

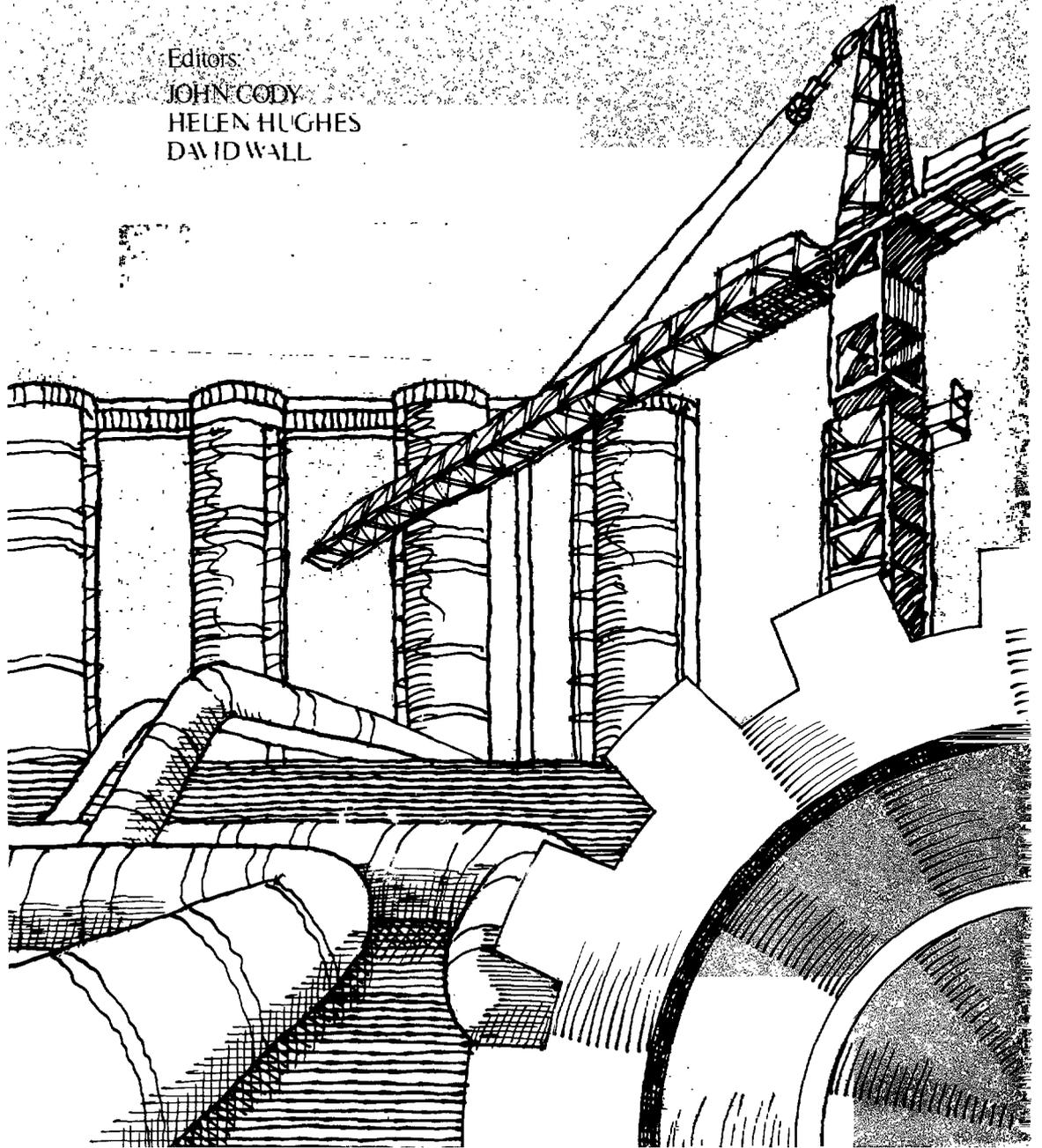
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POLICIES FOR INDUSTRIAL PROGRESS IN DEVELOPING COUNTRIES

A study jointly sponsored by UNIDO and the World Bank

1980

Editors:
JOHN CODY
HELEN HUGHES
DAVID WALL



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in Developing Countries*

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EDITORS

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*Policies for Industrial Progress
in Developing Countries*

Introduction

THE EXPERIENCE OF THE PAST THIRTY YEARS suggests that industrialization has played a critical role in overall development. Countries with rapidly growing industrial sectors have been able to handle development problems, particularly those of employment, much more easily and effectively than those countries in which industrialization has lagged. This does not mean that other sectors—particularly agriculture—can be neglected. On the contrary, if it is to be successful, industrialization must have a symbiotic relationship with other economic sectors, rather than growing at their expense or without regard to them.

In many developing countries industrial growth and accompanying urban development are necessary to relieve pressures on agricultural land and permit its increased productivity, provide markets for primary producers, and supply competitively priced manufactured goods for consumers and other sectors.

Despite the considerable progress already made by the developing countries in these directions, the pace of industrialization, particularly in the lower-income countries, is still far from satisfactory. It is commonly recognized that the pace and structure of industrialization in a country depend on such factors as the endowment of human and natural resources, size and geographic location, and the international environment, all of which affect access to markets, capital, and technology. The influence of industrial development policies, however, has not been so clearly recognized. The wide range of industrialization achievement in the past among countries with similar economic endowments (discussed in Chapter 1) strongly suggests that policies do indeed play a critical role in industrial development. They influence the use of exist-

ing and the development of new resources. They help determine the technical and economic structure of manufacturing, affecting capital-labor ratios, capital utilization, the scale, location, and distribution of plants and firms, competitiveness, and the barriers to entry by new enterprises. These, in turn, are the characteristics that determine the quality and pace of industrial growth.

The developing countries demonstrated in the economic upheavals of the mid-1970s that their capacity for economic management has greatly improved. However, the establishment of ambitious targets, such as that of having 25 percent of total world industrial production located in developing countries by the year 2000, set by the Second General Conference of the United Nations Industrial Development Organization (UNIDO) in 1975, would require further substantial improvement in management, with concomitant policy changes. Such targets also require an acceleration in the restructuring of manufacturing in industrialized countries to accommodate further expansion in international trade in manufactures.

When the developing countries began to consider strategies for industrialization, the USSR had demonstrated that centralized command planning could force a high rate of industrialization in an underdeveloped country; the rapid growth of industry in centrally planned economies underlined this perception after World War II. An important role for government came to be accepted in market economies also. The depression of the 1930s and the subsequent Keynesian revolution in economic thought indicated that a market economy could not be expected to be self-equilibrating. World War II brought central direction to almost every corner of the market economies.

Since then, some of the market-oriented developed countries such as France have placed considerable emphasis on indicative planning. Growing recognition of economic and social aspirations has made previously acceptable inequities in the distribution of income intolerable, with a consequent need for more government intervention to supplement and correct the workings of the "invisible hand" of competitive markets. In developing countries only the government could mobilize the resources to provide the social and physical infrastructure needed for industrial and other development. It was thus generally accepted that governments would have to play a central role in industrialization as part of their overall responsibility for making economic growth and development as rapid and as equitable as possible. But for most developing countries this did not mean abandoning private enterprise as a

key component of industrialization. Only in such countries as the People's Republic of China and Cuba did central planning dominate. In other developing countries, even those such as India where public enterprises were to play a significant role, the main impetus of manufacturing was to be borne by private entrepreneurs. The lessons of the USSR and of socialist planning were not all positive. Central planning was also seen to have drawbacks, particularly in supplying consumers with low-cost, high-quality goods. Government intervention was thought to be powerful enough to ensure that the social ends of industrialization could be met even in a predominantly private enterprise economy.

The formulation of an explicit industrialization strategy has therefore been an important component of the industrialization process. A few countries have followed "basic industry" strategies, but most, in evolving strategies for import substitution, export orientation, or, more recently, basic needs, have given considerable scope to market forces. In some countries strategies have flowed from strongly held ideological positions, especially with regard to the roles of the public sector and of private foreign investment, but in other countries they have been devised more pragmatically and have been influenced more by short-term issues than by long-term ideological objectives.

Central planning through investment allocation for material production targets for the whole manufacturing sector has been used by a relatively small number of developing countries—although notably by the largest, China. Most developing countries have chosen to implement their plans through a mix of investment allocations and industrial development policies. Investment allocation may be direct, that is, it may be for the establishment of industrial enterprises; or it may be indirect, that is, for the construction of such infrastructure facilities as roads, ports, and public utilities that are essential to the operation of industrial enterprises. In recent years a highly sophisticated social cost-benefit evaluation methodology has been evolved for such projects, enabling them to be ranked by their likely future contribution to broadly determined social objectives, as well as by their financial returns at existing market prices. Essentially, the market prices of goods and services that are inputs into production, of factors of production (labor, capital, technology, and entrepreneurship), and of the outputs of manufacturing and other activities are translated into shadow prices that reflect social valuations. Several methods of valuation may be used; they are so amply described in the literature that social cost-benefit

analysis is merely discussed in passing in this book, except in Chapter 7, which deals with investment and pricing decisions in public manufacturing enterprises.

The main weight of plan and strategy implementation in most developing countries rests on industrial development policies. These have an impact on the decisionmaking of enterprises, both private and public, in two ways: first, by across-the-board policies which affect the relative prices at which enterprises buy and sell goods and services; second, by direct measures of control, tailored to individual firms or industries, such as production licensing, price controls, or public ownership, which stipulate the conditions firms must meet to enter into, or remain in, production. Social cost-benefit evaluation is increasingly used to rank the social value of manufacturing projects subject to such direct controls, as indicated in Chapter 6.

Industrial controls are designed to fulfill industrialization strategies; they have little effect on other aspects of the economy. But the trade, financial, tax, labor, and other policies that affect the decisions of manufacturing enterprises fulfill other functions in the management of an economy. In particular, the profitability of an industrial enterprise is determined by the impact of policies on prices, so that in a real sense prices link planning, intervention in direct investment, and policy formulation at the macro- and microeconomic levels. Shadow price estimates are of necessity approximations, and in practice it is often enough to know the direction and likely range of the departure of shadow from market prices, rather than to know absolute numbers. The relationship of project evaluation shadow prices derived from partial equilibrium models and economy-wide shadow prices based on general equilibrium models—a highly technical subject—is, again, not treated in this book. A notional economy-wide shadow price framework that identifies the principal ways in which market prices differ from shadow prices, and that may be supplemented by particular shadow prices for input and output products and services in the case of manufacturing project evaluation, will go a long way toward providing the necessary links among planning, investment, direct controls, and overall policies. But it will be an effective instrument only if the planning and administrative units concerned work in close cooperation.

In the idealized world assumed by textbook theories of economic policy, the policy problem is seen as simply one of maximizing some utility (or production) function on the basis of a given set of shadow prices. Policy intervention is then called for only when market imperfections or potential gains from such externalities as growth of supply

and downstream industries are present. Policy instruments are assumed to be known and uniquely ranked in a first-best to n th-best hierarchy, according to the extent to which they compensate for the imperfections or externalities and allow the attainment of the maximization of the utility (production) functions.

In the real world, however, the policy formulation process is not as simple as such a theoretical scheme might suggest. The utility (or production) function of textbook theory turns out to be derived from the often conflicting objectives of politicians who form governments. Governments change. Yet, in an ideal world these objectives would have to be spelled out in terms of operational targets for economic sectors before the process of selecting appropriate policy instruments to achieve them could begin. In the real world the process is higgledy-piggledy with changes in government, changing circumstances resulting from the impact of development itself, a changing external environment, and events such as bad monsoons or the discovery of new mineral resources that lead to changes in objectives and hence in the policy instruments required. The real world requires the constant consideration of tradeoffs: between consumption now and consumption later; between efficiency and self-sufficiency; and sometimes between equality and growth.

Governments also face constraints in choosing policy instruments. One is imperfect information. Even with a good eye for the relevant and with sophisticated approaches to information gathering and processing that include cost-reducing methods (such as sampling in lieu of censal approaches), information will remain limited. It is on such an imperfect basis, albeit supplemented by such techniques as sensitivity and range analysis (as indicated in Chapter 4) that the resources available have to be assessed.

Resources are not just physical; they cannot be assessed without reference to administrative capacity. To a large extent the policymaker is always a victim of the past. The chessboard is never clear. Policies and their administration create interest groups which call for their perpetuation in the economy and within the bureaucracy. Policy changes can thus be difficult to implement. Most economies have structural rigidities. Workers or entrepreneurs may not respond to price changes. Consumers are notoriously balky, preferring imported to local goods, sometimes regardless of quite high prices.

