Tax Policy and Tax Reform in Semi-Industrial Countries

Chad Leechor
Tax Policy and Tax Reform in Semi-Industrial Countries
Industry and Finance Series

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ABSTRACT

The main objectives of this report are to review tax policy as implemented in developing countries, to examine the problems that arise and to explore potential avenues for tax reform. The analysis is drawn from a sample of four semi-industrial countries: Colombia, the Republic of Korea, Mexico and Thailand. Among the major issues identified are: (a) savings and investment disincentives, which arise from the high rates and sharp graduation in income-based taxes; (b) intersectoral variation in effective tax rates, which emanates mainly from selective industrial promotion; and (c) trade distortions, which are attributable to the discriminatory treatment of imports and the tax-induced changes in comparative costs. Although the tax authorities in the sample countries have attempted to deal with these issues, the measures used often involve either excessive revenue loss or a breach in the principle of equity among taxpayers. Moreover, as the tax systems are not adequately indexed, both the inefficiency and the inequity caused by taxes become more pronounced under inflationary conditions.

The repertoire of tax reform involves both direct and indirect taxes. With respect to direct taxes, the major area for tax reform is the nature and the scope of the tax base. Among the potential reform measures are: (a) broadening of the tax base to cover a variety of currently omitted income sources; (b) consolidation of the fragmented bases; (c) a shift of the tax base toward consumption by allowing tax deductions for savings. With proper adjustments in the tax base, the tax rates may also be lowered and the graduation curtailed to allow for greater incentives and simplicity. With respect to indirect taxes, potential reform measures include: (a) rationalization of the tax base to avoid multiple taxation; (b) exemption of indirect taxes on capital goods in general to enhance the yields from investment; and (c) tax remission for exporters and non-discriminatory treatment of imports to improve resource allocation across countries.
ACKNOWLEDGMENT

The author is indebted to Kemal Dervis and Harinder Kohli for motivating this study and for supporting it through the various stages of preparation. He is also grateful to Mauricio Carrizosa Serrano and Barbara Mierau for furnishing background materials on Colombia and Mexico, to Sujin Hur for her assistance with the statistical work, to Wilson Peiris, Tony Tenorio, Robyn Farrell, Frankie Young and Nina Wong for their help and their patience during the numerous rounds of typing and retyping and to Perla Sanez and Whitney Watriss who provided editorial suggestions. Finally, the author wishes to acknowledge the helpful comments made by Vinod Dubey, Jim Hanson, Don Keesing, Keith Marsden, Ricardo Martin, Roy Pepper, Young Whee Rhee and Gregory Van Inwegan.
I. INTRODUCTION AND SUMMARY

Introduction

Current interest in comprehensive tax reform in many countries reflects a wider concern with the size and the desirable role of government in the economy. During the last decade, many have come to view the substantial growth of government expenditures observed throughout the world as a factor contributing to the fatigue and the slowdown of the global economy. Moreover, as taxes rise to finance increased expenditures, various flaws in the tax system, which can dampen initiatives and produce

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The importance of tax policy is well recognized in the more advanced market economies. In the context of developing countries, however, tax policy has received relatively little attention. Analytical works in this area have generally stressed the role of trade taxes and effective protection, with only peripheral references made to the tax system as a whole. This neglect may be unfortunate since in many respects the effects of taxes go deeper in developing countries. Resource limitations there are more stringent, and the conflict that arises from the competing needs of the private and public sectors is more acute.

Conceived as a contribution to the lively and timely debate on tax reform emerging in many countries, this study examines the overall tax systems in four developing countries: Colombia, Republic of Korea, Mexico and Thailand.¹/ It analyzes the effects of taxes on the more crucial development processes, including capital formation, investment allocation and exports, and attempts to draw some general lessons from these country studies. This introduction and summary chapter is followed by three main chapters, each dealing with a separate aspect of resource allocation. Chapter II discusses tax policy and saving decisions, or the question of resource allocation over time. Chapter III deals with taxes and investment allocation across sectors. Chapter IV considers the role of taxes in trade. Each chapter also provides a set of suggestions for policy action, recommended for improving both the efficiency and equity of the tax system, without jeopardizing revenue.

This study therefore has a different focus from earlier tax policy work undertaken by the Bank. For one, it does not deal with short-term macroeconomic stabilization, a frequent subject of country economic memoranda. For another, it is not primarily concerned with tax incidence across income groups, although the more general question of tax equity is addressed. Finally, Chapter IV deals with trade taxes as one important component of the entire tax system, rather than focusing on the trade and foreign exchange regime as such.

**Summary of the Principal Findings**

The main findings are presented in the order in which they appear in the text.

**Resource Allocation over Time**

(1) A major concern emanating from direct taxation is the effect on the decisions to save and provide for the future. Under conventional rules of direct taxes, both savings and the yields generated by savings are taxable. The portion of income saved is therefore subject to heavier cumulative taxation than is the portion of income going into immediate consumption. Such tax rules thus favor current consumption over deferred consumption and create a bias against saving.

¹/ The individual case studies are available separately.

Table C - Domestic Savings and Capital Formation. 1970-80
The sample countries have generally recognized the bias and have made extensive efforts to limit the damage that would otherwise occur to domestic savings. The measures taken to alleviate the tax burden include:

(a) preferential tax rates for income arising from saving;
(b) fragmentation of the tax base for different sources of capital income, a practice that erodes the progressivity of taxes;
(c) deferrals of tax payments for certain income such as capital gains;
(d) omission of the taxes on a variety of income, particularly that arising from transfers of wealth; and
(e) reliance on indirect taxes as the primary sources of revenue, a practice that lightens the impact of direct taxes.

(2) As a result of the above measures, the tax burden falling on capital income is far less onerous than might be expected, given the high tax rates and sharp progressivity that appear in the basic income tax schedules. The legal tax rates on interest, for example, are below 15 percent in all countries except Colombia. In addition, many forms of income escape the tax net altogether. The overall tax burden on income from capital is further reduced by the existence of active underground financial markets, which are estimated to be quite large.

(3) Protection of saving incentives tends to be achieved by compromising the principle of equity among taxpayers. A sharp disparity in the tax treatment of income from labor and capital is observed in most countries, with income from labor bearing the brunt of taxation. Another form of inequity is the absence of taxes on inherited wealth and on capital gains emanating therefrom. Such inequities are not only undesirable as a matter of principle, but also threaten tax compliance and potential revenue.

(4) Both incentives and equity deteriorate in the presence of inflation, since the tax systems are inadequately insulated. Countries with low inflation (4%-6%) have resisted any form of indexation, while in countries with high inflation (25%-50%) only partial indexation is adopted. Inflation raises the disincentive to save sharply by increasing the effective tax rates on the return on savings. In low-inflation countries, effective rates can exceed legal rates by 60 percent to 70 percent, while in high-inflation the difference can be as high as 300 percent.

(5) Like taxes on personal income, corporate taxes also extract a portion of the income emanating from capital. If all investments were made through corporations and if corporate taxes were fully enforced, the combined tax liabilities falling on capital income would be substantial. In practice, however, the tax burden is reduced through a multitude of tax breaks and through partial integration between corporate and personal income taxes. Standard rules of corporate taxes, nonetheless, give rise to a bias in favor of debt and against equity financing. This bias affects saving by narrowing the range of savings instruments available.
Resource Allocation across Sectors

(1) Uniform taxation does not alter project ranking. A ranking on the basis of after-tax rates of return would be identical to that made on the basis of pre-tax or economic rates of return. However, when taxes are differentiated across sectors, with low rates for some and high rates for others, the after-tax ranking will differ from the pre-tax ranking. A project with low pre-tax return may become more attractive after taxes compared to a project with high returns and high taxes. Since private investors respond primarily to after-tax financial returns, differentiated taxation changes the pattern of private investment from that which would occur under uniform or no taxation.

In each of the sample countries, there is a wide variation in the effective tax rates on income arising from different sectors and activities. For hypothetical projects with normal characteristics, the effective tax rates have been estimated to range from 60 percent down to -300 percent. In the short run, such tax variations alter the relative profitability among projects. In the long run, after the rates of return become equalized, sectors with low taxes receive an increased share of the resources and those with high taxes a reduced share.

(2) The main source of the tax variation is the special measures designed for industrial promotion. The targets for promotion vary but include:

(a) economic functions, as with export promotion in Korea;
(b) broad industrial classifications, as in Mexico;
(c) selected subsectors, as used in Colombia in the past; and
(d) specific firms, as practiced in Thailand.

Each country employs a variety of promotional tax measures. Most are investment-based, including accelerated depreciation allowances, investment tax credits, and tax certificates or discounts expressed as a fraction of investment costs. The sample countries except Thailand have largely phased out profit-based measures, such as tax holidays and rate reduction.

(3) Beyond the impact of the promotional measures, certain tax designs also cause tax variations across sectors. The turnover tax, for instance, produces cascading effects that arbitrarily penalize firms with low vertical integration and high shares of purchased inputs. Import duties are another example: they discriminate against imports and home goods requiring imported inputs.

(4) When the tax differentials result from policy decisions, the reasons generally given for the policy involve:

(a) an inadequate capital market;
(b) a lack of investment information; and
(c) externalities.
These concerns may justify some forms of public support of limited duration. The support need not take the form of tax concessions, however, even though in practice tax concessions are chosen the most often. The weakness of tax instruments is that it is difficult to match either the specific needs of the recipients or the uncompensated social benefits with the amount of revenue foregone. Tax preferences, once granted, tend to lead to a migration of business to the preferred sectors, a pattern that increases the revenue loss over time.

**Resource Allocation across Countries**

(1) All the sample countries follow the principle of a "destination tax," under which products are taxed according to the final markets. Imports and home goods destined for domestic use are subject to an array of domestic indirect taxes. Exports, on the other hand, are exempt.

(2) In principle, the destination tax does not distinguish between imports and home goods. Whereas products may be taxed at different rates, the same products should be taxed at the same rate whether made at home or abroad. This principle is seldom followed in the sample countries. Import duties of varying rates are imposed selectively on imports, while domestic indirect taxes apply to both imports and home goods.

(3) Although the final sales of exports are generally tax-exempt, indirect taxes still affect the cost of exports in most sample countries. The reason is that these taxes and duties enter the cost of exports through taxed inputs purchased by export producers from domestic and foreign suppliers. The extent to which the costs of exports are raised by these taxes depends on the tax rates and share of purchased inputs in each export item.

(4) Import duties as in (2) above raise the prices of imports relative to home goods as seen by domestic residents. The taxes implicit in the cost of exports similarly distort the relative prices as seen by foreigners. These changes in relative prices affect the volume and composition of trade among nations. When these distortions exist, a home country's exports will fall short of the extent allowed by comparative advantage. Trading partners are similarly prevented from pursuing the fields of their respective speciality. The allocation of production across countries thus departs from the pattern consistent with the trading community's best interests.

(5) A variety of measures have been implemented in the sample countries to compensate for the effects of taxes on export costs. The primary motivation appears to be that of promoting exports rather than improving the cross-country division of production. The corrective measures thus aim at providing tax relief for exporters, rather than moving the economy closer to free trade. Korea has been particularly successful in insulating its export production from the effects of indirect taxes, but other countries have also shown progress. Thailand, however, faces the difficulty of correcting for its unwieldy business tax, a turnover tax that other countries in the sample have abandoned.
Summary of Policy Recommendations

Appearing first are some generalizations concerning the direction of policy change, independent of the particular circumstances of the sample countries. These thoughts are followed by recommendations as to specific policy changes applicable to the sample countries as a group.

General Issues

(1) The tax system should not be viewed exclusively as an instrument of short-term "demand management" involving changes in private consumption and government revenue. Just as important is the role of taxes in long-term "supply management" and resource allocation. Through its effects on relative prices and incentives, tax policy exerts a major influence on private savings and capital formation, on the allocation of investment across sectors and on the division of productive capacities among countries. This supply management perspective suggests close linkages between tax policy and the work of the Bank; both the development projects and structural adjustment supported by the Bank take place within an environment conditioned in important ways by tax policy.

(2) Existing tax systems are not simply endless revenue-generating machines waiting to be tapped. In the past, policy advice has often consisted of recommendations to increase taxes mainly to alleviate budgetary imbalances, without adequately evaluating the impact on the supply side of the economy. This practice should be avoided for two reasons. First, existing taxes may already be so prohibitive and inequitable that further increases can only lead to a shrinkage of the tax base, either through the contraction of business or through increased evasion, with little change in revenue. Second, even if revenue increases temporarily, the change may take place at the expense of potential growth, in which case future revenue will be diminished.

These considerations do not imply that taxes should not be raised. Rather, they imply that tax increases should be evaluated against the cost to the economy and the private sector. These costs are particularly high when the taxes produce large distortions in economic behavior. Furthermore, a recommendation for tax increases should include a specification of the changes to be implemented. In general a multitude of changes in the tax rules can produce the desired revenue. The recommended option, however, should be consistent with a minimum loss in efficiency and equity.

(3) Tax administration is a crucial aspect of any tax system and deserves special attention. Recommendations based on theoretical considerations should always take into account the administrative environment in which reforms will be implemented. At times special efforts may be required to improve this environment.

(4) On the basis of experience in the sample countries' and the Bank's previous work, it seems that more dialogue on tax policy between the Bank and member countries is warranted. As seen above, policy is important to Bank operations, including project work and structural adjustment efforts. Moreover, given the nature of tax policy in most countries, there are ample opportunities to improve incentives and tax equity without
jeopardizing government revenue. In the past, discussions on tax policy have too often been dominated by concern over short-term macroeconomic imbalances. As a result, the structural features of the tax systems and the climate relative to the supply side have not always been adequately considered.

**Tax Policy in the Sample Countries**

(1) **Tax Rates.** There is an emerging consensus that lower marginal tax rates are desirable as a way to preserve the incentives for work and savings and as a precondition for further changes that will improve equity among taxpayers, as indicated below. In the medium-term, lower tax rates do not necessarily produce lower revenue; the tax base may expand to compensate for the lower rates.

(2) **Tax Base.** With lower tax rates, it is possible to broaden and to consolidate the tax base without weakening incentives. Broadening and consolidating the base would be a major step toward greater simplicity and improved equity. Wealth transfers and bequests could be brought under the tax net. The disparity between capital and labor income could be reduced.

(3) **Savings.** Exempting savings from the tax base would eliminate the bias of income taxes in favor of current consumption. The decision to save would then be governed by the rates of return on investment and the individual's rate of time preference. The principle of equity would be maintained as long as gifts and bequests were taxed. In effect, annual income would be replaced by lifetime income as a measure of the ability to pay.

(4) **Indexation.** In the presence of inflation, a variety of disincentives and inequities may arise from the tax system. The best way to deal with this problem is to correct the underlying macroeconomic imbalances and bring down the rate of inflation. If rapid fiscal and monetary policy adjustments are politically infeasible, however, the second-best solution may well be to index the tax system and limit the distortions introduced by high inflation. Indexation is less desirable, compared to reducing inflation, because of the complexity involved and the feedback effects of indexation on future price changes.

(5) **Corporate Taxes.** There is a good case for restructuring corporate taxes to remove the bias against equity finance and to improve broadly-based incentives for investment. An approach instrumental to these objectives is to replace the existing tax base with a cashflow base. To implement this approach, two changes are necessary: First, the costs of investment would be written off fully in the first year. Second, the net financial inflows, consisting of borrowing and interest income in excess of debt retirement and servicing, would become taxable. These changes turn the government into a business partner, with the tax savings from the first-year writeoff representing the government's investment. Subsequent corporate taxes would be equivalent to the return on the government's contribution. Like the exemption of savings above, this form of corporate taxation would promote saving and investment by enhancing the rate of return accruing to the investors. Equity and distributional issues are best dealt with directly by the progressivity and exemption built into excise and income taxes.
(6) **Targeted Tax Preferences.** A by-product of change (5) is the elimination of tax preferences. Under such a corporate tax, the value of tax concessions and shelters would become negligible, and the political pressures for targeted incentives would gradually disappear. The investment climate would improve and project selection would not be distorted by differentiated taxes.

