protection against manufactured exports from the developing countries was probably considerably less than is generally believed (Hughes and Krueger 1984, p. 390).

As evidence of their argument, Hughes and Krueger noted that the market penetration of developing countries continued to grow faster than total imports despite protectionist measures. They also conceded that the rapid increase in developing country exports does not necessarily mean that protection was costless, because “unrestricted markets could have led to even faster export growth because prices would have been lower without distorting rents” (p. 413).

There are also estimates of the transferred quota rent to the exporting developing country. Most studies of the cost to consumers in the importing country deal with the quota rent. Virtually all assume that quota rent is transferred to the exporting country because the MFA quota is administered by the exporting countries. Using that assumption, Tarr and Morkre (1984) wrote that the rent transferred to Hong Kong from the U.S. restrictions on certain T&C items amounted to $218.3 million, or one-half to two-thirds the cost to U.S. consumers. Similarly, Hamilton (1986a) estimated that Hong Kong acquired as quota rent $320 million from shipments to the EC in the three years from 1981 to 1983 and $730 million from shipment to the United States in the three years from 1982 to 1984. This rent income amounted to 0.7 and 1.7 percent of Hong Kong's gross domestic product (GDP) in 1982 and 1983, respectively, and just over 10 percent of the value added in Hong Kong's apparel industry in 1982. From his estimates of tariff equivalency of quota rents in many categories of T&C products, Pelzman
(1988) reported that the amount of the transferred quota rent from the United States to exporting countries is "in the millions."

Many of the studies cited show that quota rents are large; the value of the exports forgone, however, is generally much larger. Balassa and Michalopoulos (1985) reported that the value of the lost exports exceeded the quota rent ninefold for the United States and sevenfold for the EC. These two values, however, cannot readily be compared to yield a net gain or loss to an exporting country. Generally speaking, not all the quota rent is transferred to the exporting countries. Although governments of exporting countries under the MFA often allocate export licenses in a manner that helps exporters capture the quota rent, many of these exporters face large importing enterprises that can negotiate prices that capture some of the rent for themselves.

*Trade Diversion*

The MFA also affects trade patterns. Because the MFA consists of discriminatory quotas, it can divert trade from more restricted to less restricted countries. As Keesing and Wolf (1980) point out, such trade diversion occurs in favor of the exports from industrial countries because the MFA restrictions are applied only to developing countries. Such diversion can occur among developing countries, however, because they are not restricted equally.

Although the number of member countries of the MFA is large (forty-two for MFA III), the number of restricted countries is far smaller because restrictions are set by the individual bilateral agreement between each exporting and importing country. The targets of restrictions are major T&C exporting countries, and many countries—especially in Latin America—are restricted very little by MFA quotas. As table 10 indicates, the superstars of T&C exports—Hong Kong and Korea—are severely restricted by the MFA, but the restrictions imposed on some of the Latin American countries are far less severe. In addition, although the quotas imposed on Hong Kong and Korea are almost filled, the utilization rates of Colombia and Mexico are less than 50 percent. Under the Lomé Convention, ACP (African, Caribbean, and Pacific) countries are exempt from MFA quotas imposed by the EC as long as the inputs used are produced in their own countries or imported from the EC. Under the newly adopted "super 807" program, some Caribbean countries are exempt from MFA quotas imposed by the United States; that is, clothing made entirely of U.S. material can be imported without regard to bilateral MFA quotas.
Table 10. Coverage and Utilization Rate of MFA Quotas of Selected Economies, 1982

<table>
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<th>Exporter</th>
<th>MFA coveragea</th>
<th>Utilization rateb</th>
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<tbody>
<tr>
<td></td>
<td>To United States</td>
<td>To EC</td>
</tr>
<tr>
<td>Colombia</td>
<td>40.1</td>
<td>63.5</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>75.7</td>
<td>94.7</td>
</tr>
<tr>
<td>Korea</td>
<td>76.4</td>
<td>95.1</td>
</tr>
<tr>
<td>Mexico</td>
<td>45.4</td>
<td>6.4</td>
</tr>
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</table>

a. The ratio of shipments subject to MFA restrictions to total shipments.
b. The ratio of actual shipments to MFA quota amounts.