Nor is this phenomenon confined to luxury goods. Policies, as the chapters that follow indicate, often have unanticipated by-product effects that turn out to be counterproductive. In policies with a general

purpose, such as taxation, the objectives of industrialization may have to be subordinated to broader, economy-wide requirements. If several policies are used to induce a desired objective—for example, an adequate flow of foreign investment—they may together lead to overkill; that is, foreign investors may be granted too many privileges.

It is extremely difficult to design policies that are clear and direct, yet flexible in the sense that they can reflect changing circumstances over time. Undue flexibility may enable those with political-economic power to bend the system to their advantage. The real world constraints on policy formulation mean that in practice policy choice is likely to be limited to second-, third-, fourth-best, or even worse solutions. If policymakers can, however, set out a notional hierarchy of policies from first to *n*th-best and select policies by moving systematically down it until constraints no longer bind, they are more likely to avoid costly mistakes than if they opt for policies without such analysis.

Constraints on policy formulation are often ignored or only referred to in passing in the existing literature on industrial development policy, not because they are unimportant, but because they are difficult to treat in mathematical boxes. The identification of consistent and effective industrialization policies within practical constraints is the subject matter of this book. With the exception of trade policy, the treatment of industrialization policies in the literature of economic development has been piecemeal and sporadic. These essays attempt to bring together the principal elements of the policy framework that influences the course and pace of industrialization in developing countries. They do not provide general rules for decisions that would be suitable to all situations, since policies must be shaped by circumstances. Rather, they examine analytical approaches that can assist decisionmakers in their selection among policy alternatives so as to improve the effectiveness of the policy framework for industrialization.

The authors are for the most part academic economists, but they have practical experience in the analysis of industrial policy in developing as well as in industrialized countries. They reflect a spectrum of views about priorities and possibilities in industrial development, but focus on issues in policy analysis rather than on presenting their individual outlooks. Because the book is intended primarily for practical administrators, the language of theoretical economic journals, mathematics, and sophisticated models has been avoided as much as possible. It should, nevertheless, be of interest to academic economists because it attempts to bridge the chasms that are usually left between theoretical concepts and practical policy formulation.

Only the manufacturing sector and its linkage with other sectors are covered. There is no attempt to deal with the whole gamut of development policy issues, many of which lie beyond the scope of economic analysis. Even with this limitation, the subject is complex, with many interrelationships, so the analysis developed here, although more than exploratory, is of course less than definitive.

In keeping with its concern for issues of practical policy formulation, the book is organized not according to theoretical economic concepts, but rather along the lines of the functional responsibility of the government departments that deal with industrialization policy issues. The objectives and achievements of industrialization are reviewed in Chapter 1. Manufactures are generally more easily traded than other goods and services, and foreign exchange and trade policies are therefore the key to industrialization; they are accordingly discussed at length in Chapter 2. Chapters 3, 4, and 5 discuss the principal analytical elements in the formulation of the general policies—that is, financial, labor and technology, and taxation policies—that affect industrial development. Chapters 6, 7, and 8 deal with more direct government intervention through production and price regulation, the public ownership of enterprises, and controls over location and availability of infrastructure. Chapter 9 examines the relations between industrialization and agricultural development. Chapter 10 is concerned with the international environment for industrialization. Each chapter concludes with a brief guide to further reading.

1

Achievements and Objectives of Industrialization

Helen Hughes

The overall objective of industrialization has always been national growth and the improvement of living standards, but the emphasis has shifted with the level achieved and with improved perceptions of the development process. This chapter first focuses on the principal issues that have emerged in recent years as being critical to the achievement of industrialization and that are likely to shape policies in the 1980s. These issues are discussed in terms of growth and efficiency, equity and welfare, and national independence. Although the industrialization of developing countries since World War II has been both unprecedented and unexpected in its rapidity, its level varies greatly among countries. The second section of the chapter discusses the industrialization experience and problems of countries in four categories: industrialized, semi-industrialized, industrializing, and nonindustrial.

A MERE THIRTY YEARS AGO, at the end of World War II, the developing countries had almost no industrial capacity. The severe deficiencies in their social and physical infrastructure made building such capacity difficult, and their lack of experience in economic management exacerbated their problems. In the manufacturing sector, they lacked capital, technical skills, and, above all, entrepreneurial and managerial capacity. Yet in the span of a generation, some of the developing countries have built up a fully industrialized structure; a half dozen of the major ones have become semi-industrialized; most are firmly in an

industrializing stage; and only relatively few, mostly small countries with small populations, are still nonindustrial. While manufacturing grew at an unprecedented rate of 5 percent a year in industrialized countries during this period, in the developing countries it grew even more rapidly, at about 7 percent a year, though this was partly because their industrial base was small. The growth in manufactured exports from developing countries was even more impressive. Although it was widely believed until the 1960s that developing countries would not be able to compete in international markets, from 1960 to 1975 such exports grew at about 15 percent a year compared with a record 10 percent a year growth for manufactured exports from industrialized countries.

The past three decades of industrialization in developing countries have created a second industrial revolution that is transforming the world economy even more radically than did the changes that took place in Great Britain in the late eighteenth and early nineteenth centuries. Apart from a handful of oil-rich countries, the most rapidly growing developing countries have been those that, without neglecting other sectors, have achieved the most efficient and rapid growth in manufacturing industries. While some developing countries have benefited from the ownership of rich raw material resources, industrialization has had a much greater impact on their style and standard of living.

I. Issues in Industrialization

The problems of industrialization have been sharpened by changing international economic relations and changing perceptions about priorities in economic development. They are different for countries at different levels of industrialization and with different political goals. However, some general issues, concerned with economic growth, equity and welfare, and national independence, have always dominated industrialization and are likely to continue to do so into the 1980s.

Industrial Growth and Efficiency

For developing countries, industrialization has been the key to catching up to the high living standards and political stature of industrialized countries. The development of a manufacturing sector has been seen to

depend on access to modern technology, with its concomitant high productivity. It was argued that spillover effects on the rest of the economy would result from the production of sophisticated intermediate inputs and capital goods. Industrialization has thus been seen as an instrument that would also transform agriculture, construction, transport, and other service industries into highly productive sectors.

In an abstract sense, economic analysis offered some basic rules for rapid industrial growth. They were predicated on the existence of competitive national and international markets (and equivalent shadow prices in centrally planned economies) that would enable planners, either directly or in combination with the market mechanism, to ensure the optimal use of resources, including land (and other natural resources), labor, and capital, according to their marginal productivities. The market (or shadow prices) would ensure efficiency in production and distribution.

In practice, of course, such rules were inadequate guides to governments initiating industrialization policies. Neither national nor international markets were competitive. It took the industrialized countries twenty years after World War II to dismantle the trade barriers erected in the 1930s. Even by the 1970s their liberalization of international trade, though well advanced, was not complete. In addition, most developing countries inherited from the colonial era a very imperfect internal market structure. In particular they lacked entrepreneurs who would engage in manufacturing, and they also lacked infrastructure and skilled labor. Trade was dominated by the large corporations of industrialized countries. A strategy of promoting industrialization by protecting infant industries was inevitable in all but a handful of special city-states such as Hong Kong and Singapore. In addition to protective trade regimes, industrialization policies generally gave manufacturers favored access to capital and protected them from internal competition, distorting market prices further.

Economic analysis, moreover, had little to say about dynamic efficiency. Even had markets been competitive, rapid changes in technology, in the availability of resources, and in consumers' tastes made manufacturing relatively risky. It was not possible to anticipate changes in comparative advantage. Moreover, it would not have been possible to measure dynamic comparative advantage even had it been possible to measure current comparative advantage with any accuracy. The tradeoffs between present efficiency and future returns could thus not be calculated with any degree of certainty.

In sum, most developing countries opted to protect infant industries in the 1950s because it seemed the most practical approach to promoting industrialization. Protection, it was argued, was necessary to give private entrepreneurs sufficient encouragement and public enterprises enough shelter through infancy. There were two main approaches. Some countries, in particular India, sought to industrialize around an indigenous core of such industries as heavy metals, chemicals, and capital goods—the “basic industries” approach. Such industries are relatively capital intensive, however, even if adapted to a situation where labor is abundant. Further, they have long periods of investment gestation. Thus this strategy tended to be very costly in its use of capital. At the other end of the spectrum, more market-oriented countries focused on consumption industries that mainly involved assembly of imported materials and gradually worked backward toward basic industries. The capital required for the development of the latter could be earned through the assembly industries, so that industrialization tended to demand less capital. Some industries such as textiles, footwear, furniture, domestic utensils, building materials, and food processing were common to both strategies.

The principal instruments used to protect infant industries were tariffs and quantitative restrictions on imports (with the overvaluation of exchange rates frequently exacerbating the need for protection); financial policies that channeled capital to industry, often at favorable rates; tax holidays; administrative controls over entry into industry; direct ownership of manufacturing enterprises; and investment in infrastructure that would stimulate industrial growth. The degree of overall protection and the level of other incentives to manufacturing varied greatly among countries, and within countries for different industries, and at different times. Together with differences in the industrial base—size of domestic markets, labor skills, and entrepreneurship—these differences in policy led to the differences in the efficiency and pace of industrial growth that resulted in substantial differences in levels of industrialization achieved by the 1970s.

Efficiency is reflected in the utilization of resources. While the structure of industry does not now differ greatly among developing countries (those following a basic industries approach have moved toward production of consumer goods, while those beginning with consumer goods have moved toward basic industries), there is a spectrum of experience in labor-capital intensity and use of capital that appears to reflect the level of protection and other policies used to promote industrial-

ization. The degree to which protection of manufacturing led to biases against agriculture and other nonmanufacturing activities also reflected the level of protection. Excessive protection tended to limit overall economic growth by raising the costs of inputs into agriculture and other primary production and service industries, instead of making such inputs widely and cheaply available, as intended. It accentuated regional imbalances by unduly attracting resources to large cities. High costs also restricted potential consumer markets, limiting the scale of production.

High levels of protection followed from two assumptions prevalent in the 1950s. When the terms of trade fell for primary products after the very high peaks engendered by stockpiling during the Korean War, it was assumed that they would continue to fall indefinitely. This was not the case. Over the long run, the terms of trade for agricultural products and other raw materials have remained fairly stable. The bias against primary production eventually led to balance of payments problems that could have been avoided. It was also widely assumed that developing countries could not compete internationally in manufactures. This also proved not to be the case.

By the late 1960s the success of the small group of countries that had opted for industrialization with a strong export component drew attention to the effects of excessive protection on industrialization and overall growth. Increasingly, policy came to emphasize internationally competitive and export-oriented industrialization as a way of improving the allocation of resources. Efficiency and growth through the exploitation of economies of scale followed. A significant number of Asian, Mediterranean, and Latin American countries opted for exports of manufactures to correct an excessive orientation toward import substitution. For some countries, at first this meant adding large export bonuses to existing manufacturing incentives, often creating a further bias against the rest of the economy. Recently, more sophisticated approaches have avoided excess export incentives as much as excess protection.

The theoretical discussion of optimal paths of industrial growth has not advanced greatly in the last thirty years, but actual experience suggests a number of ways to rapid industrialization. In market economies they range from the completely open approach of Hong Kong to the highly controlled Korea-Japan model. In centrally planned economies they include the USSR and the China models. It is doubtful whether any meaningful generalizations can be made about industrialization strategies. Individual countries have to devise policies that fit their par-

ticular conditions and social, economic, and political objectives. Efficiency is clearly important in industrial growth, but has little meaning beyond such generalities as the need for high productivity of capital and labor, appropriate utilization of the factors of production, or price competitiveness. What is efficient for one country may be inefficient for another. The principal lesson of the past is that policymakers have to be alert to changing circumstances and opportunities.

Equity and Welfare

The anticolonial and development movements were marked by a concern with poverty and were strongly egalitarian in many countries. Ideologies of development owe much to the various streams of socialist thought, and the alleviation of poverty has been a central theme of industrialization from the 1940s. Even when it became evident that growth was necessary to break the "vicious circle of poverty," such development economists as Sir Arthur Lewis did not lose sight of the objective of social development when focusing on the means of growth. On the other hand, many market-oriented economists in industrialized countries became so preoccupied with growth that they tended to neglect its underlying objectives. For more than a decade countries attempting to introduce socially oriented development policies were severely criticized by major aid donors. It is somewhat ironic to find developing countries under attack now for ignoring social objectives.