(7) **Tax Design.** In some countries, certain flows in tax design produce incidental, but nonetheless important, distortions in the pattern of investment. The following measures will mitigate some of the most serious problems: First, turnover taxes should be replaced by taxes with a rational base, such as the VAT or the retail sales tax. Second, in cases where the VAT is already implemented, exemption should be granted to investment goods generally, rather than restricting it to a few selected categories of equipment. The exemption of investment goods converts the VAT base from gross or net income to consumption, a change consistent with the savings exemption and the corporate cashflow tax recommended above. Third, the high and differentiated rates of import duties designed to discourage the use of certain luxury goods should be replaced by a domestic excise tax, which does not generate incidental incentives for domestic production.

(8) **Export Production.** Full tax rebates and duty drawbacks can be provided to exporters, both direct and indirect, to compensate them for the increase in the cost of purchased inputs. These compensations, coupled with a realistic exchange rate, give exporters an environment similar to that of free trade and enable them to compete effectively in the world markets. The insulation of exporters from trade and domestic taxes may not be the best option for every country, however. In the first place, the complexity implied by the relief procedure calls for the kind of administrative skills and inter-agency coordination that is not available in some countries. In the second place, the considerable resources that must be devoted to the task may not be readily available in countries already facing severe budgetary imbalance. For most countries, however, some form of this approach represents a necessary and valuable interim effort to enhance trade before a more comprehensive liberalization and rationalization of taxes and tariffs is completed.

The repertoire of reform measures is summarized in Table 1. The rows illustrate the range of issues arising from the various policy objectives. The columns show the variety of policy actions available when the overall tax system is taken into account. As is evident from the table, there are several measures for resolving any given issue. Conversely, any given measure may be used to address several issues. This multiplicity of options makes it possible to design appropriate reform packages for countries with divergent circumstances. These options also make it unnecessary to place excessive reliance on a small set of measures or a limited set of taxes. The challenge for policy-makers is to determine the combination that adequately addresses all the pressing concerns.

It is hoped that the analysis that follows will be useful to those contemplating comprehensive tax reform. As is most often the case, there are trade-offs and there is no universal agreement on what the "best" tax policy is. Nonetheless, the broad guidelines summarized above do reflect the judgment emerging from theoretical analysis and practical experience over many years in many countries.
### Table 1: Tax Reform Measures for Selected Policy Issues

<table>
<thead>
<tr>
<th>Policy Issues</th>
<th>Reform Measures</th>
<th>Tax Base</th>
<th>Tax Rate</th>
<th>Tax Rebates</th>
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<tr>
<td></td>
<td></td>
<td>Broad-</td>
<td>Rational-</td>
<td>Loophole</td>
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<td>ening</td>
<td>rationalization</td>
<td>Closing</td>
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<td>I. Efficiency</td>
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<td>A. Direct Effects</td>
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<tr>
<td>1. Relative Commodity</td>
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<tr>
<td>Price Distortion</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2. Intersectoral</td>
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<tr>
<td>Factor Returns</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intertemporal</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Consumption</td>
<td>X</td>
<td>X</td>
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<td>4. Work Efforts</td>
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<td>B. Side Effects</td>
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<td>1. Exchange Rate</td>
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<tr>
<td>Overvaluation</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2. Competitiveness</td>
<td></td>
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<tr>
<td>X</td>
<td>X</td>
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<tr>
<td>3. Credit Demand</td>
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<tr>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>4. Financial Savings</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>X</td>
<td>X</td>
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<tr>
<td>II. Equity</td>
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<tr>
<td>X</td>
<td>X</td>
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<tr>
<td>III. Revenue</td>
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<tr>
<td>X</td>
<td>X</td>
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</table>

Notes: 1. Refers to the extension of coverage to sources not covered by current taxes, such as gifts, bequests and capital gains.
2. Refers to the avoidance of cascading which occurs under turnover taxes.
3. Refers to the removal of targeted tax concessions for firms and industries.
4. As with the provision for savings exemption and the cashflow corporate tax.
5. Refers to indirect taxes.
II. SAVINGS AND INVESTMENT INCENTIVES

A major influence of tax policy arises from its effects on the savings decisions of the private sector. Taxes enter the decisions of individuals to save by changing the amount that will be available in the future in exchange for consumption foregone today. Through these decisions, taxes also influence the pool of savings available to the economy to finance production and capital formation. In developing countries, where the capacity to save is limited and the need for capital formation is eminent, the role of tax policy is of particular importance. The challenge is to enhance aggregate savings in the economy without at the same time distorting the environment surrounding individuals' decisions.

This chapter examines the interaction of tax policy and savings in the four sample countries. The first section gives the general background concerning the overall tax systems and the tax rules governing capital income. In the second section, the tax systems of the four countries are evaluated with respect to fairness and efficiency. The third section presents a few feasible policy options and discusses some general lessons that may be drawn from the experience of the sample countries.

Outline of the Tax Systems

Two features of the sample countries' tax systems are notable: (1) the share of tax revenue in national income, or the tax/GDP ratio; and (2) the relative size of direct and indirect taxes in total tax revenue. These features, which differentiate the sample countries from the more advanced market economies, provide the broad parameters within which the various tax rules operate.

Tax/GDP Ratio

This ratio corresponds to the proportion of goods and services absorbed by a government each year through taxes. To a large extent, the ratio is subject to control by the government. The overall size of the government relative to the economy may differ from the tax/GDP ratio, since government expenditures may be financed by debt and by increasing the money supply.

For the sample countries, the tax/GDP ratios have ranged from about 10 percent to almost 20 percent in recent years (see Table 2). At the high end was the Republic of Korea in 1980 (18.8%), with Colombia at the low end (10.5%) and Mexico (15.4%) in the middle. Thailand was more or less an equal distance from the low extreme as Mexico was from the high extreme. The range for this group was well below that of OECD member countries, whose tax/GDP ratios in 1980 varied from about 26 percent (Japan) to 50 percent (Sweden). The difference in tax/GDP ratios between the two groups of countries cannot be attributed to income differentials alone, as there is no systematic relationship between income and tax ratios across countries. Policy choice may have played a more important role.
Table 2: COMPARATIVE TAX STRUCTURES IN SELECTED COUNTRIES, 1975 AND 1980

(percentage of GDP)

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<td><strong>Sample Countries</strong></td>
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</tr>
<tr>
<td>Colombia</td>
<td>9.7</td>
<td>4.3</td>
<td>5.4</td>
<td>10.5</td>
<td>3.0</td>
<td>7.5</td>
<td>1,180</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>15.7</td>
<td>3.7</td>
<td>12.0</td>
<td>18.8</td>
<td>4.7</td>
<td>14.1</td>
<td>1,520</td>
</tr>
<tr>
<td>Mexico</td>
<td>11.1</td>
<td>4.8</td>
<td>6.3</td>
<td>15.4</td>
<td>6.1</td>
<td>9.3</td>
<td>2,130</td>
</tr>
<tr>
<td>Thailand</td>
<td>11.5</td>
<td>2.0</td>
<td>9.5</td>
<td>12.5</td>
<td>2.4</td>
<td>10.1</td>
<td>670</td>
</tr>
<tr>
<td><strong>OECD Countries</strong></td>
<td></td>
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</tr>
<tr>
<td>Japan</td>
<td>21.0</td>
<td>17.4</td>
<td>3.6</td>
<td>26.1</td>
<td>21.8</td>
<td>4.3</td>
<td>9,890</td>
</tr>
<tr>
<td>Sweden</td>
<td>44.1</td>
<td>33.2</td>
<td>10.9</td>
<td>49.6</td>
<td>37.5</td>
<td>12.1</td>
<td>13,520</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>35.9</td>
<td>26.8</td>
<td>9.1</td>
<td>36.1</td>
<td>25.7</td>
<td>10.4</td>
<td>7,920</td>
</tr>
<tr>
<td>United States</td>
<td>30.2</td>
<td>24.8</td>
<td>5.4</td>
<td>30.7</td>
<td>25.6</td>
<td>5.1</td>
<td>13,590</td>
</tr>
<tr>
<td>Germany, F.R.</td>
<td>35.7</td>
<td>26.2</td>
<td>9.5</td>
<td>37.4</td>
<td>27.3</td>
<td>10.1</td>
<td>11,360</td>
</tr>
</tbody>
</table>

a/ Based on consolidated general government (central and local).
b/ Inclusive of social security and property taxes.

Sources: World Bank country economic memoranda; Yearbook of Economic Statistics, Bank of Korea, Seoul, Republic of Korea; Quarterly Bulletin, Bank of Thailand, Bangkok, Thailand; revenue statistics, OECD member countries; and Industry Department calculations.

There are no definite rules for determining the appropriate level of tax/GDP ratio. Each country is distinctive with respect to the relative efficiency of the public sector, the tax system and investment opportunities. A case can be made, however, that at a relatively low-income level, very high tax/GDP ratios are particularly detrimental to private savings, since the incremental taxes siphon off much of the limited capacity to save.

**Share of Indirect Taxes**

Private savings respond not only to the tax wedge, as expressed by the tax/GDP ratio, but also to the ways in which taxes are raised. Direct taxes, as a group, tend to have a greater impact on the incentive to save than do indirect taxes, which are collected from the production and
exchange of goods and services. A given tax/GDP ratio may be accompanied by a variety of possible combinations of direct and indirect taxes, each with different implications for savings.

The shares of direct taxes in government tax revenue in the sample countries are considerably smaller than those of indirect taxes. In 1980, the share of indirect taxes ranged from just over 60 percent to 80 percent, with an average of about 72 percent (Table 3). This heavy reliance on indirect taxes as a source of revenue is related to both administrative considerations and relative political power across income classes. Indirect taxes, such as import duties and sales or value added taxes, are relatively simple to collect, whereas direct taxes based on income are generally more difficult to assess and monitor. In addition, high-income groups, which are the most adversely affected by direct taxes, tend to have a disproportionate influence on the making of tax policy.

The shares of indirect taxes in the OECD countries provide a striking comparison. Unlike the sample countries, OECD members rely primarily on direct taxes for revenue, with the shares of their indirect taxes in 1980 ranging from about a little over 16 percent (Japan and the US) to about 29 percent (UK). On average, the share of indirect taxes in the sample countries is three times as large as in the OECD countries.

<table>
<thead>
<tr>
<th>Table 3: SHARE OF INDIRECT TAXES IN TOTAL TAX REVENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>1975</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td><strong>Sample Countries</strong></td>
</tr>
<tr>
<td>Colombia                                           55.7</td>
</tr>
<tr>
<td>Republic of Korea                                  76.4</td>
</tr>
<tr>
<td>Mexico                                             56.8</td>
</tr>
<tr>
<td>Thailand                                           82.6</td>
</tr>
<tr>
<td><strong>Average</strong>                                         67.9</td>
</tr>
<tr>
<td><strong>OECD Countries</strong></td>
</tr>
<tr>
<td>Japan                                              17.1</td>
</tr>
<tr>
<td>Sweden                                             24.7</td>
</tr>
<tr>
<td>United Kingdom                                     25.3</td>
</tr>
<tr>
<td>United States                                      17.9</td>
</tr>
<tr>
<td>Germany, F.R.                                      26.6</td>
</tr>
<tr>
<td><strong>Average</strong>                                         22.3</td>
</tr>
</tbody>
</table>

Source: See Table 1.
Characteristics of Direct Taxes

Direct taxes differ from other taxes in that they recognize a taxpayer's circumstances. What defines a taxpayer's circumstances is usually income and wealth, although these measures are by no means the only possible bases for direct taxation. An alternative tax base that has received widespread attention is personal consumption, as proposed most recently in the UK by the Meade Committee. Direct taxes in all the sample countries are of the conventional income-based type and include corporate and personal income taxes.

Income is generally defined as the amount that the taxpayer can consume, over the tax period, without diminishing existing wealth or capital. The source of the income may be invested capital and/or labor. Taxes are generally collected as the income is earned or received, except for the capital gains tax, which is collected upon realization. No distinction is made in taxation between the part of income devoted to consumption and the part devoted to savings and investment.

There are several major features of a tax system that affect income from capital specifically, including: (1) coverage; (2) progressivity; (3) basis for determining profits; (4) integration of corporate and personal income taxes; and (5) indexation against the effects of inflation. The sample countries show considerable diversity in each of these areas, but a few broad patterns are discernible.

Coverage

Income accrues to individuals and corporations in a variety of forms. Wages, interest and dividends are perhaps the most common, but rents, capital gains, gifts, inheritance and services of durable goods are also parts of the overall income. Under a truly comprehensive income-based tax system, all forms of income should be subject to the same tax rules. In practice, however, administrative and political reasons have prevented uniform treatment of all income.

In the sample countries, the unevenness of the tax coverage is a common feature. Many forms of income, notably gift, inheritance and capital gains, are fully exempt in most countries. Other income, including interest, is taxed only in part, as specific percentages may be excluded from the tax base. Furthermore, tax payments for certain forms of income, such as capital gains on real assets, may be postponed indefinitely.

The different features governing selected types of income are summarized in Table 4 for the four sample countries. Korea has a relatively small number of gaps in its tax coverage. One of the few concessions made is for capital gains arising from securities, a tool for developing the stock market. In the other three countries, transfers of wealth, as through gifts and inheritance, are tax-free. In Colombia and Mexico, the tax concessions for inherited wealth are extended further. The capital gains emanating from inherited properties are also exempt. In Thailand, there was no tax on capital gains at all prior to 1983.
Progressivity

Direct taxes are usually progressive, with the marginal tax rates increasing as income rises. In the sample countries, the income tax schedules show both high rates and pronounced progressivity. The top personal income tax rates are 49 percent, 55 percent, 42 percent and 65 percent for Colombia, Korea, Mexico and Thailand, respectively. The increase in marginal rates is generally sharp at the low end of the tax base—they reach 30 percent below the equivalent of US$10,000. Corporate tax rates are also high, but are less progressive, with the top rates set at about 40 percent in most of the sample countries. Less visible is that the high rates and progressivity apply only to a few types of income, particularly wages and salaries.

By contrast, progressivity seldom applies to income from capital. The devices used to provide relief for this income include a flat withholding tax, as in Thailand and Korea, and the separation of designated forms of capital income from the overall tax base.

Table 4 shows the various tax regimes in the sample countries. Under a comprehensive and progressive tax system, the table would consist entirely of category 3. In reality, however, at least four separate tax regimes can be identified, each with a different level of tax burden. In some of the countries, in fact, a global-progressive regime does not apply at all to the taxation of capital income. Interest, the predominant form of non-wage income in the sample countries, is taxed at flat rates in all countries except Colombia, where there is limited progressivity. Dividends are also taxed at flat rates in Korea and Thailand, although in Mexico and Colombia the global-progressive regime is followed, with an allowance made for the taxes paid at the corporate level.

Deductions

Tax liabilities depend on both the tax rates and the taxable part of income. As shown above, various allowances are made to lower the tax rates applicable to capital income. Another way to hold down tax liabilities is to liberalize the allowable tax deductions and thereby limit the tax base. Business income is particularly sensitive to changes in tax deductions.