Because of the discriminatory nature of MFA quotas, which are different from global quotas permitted under GATT article 19, some developing countries benefit from the MFA. Cable states that “some of the less competitive Latin American and Eastern European exporters saw the MFA as providing a guaranteed market share” (1981, p. 183). Similarly, Wolf points out that “any discriminatory quotas allow unrestricted exporters to share the benefits of protection with the domestic producers” (1987, p. 17).

Keesing and Wolf (1980) present data from the late 1950s and 1960s as evidence of the trade diversion. Immediately after Japan announced a VER on shipments to the United States, Hong Kong dramatically increased shipments to fill the gap (refer to table 8). According to Wolf (1987), in 1981–85 U.S. imports of T&c from the Asian Big Three grew at an annual rate of less than 10 percent, whereas those from other developing countries and from Europe grew by 22 and 33 percent, respectively.

A growth rate of the Asian Big Three that is lower than that of other developing countries, however, does not necessarily mean that the trade diversion is caused by the MFA. A difference in the growth rates may result from the shift in comparative advantage toward newcomers. Erzan, Goto, and Holmes (1989) present an estimate on the trade diversion due to the MFA. According to the study, unrestricted developing countries could increase their shipment of clothing only by 10 percent at the expense of restricted developing countries. The MFA sometimes discourages a shift in comparative advantage because it tends to maintain current distribution of T&C trade among developing countries. These effects and trade diversion as a result of foreign investment will be discussed later under “Long-Term Effects on Economic Development.”
Incentive for Upgrading

Many authors contend that quantitative restrictions like the MFA encourage product upgrading. Theoretically, quantitative restrictions can result in either upgrading or downgrading, as Leffler (1982) has shown. But many authors present arguments and data in support of the upgrading theory.

Because the MFA controls the physical volume of imports rather than their value, it introduces an incentive to upgrade products. In one dimension, this process has occurred from a shift of textiles . . . to finished apparel . . . . While controlled suppliers have had an incentive to upgrade by moving up the ladder of processing stages, they have also faced an inducement to upgrade the quality of their exports within each product category (Cline 1987, pp. 173–74).

Cline presents data showing that the real value of imports grew more slowly than the physical volume in 1961–72 (before the MFA), while the real value of imports grew considerably more rapidly in the initial years of the MFA (1972–77).

Similarly, it has been argued:

One important respect in which quantitative restrictions are almost inevitably porous is that they permit upgrading. The principal reason for upgrading is that the quota premium, whether explicit or implicit, acts like a specific tax, so having a greater proportionate effect on lower valued than on higher valued items. This, in turn, would be expected to shift both supply and demand away from the lower valued items (Wolf 1987, p. 16).

Wolf asserts that in 1981–84, when U.S. restrictions on major suppliers of foreign T&C became stricter, the unit value of American T&C imports from heavily restricted economies such as Hong Kong, Korea, and Taiwan increased, although those from Japan, Europe, and most developing countries declined because of the appreciation of the U.S. dollar.

Some cast doubts on arguments for upgrading. Tarr and Morkre state that “over time, quality may improve, as technology advances and labor skills increase, in the absence of the quotas” (1984, p. 111). A quality improvement over time, particularly from East Asian exporters, does not necessarily mean that the upgrading was caused only by the quantitative restrictions.

What kind of effect, then, does upgrading have on developing countries? Developing countries could learn how to export more
sophisticated products through upgrading induced by the quantitative restrictions.

[Upgrading] may have been very favorable for the economies' long-term development compared with specializing in turning out larger quantities of cheap sweaters, shorts or slacks. In addition, learning to get the most out of quotas must have been very demanding and has probably greatly strengthened entrepreneurship, management and technical versatility, especially in Hong Kong, South Korea and Taiwan where quotas have had the most restrictive impact (Keesing and Wolf 1980, p. 124).

Nonetheless, neither upgrading nor any other form of evading the effects of the restrictions is achieved without costs to exporting countries.

Almost thirty years have passed since the multilateral restriction was imposed on T&C trade in 1961, and there is little chance that the MFA will be abolished in the near future. Because of its ongoing nature, the MFA has a profound impact on economic development.