To some extent industrialization and the alleviation of poverty are of course complementary. Provided that industrialization focuses on efficient production of mass consumption goods (private and public), provided that government taxation and investment policies are appropriate, and provided that the choice of techniques takes account of availability of capital and labor, industrial development can have a direct impact on employment and standards of living even in the short run.

Again, however, there are tradeoffs. An excessive concentration on small-scale enterprises, labor intensity, and mass consumption goods could be as damaging to growth as their neglect. Not all industries can be labor intensive. Economies of scale and modern technology with concomitantly high capital intensity have an important role to play in industrialization and are conducive to rapid capital accumulation. Dispersing manufacturing to help rural areas and avoid urbanization ignores internal and external economies of scale that are important sources of dynamic efficiency.

Even in the relatively labor-intensive and rapidly growing industrial sectors, manufacturing has provided for only a small proportion of total employment, at a far slower rate of growth than that of industrial output. Much of the impact of industrial growth on employment has been indirect, through activities that serve industry, and there may well be tradeoffs between the direct and indirect creation of employment.

The debate over employment and basic needs has tended to confuse the desire to alleviate poverty with the means of doing so. Manufacturing is too small a sector in terms of employment—a corollary of its high productivity—to solve social objectives directly. Because of its substantial share in national income, however, with appropriate income distribution policies manufacturing may be used to contribute to meeting social objectives.

Relatively egalitarian income distribution policies and attention to the provision of public as well as private goods in turn influence the structure of manufacturing. Emphasis can then be placed on the production of mass consumption goods, and industrial policies can foster efficiency and growth along with welfare.

A peripheral issue related to industrialization that is receiving increasing attention is the separation between the formal, privileged, large-scale manufacturing sector and other urban economic activities such as small-scale trade crafts and even small manufacturing. Rigid dualism restricts trade and the movement of resources between the two sectors and may become an obstacle to rapid industrial and overall growth. Relevant in this respect are policies affecting the availability of resources, particularly capital, to firms of certain sizes, and the impact of other policies such as licensing and taxation on small-scale firms. But it has become evident in recent years that dualism in the structure of manufacturing can be a strong and healthy trend in the industrialization process, providing there is vigorous and creative interaction between the large-scale modern manufacturing sector and the more traditional small-scale sector. The latter can be used as a “holding” sector for labor, even as more capital-intensive and large-scale manufacturing develops. Subcontracting by small firms for large firms has for long been seen in East Asia as part of a healthy relationship between the two sectors. It encourages the creation and strengthening of entrepreneurial capacities and an appropriate use of capital and labor resources, with a corresponding emphasis on the locational relationships of small and large firms. In many countries, however, such creative dualism has yet to be achieved. The formal sector is still excessively subsidized, while

small-scale enterprises are repressed, sometimes inadvertently, by policy measures intended to stimulate manufacturing growth.

National Independence

A concern with economic independence and escape from the economic dependence which plagued the colonial and neocolonial countries in the past has been a central theme of industrialization. Defense, modernization, and the desire to be a first-class member of the international community have all played an important role in industrialization and will undoubtedly continue to do so. Political considerations of independence often run counter to both economic efficiency and growth, and to the goals of equity and welfare in industrialization. For example, self-sufficiency in basic metals, chemicals, and defense industries often receives priority (as indeed it does in high-income countries) over consumer-oriented industries. National pride is likely to dominate economic decisionmaking in such sensitive areas as foreign investment, the degree of processing of primary products for exports, and the transfer of technology.

The principal external relationships of the industrial sector, as for the economy as a whole, are in trade. Unlike agriculture, manufacturing has no subsistence sector, manufactured goods are less liable to spoilage than are agricultural products, and there are fewer arguments for complete self-sufficiency because it is a less practical objective. Only such very large countries as China, the USSR, and the United States have the resource base for a largely autarkic manufacturing sector, and even they have found trade in manufactures increasingly worthwhile. For medium-size and small countries, trade in manufactures is essential for efficient industrialization. Access to raw materials and, at early stages of industrialization, to capital goods is only part of the need for trade. Without it most countries will not have markets of adequate size to be able to exploit economies of scale and defeat monopolistic tendencies. A medium-size industrializing country might have a large enough market for one efficient basic metal plant, but not for the half dozen it needs to ensure efficiency through competition. For market-oriented countries particularly, trade is essential not only to achieve the gains that complementarity between countries with different natural resource endowments (including labor) can offer, but even more to achieve the efficiency that comes from competitiveness among countries with similar endowments. Because of the importance of entrepreneur-

ship and management in manufacturing, efficiency or inefficiency applies to firms individually rather than to industries as a whole. Trade arises from the competitiveness of firms. Thus, much of the trade in manufactures that takes place among industrialized countries is intra- rather than interindustry.

A country that trades to take advantage of economies of scale and complementarities is not dependent on the world economy in the way that developing countries were dependent on the metropolitan countries during colonial times. Today countries at lower levels of industrialization benefit from trade with industrialized countries and among themselves, and they are free to shift their trade patterns according to their economic preferences. There are market imperfections. Some protection remains in industrialized countries, and it is extremely high in the centrally planned economies and in developing countries. Competition is far from perfect in many markets. Trade has nevertheless grown, and the developing countries that have participated have grown much faster than those that have not, and they believe they have benefited.

If trade is to take place smoothly, it requires some international rules. Observing such rules of course limits national sovereignty and thus independence. For developing countries, this has not been a serious issue to date, for they have been exempt from most international obligations. As the industrial structures of the more advanced developing countries mature, however, developing countries are becoming aware of the necessity to observe international rules if they are to benefit from access to international markets. Such issues as reciprocity in trade negotiations, avoidance of export subsidies, and limits on privileged access to the markets of industrialized countries are therefore coming to the forefront in international negotiations.

Capital is scarcer in developing than in industrialized countries generally, and up to a point its marginal productivity in manufacturing in developing countries is usually higher than in industrialized countries. The bulk of foreign capital flows to manufacturing in developing countries has been in the form of direct foreign investment (in recent years with associated bank lending). Developing countries fear that transnational corporations are likely to infringe on their independence in a number of ways. They fear direct political pressure from the parent company's government. They fear that the transnational's subsidiary, with its privileged access to capital abroad, will ignore the developing countries' financial directives and will escape national taxes through

transfer pricing at other than competitive prices. They fear that the transnationals will attempt to exert local political power to obtain economic advantages in the form of high tariffs and monopolies.

There is some basis for all these fears, for variants of these transnational activities have taken place. But direct foreign investment has provided benefits, and the developing countries have learned to manage it over the years. They now understand that with well-designed macro- and microeconomic policies, they can ensure that the benefits exceed the costs and that loss of political sovereignty is avoided. Current issues concern the structure and implementation of policies—trade, monetary, fiscal, labor, and others—which determine the conditions under which foreign investment operates. Some developing countries are themselves becoming foreign investors, albeit on a small scale, initiating the two-way flow of foreign investment that is typical of industrialized countries.

The transfer of technology from industrialized countries, often closely linked with private direct foreign investment, is also linked to independence. Two principal aspects are the appropriateness of the technology being transferred and the net cost of the transfer. Much again depends on a country's industrial policy framework and on its policies toward education, technology, and science. In the past some developing countries, regardless of the relative abundance of their capital compared with labor, tended to regard highly complex and capital-intensive technology as appropriate for all manufacturing industries. They opted, through trade and artificially low interest policies, for a mix of capital and technology-rich industries.

There is a growing recognition that as long as the framework of a country's policy is appropriate, the international movement of firms and associated technology can improve resource allocation and efficiency without damage to balance of payments or national integrity. Countries that have effectively controlled capital and technology imports through a wise mix of monetary, trade, taxation, and other policies, augmented by direct controls where appropriate, have again done well. In contrast, autarkic policies have often led to slow growth and heavy dependence on aid with a concomitant impairment of independence.

II. Levels of Industrialization

A variety of indicators has been used to categorize levels of industrialization. The share of value added in manufacturing (including small-

scale manufacturing production) in the gross domestic product (GDP) is the most widely used. Typically, however, the share of manufacturing output in total output first rises and then declines because the traditional service sector, high at early levels of development, falls in importance as industrialization and overall development proceed. Then, as higher levels of per capita income are reached, new services such as advertising and tourism become important. An alternative measure of the level of industrialization is the value added in manufacturing as a share of the value added in total commodity production, that is, in agriculture, fishing, and forestry; mining; manufacturing; power and other utilities; and construction. This is the principal measure of industrialization used here.

The data on which the classification of industrialization is based are of course far from perfect, and official exchange rates distort comparisons among countries. In countries with a very large agricultural sector, even substantial manufacturing sectors become swamped by agricultural output. If manufacturing is protected, it tends to be valued above international price levels, exaggerating the output of manufacturing with regard to most primary production, which is usually priced roughly at international levels in national accounts systems and, in the case of subsistence farming, sometimes even below them. Nevertheless, in general the ratio of value added in manufacturing to value added in commodity production provides convenient cut-off points for ordering countries according to four levels or categories of industrial development: industrialized, semi-industrialized, industrializing, and nonindustrial.

The estimates indicating levels of industrial development are merely orders of magnitude and do not, of course, have any normative connotation. Although some broad patterns of industrial development emerge at successive levels of per capita income (in terms of both the level of industrialization and the composition of industry by principal products), these patterns largely reflect the similarity of industrialization strategies and policies. They do not indicate an optimal industrial growth path. Indeed, the experience of the last thirty years suggests that industrial policies have been insufficiently responsive to the needs and growth possibilities of individual countries. In the 1900s the economies of Argentina and Australia were alike, with similar resource endowments, largely European immigrant populations, per capita incomes that were among the highest in the world, and the beginnings of industrial growth. China had areas of industrial activity as advanced as or even larger than Japan's. Differences in political, social, and econom-

TABLE 1-1. INDUSTRIALIZATION INDICATORS, 1976: INDUSTRIALIZED COUNTRIES

| Country | Population (millions) | GNP per capita (U.S. dollars) | GNP per capita growth 1960-75 (percent) | Value added in manufacturing | | | | |
|----------------------------------|--------------------------|-------------------------------------|---|--|------------------------------|--|----------------------|---|
| | | | | Total (millions of U.S. dollars) | Per capita (U.S. dollars) | Growth 1960-76, in constant prices (percent) | Percentage of GDP | Percentage of value added in commodity production |
| <i>Developed countries</i> | | | | | | | | |
| <i>Europe</i> | | | | | | | | |
| Austria | 7.52 | 5,330 | 4.3 | 12,826 ^a | 1,706 ^a | 3.7 ^b | 31.6 ^a | 64.2 |
| Belgium | 9.83 | 6,780 | 4.4 | 17,335 ^c | 1,769 ^c | 5.9 ^b | 29.5 ^c | 67.2 ^c |
| Bulgaria ^d | 8.76 | 2,310 | 4.6 | 7,272 ^e | 830 ^e | 8.3 ^{ef} | 35.9 ^e | 53.9 ^e |
| Czechoslovakia ^d | 14.92 | 3,840 | 2.7 | 24,590 ^e | 1,648 ^e | 3.8 ^{bc} | 43.0 ^e | 66.0 ^e |
| Denmark | 5.07 | 7,450 | 3.5 | 9,855 | 1,944 | 4.5 ^b | 25.6 | 61.7 |
| Finland | 4.73 | 5,620 | 4.5 | 7,488 | 1,583 | 6.3 ^b | 26.6 | 54.4 |
| France | 52.92 | 6,550 | 4.2 | 95,217 | 1,799 | 4.3 ^{be} | 27.5 | 64.4 |
| Germany (Dem. Rep.) ^d | 16.79 | 4,220 | 3.2 | 30,626 ^e | 1,823 ^e | 3.6 | 43.2 ^e | 69.9 ^e |
| Germany (Fed. Rep.) | 62.00 | 7,380 | 3.5 | 165,846 | 2,675 | 4.6 ^b | 37.2 | 72.4 |
| Hungary ^d | 10.60 | 2,280 | 3.1 | 8,184 ^e | 772 ^e | 4.3 ^e | 33.9 ^e | 53.0 ^e |
| Iceland | 0.22 | 6,100 | 3.3 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Ireland | 3.16 | 2,560 | 3.9 | 1,546 ^{gh} | 500 ^{gh} | 3.3 ^{gi} | 29.7 ^{gh} | 68.0 ^g |
| Italy | 56.19 | 3,050 | 3.9 | 52,075 ^c | 933 ^c | 7.2 ^b | 31.1 ^c | 61.1 ^c |
| Luxembourg | 0.36 | 6,460 | 2.6 | 792 ^c | 2,212 ^c | n.a. | 43.0 ^c | 66.7 ^c |
| Netherlands | 13.77 | 6,200 | 3.8 | 23,164 ^c | 1,696 ^c | 6.1 ^b | 28.4 ^c | 65.6 ^c |
| Norway | 4.03 | 7,420 | 3.6 | 8,845 ^e | 2,195 ^e | 4.6 ^b | 28.3 ^e | 67.6 ^e |
| Poland ^d | 34.34 | 2,860 | 4.0 | 37,282 ^e | 1,086 ^e | 6.9 | 38.0 ^e | 57.4 ^e |
| Romania ^d | 21.45 | 1,450 | 8.3 | 12,350 ^e | 576 ^e | 10.1 ^c | 39.7 ^e | 52.5 ^e |
| Sweden | 8.22 | 8,670 | 3.1 | 20,025 ^c | 2,442 ^c | 4.8 ^b | 29.0 ^c | 67.8 ^c |
| Switzerland | 6.41 | 8,880 | 2.6 | n.a. | n.a. | n.a. | n.a. | n.a. |
| United Kingdom | 56.07 | 4,020 | 2.2 | 55,024 | 981 | 2.5 ^b | 25.0 | 63.8 |
| USSR ^d | 256.67 | 2,760 | 3.8 | 225,428 ^{ce} | 887 ^{ce} | 6.2 ^b | 31.8 ^{ce} | 49.5 ^c |