In determining business income, partnerships and corporations deduct from revenue the costs associated with materials, labor and capital. The methods of computing capital charges are often controversial, however, particularly those affecting the size of depreciation allowance and the types of interest deductions permitted. These charges vary widely and may be altered to suit policy objectives. Large and early deductions imply lower present values for tax liabilities and therefore tend to stimulate investment. Indiscriminate capital allowances, however, can give rise to abuse of the tax system, as with some tax shelters that produce large private gains for activities of little or no social value. (Examples are given in the following section.)
Table 4: TAX COVERAGE AND PROGRESSIVITY
By Type of Income

<table>
<thead>
<tr>
<th></th>
<th>Colombia</th>
<th>Republic of Korea</th>
<th>Mexico</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interests</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dividends</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Capital Gains—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Assets</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Capital Gains—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Assets</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gifts</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inheritance</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Notes: 0 = No taxes
1 = Separate tax base, flat rate
2 = Separate tax base, progressive rates
3 = Global tax base, progressive rates.

2. Ley del Impuesto sobre la Renta y su Reglamento 1984 (Mexico).
3. Taxation in Thailand.
5. Explanatory notes supplied by the Tax Bureau in each country.

Depreciation: According to the principle of income-based taxation, the costs of capital goods should be written off over the duration of their useful lives. In practice, durability is difficult to estimate, with the possibility of obsolescence further compounding the problem. Tax policy in the sample countries tends to understate durability and allows deductions greater than actual economic costs.

In Thailand, the tax rules for depreciation are relatively simple. Equipment of all types is written off in 5 years and buildings in 10 years. In Korea, the rules are similar, but a distinction is made among different types of equipment. Moreover, certain "promoted" industries are allowed to take additional deductions equal to 50 percent of normal depreciation. In Mexico, depreciation was greatly accelerated in the early 1980s in an effort to counter low investment demand. During 1983 and 1984,
three-quarters of the investment outlays could be written off in the first year. Thereafter, only 50 percent is allowed. In Colombia, annual depreciation is 40 percent in the first two years and 20 percent in the third.

**Interest**

For the purpose of determining business income, interest payments are deductible in all of the sample countries. This deductibility gives rise to an asymmetry in the treatment of debt and equity capital as dividends are not deductible and must be paid out of net income. Most of the sample countries have addressed this asymmetry by allowing dividend relief for personal income taxes, as discussed below.

In Thailand and Korea, the scope of interest deductibility is restricted to business loans. Interest payments for mortgage and other consumer loans are generally not deductible. This practice is consistent with the principle of matching the deductibility of interest with the taxability of income. Mortgage loans, for instance, do not generate any taxable income for the borrowers, the interest payments therefore cannot be deducted. This matching principle precludes a variety of tax shelters, such as the financing of tax-free activities with loans that generate deductible expenses.

**Indexation**

Most tax laws were written with a presumption of price stability, and the tax base and tax brackets are stated in nominal terms. The presence of inflation violates this presumed condition and gives rise to consequences at variance with the intent of the tax laws. Inflation magnifies nominal income, which no longer corresponds to the consumption possibilities it commanded in an earlier period. Corporate profits are distorted both by the use of historical costs in asset depreciation and by the neglect of changes in the real value of debts. The tax burdens faced by corporations depend on the durability of their assets and the proportions of debt capital, as much as on economic income.

Indexation refers to the adjustments incorporated by the tax laws to counter the effects of inflation. Three elements are essential for adequate indexation: (1) the selection of unbiased indicators of inflation, such as the consumer price index or GDP deflator; (2) changes in tax brackets for progressive tax regimes; and (3) changes in the real value of capital. The magnitude of the changes in (2) and (3) should be determined by the indicator selected in (1). With adequate indexation, the worst potential damage of inflation is averted, although the tax system becomes more complex.

In the sample countries, as in the rest of the world, indexation is treated with much skepticism, and, where adopted, the government maintains considerable discretionary control. In Thailand and Korea, virtually no indexation is used. The preferred method of dealing with inflation-induced distortions is to combat inflation itself through monetary policy. In Colombia and Mexico, the rates of inflation have been much higher than in their Asian counterparts, and the need for indexation has been greater.
The methods of indexation adopted generally provide only partial relief for inflation, however. The inflation indicators, typically designed by the government, depend on past and projected price changes and represent only a fraction of current inflation. Furthermore, adjustments for inflation are not universally granted, but are applied selectively, depending on the types of income and the institutions from which the income emanates. In Colombia, for instance, indexation of asset values applies to capital gains taxes, but not corporate taxes. In Mexico, interest income is partly indexed, but dividends are not.

Integration

An important characteristic of direct taxation is the linkage between personal and corporate income taxes. Without proper integration, there is discrimination against equity capital and in favor of debt. With interest deductions, returns on debt capital are taxed once at the personal income tax level. However, the returns on equity capital are taxed at both the corporate and personal income levels.

To provide tax relief for shareholders, a number of procedures have been proposed. The first is known as "dividend relief," under which a credit is granted against the taxes on dividends received. The second approach, referred to as "full integration," calls for the allocation of all corporate profits to the shareholders for the purpose of tax assessment. Corporate profits are taxed only once at the personal income level, irrespective of whether the profits have actually been distributed to the shareholders. Compared to the second approach, the first evidently fails to provide any linkages for retained earnings.

The sample countries have unanimously chosen the dividend relief approach. Three countries—Colombia, Korea and Thailand—have implemented the imputation method, which relates each shareholder's liability on the dividends received to the corporate tax already paid. The tax rate applicable to each shareholder is the excess of the individual's marginal rate over the corporate rate. Shareholders in low tax brackets thus receive a tax refund. Mexico follows a different method of dividend relief: corporations are allowed to deduct dividends from taxable income. This method thus places dividends on an equal footing with interest.

Investment Promotion

A prominent feature of the tax systems in the four countries is the abundance of special tax provisions designed to promote investment. The promotional measures lower the tax burden and increase the rate of return for affected firms and industries. In most countries, some form of targeting is involved, but the targets themselves vary, ranging from broad industrial branches to specific firms.

A wide variety of promotional measures has been implemented. Currently, most special rules are designed to increase the present value of the tax deductions. Included in this category are accelerated depreciation allowances, found in every country, tax credits, which are available in Korea, Colombia and Mexico, tax discounts in Colombia and tax certificates
in Mexico. Other promotional rules aim at reducing tax rates, such as tax holidays used in Thailand and special reduced tax rates in Colombia. Since variation in tax rates raises concern about taxpayer equity, rate reductions have been applied less frequently than in the past. A relatively novel method of promotion is the tax-free reserve used in Korea, an approach that allows taxes to be deducted before the investment takes place. (Chapter III provides greater detail on the nature and implications of these promotional measures.)

Incentives and Efficiency

Savings Incentives

When an income-based tax system is in effect, as is the case in each of the sample countries, a major policy concern is the resulting disincentives to saving. Saving takes place because individuals wish to provide for future consumption. The amount of savings, however, depends on the yield or rate of return. Each individual has a rate of time preference, which implies that future consumption must exceed the amount of current consumption foregone in order to make savings attractive. The income tax takes away part of the yield from savings and therefore lowers the net rate of return. For many, the after-tax rate of return falls short of the individual rates of time preference, and the amount of saving is curtailed.

The saving disincentives can also be seen without reference to the subjective rate of time preference. Consider the effects of income taxes on current savings and future consumption. The presence of an income tax means that individuals with a given target of future consumption will have to save more currently to allow for taxes. For individuals who set aside a fixed amount of savings annually, the income tax reduces the rate at which the stock of savings can grow and therefore the terminal savings.

An example is given in Table 5, which compares two tax regimes. The first is the regular income tax regime, while the second allows full deductions for savings, a feature similar to the Individual Retirement Account (IRA) in the US. Assume that savings earn an interest rate of 10 percent and that the target for fixed savings is $1,000 after 25 years, as shown in columns (1) and (3). The amount of pre-tax earnings needed each year is $22.6 under the first regime, and only $10.2 under the second, when a marginal tax rate of 30 percent is applied. When savings are deductible, the annual consumption foregone is reduced by 55 percent.

Second, consider individuals who save $100 annually. Under the regular income tax regime the terminal stock of savings is $4,427.40, whereas under the second regime it is $9,834.70, a difference of more than 120 percent.

The above example shows striking differences in the incentives produced by the deductibility of savings. With savings deductions, the effective tax rate on capital income, as long as it is saved, is zero. There is no tax wedge separating the rate of return received by savers and the rate of return arising from investment projects. If, moreover, the
Table 5: TAX EFFECTS ON SAVINGS AND CAPITAL ACCUMULATION

<table>
<thead>
<tr>
<th>Required Earnings</th>
<th>Income Tax with Exemption for Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular Income Tax Regime</td>
</tr>
<tr>
<td></td>
<td>Fixed Savings Target (1)</td>
</tr>
<tr>
<td>Required Earnings</td>
<td>22.6</td>
</tr>
<tr>
<td>Income Taxes (30%)</td>
<td>6.8</td>
</tr>
<tr>
<td>Net Savings</td>
<td>15.8</td>
</tr>
<tr>
<td>Net Compounding Rate</td>
<td>7.0</td>
</tr>
<tr>
<td>Total Savings after 25 Years</td>
<td>1,000.0</td>
</tr>
</tbody>
</table>

Sources: Industry Department staff calculations.

Financial intermediaries are efficient, the rate of return on savings in general will be very close to the rate of return on investment in the economy. In economic parlance, the marginal rate of substitution (or rate of time preference) of savers is equated to the marginal rate of transformation.

The actual income tax systems in the sample countries correspond to neither the first nor the second regime. Compared to the first regime, considerably greater incentives exist, and the effective tax rates on capital income are much lower. Compared to the second regime, however, the income taxes in the sample countries are far more onerous. Although all countries fall somewhere between the two regimes, it is not clear, without further research, which country is closest to the first or the second.

The sample countries have sought to mitigate the savings disincentives associated with the first tax regime with a variety of relief measures. First, as noted above, the most common forms of capital income—interest and dividends—are taxed at low rates. As shown in Table 6, the legal marginal rates are fixed at 15 percent, 2.5 percent and 12.5 percent in Korea, Mexico and Thailand (Row B). In Colombia, the tax rates are progressive, and the marginal rate of 30 percent is used for illustration. Second, many forms of capital income such as capital gains on real assets are not subject to annual taxation and may be delayed over a long period. Third, in most countries, transfer of capital among family members can provide significant tax relief. Fourth, in many countries, tax evasion is widespread, and a large proportion of national income escapes the tax net altogether.
Table 6: NET REAL RATES OF RETURN ON SAVINGS FROM SAMPLE COUNTRIES, 1983

<table>
<thead>
<tr>
<th>A. Nominal Interest Rates (One-Year Time Deposits)</th>
<th>Republic of Colombia</th>
<th>Republic of Korea</th>
<th>Mexico</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Marginal Tax Rate (Applicable to Interest Income)</td>
<td>18.0 (^a/)</td>
<td>15.0 ()</td>
<td>2.5 (^b/)</td>
<td>12.5 ()</td>
</tr>
<tr>
<td>C. Rate of Inflation</td>
<td>22.0 ()</td>
<td>4.0 ()</td>
<td>100.0 ()</td>
<td>6.0 ()</td>
</tr>
<tr>
<td>D. Actual Net Real Return (^c/)</td>
<td>2.6 ()</td>
<td>4.5 ()</td>
<td>-41.5 ()</td>
<td>5.4 ()</td>
</tr>
<tr>
<td>E. Net Real Return with Full Indexation (^d/)</td>
<td>6.6 ()</td>
<td>5.1 ()</td>
<td>0.0 (^e/)</td>
<td>6.1 ()</td>
</tr>
<tr>
<td>F. Real Return with No Tax on Interest (^f/)</td>
<td>8.0 ()</td>
<td>6.0 ()</td>
<td>-40.0 ()</td>
<td>7.0 ()</td>
</tr>
<tr>
<td>G. Effective Tax Rate ((1 - [D/F]))</td>
<td>67.5 ()</td>
<td>25.0 ()</td>
<td>3.7 ()</td>
<td>22.8 ()</td>
</tr>
</tbody>
</table>

\(^a/\) The marginal tax rate is derived from a tax rate of 30% applicable to global income and the 60% portion of taxable income from interest. The remainder, 40% of interest income, is regarded as a "monetary correction," or the adjustment needed to maintain the real value of deposits.

\(^b/\) The rate is obtained by multiplying the 21% tax rate applicable to interest income and the taxable fraction of interest income, which in 1983 was equal to 12% of deposits.

\(^c/\) = (1 - Tax Rate) (Nominal Return) - Inflation.

\(^d/\) = (1 - Tax Rate) (Nominal Return - Inflation).

\(^e/\) The zero real return reflects the assumption that the taxpayer may offset the loss with income from other sources.

\(^f/\) = Nominal Return - Inflation.

Source: Industry Department staff calculations.

Despite the tax concessions granted, some forms of savings are still adversely affected by inflation. Interest-bearing instruments are among the most susceptible. Consider the effective tax rates on interest...
income given on Row G, Table 6. Even with the moderate rates of inflation in Korea and Thailand (4-6%) in 1983, the effective tax rates exceeded the legal rates by 60-80 percent. In Colombia, with a 22 percent rate of inflation, the effective tax rate was nearly 300 percent above the legal rate. Such increases in tax burdens tend to encourage a shift toward real assets and inhibit savings in general.

**Corporate Taxes**

Savings decisions are also influenced by the taxation of corporate profits and business income. The yields available to savers represent a fraction of the income earned by corporations and businesses after deducting for taxes and the costs of intermediation. The greater the effective tax rate on business income, the lower will be the gross return on savings.

Under the tax systems currently implemented in the sample countries, the effective tax rates on business income depend to a large extent on the particular circumstances of each firm as well as the prevailing rate of inflation. The relevant characteristics at the firm level are: (a) the capital structure; (b) the mix of real assets; and (c) the eligibility for promotional benefits. By altering these characteristics, the managers of each firm can lower the tax burden and pass on a higher rate of return to the investors. From the perspective of the tax authorities, however, these tax influences are incidental and should be avoided; the firm's decisions concerning capital structure, asset mix and choice of investment should be governed by business risks, production efficiency and economic returns, and not by tax considerations.

First, consider the capital structure. As indicated in the previous section, corporate taxes treat debt and equity capital asymmetrically. In particular, debt capital produces tax deductions in the form of interest payments, a privilege equity capital is not entitled to. Because of the interest deductibility, firms can lower corporate tax liabilities by raising the debt-equity ratio. Moreover, the interest income received by investors is often taxed at preferential rates. Equity finance therefore represents an inferior method of fund raising. The sample countries have introduced different measures to counter the bias in favor of debt financing. Mexico allows dividend deduction in the determination of corporate profits; other countries provide dividend relief at the personal income level.