Foreign Direct Investment

Kumar and McLeod (1981) affirm that the MFA encourages foreign direct investment in nonrestricted and less restricted developing countries. When major T&C exporters (Hong Kong and Korea, for example) realized that MFA restrictions imposed on them would continue for years, they tried to set up plants in other countries. T&C firms in Hong Kong invested in other Asian countries, including China. Some of these investments were made mainly to circumvent tariffs and quotas imposed by developed countries. More recently, government officials and business people in Caribbean countries (Dominican Republic and Jamaica, for example) have pointed out that firms in the Asian Big Three have been investing in and establishing clothing factories in their countries, and that without the MFA the increase in the inflow of Asian capital would have been slower.

It should be noted, however, that although foreign direct investment (as well as technological transfers) from major T&C exporters will encourage economic development of host countries, the MFA tends to discourage host countries from becoming too successful. For example, when Bangladesh showed dramatic success in clothing exports with the help of a Korean company, industrial countries successfully negotiated bilateral restrictions on its exports.
Deterrence to New Entry

In one sense, the MFA tends to maintain the present configuration of T&C trade by discouraging shifts in the trade pattern based on comparative advantage. T&C production was a catalyst to industrialization in many countries. The economic development of Japan was spurred by its exports of silk and cotton products some decades ago. As Japan accumulated capital and wage rates rose, production shifted toward more capital-intensive goods, and Hong Kong and Korea acquired the comparative advantage in T&C production. As Keesing and Wolf argue, "in the absence of [MFA] restrictions on their suppliers, shifts toward new sources of supply could be expected. . . . If MFA quotas did not exist, these countries [developing countries other than the Asian Big Three] would have the opportunity to follow much the same path to industrialization that Hong Kong, South Korea, and Taiwan have been taking, and supplant them as leading clothing exporters" (1980, pp. 129, 131).

A long-lasting MFA delays the shift in the location of T&C production for two reasons. First, quota rents enable Hong Kong and others to maintain international competitiveness even after their comparative advantage in T&C production has shifted toward less developed countries. Second, the MFA tends to discourage new T&C exporters from becoming major suppliers because MFA quotas have been imposed on even the smallest and poorest countries when they begin to show a rapid increase in their shipments of T&C products. Spinanger (1987) summarized the experience of Bangladesh in the early 1980s. Bangladesh is one of the world's poorest and most heavily aided countries. But, with the help of Korea and a local entrepreneur, its garment exports increased from almost nothing in 1979 to $500 million in 1987. Late in 1985 the United States successfully negotiated the MFA quota with Bangladesh. As a result, out of 700 garment factories then operating, 300 were shut down. There are other examples of the imposition of an MFA quota on small and poor countries whose exports are insignificant in the total T&C imports of industrial countries.6

On this harmful impact of the MFA on economic development, Keesing and Wolf noted, "What are almost certainly the most harmful consequences of textile quotas will come over the long run, therefore, in relatively poor developing countries that have the potential to expand their industrial base and manufactured exports by specializing at first in labor-intensive products such as clothing" (1980, p. 131). Thus trade restriction is harmful in most cases. A long-lasting restriction like the MFA is all the more harmful because it discourages change in the international division of labor.
The MFA has four important short-term effects on exporting developing countries: (a) the forgoing of exports, (b) the transfer of quota rents, (c) the shift to unrestricted exporters, and (d) the upgrading of products. Most studies on the effects of the MFA on exporting developing countries cover the transferred quota rent and the change in export revenue under the MFA quota. These studies show that the forgone exports revenue and transferred quota rents are huge.

The MFA also has important long-term effects on economic development. Because it encourages foreign investment in nonrestricted developing countries, the MFA can have a favorable effect on poorer countries; in most cases, however, the MFA has been used to restrict development.

The MFA has been extended three times, by attaching new protocols and leaving the main text intact.

Stated Objectives (Article 1)

The stated objectives of the MFA are “to achieve the expansion of trade, the reduction of barriers to such trade and the progressive liberalization of world trade in textile products, while at the same time ensuring the orderly and equitable development of this trade and avoidance of disruptive effects in individual markets and on individual lines of production in both importing and exporting countries.” Import restrictions are supposed to be imposed only to avoid disruptive effects. In industrial countries, where the T&C industry has lost comparative advantage, it is supposed to adjust to the new trend by either shrinking or regaining competitiveness. However, developments of T&C trade under the MFA are far from the stated objectives.