| | | | | | | | | | |
|-------------------------------|--------|-------|-----|----------------------|--------------------|------------------|-------------------|-------------------|--|
| North America | | | | | | | | | |
| Canada | 23.18 | 7,510 | 3.6 | 36,496 | 1,574 | 5.6 ^b | 18.8 | 53.2 | |
| United States | 215.12 | 7,890 | 2.5 | 348,500 ^c | 1,632 ^c | 3.5 ^b | 23.1 ^c | 64.2 ^c | |
| Asia | | | | | | | | | |
| Japan | 112.77 | 4,910 | 7.7 | 168,683 ^c | 1,512 ^c | 9.5 ^b | 34.4 ^c | 70.5 | |
| Oceania | | | | | | | | | |
| Australia | 13.66 | 6,100 | 3.1 | 18,238 ^c | 1,351 ^c | 3.7 ^b | 22.3 ^c | 50.5 ^c | |
| New Zealand | 3.09 | 4,250 | 2.0 | n.a. | n.a. | n.a. | n.a. | n.a. | |
| Africa (south of Sahara) | | | | | | | | | |
| South Africa | 26.03 | 1,340 | 2.3 | 7,605 ^c | 299 ^c | n.a. | 22.9 ^c | 71.3 ^c | |
| <i>Transitional countries</i> | | | | | | | | | |
| Europe | | | | | | | | | |
| Greece | 9.12 | 2,590 | 6.6 | 3,997 | 438 | 10.2 | 20.7 | 41.9 | |
| Malta | 0.33 | 1,780 | 6.8 | 153 | 464 | n.a. | 34.6 | 85.3 | |
| Portugal | 9.73 | 1,690 | 6.9 | 4,808 | 494 | 8.4 | 35.2 | 67.7 | |
| Spain | 35.70 | 2,920 | 5.7 | 38,414 | 1,076 | 10.0 | 38.7 | 81.1 | |
| Yugoslavia | 21.52 | 1,680 | 5.5 | 12,986 | 604 | 7.2 | 43.4 | 75.7 | |
| Asia | | | | | | | | | |
| Hong Kong | 4.46 | 2,110 | 6.5 | 2,541 | 570 | 11.6 | 28.0 | 77.8 | |
| Singapore | 2.28 | 2,700 | 7.6 | 1,459 | 640 | 14.1 | 24.4 | 66.8 | |
| Taiwan | 16.30 | 1,070 | 6.3 | 6,320 | 387 | 18.0 | 36.6 | 63.8 | |
| North Africa and Middle East | | | | | | | | | |
| Israel | 3.56 | 3,920 | 5.2 | 2,736 ^c | 789 ^c | 8.8 ^b | 27.0 ^c | 59.7 ^c | |
| Africa (south of Sahara) | | | | | | | | | |
| Rhodesia | 6.53 | 550 | 2.4 | 851 ^c | 135 ^c | n.a. | 24.8 ^c | 44.2 ^c | |

n.a. Not available.

a. Includes mining. b. 1960-75. c. 1975.

d. The national accounts system of these countries differs from that of the other countries. The data shown here are therefore derived from national accounts estimates based on the Social National Accounts (SNA) concepts. The trade data have been converted to U.S. dollars at the official exchange rate.

e. Includes mining and electricity.

f. 1960-73.

g. Includes mining, electricity, and construction. h. 1974. i. 1960-74.

Source: World Bank, *World Tables, 1976* (Baltimore: Johns Hopkins University Press, 1976), April 1979 data base.

ic policies have been much more important than natural endowment, the size and situation of these countries, or their initial levels of development in determining their rates of industrial development.

Industrialized Countries

Industrialized countries are defined in the main as those in which the share of manufacturing constitutes more than 60 percent of value added in commodity production (see Table 1-1). This group consists largely of the United States and high-income countries in Europe, which have had some 200 years of industrial experience, but it also includes such relative newcomers as Japan, Australia, Canada, New Zealand, and the countries of Eastern Europe.

However, in some high-income countries with mature industrial structures (for example, Australia and Canada), primary industries are of such weight that value added in manufacturing is less than 60 percent. And in a few developing countries with relatively low per capita income levels but highly developed manufacturing sectors, manufacturing is more than 60 percent of commodity production. This is true of Taiwan¹ and the city-states of Hong Kong and Singapore. In some cases high protection and the consequent overvaluation of value added in manufacturing give a somewhat exaggerated impression of the level of industrialization. Argentina, Brazil, and Mexico have been classified as semi-industrialized although their share of manufacturing is approximately 60 percent of the value of commodity production (see Table 1-2).

The industrialized countries are well endowed with entrepreneurs, managers, and technical experts; in those with market economies, these people are usually found in private enterprise, whereas in countries with centrally planned economies they are in public enterprises. Educational levels are high, as are industrial and technological skills. Foreign firms and managers participate in the market economies, and foreign technology is freely used, but the flow is two-way. The only major exceptions are Australia, Canada, and New Zealand, which are largely foreign capital recipients, and Japan, which until recently in effect barred foreign management and capital. Some centrally planned economies have become receptive to international investment flows, particu-

1. The Republic of China is referred to throughout the book as Taiwan.

larly to some types of technologically intensive investment from the market economies.

For most of the industrialized countries, the acute frictions and problems of industrialization are now past. In those with market economies, the principal issues are full employment and steady growth, without the disruptions of recession and inflation, and a balance between private and public consumption in the continuing improvement of the quality of life. Where the price system is the principal determinant of economic activity, market prices are for the most part not too far from social prices, particularly for goods which can be traded. Monetary and credit policies attempt to reflect overall social priorities and so does the tax system. Organized labor and industry play countervailing roles in incomes bargaining, and in the economy more generally. There are legislative attempts to mitigate the consequences of monopoly.

Countries with centrally planned economies until recently relied on relatively intensive use of labor in manufacturing, and their technology was heavily inclined toward a relatively high use of raw materials, particularly energy. Productivity of labor and capital tended to be lower than in the market economies. These countries are now rapidly upgrading their technology and, with it, productivity.

The bulk of manufacturing in the industrialized countries is generally located in major urban centers that have grown to exploit geographical economies of scale. In some industrialized countries, poorly patterned urban development has had heavy social costs. The location of manufacturing and the appropriate scale and structure of cities are thus important policy issues in these countries. Others have followed more decentralized patterns of industrial development, with a consequent balance in the hierarchy of cities and towns.

Semi-Industrialized Countries

In the semi-industrialized countries, the share of manufacturing tends to run from 40 to 60 percent of value added in commodity production (see Table 1-2). Singapore, Hong Kong, and Taiwan have, as indicated, only recently graduated from this category. Korea² is the leading example in East Asia while Argentina, Brazil, Chile, and Mexico are the semi-industrialized countries of Latin America. India and China are placed

2. The Republic of Korea (South Korea) is referred to throughout the book as Korea.

TABLE 1-2. INDUSTRIALIZATION INDICATORS, 1976: SEMI-INDUSTRIALIZED COUNTRIES

| Country | Population (millions) | GNP per capita (U.S. dollars) | GNP per capita growth 1960-75 (percent) | Value added in manufacturing | | | | |
|---------------------------------------|--------------------------|-------------------------------------|---|--|------------------------------|--|----------------------|---|
| | | | | Total (millions of U.S. dollars) | Per capita (U.S. dollars) | Growth 1960-76, in constant prices (percent) | Percentage of GDP | Percentage of value added in commodity production |
| Latin America and Caribbean | | | | | | | | |
| Argentina | 25.72 | 1,550 | 3.1 | 16,240 | 631 | 5.9 | 34.3 | 61.4 |
| Brazil | 109.96 | 1,440 | 4.3 | 33,351 | 266 | 12.0 | 28.8 | 62.0 |
| Chile | 10.45 | 1,050 | 1.3 | 2,383 | 228 | 2.8 | 21.6 | 51.7 |
| Mexico | 62.02 | 1,090 | 3.2 | 20,537 | 331 | 8.2 | 26.1 | 58.9 |
| Asia | | | | | | | | |
| China (People's Rep. of) ^a | 835.80 | 410 | 5.2 | 139,684 ^b | 167 ^b | 6.9 ^b | 40.7 ^b | 51.6 ^b |
| India | 620.40 | 150 | 1.3 | 11,966 | 19 | 4.4 | 16.3 | 23.1 |
| Korea (Dem. Rep.) ^a | 16.25 | 470 | 3.8 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Korea (Rep. of) | 35.97 | 670 | 7.1 | 5,692 | 158 | 18.8 | 26.6 | 42.8 |
| North Africa and Middle East | | | | | | | | |
| Jordan | 2.79 | 610 | 1.3 | 271 | 97 | 7.7 | 22.9 | 65.2 |
| Lebanon | 3.06 ^c | 1,070 ^c | n.a. | 398 ^{de} | 134 ^{de} | 6.1 ^{df} | 14.6 ^{de} | 45.7 ^{de} |

n.a. Not available.

a. The national accounts system of these countries differs from that of the other countries. The data shown here are therefore derived from national accounts estimates based on the SNA concepts. The trade data have been converted to U.S. dollars at the official exchange rate.

b. Includes mining and electricity.

c. 1974.

d. Includes mining.

e. 1973.

f. 1960-73.

Source: World Bank, *World Tables, 1976* (Baltimore: Johns Hopkins University Press, 1976), April 1979 data base.

in this category because their industrial sectors are large and complex, encompassing all stages of manufacturing from basic metals and capital goods to light consumer goods, even though their agricultural sectors still swamp manufacturing output.

In general, the semi-industrialized countries have relatively well-established public or private manufacturing sectors. They have also clearly overcome the very acute initial shortages of human and physical capital. The countries in this category began to industrialize in technologically complex sectors with relatively capital-intensive but fragmented production that did not benefit from economies of scale. Israel and Hong Kong were the first to break from this pattern in the mid-1950s, followed by Taiwan, Korea, and Singapore in the 1960s. Several other semi-industrialized countries have done so since. The various countries in this group, however, followed widely differing monetary, fiscal, and labor policies that led to differences in their industrial structures. The East Asian countries (including those in the industrialized category) are generally much more labor intensive than Latin American countries. The high utilization of their most ample resource for production—labor—has made them more competitive internationally. Over the years they have succeeded in balancing industrial development with that of other sectors, in particular agriculture. They have been among the most rapidly industrializing and most rapidly growing developing countries.

The geographic concentration of manufacturing is often greater in semi-industrialized than in industrialized countries, with most manufacturing plants in a handful of centers where physical infrastructure was initially available. Although other industrial areas are now being developed, generally the urban concentrations around manufacturing have caused greater socioeconomic problems in semi-industrialized than in industrialized countries. The semi-industrialized countries do not have the infrastructure and high levels of income that would make rapid improvement of urban areas economically, and often politically, possible.