The advantages of debt finance remain, however, particularly when inflation is high and when the tax system is not adequately indexed. With inflation, corporate profits tend to be overstated, as depreciation and material costs are not adjusted to reflect the change in the price level. Under these circumstances, the deduction of interest payments helps limit the inflation-induced tax burden. Without indexation, corporate taxes allow the deduction of both the real component and the inflation adjustment contained in the nominal interest rates. Through debt finance, firms can offer higher interest rates to investors without raising the after-tax real cost of funds. Table 7 illustrates the effects of inflation and interest deduction on the net real cost of funds to corporate borrowers.
Table 7: NET REAL COST OF FUNDS FOR CORPORATE BORROWERS, * 1983, SAMPLE COUNTRIES  
(percent a year)

<table>
<thead>
<tr>
<th></th>
<th>Republic of Korea</th>
<th>Mexico</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Nominal Lending Rate a/</td>
<td>34.0</td>
<td>12.0</td>
<td>72.0</td>
</tr>
<tr>
<td>B. Net Nominal Cost of Funds b/</td>
<td>20.4</td>
<td>8.0</td>
<td>41.8</td>
</tr>
<tr>
<td>C. Rate of Inflation c/</td>
<td>22.0</td>
<td>4.0</td>
<td>100.0</td>
</tr>
<tr>
<td>D. Net Real Cost of Funds</td>
<td>-1.6</td>
<td>4.0</td>
<td>-58.2</td>
</tr>
<tr>
<td>E. Real Lending Rate d/ (A - C)</td>
<td>12.0</td>
<td>8.0</td>
<td>28.0</td>
</tr>
<tr>
<td>F. Tax Savings (A - B)</td>
<td>13.6</td>
<td>4.0</td>
<td>30.2</td>
</tr>
</tbody>
</table>

* Net Real Cost of Funds = (1 - Tax Rate) (Nominal Lending Rate) - Role of Inflation

a/ Based on a one-year commercial loan to industries.
b/ The applicable corporate tax rates are 40% Colombia, 33% Republic of Korea, 42% Mexico and 40% Thailand.
c/ Based on the annual rate of change for the nationwide consumer price index.
d/ According to the basic Fisherian Rule: Lending Rate - Inflation.

Sources: World Bank country economic memoranda and Industry Department staff calculations.

Second, consider the rules for asset depreciation. The general principle followed by the sample countries is to spread the cost of asset depreciation over the useful lives of assets. (A modern variant of this principle is to allow first-year deductions of the present value of all future depreciation allowances. See Auerbach and Jorgenson (1980)). This is the "economic depreciation" rule, which implies that the effective tax rate on business income is equal to the given legal rate. Under this rule, the gross return received by the owners and equity investors falls below the rate of return generated by the underlying project. The shortfall is equal to the effective corporate tax rate.

Apart from the tax wedge which dampens investment incentives, the economic depreciation rule involves a few operational problems. First, the durability of assets is difficult to estimate, especially when there is a
risk of technical obsolescence. Tax authorities have dealt with this issue by underestimating the durability of assets, but this practice provides varying levels of tax benefits to different industries. Second, during periods of inflation, annual depreciation allowance tends to fall short of the economic or replacement costs. The underestimation of depreciation implies an increase in the effective corporate tax rate, which further weakens investment incentives.

An alternative depreciation rule is to allow all investment costs to be written-off in the first year (the "immediate write-off" rule). With the first-year write-off, the net of tax investment outlays are lower than the costs of assets by the amount of tax savings. The funding of an investment therefore comes from two sources: (a) the investing firm providing the net of tax outlays; (b) the government providing a contribution equal to the firm's tax savings. The arrangement turns the government into a business partner; the taxes received by the government in subsequent periods represent a return to its initial contribution. An implication of this arrangement is that the rate of return received by the owners and equity investors is the same as the rate of return from the underlying project. (The effective corporate tax rate implied by this rule is zero, as shown in the section "Variation in the Effective Tax Rates" in Chapter III.) The immediate write-off rule for asset depreciation is therefore fully consistent with the savings exemption rule discussed in the last section. Both rules strengthen savings incentives by removing the taxes that distort individuals' intertemporal consumption.

Third, consider the tax concessions often granted to selected firms and industries. The concessions take on a variety of forms, including tax exemptions and liberal allowances that render the promoted firms virtually free of taxes. Chapter III below assesses the implications of these practices on intersectoral investment allocation. The issue to be noted here is the tax shelters that arise in a setting in which corporate taxes are high, interest payments are deductible and some companies are not taxed. In this setting, a firm facing a 40 percent corporate tax has the incentives to borrow and invest in promoted firms until its interest deductions have exhausted its taxable income. If the market lending rate is 20 percent, the after tax costs of funds to the firm is only 12 percent. The firm can make a profit by borrowing and relending the funds to any companies that offer higher than 12 percent tax-free return.

**Equity**

An equitable tax burden among taxpayers is not only important as a matter of principle, but has major revenue implications. A tax system perceived as inequitable encourages evasion and loses its full revenue potential. Over time, the shortfalls in revenue may become significant, making it necessary to raise taxes and diminish the incentives to work and save. Tax equity encourages compliance and plays an important maintenance role.

In the sample countries, it appears that a number of tax rules conflict with the principle of equity. Although the tax rules vary from one country to another, the inequities discussed below are nonetheless
observed to some degree in all countries. The first source of inequity is the tax exemption granted to the transfer of capital in the form of gifts and inheritance. The second is the disparity in the tax treatment of interest income, on the one hand, and labor income on the other. The third source of inequity arises from inflation, and involves the distribution of the tax burdens between debtors and creditors.

The exemption of transfers of wealth from taxes is contrary to both horizontal and vertical equity. Horizontal equity is violated because the recipient of the gifts and inheritance pays no taxes at all, while a worker earning the same amount in wages is subject to progressive taxation. Vertical equity requires that the rich pay an equal or higher percentage of their income in taxes as compared to the poor. This requirement can hardly be fulfilled in a tax system that allows the beneficiaries of great wealth to escape taxation altogether. The breach of equity might be tolerated or at least understood if a serious loss of efficiency or incentives were at stake. In fact, little is gained by foregoing taxes on transfers of wealth. Entrepreneurs are unlikely to hold back their savings and investment even if the resulting wealth were to be taxed upon their death.

The concessions normally granted for interest and other forms of capital income are also inequitable. Salaries and wages bear comparatively larger tax burdens under the progressive income tax. The tax differentials might be used deliberately as an instrument to counter savings disincentives inherent in income-based taxation. However, the protection of savings could be achieved in less discriminatory ways. The tax rates, for instance, might be lowered and made equal across different sources of income. Another way to enhance incentives is to allow deductions, within specified limits, for savings and investment.

Another dimension of tax inequity is the relative tax burdens of creditors, on the one hand, and debtors, on the other, under inflationary conditions. As shown above, when indexation is not complete, the taxable base of interest income tends to be overstated by inflation. The adjustment for the falling real value of the principle is treated as income, and thus the effective tax rates of creditors rise with inflation. By contrast, debtors are allowed to deduct nominal interest payments in full. The interest payments under inflation exceed the real cost of funds. Moreover, the decline in the real value of debt is not taxable. The enlarged deductions and understated income lower the debtors' effective tax rate. Inflation thus shifts the tax burden from debtors to creditors and encourages borrowing.

Although fairness is an issue in all the sample countries, the nature and degree of inequity vary from one to another. In Korea, transfers of wealth are taxed, but the amount involved is not consolidated with global income. In Colombia, the tax treatment of interest and dividends is not as sharply differentiated from labor income as in other countries. The inequity that emanates from inflation is, of course, more pronounced in high-inflation countries—Colombia and Mexico—than in Korea and Thailand, where inflation is moderate.
Policy Implications

A few lessons may be drawn from the experiences considered so far. To the extent that savings and domestic resource mobilization represent a policy concern, these lessons should be of interest to the authorities in the sample countries and to Bank staff. Moreover, to the extent that many characteristics of the tax systems are widely shared among developing countries, the lessons here should be of interest to a wider audience.

The general lessons that arise from this overview include the following. First, in most developing countries, the existing tax systems do not necessarily represent a neutral or equitable mechanism for raising revenue. An important distortion inherent in income-based taxes is the discrimination against savings. The inequities among taxpayers arise from tax preferences and the omission of selected income streams from the tax base. The major challenge for tax authorities is to determine non-discriminatory ways, appropriate to each social and cultural environment, to foster economic efficiency. Second, no change in tax revenue should be attempted without considering the method for achieving the change. An increase in revenue, for instance, may be obtained by introducing a surcharge on selected taxes, an overall tax hike, or an entirely new tax. Depending on the existing tax structure, the economic costs associated with each measure vary significantly. In the past, the Bank has often recommended tax increases to redress short-term macroeconomic imbalances without identifying the appropriate tax instrument or the implications in terms of fairness and economic efficiency. Third, in most countries equity among taxpayers and economic efficiency could be improved at the same time. Such opportunity should encourage Bank staff to take a closer look at the tax systems in the countries they work with.

The nature of changes recommended for the tax systems in the sample countries is as follows:

(1) Tax Rates. There is a broad consensus among tax analysts today that lowering the overall and marginal income tax rates is desirable. Lower tax rates imply greater incentives to work and to save. Lower rates are also conducive to improved tax equity, as tax preferences and tax shelters become less valuable. At the same time, lower tax rates do not necessarily mean less revenue, since more sources of income may be brought under the tax net. In fact, many believe that, as production grows in response, lower tax rates can produce more revenue.

(2) Tax Base. For the sake of equity and simplicity, it is essential to broaden and consolidate the income tax base. Gifts, bequests and capital gains should no longer be tax-exempt. Capital and labor income should not be subject to two separate and sharply differentiated tax regimes. While reform of these disparities may enhance revenue and heighten disincentives, both outcomes may be averted by lowering the tax rates, as indicated in (1) above.
Savings. Lower tax rates make it possible to expand the tax base with no loss of incentives. In turn, an expanded tax base allows part of the currently taxable income to be deleted with no loss of equity. The part of income that should be deleted is savings and investment, as they are resources for future use. The exemption of savings, as shown above, removes the distortions against future consumption. At first sight, this measure may appear unfair, since the rich can save much more than the poor, and therefore a higher fraction of the income of the poor appears to be subject to taxation. However, that impression is false. With taxes on gifts and bequests, in fact, all the income of the rich is ultimately subject to taxation; the savings exemption is nothing more than a deferral. Over an individual's lifetime, the entire stream of income is covered by taxes whether or not it is saved.

Indexation. As shown above, inflation is a major cause of tax distortions and inequities, unless the tax system is properly insulated. Adequate indexation involves (a) objective determination of inflation indicators; (b) universal application of the same adjustment principle; (c) full protection of the capital value; and (d) changes in tax brackets if the rates are progressive.

Tax Mix. To a large extent, attempts to protect savings and investment incentives through tax preferences and omissions have been possible because direct taxes are not used as the main source of revenue. Rather, most revenue is derived from indirect taxes. If the share of direct taxes was increased substantially without the structural changes indicated above, the existing disincentives and inequities would be greatly heightened, with grave consequences for revenue and tax compliance. If, on the other hand, the small shares of direct taxes were reduced further, the sample countries would move closer to consumption-based taxation. Savings distortions would thus be further lightened, although the other issues associated with indirect taxes would still have to be addressed.

Indirect Taxes. As with direct taxes, indirect taxes also have important implications for efficiency and equity. Chapter IV of this study shows the influences of indirect taxes on trade flows and the allocation of resources across countries. In most countries, indirect taxes are permitted to alter the comparative costs of exports and inhibit the gains from trade. If indirect taxes are to remain the primary source of revenue, a variety of changes as discussed in Chapter IV should be undertaken.

Corporate Income Tax. The profit-based corporate taxes that exist today raise two important issues: First, they create a bias in favor of debt financing and thereby inhibit the growth of generally underdeveloped equity markets. Second, the high rates of these corporate taxes have generated intense political pressure calling for special tax relief and targeted promotion.
In all of the sample countries, a large variety of tax concessions is available to selected firms and industries. The implications of this practice on the incentive signals and on the pattern of investment are the subject of the following Chapter.

The tax authorities can avoid these problems, however, without eliminating corporate taxation altogether. One approach is to replace the profit base of existing taxes with a cashflow base. To implement this approach, two changes must be made to the current practice. First, capital expenditures would be fully written off in the first year, as are current expenses. Second, borrowing and interest receipts net of repayments and interest expenses would become taxable. The new tax base would therefore consist of the net inflows of non-equity transactions. As with current taxes, interest payments would be deductible, but unlike current taxes, the amount borrowed in excess of investment would be subject to tax.

Compared to existing corporate taxes, this alternative offers several advantages. First, there is no longer a bias in favor of debt financing. Firms would choose a capital structure on the basis of relative costs and risks, and not for tax reasons. Second, the effective tax rates for corporations would be lower and more uniform. The first-year write-off provision would imply that the government takes on the role of a partner, with its share in business equivalent to the amount of tax savings arising from the write-off. The subsequent tax liabilities might be regarded as a return to the government's contribution. Third, the liquidity shortage that often occurs under the current taxes would no longer be a problem. The tax liability for each firm, according to this alternative approach, would be a fraction of the cash available.
III. DIFFERENTIAL TAXATION ACROSS SECTORS

Capital income arises from a variety of sources and takes on a variety of forms. The tax system interacts with each stream of income in a distinctive fashion. Farm income, for instance, is often exempt from taxes, whereas business income arising from the corporate sector is subject to both corporate and personal income taxes. The proportion of income extracted as taxes thus varies, depending on the activity producing the income. The tax system can also enhance the income from certain activities, instead of diminishing it. Import duties, for instance, because they increase the prices of imported products, increase the profits of domestic producers. The net effect of the taxes on different income streams is rather uneven, depending on both the interactions of the various taxes and income.

The impact of differential taxation is illustrated below in the context of project selection. Projects A, B and C are associated with different industries but involve comparable capital costs and project duration. Assume for illustrative purposes a setting in which there are no externalities and no price distortions, so that the economic rates of return for the three projects as given in Table 8 are the same as the pre-tax rates of return. (A later section on industrial promotion will deal with the more realistic case involving externalities.) Assume also an initial uniform income tax of 50 percent on all projects, which leaves the private after-tax rates of return as shown in Row 2a.

Now consider a differentiated tax regime that provides a tax concession for project B and tariff protection for the output of project C. Project A still has an income tax of 50 percent. Because of the tax concession, project B enjoys a lower income tax rate of 10 percent. Project C benefits from increased revenue as a result of the protection, although it still faces the regular 50 percent income tax rate. The resulting after-tax ranking of the rates of return, as shown in Row 2b, change substantially from those under a uniform tax regime, as shown in Row 2a.

Does Differential Taxation Matter?

Some implications of the tax system may be drawn from the illustration above. First, the taxes, whether uniform or differentiated, create a wedge between the economic rates of return and the private after-tax rates of return associated with projects. The resulting lower after-tax returns will play an important role in private savings decisions as discussed in Chapter II. Second, the differentiated tax regime changes the relative attractiveness of various projects as seen by private investors. On the basis of economic returns, the projects would be ranked A, B and C in descending order, a ranking that remains unchanged under a uniform tax regime. Under the differentiated system, however, the ranking becomes C, B and A, precisely the reverse order.
Table 8: AN ILLUSTRATION OF DIFFERENTIAL TAXATION

<table>
<thead>
<tr>
<th></th>
<th>Project A</th>
<th>Project B</th>
<th>Project C</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Economic Rate of Return</td>
<td>20.0</td>
<td>15.0</td>
<td>10.0</td>
</tr>
<tr>
<td>(2) Private Rate of Return</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Uniform Taxation a/</td>
<td>11.0</td>
<td>8.1</td>
<td>5.4</td>
</tr>
<tr>
<td>(50% Tax)</td>
<td></td>
<td>(50% Tax)</td>
<td>(50% Tax)</td>
</tr>
<tr>
<td>(b) Differential Taxation b/</td>
<td>11.0</td>
<td>13.8</td>
<td>20.1</td>
</tr>
<tr>
<td>(50% Tax)</td>
<td></td>
<td>(10% Tax)</td>
<td>(50% Tax and 20% Tariff)</td>
</tr>
</tbody>
</table>

a/ The 50% income tax rate is applied to all projects; there is no tariff.

b/ The 50% income tax rate applies to projects A and C, 10% to project B; there is a 20% tariff for project C.