Restrictive Measures (Articles 3 and 4)

The MFA provides that importing countries can take unilateral or bilaterally agreed restrictive measures to avoid “disruptive effects in individual markets and on individual lines of production.” Article 3 provides for measures taken when market disruption occurs, and article 4 provides for measures when there is only the risk of disruption. During MFA I, many unilateral measures were taken after un-
successful consultations; recently almost all restrictions have been made under bilateral agreements between the importing and exporting countries.

**Definition of Market Disruption (Annex A)**

Market disruption can exist where there is serious damage to domestic producers or the threat of damage. Either way, it must be demonstrably caused by (a) a sharp and substantial increase, or imminent increase, of imports from particular sources and (b) the pricing of products substantially below the prevailing price in the importing country. Under the MFA, the importing country cannot impose trade restrictions for damages caused by “factors such as technological changes or changes in consumer preference.” Thus, according to the letter of the MFA, market disruption is narrowly defined; in reality, it has been broadly interpreted.

**Requirements for Individual Restrictions (Annex B)**

To protect the exporting country restricted by the MFA quota, the MFA stipulates the minimum standards on the base year, growth rate, and flexibility of the quota, although such standards are often ignored in individual quota restrictions. The MFA states that new quotas must not be less than actual trade levels during the previous year. With continuing quotas, the annual growth rate should not be less than 6 percent. In “exceptional” circumstances, however, when a recurrence or worsening of disruption is anticipated, the annual growth rate can be reduced below 6 percent. The 6 percent growth rate is higher than that under the LTA, in which the required annual rate was 5 percent. As Wolf pointed out, “the 6 percent growth rate of restraint levels implies the ‘withering away’ of textile restraints” (1987, p. 4) because the growth rate of 6 percent in volume exceeds the growth of the market by a substantial margin. However, the actual growth rates in quota amount imposed on superstars have been below 6 percent.

The MFA provides some flexibility in quota administration. First, where restraint is exercised for more than one product, a particular quota can be exceeded by 7 percent provided there is a corresponding reduction in another quota (“swing provision”). Second, where restraints are established for more than one year, up to 10 percent of the unused portion of the preceding year’s quota can be carried over, and up to 5 percent of the following year’s quota can be carried forward, as long as the combined use of carry-over and carry-forward does not exceed 10 percent.
The MFA provides for bilateral quotas against textile and clothing exports from developing countries. Thus, although it is administered under the auspices of GATT, the MFA derogates two GATT principles: nondiscrimination and the avoidance of quantitative restrictions. The impact of the MFA on developing countries is examined in the article. Four important short-term effects of the MFA on exporting developing countries are (a) the forgoing of exports, (b) the transfer of quota rents, (c) the shift to unrestricted exporters, and (d) the upgrading of products. In the long term the MFA discourages newcomers from becoming successful exporters of textile and clothing products. Although it also encourages foreign investment in unrestricted developing countries, in general the MFA is harmful to current and potential exporters of textiles and clothing in developing countries, and it benefits domestic producers of textiles and clothing in the importing industrial countries.

I want to thank Bela Balassa, Refik Erzan, J. Michael Finger, Patrick Messerlin, Paul Meo, Richard Snape, David Tarr, Kenji Takeuchi, and many other colleagues in the World Bank, and J. Pelzman of George Washington University, for valuable comments and suggestions to the earlier draft of the manuscript, and Jean Epps for excellent typing.

1. There is an important exception to this statement. Because the production of synthetic fiber is fairly capital-intensive, industrial countries have recently regained comparative advantage in the production of textile products. See the next section in this article for further details.

2. As described in the appendix, the MFA text provides that the annual growth rate of continuing quotas should not be less than 6 percent.

3. This assumption is not warranted in many cases because importers who have some market power capture the quota rents, at least in part.

4. Note that Taiwan is not a member of the MFA.

5. Feenstra (1984), for example, presented an excellent study on the upgrading of the Japanese shipment of automobiles under the VER.

6. For example, when the EC imposed a quota against Sri Lanka in 1977, the share of Sri Lanka in total EC imports of T&C was only 0.22 percent.


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