Industrializing Countries

The share of manufacturing in industrializing countries tends to be 20 to 40 percent of value added in commodity production (see Table 1-3). The bulk of developing countries in Latin America, Asia, and Africa fall into this category. Some countries' industrial production is heavily weighted by

TABLE 1-3. INDUSTRIALIZATION INDICATORS, 1976: INDUSTRIALIZING COUNTRIES

| Country | Population (millions) | GNP per capita (U.S. dollars) | GNP per capita growth 1960-75 (percent) | Value added in manufacturing | | | | |
|-----------------------------|--------------------------|-------------------------------------|---|--|------------------------------|--|----------------------|---|
| | | | | Total (millions of U.S. dollars) | Per capita (U.S. dollars) | Growth 1960-76, in constant prices (percent) | Percentage of GDP | Percentage of value added in commodity production |
| Europe | | | | | | | | |
| Cyprus | 0.63 | 1,480 | 4.7 | 116 | 184 | 6.2 | 16.3 | 36.5 |
| Turkey | 41.24 | 990 | 4.0 | 9,911 | 240 | 11.3 | 27.6 | 48.8 |
| Latin America and Caribbean | | | | | | | | |
| Barbados | 0.24 | 1,550 | 5.3 | 39 | 144 | 3.2 | 11.3 | 35.3 |
| Bolivia | 5.79 | 390 | 2.5 | 265 | 46 | 5.1 | 10.7 | 18.1 |
| Colombia | 24.23 | 630 | 2.7 | 3,429 | 142 | 6.9 | 22.7 | 40.5 |
| Costa Rica | 2.01 | 1,040 | 3.4 | 298 ^a | 152 ^a | 10.0 | 17.8 ^a | 38.2 ^a |
| Cuba | 9.46 | 860 | -0.6 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Dominican Republic | 4.84 | 780 | 3.4 | 757 ^a | 161 ^a | 7.8 ^c | 21.0 ^a | 39.1 ^a |
| Ecuador | 7.32 | 640 | 3.4 | 798 | 110 | 7.8 | 16.1 | 33.8 |
| El Salvador | 4.13 | 490 | 1.8 | 349 | 85 | 7.1 | 16.0 | 33.7 |
| Guatemala | 6.48 | 630 | 2.4 | 609 | 94 | 7.2 | 15.5 | 35.1 |
| Guyana | 0.78 | 540 | 1.5 | 50 | 64 | 3.6 | 12.1 | 20.6 |
| Honduras | 2.98 | 390 | 1.5 | 188 | 63 | 5.3 | 17.2 | 30.2 |
| Jamaica | 2.08 | 1,070 | 3.6 | 593 | 285 | 4.4 | 19.5 | 40.8 |
| Nicaragua | 2.33 | 750 | 2.4 | 393 | 169 | 8.8 | 21.3 | 41.8 |
| Panama | 1.72 | 1,310 | 4.1 | 266 ^d | 165 ^d | 8.4 ^c | 14.5 ^d | 34.9 ^d |
| Paraguay | 2.63 | 640 | 2.0 | 272 | 104 | 5.6 | 16.0 | 28.2 |
| Peru | 15.83 | 800 | 2.7 | 2,234 | 141 | 7.0 | 18.6 | 38.9 |
| Trinidad and Tobago | 1.09 | 2,240 | 2.5 | 360 | 330 | 8.1 | 14.1 | 21.7 |
| Uruguay | 2.80 | 1,390 | 0.5 | 792 | 283 | 1.7 | 24.8 | 53.0 |
| Venezuela | 12.36 | 2,570 | 2.2 | 5,363 | 434 | 6.2 | 17.3 | 32.1 |

| | | | | | | | | | |
|------------------------------|-------------------|--------------------|------|--------------------|-------------------|------|-------------------|---------------------|--|
| Asia | | | | | | | | | |
| Afghanistan | 14.00 | 160 | -0.2 | 74 ^u | 5 ^a | 4.5 | 3.6 ^a | 5.8 ^a | |
| Bangladesh | 80.40 | 110 | -0.6 | 319 | 4 | 2.6 | 6.0 | 8.7 | |
| Burma | 30.82 | 120 | 0.7 | 350 | 11 | 3.2 | 8.9 | 15.4 | |
| Cambodia | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | |
| Indonesia | 135.91 | 240 | 2.4 | 4,413 | 33 | 7.6 | 10.1 | 16.0 | |
| Malaysia | 12.65 | 860 | 4.0 | 1,866 | 148 | 12.0 | 19.6 | 32.7 | |
| Mongolia ^b | 1.49 | 860 | 1.0 | n.a. | n.a. | n.a. | n.a. | n.a. | |
| Pakistan | 71.30 | 170 | 3.3 | 1,894 | 27 | 6.9 | 15.8 | 28.0 | |
| Philippines | 43.29 | 410 | 2.5 | 4,370 | 101 | 7.0 | 24.4 | 39.0 | |
| Sri Lanka | 13.81 | 200 | 2.0 | 324 | 24 | 5.0 | 14.5 | 25.0 | |
| Thailand | 42.96 | 380 | 4.6 | 2,917 | 68 | 10.8 | 18.3 | 33.4 | |
| Viet Nam | 47.60 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | |
| North Africa and Middle East | | | | | | | | | |
| Algeria | 16.23 | 990 | 1.8 | 2,027 | 125 | 9.1 | 13.0 | 20.4 | |
| Egypt | 38.07 | 280 | 1.5 | 3,329 | 87 | 5.1 | 23.9 | 40.9 | |
| Iran | 34.30 | 1,930 | 8.1 | 6,979 | 204 | 13.5 | 10.2 | 15.1 | |
| Iraq | 11.48 | 1,390 | 3.3 | 1,076 | 94 | 7.3 | 6.7 | 44.3 | |
| Kuwait | 1.06 | 15,480 | -2.9 | n.a. | n.a. | n.a. | n.a. | n.a. | |
| Morocco | 17.20 | 540 | 1.9 | 1,021 | 59 | 4.8 | 12.4 | 23.7 | |
| Saudi Arabia | 8.30 ^a | 4,010 ^a | 6.6 | n.a. | n.a. | n.a. | n.a. | n.a. | |
| Syria | 7.65 | 780 | 2.2 | 825 | 108 | 5.7 | 13.5 | 25.6 | |
| Tunisia | 5.73 | 840 | 4.1 | 431 | 75 | 9.8 | 10.8 | 21.5 | |
| Yemen Arab Republic | 6.04 | 250 | n.a. | 23 ^{d, c} | 4 ^{d, e} | n.a. | 23.9 | 4.5 ^{d, e} | |
| Oceania | | | | | | | | | |
| Fiji | 0.58 | 1,150 | 3.4 | 34 ^a | 59 ^a | 2.4 | 10.5 ^a | 28.2 ^a | |
| Africa (south of Sahara) | | | | | | | | | |
| Cameroon | 7.07 | 290 | 3.0 | 324 | 46 | 8.0 | 13.5 | 25.9 | |
| Central African Empire | 1.83 | 230 | 0.4 | 89 | 49 | 5.8 | 22.9 | 31.1 | |
| Congo (People's Rep.) | 1.36 | 520 | 2.9 | 93 | 68 | 8.7 | 13.0 | 46.3 | |
| Ghana | 10.14 | 580 | -0.2 | 1,973 | 195 | 3.0 | 24.8 | 33.5 | |

(Table continues on the following page.)

TABLE 1-3 (continued)

| Country | Population (millions) | GNP per capita (U.S. dollars) | GNP per capita growth 1960-75 (percent) | Value added in manufacturing | | | | |
|--------------------------|--------------------------|-------------------------------------|---|--|------------------------------|---|----------------------|---|
| | | | | Total (millions of U.S. dollars) | Per capita (U.S. dollars) | Growth, 1960-76, in constant prices (percent) | Percentage of GDP | Percentage of value added in commodity production |
| Africa (south of Sahara) | | | | | | | | |
| Ivory Coast | 7.03 | 610 | 3.5 | 551 | 78 | 9.9 | 11.8 | 26.3 |
| Kenya | 13.80 | 240 | 3.2 | 362 | 26 | 9.7 | 12.1 | 22.1 |
| Malagasy | 9.11 | 200 | 0.1 | 341 | 37 | 3.0 | 18.5 | 37.5 |
| Malawi | 5.17 | 140 | 4.1 | 105 | 20 | 12.4 | 13.5 | 23.0 |
| Mali | 5.84 | 100 | 0.9 | 66 | 11 | 6.4 | 10.9 | 19.9 |
| Mauritius | 0.89 | 680 | 0.8 | 99 | 111 | 2.8 | 19.1 | 33.2 |
| Nigeria | 77.05 | 380 | 3.4 | 2,395 | 31 | 10.4 | 7.9 | 11.0 |
| Senegal | 5.13 | 390 | -0.7 | 491 | 96 | 5.1 | 23.8 | 46.3 |
| Swaziland | 0.51 | 470 | 6.8 | 52 | 103 | 15.0 | 24.1 | 36.4 |
| Upper Volta | 6.17 | 110 | 0.7 | 82 | 13 | 5.6 | 13.8 | 27.1 |
| Zambia | 5.06 | 440 | 2.0 | 413 | 82 | 8.0 | 17.8 | 32.8 |

n.a. Not available.

a. 1975.

b. The national accounts system of these countries differs from that of the other countries. The data shown here are therefore derived from national accounts estimates based on the SNA concepts. The trade data have been converted to U.S. dollars at the official exchange rate.

c. 1960-75.

d. 1974.

e. For Yemen, 1974 figures are at 1972 constant prices.

Source: World Bank, *World Tables, 1976* (Baltimore: Johns Hopkins University Press, 1976), April 1979 data base.

mineral processing, and in many cases high protection exaggerates the extent of industrial development.

These countries are well beyond the first steps toward industrialization. Most produce a substantial proportion of the consumer goods required by the local market and a significant range of such intermediate products as construction materials. They have begun or are beginning to produce capital goods. Indonesia and Nigeria can probably be included in this category, although their value added in manufacturing falls short of 20 percent of value added in commodity production. Again, the agricultural sectors of these very large countries swamp their industrial sectors. Except for the large countries in this category, "balanced" industrial structures are based on strategies of heavily protected import substitution. For the sparsely populated oil-rich countries industrialization poses a novel set of problems concerned with export orientation for capital-intensive products.

The range of policies that countries in this category follow is considerable. While none have open economies like those of Hong Kong or Singapore, some have only moderate levels of protection, which they have taken steps to offset in order to promote the export of manufactures. Generally, their monetary and credit policies have been well managed, and they have avoided excessive direct controls. They tend to be internationally competitive and are growing relatively rapidly. Other countries in this group are still very inward-oriented, with a great deal of direct regulation in the form of import and production licensing. Inappropriate monetary and labor policies have stimulated excessive capital intensity. For the most part, these countries have slow industrial growth rates.