Notes: The following assumption underlie the calculations:

(1) 10 years of productive life for all projects.
(2) 100% equity financing.
(3) 50% tax rate with actual economic depreciation, unless otherwise stated.
(4) No externalities and price distortions, except for the tariff for project C.
(5) The cash flows for the three projects under the differentiated tax regime are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Project A</th>
<th>Project B</th>
<th>Project C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>114.0</td>
<td>110.0</td>
<td>128.0</td>
</tr>
<tr>
<td>Expenses</td>
<td>90.0</td>
<td>90.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Depreciation</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Tax Base</td>
<td>14.0</td>
<td>10.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Taxes</td>
<td>7.0</td>
<td>1.0</td>
<td>14.0</td>
</tr>
<tr>
<td>After Tax Income</td>
<td>7.0</td>
<td>9.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Private Cash Flows</td>
<td>17.0</td>
<td>19.0</td>
<td>24.0</td>
</tr>
</tbody>
</table>

Source: Industry Department.
The ranking of projects by the private sector indicates the pattern and direction of investment in a market-oriented economy. Although a variety of non-profit and charitable institutions pursue other objectives, most enterprises strive to achieve the maximum after-tax return on the capital at their disposal. The projects with greater net returns will be preferred to those with lower ones. However, even where investors are guided by net private returns, as opposed to economic or social returns, the ranking of projects would be immaterial if there were adequate resources to finance all the projects. In the real world, however, and particularly in developing countries, resource constraints are always present, and only a fraction of available projects can be financed. Given this reality, projects that rank high on the basis of net returns are more likely to survive the selection process.

In an economy in which resources are limited and investors are guided by private after-tax returns, differential taxation is a cause for concern. As shown above, under a system of differential taxation, the ranking of projects on the basis of after-tax returns is generally different from that based on economic returns. Investors who are guided by tax-induced incentive signals do not necessarily act in society's best interest. The differentiated tax system has indeed broken the links between the benefits to individuals and those to society. Adam Smith's "Invisible Hand" is in effect tied, and the guiding hands are those that wrote the tax code. (Note, however, that the underlying assumption here rules out externalities. This assumption will be removed in the next section.)

The discrepancy between private and social interests is shown in the examples in Table 7. Suppose that because of resource constraint only two of the three projects may be selected. Society as a whole benefits the most when projects A and B are chosen, with the yields on capital averaging 17.5 percent. With no taxes or with uniform taxation, the Invisible Hand would guide investors to the appropriate choice. Under differential taxation, however, investors would choose projects B and C, which produce the highest after-tax private returns, but relatively low social returns--12.5 percent as opposed to the 17.5 percent obtainable from A and B.

Sources of Tax Differentiation

There are two primary causes of the variation in tax burdens: (1) the flaws in the design of certain taxes, which imply random distortions across sectors; and (2) industrial policy that uses tax concessions as important promotional instruments. These two sources account for most of the tax differentiation and associated consequences in the sample countries.

Tax Design

Some tax measures affect different projects or activities unequally. The biases may be attributable to a variety of flaws in tax design, including misspecification of the tax base, overstatement of depreciation, and discrimination in the area of productive assets, as
between imports and home products. Three tax measures provide good illustrations: (1) the investment tax credit; (2) the turnover tax; and (3) import duties.

**Investment Tax Credit.** Investment tax credit is a deduction against a firm's tax liabilities; the amount is normally stated as a fraction of the investment expenditures that qualify. The after-tax costs of investment for the firm receiving the credit are lowered proportionately. In most cases, the full costs of investment may be written off over the tax life of the assets, including the part that has been accounted for by the tax credit. In effect, the tax credit raises the rate of return to private investors by both lowering the investment costs and increasing the after-tax cash flow.

The availability of a tax credit changes the nature of private project selection considerably. Among all potential projects, those eligible for the tax credit become far more attractive than do projects that would contribute similarly to the economy, but without the benefits of tax credit. Even among the smaller set of projects eligible for tax credits there is a change in ranking in favor of relatively short-lived assets and firms with adequate income from other sources. In some cases, the investment tax credit may lead private investors to accept projects that represent net losses to society and would be rejected in the absence of the tax credit, as illustrated in Table 9.

The hypothetical project is relatively short-lived, with a useful life of 3 years and a 33 percent rate of annual depreciation. This rate of depreciation gives rise to a tax loss, which may be used against other sources of income. These tax savings would not be available if the net-of-tax costs (800 units of domestic currency) were used as the basis of depreciation, rather than the full costs (1,000 units).

**Turnover Tax.** The turnover tax is an indirect tax based on sales values and normally paid by the sellers. In most developing countries, it is collected from the relatively few large- and medium-scale producers and not from retail establishments, which tend to be more numerous and widely dispersed. Except for Thailand, the sample countries have replaced the turnover tax with the VAT, for the reasons given below.

To a producer, the turnover tax affects both the revenue and the costs of production. First, a fraction of the proceeds from sales is absorbed in the form of a sales tax. Second, the costs of purchased inputs are raised in varying proportions by the taxes paid by the suppliers. Part of these tax-induced costs may be passed on to the consumers, if the demand
Table 9: TAX CREDIT AND PROJECT EVALUATION  
(unit of domestic currency at constant prices)

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Gross Cash Flow a/</td>
<td>-1,000</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>(2) Tax Credit</td>
<td>200</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(3) Depreciation</td>
<td>333</td>
<td>333</td>
<td>333</td>
<td></td>
</tr>
<tr>
<td>(4) Taxable Income</td>
<td>-33</td>
<td>-33</td>
<td>-33</td>
<td></td>
</tr>
<tr>
<td>(5) Taxes</td>
<td>-11</td>
<td>-11</td>
<td>-11</td>
<td></td>
</tr>
<tr>
<td>(6) Private Cash Flow b/</td>
<td>-800</td>
<td>311</td>
<td>311</td>
<td>311</td>
</tr>
<tr>
<td>(7) Private Cash Flow without Tax Credit c/</td>
<td>-1,000</td>
<td>311</td>
<td>311</td>
<td>311</td>
</tr>
</tbody>
</table>

Note: The following assumptions underlie the calculations:

(i) Four years of useful life for capital goods  
(ii) 20% tax credit  
(iii) 33% corporate tax rate  
(iv) 100% equity financing for the project.

a/ For the economy as a whole, the internal rate of return is -5% and the net present value at a 6% discount rate is -198.

b/ The private internal rate of return is 8%; the net present value at a 6% discount rate is 31.

c/ The private internal rate of return is -3%; the net present value at 6% discount rate is -169.

Source: Industry Department.
is not very responsive to price changes and if competition among suppliers is not intense. To the extent the tax burden cannot be passed on to consumers, the producer's income from the investment suffers. (An important effect of the turnover tax relates to the country's comparative cost advantage, a subject explored further in Chapter IV.)

The tax-induced costs vary from one producer to another, depending on a variety of firm and production characteristics. For example, the tax burden increases with the proportion of purchased inputs. Firms with low input requirements or with high vertical integration pay less in turnover taxes. Among firms with the same level of purchased inputs, the tax burden varies with the number of processing steps required in input production. Since the turnover tax involves some cascading or multiple taxation, the tax-induced costs rise with the number of processing steps.

The turnover tax imposes a greater burden on the modern sectors, such as manufacturing, than on the traditional ones. In the former, the ratios of purchased inputs tend to be large and the value-added small compared to revenue. Within the manufacturing sector itself, the impact of the turnover tax also varies greatly for similar reasons. An illustration is given in Table 10, which shows a range in the ratio of the turnover tax to value added for different manufacturing subsectors in Thailand of about 12 percent to just over 72 percent (see the last column).

Import Duties. As implemented currently in the sample countries, import duties may be regarded as permanent surcharges on imported goods. As with domestic goods, imports are subject to a variety of domestic indirect taxes, including VAT and the special excise tax. However, unlike domestic goods, imports are subject to further duty charges. In some countries, the base for calculating the import duty is the tax-augmented CIF price.

Import duties create two levels of tax differentiation. First, they discriminate against imports, whose relative prices rise in the home market as a result of the duties. Second, there are wide variations in the nominal duty rates, which add further differentiation among imports. The dispersion in duty rates has well-known implications for the effective protection of domestic industries.

Industrial Promotion

Although tax differentiation may arise inadvertently and haphazardly, as described above, it may also be the result of deliberate policy. As part of national development planning, a number of firms or industries may be selected for special promotion and may be subject to special tax rules. These promotional practices mean that the tax burden across sectors will be uneven irrespective of the instruments used.

Broadly conceived, industrial promotion involves two decisions: (1) the choice of firms or industries, and (2) the choice of promotional instruments. The choice of industries to be promoted is country-specific,
Table 10: TURNOVER TAX ON SALES OF OUTPUT IN THAILAND \(^{a/}\)
BY INDUSTRIAL BRANCH, 1981

<table>
<thead>
<tr>
<th></th>
<th>(1) Turnover Value</th>
<th>(2) Revenue Tax Added</th>
<th>(3) Value Added</th>
<th>(2)/(1)</th>
<th>(2)/(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Products and Commodities</td>
<td>14,675</td>
<td>456</td>
<td>2,740</td>
<td>3.1</td>
<td>16.6</td>
</tr>
<tr>
<td>Minerals, Metals and Ceramics</td>
<td>21,431</td>
<td>823</td>
<td>4,366</td>
<td>3.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Chemicals and Chemical Products</td>
<td>16,072</td>
<td>4,941</td>
<td>6,806</td>
<td>30.7</td>
<td>72.6</td>
</tr>
<tr>
<td>Mechanical and Electrical Equipment</td>
<td>12,924</td>
<td>1,868</td>
<td>4,637</td>
<td>14.5</td>
<td>40.3</td>
</tr>
<tr>
<td>Other Products</td>
<td>20,381</td>
<td>626</td>
<td>4,784</td>
<td>3.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Services</td>
<td>9,201</td>
<td>184</td>
<td>1,534</td>
<td>1.9</td>
<td>12.0</td>
</tr>
</tbody>
</table>

\(^{a/}\) The data are based on a survey conducted by the Board of Investment in 1982. More than 500 firms participated.

\(^{b/}\) The interest component of value added is estimated using a 10% rate of interest and the year-end net value of debt.

Sources: Investment Promotion 1982, Board of Investment, Thailand; and Industry Department staff calculations.

depending on resource endowments and level of development. Promotional instruments may involve a variety of measures, including technical assistance, provision of infrastructure and access to credit. In practice, however, the use of tax concessions as an instrument for industrial promotion is so pervasive that it is difficult to disregard industrial promotion in an assessment of tax policy.

Reasons for Industrial Promotion

Various reasons have been advanced to justify the practice of selective industrial promotion, including a constrained financial market, inadequate information and externalities. As to the financial markets in developing countries, it has been argued that new industries, particularly those undertaken by upstart entrepreneurs, are unable to attract adequate financing. Promotional measures would allow these industries to retain...
more of their internally generated funds. As to imperfect information, it is said to affect the appraisal of unfamiliar projects: investors may rely on unduly conservative assumptions and rule out economically feasible projects. Incentive measures would help offset this bias in project evaluation. The third, and possibly the justification cited most often, is the existence of externalities. The growth of manufacturing subsectors, for instance, is seen as a training ground for labor. The benefits of such training, according to this view, extend beyond individual firms and accrue to society as a whole. Those contributing to the generation of external benefits are deemed eligible for public support through promotional measures.

While public support may justifiably be granted for some activities, it should be provided with adequate precaution. First, for upstart industries with inadequate experience, the support should be confined to the initial period when the need is greatest. Over time, the assistance becomes less necessary and may encourage dependency. Second, for industries with externalities, the support should be kept in proportion to the uncompensated social benefits. Although the methodologies for measuring social benefits are relatively well-developed, as with those employed in evaluating public investment projects, such measurement is seldom undertaken in private projects that require public assistance.

A broader question than the duration and amount of public support for private industries is the choice of instrument. In principle, the instrument should vary from one industry to another depending on its specific needs. Mining industries, for instance, may require roads and railroads for transporting their products, while manufacturing industries may benefit more from technical training of the work force. In practice, however, the optimal instrument is seldom considered; instead, tax incentives are chosen for reasons of convenience. This practice is particularly unfortunate, given that tax concessions are rarely suited for particular industrial needs. Moreover, once they are granted, the resulting revenue loss has a tendency to snowball until adequate political will is mustered to change the tax law.

**Industrial Promotion in the Sample Countries**

**Colombia.** Active promotion was undertaken in Colombia in the 1950s, and some of the consequences are still visible today. A blanket tax exemption was granted to Paz de Rio, a national steel mill, in 1954 for a duration of 20 years. Initial production costs were high, while the quality of output was inferior to competing imports. Insufficient demand led to further government support, including protective trade barriers and tax concessions for firms purchasing from Paz de Rio in large quantities. In the 1960s, industrial policy called for further promotion, this time for the automotive industries. Once again, tax instruments were used: the firms involved were exempted from all income taxes. The concessions were to be terminated when cumulative profits had reached 150 percent of the start-up capital. As it turned out, the industry enjoyed 14 years of these privileges.
Both the steel and automobile industries are still (1984) in operation, although on occasion they have experienced acute financial difficulties. The government continues to provide support, primarily in the form of import controls and limited tax reductions.

In this case, the tax concessions contributed to the survival of the industries promoted. However, the costs to the economy have included not only the revenue foregone, but also the resources tied up in the industries. In the absence of tax concessions, or indeed the entire promotional effort, a different pattern of investment would have resulted and industries with greater comparative advantage would have received a larger share of the resources. The trade restrictions that followed also limited the benefits the country could have derived from international transactions.

Current tax policy in Colombia shows substantial improvement. There is much greater concern for tax neutrality across sectors. The major tax concessions available today include reduced income taxes for exporters and duty relief for imported capital goods. The scope of coverage has thus been enlarged considerably, while the extent of the concessions has been restrained.

Korea. The Korean approach to selective promotion is to base eligibility on the economic functions performed by each firm, rather than on product types or industrial subsectors. The primary functions supported by tax concessions have been export activities and technology upgrading. In addition, saving and investment generally are given preferences in the tax system. Industrial promotion in the Republic of Korea is thus broadly based and involves little sectoral discrimination.

This pattern is, however, relatively new. Until the 1980s, there was a greater degree of targeting. In particular, the major promotional efforts were undertaken in the 1970s to direct resources toward designated "key industries," including: iron and steel; machinery; electronics; shipbuilding; aviation; and naphtha cracking. The tax concessions provided to these industries included income tax and duty exemptions and rebates for domestic indirect taxes on purchased inputs.

In recent years, greater restraint has been placed on promotional tax measures for both key industries and others. The main forms of direct tax incentives are (1) tax-free reserves against investment and contingent losses; and (2) special depreciation allowances. Both are generally applicable. Tax exemptions are now used rarely. Indirect tax relief includes (1) zero rating for exports and capital goods; and (2) duty rebates for inputs incorporated into exports. (The principles of indirect tax relief are discussed further in Chapter IV.)

Mexico. Since 1979, Mexico has implemented a far-reaching program of tax incentives. The objectives are to restructure the industrial sector and to promote employment in industries. The restructuring efforts have been aimed at shifting investment to subsectors with relatively high skill requirements and to regions with low population density. The industries are divided into two groups, as follows: Priority I, which
includes agro-business, iron and steel, cement, pharmaceuticals and capital goods; and Priority II, which includes intermediate materials and consumer goods.