The countries in the industrializing category have overcome the initial lack of human and capital resources for industrialization. A pool of indigenous entrepreneurs, managers, and technicians has been established, although it is not yet adequate to expand industrial production at the rapid rate which these countries wish. These countries have built up some of the physical infrastructure—ports, land transport, water supply, and power—necessary for industrial operations, at least in some locations, but it is generally less adequate than in semi-industrialized countries. Manufacturing industries still tend to be clustered in a capital city and perhaps one or two other centers, with concomitant socioeconomic problems. Caracas, Bangkok, Djakarta, and Manila are typical of cities with acute problems of urban development. There are exceptions, however. In Colombia and Malaysia, for example, manufacturing has, for historical reasons, developed in several centers in

TABLE 1-4. INDUSTRIALIZATION INDICATORS, 1976: NONINDUSTRIAL COUNTRIES

| Country | Population (millions) | GNP per capita (U.S. dollars) | GNP per capita growth 1960-75 (percent) | Value added in manufacturing | | | | |
|------------------------------|--------------------------|-------------------------------------|---|--|------------------------------|---|----------------------|---|
| | | | | Total (millions of U.S. dollars) | Per capita (U.S. dollars) | Growth, 1960-76, in constant prices (percent) | Percentage of GDP | Percentage of value added in commodity production |
| Latin America and Caribbean | | | | | | | | |
| Haiti | 4.67 | 200 | -0.4 | 150 | 33 | 2.0 | 17.1 | 27.4 |
| Surinam | n.a. | n.a. | n.a. | 33 ^a | 90 ^a | -3.6 ^b | 7.1 ^a | 13.5 ^a |
| Asia | | | | | | | | |
| Bhutan | 1.20 | 70 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Laos | 3.25 | 90 | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Nepal | 12.85 | 120 | 0.5 | 157 ^a | 12 ^a | n.a. | 4.5 ^a | 14.0 ^a |
| North Africa and Middle East | | | | | | | | |
| Oman | 0.77 | 2,680 | 10.1 | 9 | 11 | n.a. | 0.4 | 0.5 |
| United Arab Emirates | 0.69 | 13,990 | 13.7 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Yemen (People's Dem. Rep.) | 1.49 | 860 | 7.6 | 11 ^a | 73 ^a | 8.2 ^b | 7.4 ^a | 23.7 |
| Oceania | | | | | | | | |
| Papua New Guinea | 2.83 | 490 | 3.8 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Africa (south of Sahara) | | | | | | | | |
| Angola | 5.47 | 330 | 3.6 | 168 ^a | 31 ^a | 7.6 ^b | 5.3 ^a | 9.4 ^a |
| Benin | 3.20 | 130 | -0.3 | 51 | 16 | 6.0 | 10.1 | 19.1 |

| | | | | | | | | |
|-------------------|-------|-------|------|------------------|-----------------|-------------------|-------------------|-------------------|
| Botswana | 0.68 | 410 | 6.0 | 16 | 23 | 5.5 | 5.4 | 13.6 |
| Burundi | 3.81 | 120 | 2.7 | 26 | 7 | 12.7 | 10.1 | 13.1 |
| Chad | 4.12 | 120 | -1.1 | 45 | 11 | 2.3 | 9.6 | 14.6 |
| Ethiopia | 28.68 | 100 | 2.0 | 275 | 10 | 7.6 | 10.3 | 15.8 |
| Equatorial Guinea | 0.32 | 330 | -0.9 | n.a. | n.a. | 8.5 | n.a. | n.a. |
| Gabon | 0.54 | 2,590 | 5.0 | 105 | 194 | n.a. | 7.4 | 14.9 |
| Guinea | 5.69 | 150 | 0.2 | n.a. | n.a. | 17.8 | n.a. | n.a. |
| Lesotho | 1.24 | 170 | 4.6 | 2 | 2 | 17.8 | 2.4 | 5.4 |
| Liberia | 1.60 | 450 | 1.8 | 36 | 22 | 12.2 | 5.3 | 7.6 |
| Mozambique | 9.46 | 170 | 2.0 | 314 ^a | 34 ^a | 8.5 ^b | 12.0 ^a | 20.1 ^a |
| Niger | 4.73 | 160 | -1.3 | 99 ^a | 23 ^a | 12.5 ^b | 16.4 ^a | 25.8 ^a |
| Reunion | 0.50 | 1,920 | 3.9 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Rwanda | 4.21 | 110 | 0.5 | 29 ^c | 7 ^c | 7.0 | 10.0 ^c | 13.5 ^c |
| Sierra Leone | 3.05 | 200 | 1.5 | 30 | 10 | 2.3 | 5.6 | 13.8 |
| Somalia | 3.25 | 110 | -0.3 | 25 ^a | 8 ^a | 16.8 ^b | 8.3 ^a | 20.9 ^a |
| Sudan | 15.88 | 290 | 0.1 | 397 ^a | 26 ^a | 1.9 ^b | 9.7 ^a | 17.0 ^a |
| Tanzania | 15.13 | 180 | 3.0 | 244 ^a | 16 ^a | 8.5 ^b | 10.3 ^a | 17.0 ^a |
| Togo | 2.28 | 260 | 4.4 | 63 | 28 | 6.7 | 10.6 | 30.0 |
| Uganda | 11.94 | 240 | 1.0 | 176 | 15 | 1.9 | 6.7 | 10.7 |
| Zaire | 25.39 | 140 | 1.6 | 210 ^a | 9 ^a | 8.0 ^b | 10.0 ^a | 21.5 ^a |

n.a. Not available.

a. 1975.

b. 1960-75.

c. 1974.

Source: World Bank, *World Tables, 1976* (Baltimore, Johns Hopkins University Press, 1976), April 1979 data base.

each country, and the problems of urbanization are correspondingly less pressing.

Nonindustrial Countries

Some thirty countries fall into the nonindustrial category, with a share of manufacturing that is less than 20 percent of value added in commodity production (see Table 1-4). Only two are in Latin America (Haiti and Surinam), four in Asia and Oceania (Nepal, Bhutan, Laos, and Papua New Guinea); the rest are in Africa. In these countries manufacturing still consists largely of a handful of factories producing construction materials, clothing, textiles, footwear, and processed foods. Beyond that, it consists largely of simple assembly processes. These countries are acutely deficient in human capital—there are severe shortages of entrepreneurs, managers, technicians, and skilled workers—and the establishment of additional factories is very difficult. Most countries in this category are small and have low per capita incomes; the demand for industrial goods is low; and it is difficult to achieve economic levels of production. In many of these countries geography exacerbates the difficulties. Transport facilities are underdeveloped, and in small island or landlocked countries it is difficult to build up highly specialized industrial structures that hinge on trade. Such problems are of course not absolute. Switzerland, with the world's highest per capita income, and Czechoslovakia are landlocked, while Hong Kong and Singapore owe much of the rapidity of their growth to the fact they are island economies. In the short to medium term, however, lack of transport and adjacent markets is a serious deterrent to industrialization.

Despite these problems, the nonindustrial countries are in a more favorable situation than that faced twenty to thirty years ago by countries which are now industrializing or semi-industrialized. Basic infrastructure exists in principal cities, and transport facilities have improved and are still improving. They can draw on a considerable experience of industrialization to avoid costly mistakes. Perhaps the greatest problem many face is the heritage of colonialism in the shape of difficult political conditions that impede the determination and administration of realistic industrial policies.

Overall Trends

Manufacturing now has a firm foundation in developing countries as a group. Indeed, some of the semi-industrialized countries are approach-

ing the same levels of industrial maturity found in some of the lagging industrialized countries. The São Paulo area of Brazil is more industrialized than southern Italy. Other countries such as Portugal and Argentina have characteristics of both industrialized and semi-industrialized countries. The semi-industrialized countries, moreover, account for a substantial proportion of the population of developing countries, even if only the industrialized regions of China and India are included. The nonindustrial countries, on the other hand, account for only a small proportion of the total population of developing countries. Because industrial growth has been very rapid in the industrialized countries since World War II, developing countries as a group do not yet share in world industrial production commensurately with their population. The policies they pursue in the next ten to twenty years will largely determine the speed with which they catch up.

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2

Trade Policies

W. M. Corden

Because manufactures are essentially internationally traded goods, trade and foreign exchange policies are the most important policy instruments for industrialization. This chapter considers exchange rate policies, tariff policies, import quotas, exchange controls, export subsidies, and export taxes. It begins with general considerations and then discusses in more detail the decisions that have to be made in constructing or adjusting a system of tariffs, quotas, export subsidies, and so on, for industrial development. Balance of payments considerations are discussed first because these various instruments, notably the exchange rate, are often intended primarily to influence the balance of payments.

I. The Relationship of the Balance of Payments to Industrial Development

Industrial development can affect the balance of payments, sometimes unfavorably. In its early stages industrial development may lead to large imports of capital goods. It is also possible that the cost of imports of materials and components for industry will exceed in value the additional gross import-saving or foreign exchange-earning output of the manufacturing sector. Thus it is often argued that special balance of payments measures are required if a country is to grow industrially. On the other hand, industrial development may improve the balance of payments through net import saving and new exports. In any case, it

sometimes appears that industrial development creates a balance of payments problem, thus generating measures to rectify it.

The relationship may also go the other way. Instead of industrial development affecting the balance of payments, a balance of payments problem may give rise to industrial development. The balance of payments may deteriorate for reasons that initially have nothing to do with industrial development. Export prices may have slumped, or the government may have become unable to continue borrowing abroad at previous rates. It then becomes necessary to use devices that will expand exports or cut imports. Obvious ones are exchange rate devaluation or import quotas. By making imports more expensive in terms of domestic currency, or just making them scarcer through the operation of quotas, industrial development that competes with imports is encouraged. Industrial development is then fostered by the measures taken to deal with a balance of payments difficulty. Indeed, this is the origin of large-scale industrial development in some countries. For example, export prices in many primary-product exporting countries slumped in the aftermath of the Korean War boom in 1952-53, creating balance of payments crises. These led to higher tariffs or more restrictive quotas being imposed. Eventually these measures generated additional industrial development.

It is thus clear that policymakers concerned with industrial development can rarely ignore balance of payments considerations. They cannot ignore either the way in which their own policies affect the balance of payments, or the effects on industrial development of policies motivated by balance of payments considerations. It therefore becomes particularly important to distinguish balance of payments policies from industrial development policies and to see clearly the nature of a balance of payments problem.

Balance of Payments Dependence on Aggregate Expenditure

The balance of payments on current account depends on the relation between aggregate expenditure (or domestic absorption of goods and services) and aggregate output, the latter being equal to income. If expenditure exceeds output, there is a current account deficit. A deficit cannot be reduced unless expenditure is reduced or output is raised. If the country is already operating at full capacity, then expenditure has to be reduced. Of course, capital movements also need to be taken into account. If there is capital inflow from abroad, it may be possible for a

country to continue running a current account deficit. The present discussion assumes a case where the current account deficit has to be reduced.

If the process of industrial development is generating a balance of payments deficit, it must be causing expenditures to rise more than output. This may be because foreign capital is financing the excess expenditure, in which case the current account deficit is balanced by a capital account surplus. But it may also be the result of generous monetary and fiscal policies. Domestic industrial investment is perhaps being financed by the creation of domestic credit or by public subsidies financed by deficits. If the balance of payments deficit has been generated by a fall in export prices, the decline in incomes of exporters must not have been matched by an equal decline in their expenditures.

Role of the Exchange Rate

Consider first the case where a country is initially operating at full capacity. Total output cannot be increased, and the balance of payments improvement has to be brought about by a reduction in expenditure. This reduction, in turn, depends on monetary and fiscal policies. The question that arises is what role exchange rate adjustment or, for that matter, import tariffs or quotas can play. At this stage the focus is on the exchange rate; tariffs and quotas will be dealt with later.

The answer to the question is that while reduction in expenditure is certainly required, there must also be a switching of the pattern of output and expenditure. Output, in particular, needs to switch away from nontradable goods and services toward tradables, the latter consisting of import-competing goods and exports. While reduction in expenditures on its own would certainly improve the balance of payments, it would also cut demand for nontradables, so that resources must shift out of that sector (consisting to a great extent of services) into the import-competing and export sectors. This shift—with output switching from nontradables toward import-competing and export industries and demand switching away from tradables toward nontradables—further improves the balance of payments and also restores the demand-supply balance in the nontradable sector.

The required switching in the pattern of expenditure could be brought about in a number of ways. To some extent it might be brought about by market forces. When expenditure is cut, demand for nontradables (services and the like) falls. Underutilization of capacity

and unemployment result initially in that sector and cause prices and wages to fall in that sector, or at least to rise less quickly than prices in the tradable-goods producing sectors (which will depend on world inflation). The relatively lower prices and wages in the nontradable sector then gradually cause resources to move out of (switch from) that sector and demand to be switched toward that sector. This process can certainly be helped by devaluation of the exchange rate. A devaluation raises the domestic currency prices of imports and of exports. On the side of imports, the effect is similar in the first instance to that of a uniform tariff, and on the side of exports, it is like a uniform export subsidy. Thus the industries producing tradables become more profitable relative to the industries producing nontradables. This change in relative profitability eventually induces resources to move into tradables. At the same time the higher prices of tradables cause the pattern of spending to shift away from tradables, cutting imports and making more goods available for export.

There is thus a role for devaluation of the exchange rate. But devaluation on its own would not accomplish the job, since it would bring about excess demand for nontradables and hence domestic inflation, the latter negating the initially favorable effect of the devaluation on the balance of payments. There must also be a fall in real expenditure unless there is initially a great deal of excess capacity and unemployment.

There is a further, and important, qualification. If the higher domestic prices of tradables brought about by the devaluation cause wages to rise so as to compensate for the higher prices, then the favorable switching resulting from the devaluation will be negated. Further, the average domestic price level of tradables will have failed to rise relative to the average domestic price level of nontradables. In particular, if the wage determination process is such that wages always rise so as to maintain real wage rates at their original levels, there is no point in devaluation at all. It may then be inevitable that the expenditure reduction required to improve the balance of payments on current account will cause some unemployment, the essential reason being the downward rigidity of real wages.

Devaluation and Industrial Development

In the case where devaluation is effective in switching expenditure (that is, it is not offset by wage inflation), the relation to industrial development is as follows. Assuming that the industrial sector is mainly import

competing, devaluation will bring about an expansion of the industrial sector at the expense of the nontradable sector. In that sense the devaluation has a "protective" effect. But it is important to note that the devaluation also makes the export sector more profitable relative to the nontradable sector. It does not necessarily favor the import-competing sector relative to the export sector. If the import-competing sector is mainly manufacturing and the export sector mainly agriculture, it does not protect manufacturing relative to agriculture. It protects both relative to the nontradable sector. This is the desired outcome given that the object is to get more resources into all the industries producing tradable goods and in this way to reduce demand for and increase the supply of foreign exchange. There is no reason for favoring one way of doing so (cutting imports by fostering manufacturing) over another (raising exports by fostering agriculture). The exchange rate instrument is neutral between the import-competing and the export sectors, as would be expected from a device that can be equated to a uniform tariff combined with a uniform export subsidy at the same rate.

As noted, the above discussion was predicated on a situation in which the country was operating at full capacity. This meant that the balance of payments improvement had to be brought about by a cut in expenditure rather than a rise in aggregate output, even though a switch in the pattern of output was also necessary. Where a country is operating below capacity because of a lack of aggregate monetary demand, improving the balance of payments may not require any cut in expenditure. A devaluation might increase output by making tradables more profitable and perhaps eventually by raising demand for nontradables through the switching effect. The main conclusion above—that the balance of payments improvement will be associated with an expansion of the import-competing sector—remains.

Import Quotas and the Balance of Payments

Countries faced with balance of payments difficulties often impose import quotas. Indeed, this seems an obvious policy. If imports are too high in relation to foreign exchange receipts from exports, capital inflow, and foreign aid, the obvious policy seems to be to put a quantitative limit on imports, especially those considered "nonessential."

This approach is too simpleminded. If a country is producing at full capacity, there is no certainty that the imposition of quotas will actually improve the balance of payments. The money which was previously

spent on controlled imports is likely, after a little time, to be spent on something else. It might be spent on uncontrolled imports, or alternatively it might lead to new domestic production that uses imported inputs. In both cases the fall in “nonessential” or controlled imports will be partially or wholly offset by a rise in other imports. It might be spent on exportable goods—that is, goods sold at home that might have been exported. In that case exports fall. It might be spent on nontradable goods, which would draw resources out of the export and import-competing industries into the nontradable sector, perhaps through an inflationary process, and again have an unfavorable balance of payments effect on that account.

The general point is that a balance of payments improvement requires a cut in total expenditure unless aggregate output can be increased in response to extra demand. The imposition of quotas may generate such a cut in expenditure in the short run if some part of the money previously spent on controlled imports is not spent on other goods, which might be the case where people felt the quota restrictions might soon be removed. But such savings are bound to be temporary. Hence import quotas on their own—without the expenditure reduction—are not likely to improve the balance of payments.

The point was made earlier that while an improvement in the balance of payments requires a reduction in the domestic absorption of goods and services and hence in expenditures (at least in a situation where there is no significant underutilization of productive capacity), such an expenditure reduction may need to be accompanied by a policy that *switches* the output pattern toward tradable goods and the demand pattern away from them. Otherwise the expenditure reduction will lead to excess unemployment and underutilization of capacity. As was pointed out, a devaluation would achieve this, because it acts on the side of both imports and exports. Countries which have used small, but sometimes frequent, devaluations to keep their domestic prices in line with international prices, when the former were rising more rapidly than the latter, have not had difficulty with such “crawl peg” devaluation policies. However, where countries have allowed differences between domestic and international price levels to develop, the major devaluations that have been necessary to eliminate the differences have had serious short-term effects, particularly if they were not accompanied by other measures to cut expenditures.

Import quotas would have a somewhat similar switching effect. When expenditure is cut, a fall in both imports and in demand for nontradables results, the latter creating unemployment and under-

utilization of capacity. Import quotas then switch demand from imports to import-competing goods and nontradables. The quotas cause the balance of payments to improve further because of the additional cut in imports; at the same time they restore the demand for nontradables. Thus an import quota system serves as a switching device just as devaluation does.

Devaluation versus Quotas as Balance of Payments Devices

The issue remains whether devaluation or quotas are preferable as companions to expenditure reduction. At various times countries have used one device or another. The choice, a matter of some controversy, is important for industrial policy. There are some special features about quotas that will be discussed later. These result from their quantitative nature. Devaluation, by contrast, is a price mechanism device. Here the relevant distinction between the two is that devaluation is neutral with respect to cutting imports and fostering exports—it provides equal incentives on both sides of the balance of payments—while import quotas act on one side only.

By comparison with the neutral price mechanism device, import quotas protect the import-competing sector not only relative to the nontradables sector (which devaluation does also) but also relative to the export sector. If the export sector is mainly agriculture and the import-competing sector mainly manufacturing, then import quotas favor manufacturing relative to agriculture.

Two arguments in favor of import quotas over devaluation in such a situation should be considered. The first is that devaluation may worsen the terms of trade and actually cause returns in foreign exchange from exports to fall. On the other hand, import quotas would avoid such an effect. The second is that devaluation is inflationary and likely to cause wages to rise, while quotas would not do so.

The first argument is that devaluation may initially cause the foreign currency prices of exports to fall as exporters fail to raise domestic currency prices to exploit their more favorable situation. With the quantity of exports slow to respond, there will then be a fall in export value in foreign currency terms. Normally this is only a short-term effect. The lower foreign prices help to expand the market, and in time supply responds to meet that market. Furthermore, in time exporters tend to raise domestic prices and so modify the fall in foreign currency prices. The initial fall in export value in foreign currency terms can be regarded as an investment by exporters in market expansion for the future.

If the country has foreign exchange reserves or is able to borrow, its best policy is to cover the short-term loss out of reserves, bearing in mind that in time exports will rise. On the other hand, if reserves are very low and if borrowing is not possible, and if the situation can be regarded as a short-term emergency, there may be some case for preferring quotas temporarily. (It must be remembered that this argument applies only if the country's export prices are determined primarily by its own producers rather than by the world market.)

It is also possible that in the long run the increase in exports encouraged by devaluation causes the world market prices of exports to fall sufficiently for total export value in foreign currency terms to fall. In this low-elasticity case, the country should impose long-term export taxes, with the tax rate higher in the case of those exports for which the foreign demand elasticities are believed to be relatively low.

The second argument against devaluation is that it raises the cost of living, causing wages to rise and so canceling the effect of the devaluation. If this mechanism is likely to operate, there is little point in devaluing; it is likely only to generate inflation, no doubt provoking further devaluation and hence a devaluation-wage-price spiral. Because this situation usually takes time to develop, there may be a short-term favorable effect from devaluation (unless the adverse export price effect mentioned above is important), even though in the long term its benefits disappear.

A question is whether import quotas avoid this effect. In general, import quotas would be just as inflationary as devaluation. The import-competing goods that replace imports when quotas are imposed are more expensive than the original imports (otherwise quotas would not have been necessary), so to that extent the cost of living must still rise. Prices of the remaining imports will also rise, owing to the scarcities created, with the benefits going to the holders of import licenses. The main difference between devaluation and quotas is that devaluation causes profits in the export industries to rise, while quotas generate extra profits for holders of licenses. In both cases, the domestic price level will rise. The most likely way in which quotas might bring about a lesser rise in the cost of living for wage earners than devaluation, and so generate less wage inflation, is to impose them mainly on goods not consumed by wage earners. But such a discrimination in favor of wage goods could be equally obtained by direct subsidies on imports of wage goods, notably of food.

Against these somewhat qualified arguments for quotas, there is a strong general argument in favor of avoiding quotas for balance of payments purposes.

Balance of Payments Policies

The general principle is that it is best to deal with each policy problem as directly as possible. The direct and primary way of dealing with a balance of payments deficit is to reduce expenditure appropriately and accompany this, if necessary, with a neutral switching device, namely, exchange rate devaluation. The exchange rate is the price of foreign exchange in terms of domestic currency. If a country has a payments deficit that needs to be reduced or eliminated, then the price is wrong and needs to be put right. If there is a long-term terms-of-trade problem on the export side, then this is best dealt with directly by imposing export taxes in those cases where demand elasticities are low and private producers do not exploit their collective market power adequately.

If the desire is to foster import-competing industry relative to export industry, then this should be part of an explicit industrial policy and not a by-product of measures designed to deal with a balance of payments problem. There may be arguments for import quotas or tariffs, but these have to be explicitly made and considered, since the balance of payments situation really provides only an argument for a general or neutral switching device.

This approach—that a policy should be directed as closely as possible to the purpose in hand, and the most direct policy devices should, as far as possible, be used—will underlie much of the subsequent discussion. Like all simple arguments it is, of course, subject to qualifications, and a government will certainly be justified in particular circumstances in departing from this recommendation. For example, the most direct policy device may not always be politically or administratively feasible. But it seems a useful principle to keep in mind.

Balance of payments considerations are disregarded in the rest of this chapter on the ground that they are taken care of by expenditure adjustment and exchange rate alteration, or possibly by one of these policies alone. For example, if tariffs are reduced, yielding in the first instance a balance of payments deficit, it is assumed that the reduction would be accompanied by exchange rate depreciation. Furthermore, since the concern is with industrial development policy, the interest is with long-

term policies. If quotas are imposed to deal with a short-term balance of payments problem, the interest here is in whether they are kept on after the immediate problem has disappeared, so yielding long-term results, possibly quite accidental ones.

II. The Instruments and Effects of Protection

The following section discusses the principal instruments of protection, assuming always that balance of payments equilibrium is maintained by expenditure adjustment and exchange rate policy.

Tariffs: Resource Allocation and Income Distribution

A tariff raises the price of an import to domestic buyers. Hence they are willing to pay the higher prices of close substitutes produced domestically—that is, import-competing goods. These higher prices attract resources into the import-competing industries and cause their outputs to expand. This is the protective effect of the tariff. Profits in import-competing industries are likely to go up, and, in general, factors of production used in those industries are likely to find their rewards raised. Thus there is a favorable income effect on those industries. It is because of this favorable effect that interest groups associated with the industries may have lobbied for the tariff in the first place.

While the two effects—resource allocation and income distribution—are the main concern here, other effects should also be noted. Domestic consumers pay higher prices. This is likely to cause purchases of a product to fall. In addition, the tariff is a form of tax on these consumers, so that there is an unfavorable income effect on them. Furthermore, customs revenue will go to the treasury. Finally, total imports will fall, both because domestic import-competing production has gone up and because total consumption of the product has gone down. The lower imports may cause foreign suppliers to reduce their prices, thus improving the terms of trade of the country imposing the tariff. These effects on the terms of trade will modify most of the other effects of the tariff mentioned above: because the domestic tariff-inclusive price will not rise so much, the protective effect will not be so great; the rise in incomes to import-competing producers and the fall in real incomes for consumers will not be so great; and consumers will not reduce their purchases so much.

It is useful to look at the various income effects together. Consumers lose, import-competing producers gain, and the treasury gains, the latter gain being perhaps passed on to beneficiaries from extra public expenditures or to taxpayers if other taxes are reduced as a result. In fact, the tariff is the equivalent of a consumption or sales tax on consumers, the revenue from which goes partly to the treasury and partly to finance a subsidy to import-competing industry. The latter is the “subsidy equivalent” of the tariff. An equivalent subsidy paid directly by the treasury could have exactly the same protective effect as a tariff, as well as the same effect on the incomes of import-competing producers.

Tariffs: General Equilibrium Effects

The above represents a partial view only. The next step is to proceed to a general equilibrium approach. In terms of one tariff on its own and one import-competing industry on its own, protection means that output of this particular industry expands. But somewhere else there must be a decline in output, since the resources must come from somewhere. This reshuffling of resources—making one industry more attractive relative to another—is indeed the essence of protection. This statement assumes that resources were not initially underutilized, though even if there were underutilization, some transfer of resources out of other industries might still result. In any case, here the concern is with long-run development policy issues, and it is reasonable to assume that insofar as underutilization of capacity and unemployment can be reduced by increasing aggregate monetary demand, this will have been done.

It should never be forgotten that protection means favoring some industries relative to other industries. If a particular manufacturing industry is protected, while others are not, it draws resources into the protected industry out of other manufacturing industries as well as out of other sectors of the economy such as agriculture. If the manufacturing industry as a whole is protected, it will be at the expense of other industries, perhaps agriculture.