Each region is also assigned a priority level: Zone I—industrial ports, export zones and medium-size cities; Zone II—selected states; and Zone III—Mexico City and the surrounding area. Priority I industries located in Zone I are the highest priority. Here the tax concessions amount to 20 percent of the combined investment and wage bills and may well exceed the tax liabilities. The concessions available for other sector-region combinations represent declining proportions of the investment and wage bills. Priority II industries located in Mexico City, for instance, are entitled to no tax incentives. The production of capital goods receives special consideration, however, and regardless of location, a tax credit equal to 15 percent of purchased inputs is granted.

Such extensive and liberal tax concessions clearly involve high fiscal costs in terms of revenue foregone, although the precise magnitude is difficult to estimate. These costs are made up for in part by Mexico's revenue from Mexico's oil export tax. How well the objectives are achieved remains to be seen.

Thailand. In principle, industrial promotion in Thailand is aimed at marginal projects, those that might not be undertaken in the absence of tax incentives. An important target group is foreign investors in search of a host country in the region. The basis for selection relates to firm and project characteristics, rather than functional or industrial classifications. In recent years, the marginal-project approach has been supplemented by an effort to move in the directions set out in the national development plan.

The promotional benefits available to selected firms vary depending on the size of the investment and the types of tax concessions granted. The standard concessions available to most firms are tax holidays of from five to eight years. If further conditions are met, indirect tax exemptions are granted. A particularly attractive package of concessions involves the combination of a high duty on competing imports and tax holidays on the resulting profits.

Such promotional practices have important implications in terms of resource allocation. First, since the promoted firms enjoy special advantages over others, their share of the scarce investment funds allocated by the banks has tended to rise, compared to what would happen under a situation of no incentives. Second, the concessions granted may alter project selection. In particular, the projects may be primarily unproductive ones that investors will undertake only when promotion is granted. When this type of projects attracts large resources from domestic banks, the opportunity costs that arise from the exclusion of more productive activities may be considerable.
Variation in Effective Tax Rates

The range of tax variation, whether caused by flaws in tax design or by selective promotion, is illustrated in Table 11. The columns give the costs of capital and the effective tax rates implied by the various tax measures. The characteristics of a hypothetical equity-financed project are given in the same Table, as are the assumptions concerning tax provisions. The rows show the effects of alternative tax measures.

Under the baseline case, the costs of capital and the effective tax rates refer to those faced by firms operating under normal tax provisions. The changes caused by the incentive measures are given in the six rows below. Negative effective tax rates indicate the presence of cross-subsidization whereby the deductions made possible by the incentive measures give rise to tax savings on income from other sources. Such savings raise the financial rate of return for the project above its true contribution to the economy.

The variations in effective tax rates can be substantial. A firm subject to the normal tax system and indirect taxes on capital goods faces a 60 percent effective tax rate on the income generated from the investment. By contrast, a promoted firm enjoying tax holidays and indirect tax exemption may gain substantially from tax savings on other income sources, as shown by the large negative effective tax rates. Other tax regimes result in effective tax rates that lie between these two extremes.

Of particular interest are cases 6 and 7, which may serve as the benchmark tax regimes. In case 6, where a full and immediate investment write-off is granted, the implied effective tax rate is zero; there is neither a tax nor a subsidy. In case 7, where the rate of depreciation under the tax law corresponds to the true rate of decline in the productiveness of the underlying assets, the effective tax rate is 30 percent, exactly the legal tax rate. Through a combination of tax measures in cases 6 and 7, effective tax rates ranging from zero to the legal rates may be achieved. For instance, a 50 percent immediate investment write-off, with the remaining cost written off over the asset's useful life, creates a tax regime in which the effective tax rate is 15 percent, or half the legal rate.

Policy Implications

In the sample countries, as in others, the tax systems have uneven impacts across the set of potential investment projects in the economy. The tax differentials influence the nature of project selection in the short run and the pattern of resource allocation in the long run. Differential taxation may occur inadvertently as a result of the biases inherent in some tax measures; in this event, the resulting pattern of incentives is random and may lead to inefficient use of resources. For the most part, however, the taxes are deliberately differentiated to produce a desired pattern of investment allocation. Although the outcome of the policy may or may not conform to expectations, certain side effects
Table 11: COSTS OF CAPITAL UNDER ALTERNATIVE TAX REGIMES (percent)

<table>
<thead>
<tr>
<th>Tax Regimes</th>
<th>No Indirect Taxes on Capital Goods</th>
<th>27% Indirect Taxes on Capital Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CC</td>
<td>ETR</td>
</tr>
<tr>
<td>1. Baseline</td>
<td>28.9</td>
<td>28.1</td>
</tr>
<tr>
<td>2. Five-Year Tax Holidays</td>
<td>21.0</td>
<td>-240.0</td>
</tr>
<tr>
<td>3. Indirect Tax Exemption</td>
<td>28.9</td>
<td>28.1</td>
</tr>
<tr>
<td>4. Accelerated Depreciation</td>
<td>21.4</td>
<td>-351.1</td>
</tr>
<tr>
<td>Allowance (50%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Tax Credit (10%)</td>
<td>24.5</td>
<td>-42.2</td>
</tr>
<tr>
<td>6. Investment Write-off (100%)</td>
<td>26.4</td>
<td>0.0</td>
</tr>
<tr>
<td>7. Economic Depreciation</td>
<td>29.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>

Note: CC—Cost of Capital; ETR—Effective Corporate Tax Rate. The latter is computed from the relation:

$$\text{ETR} = \frac{\text{CC} - \text{D} - \text{R}}{\text{CC} - \text{D}}$$

where D = Rate of economic depreciation and 
R = Net real cost of funds.

The following assumptions underlie the calculations:

**General:**
- 30% corporate tax rate
- 6.4% net real costs of funds
- Exponential asset depreciation at 20% annual rate
- 10-year straight-line depreciation allowance for tax purposes, except in case 7.

**Specific:**
- Case 1 — Normal tax provisions are assumed, with no incentive measures.
- Case 2 — Corporate tax rate is set at zero for 5 years, with normal depreciation allowances.
- Case 4 — Annual depreciation allowance is raised by 50%.
- Case 5 — 10% of investment cost is taken off.
- Case 6 — Investment cost is written off entirely in the first year.
- Case 7 — Depreciation allowance follows an exponential pattern, reflecting real economic costs.

Source: Industry Department.
invariably follow, including a perception of tax inequity, increased complexity in administration and lowered revenue potential, the latter because industries shift to low-tax activities.

When differential taxation arises from the flaws in tax design, the implication for policy is clear. Tax rules and, in some cases, the entire tax regime should be changed to eliminate the distorting incentives and to prevent the unfavorable side effects. The sample countries need to exercise greater restraint in the use of the investment tax credit, which tends to raise the rates of return for shorter-lived assets disproportionately. Alternative measures, such as partial first-year write-offs of investment costs and accelerated depreciation allowances, involve less serious distortions. In some countries, turnover taxes are an important source of revenue but have large and unpredictable cascading effects. These taxes should be either replaced by a VAT or restructured so that the intermediate transactions among producers are excluded.

When the tax differentiation stems from policy, two questions must be asked. First, is it likely that the gains from the tax concessions are adequate to offset the costs associated with the side effects? Second, is it certain that differential taxation is the most effective instrument available? In particular, would the presence of externalities, often cited to justify tax concessions, not be better dealt with by alternative measures, such as an appropriate form of expenditure? The difficulty in measuring the associated costs and the availability of alternatives weaken the case for using differential taxation as a major policy tool.

Indeed, for a broad range of industrial policy objectives, properly chosen forms of public expenditures may be preferable to selective tax concessions. The primary advantage of expenditure tools is in the variety of assistance that may be provided. The forms of expenditures may be tailored to the specific needs of each project, which may involve infrastructure, employment subsidies or technical advice. Tax concessions, by contrast, primarily serve to increase the returns on invested capital. Another advantage in the use of public expenditures is that the costs involved are known and subject to control. Tax concessions, on the other hand, are like a blank check: once granted, the resulting revenue loss depends on the reactions of firms and industries seeking to amass profits.

Tax instruments may, nonetheless, serve the objective of providing general, as opposed to selective, incentives. Broadly based tax rules, such as lower rates, first-year investment write-offs or cash flow corporate taxes as discussed in Chapter II, maintain the simplicity of the tax regime and taxpayer equity. Combined with selective expenditures designed to address externalities, general incentives create a climate conducive for efficient resource use. A tax system that allows adequate incentives for the supply side of the economy need not imply substantial variations in the tax burden.
IV. INDIRECT TAXES AND COMPARATIVE COSTS

Chapters II and III dealt primarily with the domestic aspects of resource allocation. The implications of tax policy, however, are by no means confined solely to the domestic economy. The flows of international trade and the division of production across countries are influenced by the tax regimes adopted by individual trading members. Moreover, it is not only trade taxes—import duties and export taxes—that matter. The whole array of indirect taxes, as discussed below, has some bearing on trade and resource allocation across countries.

As in most developing countries, indirect taxes play a large economic role in the sample countries. Perhaps the principle objective of these taxes is government revenue: in recent years, that emanating from indirect taxes amounted to about 10 percent of GDP in the sample countries. Direct taxes, on the other hand, contributed about 4 percent of GDP over the same period. Apart from revenue generation, indirect taxes also serve a variety of national objectives, including protection of domestic industries and discrimination against selected goods such as luxury items, cigarettes and liquors.

The predominance of indirect taxes in the tax system involves some advantages and disadvantages. The main advantage, as discussed in Chapter II, is the limited interference with intertemporal decisions on consumption, a result that implies increased incentives to save. The primary disadvantage is the effect on the costs of production and the competitive position of domestic industries in the world market. In principle, indirect taxes need not alter the relative prices of a home country's exports. Certain tax designs and tax adjustments are capable of removing the trade effects of indirect taxes. In practice, however, domestic production costs are not fully insulated, as shown by the experience of the sample countries.

The management of indirect taxes has important implications both at home and abroad. For the home country, indirect taxes can raise export prices and, unless corrective measures are taken, limit the sales of exports that generate foreign exchange. Trade flows between the home country and its trading partners may also change in size and composition as a result of tax-induced price differentials. Over time, the distortions in relative prices and trade flows prevent both the home country and its trading partner from allocating greater amounts of resources to the areas in which each has a comparative advantage. At stake, in effect, is the efficiency of cross-country resource allocation.

Tax Regimes and Comparative Costs

Three regimes of indirect taxes are considered below, each with different implications in terms of comparative costs and cross-country resource allocation. The regimes as they are presented here are unlikely to correspond closely to tax policy in the real world, however. Each country is more likely to adopt an assortment of features different from
purely conceptual principles. The discussion below is therefore useful mainly in terms of providing a model for thinking about the issues.

**Destination Tax**

A destination tax is an indirect tax imposed on goods and services for use in the home country. The origin of the goods and services is of no relevance; imports and home goods are treated identically. Exports destined for external use or in any case for foreigners are exempt. The destination tax may be general or selective. The former has comprehensive coverage, extending across all products used domestically. A selective destination tax, on the other hand, covers only designated products entering domestic use.

The effects of the general destination tax on trade are similar across different exchange-rate systems. With floating exchange rates, a general destination tax has no impact on the patterns of production among trading partners: domestic consumers find relative prices unchanged since the tax is uniform. In the world market, the relative costs among competing producers are not affected since exports from the home country are exempt from the tax. The selective destination tax has a somewhat different impact. Under a floating exchange rate, it changes domestic consumption, but does not influence trade flows. The country's currency may appreciate or depreciate, depending on whether the tax is imposed primarily on import-competing goods or exports. The adjustments in the country may affect the level of trade, but not the division of production across countries.

Under a fixed exchange rate system, the effects of a general destination tax remain the same. Relative prices as seen by both domestic consumers and foreigners are invariant. A selective destination tax, on the other hand, changes the relative prices as seen by domestic users, but has no impact on relative prices abroad. The trade balance for the home country may improve or deteriorate, depending on whether the selective tax falls primarily on the import-competing or export sectors. In the long run, international prices and trade volume may adjust to restore a trade balance. The division of production across countries remains in accordance with comparative advantage.

The destination tax is thus compatible with international trade and efficiency of production. Its primary characteristics include: (1) tax exemption for exports, and (2) identical treatment for imports and home goods. The gains from trade are somewhat restricted, however, when the destination tax is of a selective nature.

**Origin Tax**

An origin tax is imposed on home production, irrespective of the destination or end-use. In its elementary form, the tax does not cover imports, which originate from external sources. Exports are taxed in full, except when a selective version of the tax is used.

Unlike the destination tax, the effects on trade of the origin tax depend on the concurrent exchange rate regime. With a flexible
exchange rate, the general origin tax is equivalent to the destination tax. Since it covers only home goods, imports appear less expensive to domestic residents. To foreigners, however, the home goods appear more expensive because of the tax. The resulting shifts in demand cause the exchange rate to depreciate, a trend that after a period of adjustment tends to restore the original equilibrium, with no change in trade or production across countries.

When a selective version of the origin tax is used, the pattern of trade changes. An origin tax on exports, for instance, shifts the home demand toward import-competing goods and lowers the external demand for exports. The exchange rate depreciates, and the level of trade declines—exports diminish because of the tax, while imports fall because of the depreciation. In this case, production of the goods the home country exports will go up in foreign countries and decline at home, a result contrary to the pattern of comparative advantage. If the selective origin tax falls on import-competing goods, the resulting allocation is also inefficient. In the adjustment process, imports rise because of the tax on home-produced import substitutes. The exchange rate tends to depreciate, which stimulates exports. At the new equilibrium, the volume of trade is larger than under the free trade alternative, but the degree of specialization is increased both at home and abroad.

If the concurrent exchange rate is fixed, the origin tax, whether the general or the selective version, produces trade distortions. The general origin tax raises imports and lowers exports, a pattern that worsens the home country's balance of trade in the short run and transfers resources and production to foreign countries over time. A selective origin tax also tends to worsen the trade balance, but the change in the trade levels is less certain, as it depends on the target of the selective tax and the relative responsiveness of demand among products to changes in price.

Thus, the origin tax is neutral with respect to trade only when it is of the general form and when the exchange rate is allowed to float. In a different operating environment, this tax generates trade flows and patterns of production inconsistent with the underlying resource endowment and comparative advantage. Despite these problems the origin tax does offer administrative simplicity. Collection costs are relatively low, since the revenue may be derived from relatively few producers. In contrast, the destination tax is based on retail transactions, which involve more taxpayers and greater collection efforts.

Irrespective of the exchange rate regime, the origin tax may be substantially improved by corrective measures—a combination of export tax rebates and compensating import duties. When the origin tax is selective, however, the remedies must be applied selectively. With these corrective measures in place, the origin tax is in effect converted into a destination tax. Consider, for instance, a general origin tax under a fixed exchange rate regime that has been augmented by export rebates and import duties. This system preserves relative prices at home and abroad, with no effects on the trade balance or the pattern of production.
End Use Tax

In principle, the end-use tax is an extension of the destination tax, with allowance for capital goods and intermediate inputs. Two main features distinguish the end-use tax from the destination tax. First, the former allows for the exemption of inputs entering the production of exports. The inputs themselves may be either domestically produced or imported. Second, the end use tax provides full relief for capital goods and the inputs needed in the production process. In effect, the base for the end-use tax is restricted only to products destined for domestic consumption, irrespective of origin. In a hypothetical economy in which capital goods are not used and there are no purchased inputs, the end-use tax is fully equivalent to the destination tax.

The end-use tax represents full implementation of the free trade principle. The exemption from the tax on inputs into export production removes a hidden levy that would have been incorporated in the cost of exports, even if the final exports were tax-exempt. The effect of the exemption for investment goods is similar, but more subtle. In particular, an indirect tax on investment goods raises the rental cost of capital in the production process. Exports produced by heavily taxed machinery carry a tax-induced increment in costs. As with the destination tax, trade flows are invariant under the end-use tax, irrespective of the exchange rate regime. The exemptions allowed under the end-use tax insulate exports from all tax-related costs and allow the home country to realize the pattern of comparative advantages that would prevail under free trade.

The administration of end-use tax is not simple, however. Unlike the origin tax, which is levied solely on the basis of production, the end-use tax requires a complicated set of information, particularly for firms serving both the domestic and external markets and relying on both imported and home-produced materials.

The task of translating the principles discussed so far into practical tax policy is considered below.

Country Strategies

The principles by which trade may be insulated from the effects of indirect taxes, as discussed above, point to two requirements: (1) exemption of exports from indirect taxes, and (2) identical treatment for imports and home goods. The experience of the countries under study indicates that these principles are not generally observed. In particular, the treatment of imports across countries is rather discriminatory. This practice, which the demand for revenue and the perceived need to provide temporary protection for selected industries may necessitate, is nonetheless an obstacle to the realization of the full benefits of trade.

Every country, however, has made some effort toward more limited goals—free trade for exporters, although not for the general public. In other words, only the first of the two requirements above has commanded serious policy attention. Export activities are granted varying forms of tax adjustments. The extent of success and the strategies adopted by each sample country in pursuit of export promotion are considered below.
The extent of the indirect tax relief provided in each country is indicated by a number of characteristics of the relief mechanism, as described below. The following discussion also shows the relative difficulty of the tasks that have to be performed.

(1) **Exemption vs. Exclusion.** For the purpose of this study, "exemption" refers to the application of a zero tax rate for all stages of production. (This rule is sometimes called "zero-rating." ) "Exclusion," on the other hand, refers to the use of a zero tax rate at the final stage of production; the inputs used prior to the final stage are subject to normal taxation. Exemption and exclusion suggest intent of tax policy. Each intent, in turn, may be implemented equally well through a variety of collection procedures. An exemption, for instance, may be achieved by waiving the tax at all stages of production, or alternatively, by first taxing at the legal rate and later giving full rebates. A common confusion arises when the two terms—exemption and exclusion—are used interchangably.

In general, exemption as defined here is more difficult to implement than exclusion. Exporters with tax exemptions pay no taxes on the final products and, in addition, are entitled to a remission of the taxes paid earlier for the production of exports. Exporters with tax exclusion, by contrast, are not eligible for any tax refunds, although they pay no taxes on final products. An exemption thus provides greater tax relief than an exclusion.

(2) **Duty vs. Domestic Tax.** Even among countries granting exemptions to exporters, the degree of tax remission varies depending on the kind of tax involved. In particular, it is often more difficult to remit import duties than domestic taxes. For most countries, domestic taxes are of the value-added type, and there are relatively accurate records on the amount of taxes paid. Duties, on the other hand, are not simple to trace since the necessary records are not generally readily available. The effect of duties is implicit in the higher prices for import-competing domestic goods. The exporters who rely on those domestic goods because of trade restrictions would be at a cost disadvantage and should be eligible for relief. The capacity to rectify the effects of import duties is thus an important accomplishment.

(3) **Indirect vs. Direct Exporter.** The existence of relief for indirect as well as direct exporters may in practice be the most important measure of success in tax adjustments. Tax relief made available only to direct exporters is generally inadequate for several reasons. First, the duties paid by the suppliers providing the requisite inputs for exporters are not recoverable. Second, there is a time lag between the payments made by exporters to their suppliers and receipt of the tax rebates from the tax authorities. That time lag carries with it a loss in the value of money.

This problem can be alleviated by providing tax relief for indirect exporters. The duties paid by indirect exporters would thus be eligible for remission by the tax authorities, rather than being passed on to the direct exporters. The depletion of working capital is also avoided, since the indirect exporters can provide inputs at net-of-tax costs.
relief for indirect exporters is indicative of a serious effort to carry out indirect tax adjustments. For a more detailed treatment of the fiscal and administrative arrangements necessary for export promotion, see Yung Whee Rhee (1984).

Colombia

Colombia provides various forms of indirect tax relief. The objectives are primarily the promotion of investment in selected industries, rather than the adjustment of indirect taxes for international trade. The relief has nonetheless reduced the tax burden falling on exports and capital goods.

The relief for exports mainly takes the form of exclusion: direct exporters face no indirect tax liability for exports. However, indirect taxes are still a burden, in that they are embodied in the costs of purchased inputs, for which only partial relief is available. In particular, direct exporters are allowed to deduct the VAT for which invoices are available. Unlike VAT, the import duties paid by exporters are generally not remitted. Some exporters, however, are given credit against corporate taxes (tax credit certificate). Although this credit helps offset the remaining indirect taxes, there is no direct correspondence between the two. In addition, the procedure may overcompensate some exporters and provide inadequate relief to others.

Fewer relief facilities are available for capital goods as compared to exports. With the exception of farm and transport machinery, capital goods are subject to indirect taxes. The main concession, which applies to capital goods in general, is a lower import duty. In recent years, the reduction was 5 percentage points below the legal rates. Since the duty rates were set relatively high—about 28 percent on average in 1984—the benefits of the reduction have been limited.

Korea

In Korea, the efforts to rectify the effects of indirect taxes on trade are more thorough and focused in comparison with those in the other countries in the sample. This result may be attributable to necessity. In the first place, Korea's indirect taxes, as a proportion of GDP, are much higher than elsewhere. In the second place, international trade plays a relatively large role in the Korean economy. Without appropriate tax relief, its linkages with the external world would be in jeopardy.

Exporters are granted almost full exemption. Exclusion of exports is provided as in other countries, but the rebates for taxes paid for purchased inputs are more extensive. As to the VAT, the zero-rating method is used, whereby the amount invoiced to exporters is entitled to rebates. For import duties, a combination of (1) individual drawbacks, based on records of transactions, and (2) fixed drawbacks based on economy-wide, input-output data, is applied. Domestic suppliers of inputs are treated like final exporters for the purpose of tax relief. With relatively low inflation and minimum delays in administration of the system, the erosion in the real value of the rebates is insignificant.
The relief mechanism in Korea is enhanced by two relatively novel features. First, domestic letters of credit, which provide a record of financial transactions, help establish linkages among the network of domestic producers. The record of transactions furnishes an accurate basis of tax rebates for all the parties involved in export production. Second, tax payments are deferred, a practice that allows firms to pay the net taxes due after the deductions of relief for export-related activities. This provision lowers the amount of working capital depleted by taxes and the servicing costs.

While exports enjoy full exemption for indirect taxes, capital goods receive only partial relief. As far as the VAT is concerned, exports and capital goods are treated similarly, with the zero-rating procedure exempting of output from the tax and provision of full rebates on purchased inputs. With respect to import duties, however, tax relief in the forms of rebates and exemptions has been withdrawn in recent years. The imposition of import duties, which discriminate between domestic and imported capital goods, may thus be viewed as a protective measure, rather than as a failure to contain the rental cost of capital.

Mexico

Unlike other countries in the sample, Mexico derives a large share of its export earnings from oil. The policy questions relevant to oil exports involve the appropriate tax rates rather than the relief mechanism. Despite the role of oil in total exports, Mexico has nevertheless provided a variety of tax adjustments for non-oil exports. However, the relief efforts, while of considerable importance, are hampered by high rates of inflation and the exclusion of indirect exporters.

Non-oil exporters receive indirect tax adjustments either through tax rebates or through special incentive programs such as Agreements of Annual Validity (AAVs) and Certificates of Tax Return (CEDIs). Rebates are given, in principle, for the VATs paid in the production of exports. The NAVs provide large reduction (75% to 100%) on import duties for selected manufacturers, regardless of whether the final output is exported. Exporters of manufactured goods receive full rebates for duties paid on imported inputs.

Because of the high rate of inflation, the value of the tax rebates is much diminished when received. Given the current annual inflation rate of 50 percent, the real value of tax rebates received one year after payment is about two thirds of the original amount. Furthermore, the relief mechanism is restricted to direct exporters. Indirect exporters or domestic suppliers are thus unable to waive the VAT for the final exporters. The erosion in the value of tax rebates is thus borne by the direct exporters.

Capital goods in principle are subject to full indirect taxes. The applicable rates in 1984 were 15 percent for VAT and 13 percent for import duties, levels that are somewhat higher than the average duty for all imports. Exceptions, however, are made for agricultural equipment, for investments in designated zones and for firms operating under AAVs and
CEDIs. For these investments, the import duties are substantially reduced or eliminated, and the VAT is lower. As in most countries, the relief for capital goods is generally not associated with export activities.

**Thailand**

As in other countries, Thailand has increasingly recognized the role of indirect taxes in its international trade. Relief facilities for exporters are currently in the initial stage of implementation. These early efforts have been complicated by the use of a turnover, as opposed to a value added, domestic tax and by a conservative approach in the estimation of tax refunds, a practice that has led to inadequate compensation for the taxes incurred.

Tax relief for exporters is generally available in the form of exclusion; exported goods are not subject to indirect taxes. Occasional exceptions occur, however, as with the tax on rice exports (called "export premium"), which essentially is a levy on the monopolistic rent of domestic rice exporters. Apart from the exclusion of exports, the recovery of taxes paid on purchased inputs is being made available to a wider set of exporters. So far, however, both the proportion of exports benefiting from relief mechanisms and the amount of relief are at low levels.

Currently there are also drawback facilities that have provided tax relief for approximately one-quarter of total eligible exports. The low rate of participation is attributable in part to the delays and complex procedures common in the learning process. Of greater concern, however, is that the amount of the drawbacks tends to be insufficient. The procedure employed by the tax authorities is to determine the drawbacks on the basis of observed effective tax rates (collected indirect taxes divided by export receipts). Exporters, however, are obligated to pay the full legal rates of indirect taxes, which exceed the effective rates where tax evasion and incomplete coverage exist. The inadequacy of the drawbacks is compounded by the use of the turnover tax, which in the presence of cascading effects raises the tax burden beyond that implied by the legal tax rates.

Unlike exports, capital goods for the most part receive no special tax treatment. Some firms, however, enjoy the privilege of exemptions from duties and business taxes granted as part of a promotional package administered by the Board of Investment. In recent years, these firms have accounted for an estimated share of 10 percent of domestic investment. Although these tax privileges help lower the rental costs of capital among the promoted firms, their effects on the country's comparative costs and exports are limited. In the first place, most exporters do not benefit from the Board's promotional program. In the second places, the sales of promoted firms are predominantly in the home market.

**Estimates of the Effective Indirect Tax Rates**

The previous section outlined strategies for adjusting indirect taxes in the sample countries. This section provides estimates of the effects of these strategies on different components of final demand. For
each country, average effective indirect tax rates are given for consumption expenditures, capital goods and exports. The methods and assumptions used in the estimation are described first; readers who are not interested in the methodological issues may go on to the results.

**Methodology**

The principal assumption underlying the estimation is the existence of an economy-wide effective indirect tax rate that reflects the impact of taxation throughout the production process. In the absence of tax adjustments such as rebates and exemptions, this effective rate would be applicable to all products entering the stream of final demand. The tax adjustments adopted in each country result in different effective tax rates for each stream of final demand. Mathematically, the above notion gives rise to a system of equations as follows:

\[
\begin{align*}
(1) \quad C (1 + t) &= K_1 \quad \text{(Consumption Expenditures)} \\
(2) \quad I (1 + t - r) &= K_2 \quad \text{(Gross Investment Outlays)} \\
(3) \quad X (1 + t - f) &= K_3 \quad \text{(Export Earnings)}
\end{align*}
\]

where

\begin{align*}
C &= \text{aggregate consumption} \\
I &= \text{investment} \\
X &= \text{exports valued at factor cost} \\
t &= \text{the economy wide effective indirect tax rate} \\
r &= \text{the rate of tax relief for capital goods} \\
f &= \text{the rate of tax relief for exports}.
\end{align*}

Additional mathematical relationships among the variables are found in revenue aggregates:

\[
\begin{align*}
(4) \quad Ct + I (t-r) + X (t-f) &= K_4 \quad \text{(Actual Indirect Tax Revenue)} \\
(5) \quad I.r &= K_5 \quad \text{(Tax Expenditures on Capital Goods)} \\
(6) \quad X.f &= K_6 \quad \text{(Tax Expenditures on Exports)}
\end{align*}
\]

The tax expenditures used in equations (5) and (6) are estimates of revenue foregone attributable to exemption and rebates for different activities. The set of six equations produces solutions for the six unknowns: C, I, X, t, r and f. The effective indirect tax rates for consumption, investment and exports are, respectively, t, t-r, and t-f. The solutions for the sample countries are given in Table 12.

**Results**

(1) The effective indirect tax rates are relatively high in the Korea and Thailand and relatively low in Colombia and Mexico, as shown in column (1). The difference reflects the uneven degrees of reliance on indirect taxes across the countries.
(2) Korea is able to minimize the impact of indirect taxes on investment and exports. The degrees of relief are 70 percent for investment and virtually 100 percent for exports.

(3) In Thailand, the residual indirect taxes on exports are relatively high, an outcome that reflects the difficulty inherent in the rebate procedures when turnover taxes are used.

(4) The effective indirect tax rates for capital goods are higher than that for exports in all countries. The indirect tax exemptions for capital goods in most countries are selective, except in Korea, where a comprehensive exemption (zero-rating) is used for the VAT component. In no country is remission given for the duties implicit in the production of capital goods.

The results are based on actual tax collections and information on tax relief. To the extent that the tax coverage is not complete and evasion exists, the estimates tend to understate the burden among actual taxpayers. The effective tax rates in Table 11 represent the averages for two distinct groups of taxpayers: evaders who pay no taxes and honest taxpayers who are subject to much higher legal tax rates.

**Policy Implications**

One country's rules governing indirect taxes affect both the benefits it may derive from international trade and the allocation of resources across countries. To capture the full benefits of trade, each trading partner is required to follow two rules in taxing traded goods: (1) full exemption for exports, and (2) identical treatment for imports and home goods. In practice, the second rule is seldom observed in developing countries, although the extent of the discrimination against imports may diminish as income rises. The first rule is more widely accepted, but its implementation has proved difficult.

All sample countries forego the collection of indirect taxes on sales of exports. The effects of indirect taxes collected earlier in the production process remain, however. This hidden tax burden may be divided into two parts. The first consists of the taxes implicit in purchased inputs, including domestic taxes and import duties. The second is an increase in the cost of capital attributable to indirect taxes levied on investment goods. To allow for full remission of the taxes on exports and to realize its comparative cost advantage, each country must attempt to deal with these hidden tax costs.

The standard procedure for removing the indirect taxes embodied in purchased inputs is to provide tax rebates and duty drawbacks for exporters. The effectiveness of the rebate mechanism varies, however, depending on the kind of indirect taxes in use and the coverage and the administration of the rebate. The turnover tax, unlike the value-added tax, involves cascading and makes it impossible to determine the amount of the taxes incurred. The exclusion of indirect exporters from the rebate
Table 12: ESTIMATES OF EFFECTIVE INDIRECT TAX RATE, 
BY FINAL DEMAND GROUP, 1980

(\text{percent})

<table>
<thead>
<tr>
<th></th>
<th>Domestic Consumption (1)</th>
<th>Gross Investment (2)</th>
<th>Exports (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>6.9</td>
<td>5.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>14.9</td>
<td>8.9</td>
<td>0.0</td>
</tr>
<tr>
<td>Mexico</td>
<td>7.4</td>
<td>6.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>10.5</td>
<td>9.3</td>
<td>4.9</td>
</tr>
</tbody>
</table>

Note: The methodology is discussed in the text.

Sources: Industry Department staff calculation.
World Bank country economic memoranda.
Data supplied by national tax authorities.

Program is another barrier to the removal of indirect taxes from production costs. Furthermore, delays in tax administration erode the real value of the rebates received by exporters, particularly in inflationary countries.

Measures to contain the cost of capital differ from one country to another. One approach is to treat capital goods and exports in the same manner, that is, to allow an exclusion for the output and full rebates for inputs. Capital goods are therefore insulated from both domestic sales taxes and import duties. Korea has generally followed this approach, but it has retained duties on imported capital goods. Other countries, however, have chosen to offset the effects of indirect taxes on capital goods with corporate tax concessions. Compared to the first approach, this alternative suffers from the lack of correspondence between the actual taxes paid and the benefits received.
CALCULATING THE COST OF CAPITAL

This annex presents the methodology used to calculate the cost of capital. The original description of this methodology appeared in D.W. Jorgenson, "Capital Theory and Investment Behavior," American Economic Review 53 (May 1963). The version given here represents an extension of Jorgenson's model to allow for the policy instruments commonly used in developing countries.

The assumptions used in the calculation are as follows:
(a) a competitive equilibrium in the market for capital goods, a condition that implies that the net cost of capital goods is equated to expected after-tax earnings;
(b) a 100% equity-financed project, an assumption that is not strictly necessary since debt may be incorporated in the analysis, but that is nonetheless used here to simplify the calculations; and
(c) a proportional corporate tax with straight-line depreciation over the life of the assets as stipulated by tax laws.

The basic relationship is given by:

(A.1) Expenditures on Capital Goods - Tax Deductions = After-tax Profits

where all components are expressed in present values. Each of the three terms above may be related to the parameters set by the tax laws.

(A.2) Expenditures on Capital Goods = 1 * (1 + b)

Without any loss in generality, the price of the composite capital goods required for an investment project is set equal to one. The expenditures incurred by the investor are the price magnified by the rate of indirect taxes, b.

(A.3) Tax Deductions = k + iu + bu + u \int_0^n h e^{-a - d} t - (1 - u) x_{dt}

The first three terms--tax credit (k), partial investment write-offs (iu) and indirect tax expenses (bu)--are deductions against the first-year tax liabilities. The last term represents the present value of depreciation allowances over the tax life of the assets.

(A.4) Expected After-tax Profits = (1 - v) \int_0^m q e^{(f - d)} t - (1 - u) x_{dt}

+ (1 - u) \int_m^\infty q e^{(f - d)} t - (1 - u) x_{dt}

The first term refers to the present value of after-tax profits for the first m years over which the concessionary corporate tax rate applies. The
second term represent the present value of after-tax profits for the remaining useful life of the assets. The value of q, the estimate for the cost of capital, is obtained by solving equation (A.1). Variations in tax rules produce different values for q.

Notations

a rate of asset revaluation allowed by the tax laws
b indirect tax rate on capital goods
d rate of economic depreciation
f rate of inflation
h rate of depreciation under the tax laws
i rate of immediate investment write-off
k tax credit
m duration of tax concessions (in years)
n asset duration as stipulated by the tax laws (in years)
q cost of capital
u corporate tax rate
v concessionary tax rate
x required nominal rate of return
TABLES OF COMPARATIVE ECONOMIC STATISTICS

**TABLE A:** Comparison of Per Capita Income and the Industrial Base

**TABLE B:** Comparative Growth Rates, GDP, Exports and Manufacturing

**TABLE C:** Domestic Savings and Capital Formation, 1970-80

**TABLE D:** Inflation, Real Exchange Rate Appreciation and Real Interest Rate

**TABLE E:** Growth and Structure of Manufacturing Production, 1970-80

**TABLE F:** Growth and Structure of Manufactured Exports, 1970-80

**TABLE G:** Structure of Gross Savings, 1975-80
<table>
<thead>
<tr>
<th>Country</th>
<th>Real Per Capita GDP (a/)</th>
<th>Share of Manufacturing in GDP (b/)</th>
<th>Share of Manufactured Exports in Total Exports (c/)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>1,330</td>
<td>2,339</td>
<td>18.6</td>
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<tr>
<td>Republic of Korea</td>
<td>1,054</td>
<td>2,394</td>
<td>18.0</td>
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<tr>
<td>Mexico</td>
<td>2,210</td>
<td>4,188</td>
<td>23.7</td>
</tr>
<tr>
<td>Thailand</td>
<td>740</td>
<td>1,444</td>
<td>15.5</td>
</tr>
</tbody>
</table>

\(a/\) In constant 1975 US$

\(b/\) Computed from constant price series in percentages.

\(c/\) Computed from FOB export values in current US$.

\(d/\) Shares of manufactures in total non-oil exports.

Sources: World Product and Income; Yearbook of National Accounts Statistics; Yearbook of International Trade Statistics; and Industry Department calculations.
Table B: COMPARATIVE GROWTH RATES, GDP, EXPORTS AND MANUFACTURING
(average annual percentage growth rates a/)

<table>
<thead>
<tr>
<th>Country</th>
<th>Real GDP</th>
<th>Real Manufacturing Value Added</th>
<th>Exports b/</th>
<th>Exports of b/ Manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>5.8</td>
<td>5.9</td>
<td>18.4</td>
<td>26.6</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>8.5</td>
<td>15.4</td>
<td>35.6</td>
<td>37.9</td>
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<tr>
<td>Mexico</td>
<td>6.6</td>
<td>7.1</td>
<td>28.1</td>
<td>35.9</td>
</tr>
<tr>
<td>Thailand</td>
<td>6.9</td>
<td>10.0</td>
<td>24.8</td>
<td>36.4</td>
</tr>
</tbody>
</table>

a/ Computed from the relation \( x_n = x_0 \left(1 + g\right)^n \)

b/ Based on FOB export values in current US$.

### Table C: DOMESTIC SAVINGS AND CAPITAL FORMATION, 1970-80

(Percentages of GDP)

<table>
<thead>
<tr>
<th>Country</th>
<th>Gross Domestic Savings</th>
<th>Gross Domestic Investment</th>
<th>Gross Investment in Plants &amp; Equipment</th>
<th>Residential Investment</th>
<th>Change in Stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>22.5</td>
<td>22.3</td>
<td>17.4</td>
<td>2.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>23.6</td>
<td>29.9</td>
<td>23.8</td>
<td>4.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>21.5</td>
<td>24.6</td>
<td>16.8</td>
<td>5.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Thailand</td>
<td>23.4</td>
<td>25.9</td>
<td>21.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Notes: All ratios are 10-year weighted averages computed from current values of various aggregates.

Sources: Yearbook of National Accounts Statistics; and Industry Department calculations.
Table D: INFLATION, REAL EXCHANGE RATE APPRECIATION AND REAL INTEREST RATE

(percent a year 1970-80 averages)

<table>
<thead>
<tr>
<th>Country</th>
<th>Inflation a/</th>
<th>Real Exchange Rate Appreciation b/</th>
<th>Real Interest Rate c/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>21.4</td>
<td>13.8</td>
<td>-2.3</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>19.2</td>
<td>11.4</td>
<td>-5.0</td>
</tr>
<tr>
<td>Mexico</td>
<td>17.6</td>
<td>11.1</td>
<td>-5.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>9.9</td>
<td>11.1</td>
<td>0.4</td>
</tr>
</tbody>
</table>

a/ Computed from the GDP deflator.

b/ Computed from the nominal exchange rate (E) and wholesale price index (P) with the relation:
   \[ d \ln A = d \ln P - d \ln E \]
   where \( d = \) differential
   \( \ln = \) natural log
   \( A = \) real exchange rate appreciation.

c/ Ten-year average of the difference between the discount rate and the GDP deflator, except for Mexico where, because of data unavailability, a three-year average of the difference between the treasury bill rate and the GDP deflator is used.

Sources: International Financial Statistics; Industry Department calculations
### Table E: Growth and Structure of Manufacturing Production, 1970-80

<table>
<thead>
<tr>
<th></th>
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<tr>
<td><strong>Colombia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Rate a/</td>
<td>5.4</td>
<td>3.1</td>
<td>0.1</td>
<td>5.8</td>
<td>10.6</td>
<td>4.0</td>
<td>5.9</td>
<td>5.4</td>
<td>4.2</td>
<td>5.9</td>
</tr>
<tr>
<td>Share 1970</td>
<td>31.1</td>
<td>20.1</td>
<td>1.9</td>
<td>5.8</td>
<td>7.4</td>
<td>5.8</td>
<td>3.5</td>
<td>13.2</td>
<td>1.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Share 1980</td>
<td>29.9</td>
<td>16.2</td>
<td>1.2</td>
<td>5.8</td>
<td>24.8</td>
<td>4.9</td>
<td>3.5</td>
<td>12.7</td>
<td>1.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Rate a/</td>
<td>11.9</td>
<td>19.5</td>
<td>8.3</td>
<td>15.9</td>
<td>16.7</td>
<td>17.2</td>
<td>27.0</td>
<td>24.3</td>
<td>12.5</td>
<td>17.7</td>
</tr>
<tr>
<td>Share 1970</td>
<td>25.8</td>
<td>17.1</td>
<td>3.6</td>
<td>5.1</td>
<td>22.1</td>
<td>6.0</td>
<td>4.0</td>
<td>13.5</td>
<td>2.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Share 1980</td>
<td>16.6</td>
<td>19.5</td>
<td>1.7</td>
<td>4.4</td>
<td>20.5</td>
<td>5.8</td>
<td>7.8</td>
<td>21.8</td>
<td>2.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Mexico</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Rate a/</td>
<td>25.1</td>
<td>31.0</td>
<td>48.0</td>
<td>20.0</td>
<td>26.0</td>
<td>20.7</td>
<td>10.8</td>
<td>27.1</td>
<td>19.9 c/</td>
<td>24.7</td>
</tr>
<tr>
<td>Share 1970</td>
<td>23.3</td>
<td>8.4</td>
<td>0.9</td>
<td>7.3</td>
<td>17.2</td>
<td>7.4</td>
<td>17.1</td>
<td>18.5</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Share 1980</td>
<td>23.9</td>
<td>13.0</td>
<td>3.9</td>
<td>5.2</td>
<td>18.8</td>
<td>5.5</td>
<td>6.1</td>
<td>21.8</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Thailand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth Rate b/</td>
<td>8.7</td>
<td>11.9</td>
<td>0.9</td>
<td>4.5</td>
<td>7.8</td>
<td>10.9</td>
<td>0.6</td>
<td>17.4</td>
<td>16.3</td>
<td>11.0</td>
</tr>
<tr>
<td>Share 1971</td>
<td>28.6</td>
<td>19.6</td>
<td>3.1</td>
<td>3.6</td>
<td>20.0</td>
<td>6.3</td>
<td>1.7</td>
<td>14.9</td>
<td>3.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Share 1981</td>
<td>23.1</td>
<td>21.1</td>
<td>1.2</td>
<td>2.0</td>
<td>14.9</td>
<td>6.2</td>
<td>1.1</td>
<td>26.1</td>
<td>4.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**a/** The growth rates are expressed as percentages of the annual increase in real value added. Wholesale price indexes are used to adjust for inflation.

**b/** Computed from the constant price series of value added.

**c/** Based on 1977-80 period for lack of production data for earlier years.

**Sources:** Yearbook of Industrial Statistics; Summary of Business and Industry 1983 (in Thai), Bank of Thailand, Department of Economic Research; and Industry Department calculations.
Table F: GROWTH AND STRUCTURE OF MANUFACTURED EXPORTS, 1979-80a/

<table>
<thead>
<tr>
<th>SITC</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>5-8</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Basic Manufactured Products</td>
<td>Machines and Transport Equipment</td>
<td>Miscellaneous Manufactured Products</td>
<td>Total Manufactured Products</td>
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<tr>
<td></td>
<td>Chemicals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>Growth Rate</td>
<td>24.3</td>
<td>24.5</td>
<td>21.2</td>
<td>37.1</td>
</tr>
<tr>
<td></td>
<td>Share 1970</td>
<td>13.9</td>
<td>54.4</td>
<td>17.6</td>
<td>14.1</td>
</tr>
<tr>
<td></td>
<td>Share 1980</td>
<td>11.9</td>
<td>47.3</td>
<td>11.9</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>1980 Export Value</td>
<td>92.3</td>
<td>367.4</td>
<td>92.7</td>
<td>224.6</td>
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<td>Republic of Korea</td>
<td>Growth Rate</td>
<td>54.7</td>
<td>38.8</td>
<td>51.0</td>
<td>31.4</td>
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<td></td>
<td>Share 1970</td>
<td>1.7</td>
<td>37.4</td>
<td>10.0</td>
<td>50.9</td>
</tr>
<tr>
<td></td>
<td>Share 1980</td>
<td>4.8</td>
<td>39.7</td>
<td>22.6</td>
<td>32.9</td>
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<td></td>
<td>1980 Export Value</td>
<td>755.1</td>
<td>6,264.2</td>
<td>3,566.4</td>
<td>5,203.2</td>
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<td>Growth Rate</td>
<td>41.3</td>
<td>27.7</td>
<td>50.0</td>
<td>27.4</td>
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<td></td>
<td>Share 1970</td>
<td>23.9</td>
<td>47.3</td>
<td>11.4</td>
<td>17.4</td>
</tr>
<tr>
<td></td>
<td>Share 1980</td>
<td>35.2</td>
<td>25.3</td>
<td>30.3</td>
<td>9.2</td>
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<td></td>
<td>1980 Export Value</td>
<td>517.3</td>
<td>501.9</td>
<td>648.9</td>
<td>170.5</td>
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<td>Thailand</td>
<td>Growth Rate</td>
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<td>59.9</td>
<td>50.8</td>
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<td></td>
<td>Share 1970</td>
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<td>86.1</td>
<td>4.0</td>
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<td></td>
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<td>2.1</td>
<td>61.6</td>
<td>16.9</td>
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<td>1980 Export Value</td>
<td>48.0</td>
<td>1,413.0</td>
<td>388.5</td>
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</table>

a/ The growth rates refer to the average annual percentage increase; sectoral shares are expressed as percentages of total manufactured exports; and export values are in millions of current US$.

Sources: Industry Department calculations and Yearbook of International Trade Statistics.
Table G: Structure of Gross Savings 1975-80  
(percent of GDP, 1975-80)  

<table>
<thead>
<tr>
<th></th>
<th>Colombia</th>
<th>Republic of Korea</th>
<th>Mexico</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gross Savings</td>
<td>22.2</td>
<td>31.6</td>
<td>23.0</td>
<td>26.2</td>
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<td>2. Domestic Savings</td>
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<td>26.2</td>
<td>21.8</td>
<td>21.6</td>
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<tr>
<td>2.1 Public</td>
<td>5.4</td>
<td>5.9</td>
<td>1.3</td>
<td>2.1</td>
</tr>
<tr>
<td>2.2 Private a/</td>
<td>17.6</td>
<td>20.3</td>
<td>20.5</td>
<td>19.5</td>
</tr>
<tr>
<td>3. Foreign Savings b/</td>
<td>-0.8</td>
<td>5.4</td>
<td>1.2</td>
<td>4.6</td>
</tr>
</tbody>
</table>

a/ Includes both corporate retention and household savings.

b/ Equal to the current account deficits in the balance of payments.

Sources: World Bank country economic memoranda; and Industry Department calculations.
REFERENCES