There are various mechanisms through which these effects on other industries may operate. If industry X is protected, it may be prepared to pay higher wages, and other industries then find they have to shed labor because of the higher wage level. Industry X may compete more heavily for scarce capital, so that other industries find it harder to expand, and may actually contract, because of capital scarcity.

The exchange rate may also come into it. Initially, protection of industry X may improve the balance of payments, and this means that the exchange rate will appreciate. (Alternatively, the exchange rate may not depreciate as much as it would have otherwise, if the country concerned has a generally higher rate of inflation than its trading partners.) The appreciation of the exchange rate lowers the relative domestic currency prices of traded goods and thus reduces the profitability of export industries and of import-competing industries. Hence, it compels them to contract. If the whole import-competing industry were being protected, perhaps with a uniform ad valorem tariff, then the adverse effect would finally be felt only by the export industries, since for the import-competing industries themselves the losses from appreciation would be outweighed by the benefits from protection.

It is also possible that the country concerned has a generally higher rate of inflation than its trading partners, so that its exchange rate would normally depreciate. The imposition or increase of tariffs then means that the depreciation can be less than otherwise. The domestic currency prices of traded goods will not fall absolutely, but they will fall in relation to wage costs and the prices of nontradable goods. The profitability of export industries and import-competing industries will thus be reduced, with the adverse effect on the latter industries more than offset by the higher tariffs.

It must also be remembered that protection is likely to be imposed or altered in the general context of growth of the economy. Regardless of changes as a result of a system of protection, many sectors of the economy may grow. What protection may do is to expand some sectors faster than they would have otherwise and cause others to grow more slowly. The other industries may contract relative to where they would have been in the absence of protection, but not contract absolutely.

Just as the expansion of some industries because of protection implies the relative contraction of others, so do higher real incomes—whether profits or wages or both—for the protected industries imply reduced real incomes for factors of production in other industries. Thus, general protection of manufacturing industry through tariffs is likely to reduce real incomes in the agricultural export industries, as well as those in many manufacturing industries that are significant exporters. Their profits will go down because of the higher wages they have to pay, real wages of specific labor may fall because of the higher prices associated with protection, and profits and wages of specific labor may fall because of the adverse exchange rate effect mentioned earlier. To sum up, there is a reshuffling not only of resources but also of real incomes.

It is necessary to take into account the whole system of tariffs, and not just one tariff on its own. If one industry receives a 50 percent tariff and another only a 10 percent one, then it is quite likely that resources will be drawn from the 10 percent industry to the 50 percent one, even though at the same time resources may also tend to move into both industries out of others that are not protected at all. The key point is that protection is relative. It is necessary to look at the whole scale of tariff rates and regard as truly protected only those industries that receive relatively high rates.

This matter is complex; several complications are addressed later, but one is noted here. A tariff imposed on a product that is an input into other industries has two direct effects. The tariff tends to protect the domestic industry producing this type of input, but in so doing it acts against the industries using the input. It is like a tax on the input and amounts to a negative subsidy for the users by raising their costs. Thus tariffs can have negative protective effects for two reasons. First, as pointed out above, by drawing resources into protected industries, they have a negative effect on other industries receiving less protection. Second, tariffs on inputs, whether basic materials or manufactured components, reduce protection for the industries using them. The latter effect is taken into account in the important concept of effective protection, which is dealt with later in this chapter.

Import Quotas

From the point of view of the protection effect, import quotas have effects rather similar to those of tariffs. By making imports scarcer they raise their domestic prices. Even if domestic prices do not rise, the quotas make it possible for local import-competing production to fill the gap in supply. Local producers will find that they can sell at higher prices, and there will be the same sort of resource allocation and income distribution effects as occur with a tariff. However, there are various differences between tariffs and quotas. They are important because import quotas are still a common method of protection in developing countries, usually as an adjunct to tariffs. The differences are therefore discussed in a later section.

Exchange Controls

Exchange controls differ from import controls in two main ways. First, they usually apply to all sorts of demand for foreign exchange, includ-

ing so-called invisible transactions (tourism, remittances of profits, transfers to individuals, shipping) and capital transactions. Second, insofar as they apply to the same transactions as do import controls, they are usually administered differently. Exchange controls are administered by and through the central bank and the banking system, import quotas usually through a ministry of commerce or an agent of it. But the basic economic effects are not likely to be much different.

Export Subsidies

Manufacturing industry can be protected by subsidizing exports of manufactures as much as by imposing a tariff on imports of manufactures. If there is to be general protection of manufacturing at the expense of other industries, such as agriculture, then both tariffs and export subsidies have to be provided. A system of protection of manufacturing which seeks to avoid a bias toward domestic market sales would include export subsidies.

Export subsidies raise the prices received by exporters. In addition, by making exporting more attractive, the subsidies make similar or identical goods sold on the home market scarcer and so raise their prices. An export subsidy can thus be regarded as having two aspects. One, it is a subsidy financed by the treasury and paid to producers for their exports. Two, by causing the price for sales at home to rise, it is in effect a subsidy to producers on their domestic sales financed by consumers of the product. The sum of the two subsidies to producers is the subsidy equivalent, namely, the amount the treasury would have had to pay out if a direct production subsidy rather than an export subsidy had been used and if the same protection were to be brought about.

The above is a partial analysis. Allowing for fuller repercussions, the subsidy draws resources out of, and lowers incomes in, other industries. If there are both export subsidies for export industries and tariffs to protect import-competing industries, one type of industry may not necessarily be protected relative to the other. That depends on the rates of tariff and export subsidy and how resource movements respond to different rates.

There are many indirect ways of subsidizing exports. One way is to have a multiple exchange rate system where the exchange rate provided for some or all exports is especially favorable compared with that available for imports. The most common form of export incentive is the

provision of export credits at low rates of interest or—in a country where credit is generally rationed—the provision of preferential export credits. In the case of low-interest credits, a subsidy is implicit in the interest rate differential—that is, in the extent to which the rate on export credits falls short of the rate of interest payable on credit for other purposes involving similar degrees of risk. Export subsidies are also implicit in schemes that give preference to exporters in the award of import licenses. The award of an import license to a person or firm is a form of bonus that normally has a market value. It is equivalent to the customs revenue when imports are restricted by a tariff. When this bonus goes to exporters, then they are effectively subsidized.

Export Taxes

Export taxes are negative export subsidies. They reduce exports and raise revenue. The reduction in exports may in turn cause world prices of the goods concerned to rise and so cause the terms of trade to improve. The raising of revenue is usually their main purpose, however. For the industries concerned, export taxes are clearly not protective since they lower the prices received by domestic producers (even though prices paid by foreign buyers may go up, the difference being the tax rate). Export taxes thus tend to push resources out of the taxed industries.

It is common for developing countries to have taxes on exports of agricultural products and minerals. It is of interest to note how these taxes affect protection of manufacturing. In fact, such export taxes may have a positive protective effect for manufacturing by providing negative protection for nonmanufacturing industries; they provide relative protection for manufacturing even when there are no tariffs or subsidies for manufacturing. Again, the relevant rates for resource allocation and real income effects are the relative rather than absolute rates of protection. It is possible to protect manufacturing either by putting tariffs on imports of manufactures or by imposing taxes on exports of primary products, or with some combination of these. It is certainly not always appreciated that export taxes have this sort of protective effect.

The second way in which export taxes on agricultural or mineral products affect protection for manufacturing arises if there are domestic sales of goods identical with or similar to the taxed exports, and if these domestic goods are inputs for domestic manufacturers. The export tax

will lower prices of these goods sold at home—since exports have become less attractive—and the lower prices will reduce costs for the local manufacturers using them as inputs. For example, if a country exports raw cotton and also produces cotton yarn, an export tax on raw cotton will lower its domestic price and so provide indirect protection for the cotton yarn spinners.

It was mentioned earlier that tariffs on inputs provide negative protection for input-using industries. Similarly, export subsidies on inputs, if these inputs are also exported, will do so. In the same way, export taxes on the inputs provide positive protection for the input-using industries, at least assuming that the inputs are actually exported and that their prices are not controlled, so that their domestic prices are set by world market prices less the export tax. The discussion below of effective protection deals with this sort of effect more systematically.

Other Protective Devices

There are many sorts of protective and antiprotective devices, of which only the most important have been mentioned. Multiple exchange rate systems—which used to be much more common than they are now—are likely to have protective or antiprotective effects and can be shown to be equivalent to sets of tariffs, import and export subsidies, and export taxes. They could be designed to favor exporters, in which case they are, as mentioned above, equivalent to export subsidies. Alternatively, they could favor import-competing industries, in which case they are equivalent to export taxes or import tariffs. Some countries use equalization levies, which are tariffs that vary as world prices change so as to maintain a desired level of domestic prices. These levies are the main protective device used by the common agricultural policy of the European Economic Community. Other countries have pooling or home-price schemes. In this case an export subsidy is financed by charging a high price—above the world market price—to domestic consumers of the product.

Domestic-content schemes are widely used to protect manufacturers of automobile components. Producers of cars are excused from having to pay tariffs on imported components provided they use a certain proportion of domestically produced components or have a certain proportion of domestic components in the final value of the car. This arrangement can be shown to be equivalent to a tariff on inputs, the customs

revenue from which is refunded to buyers of the inputs under certain conditions.

All these complex schemes and various taxes and subsidies can be simplified and put on a comparable basis by using the effective protection concept, to be explained later.

Many Roads to Industrial Development

Protection is not the only road to industrial development. It is important to stress this because protection does mean expanding manufacturing industry at the expense of other tradable goods industries, and it may not be desirable to do this even though further industrial development may certainly be wanted. There are a number of ways in which trade policies can foster industrial development, possibly indirectly, without discouraging the development of other sectors of the economy, especially the primary-product exporting sectors.

To begin with, the manufacturing sector can expand at the expense of the nontradables sector. This requires an appropriate reduction in expenditure and an exchange rate devaluation (or restraint in domestic wage increases relative to the world rate of inflation). The continuance of such expansion implies a continuously increasing balance of payments surplus, except in some special circumstances. Thus, while an expansion of manufacturing at the expense of the nontradables sector may for a time be appropriate for a country that needs to improve its balance of payments, it cannot prove a basis for continuous industrial development.

If the economy is expanding owing to net capital accumulation, the industrial sector can expand, using much of that increase in capital, while other sectors also expand. Capital accumulation requires financial resources: there must be savings somewhere to finance the investment. These savings can be domestically generated and, provided they finance domestic capital accumulation rather than flow abroad, will then contribute to industrial development. Trade policy can foster such savings by ensuring adequate profits and an efficient economy in general. Such an economy will maximize the size of the real national product, and this is likely also to yield more savings. (The effects of trade policy on the efficiency of the economy will be discussed below.) Income distribution effects of trade policy—which will also be discussed further below—are then important. Trade policy that increases the in-

comes of the high-savings sectors, whether private or public, will thus indirectly foster industrial growth. Of course, such income distribution effects may not be desirable for other reasons.

In addition, investment may be financed out of foreign savings, the source of capital accumulation being foreign investment. Trade policy can certainly influence the flow of foreign investment. This, a large subject of its own, is discussed later in this chapter. Here it should only be noted that there are some ways of encouraging foreign investment in manufacturing which do not necessarily discourage its flow into other sectors.

In general, measures that make the economy more efficient—for example, improving the efficiency, certainty, and reliability of government operations—can lead to an expansion of manufacturing output without a fall in the output of other sectors. Trade policy is just one part of general government policy, but there is usually plenty of scope for improvements in efficiency in these policies, some of which are addressed below. The main point is that some improvements in efficiency can be practically costless in economic terms, even though there may be political costs.

III. Arguments for Protection of Manufacturing Industry

Why should manufacturing be protected at all, especially by trade policies? Because protection of manufacturing takes place at the expense of other sectors of the economy, this seems to be a fundamental issue which surely has to be resolved before the details of protection policy are considered.

Value of Protection Policy

For some countries, the issue of whether protection is worth pursuing may be purely academic, as it may already be settled. It may be the established government policy that manufacturing be protected roughly as it is at present. It may be unrealistic to contemplate any change. Various historical factors may explain the origin of protection—for example, the imposition of import quotas in response to a balance of payments crisis. While the original reasons—whether soundly based or not—may have disappeared, by now vested interests would have be-

come established that depend on, or believe they depend on, the continuance of protection. Policy changes that reduce the expected real incomes of any significant section of the population are often strongly resisted and politically impracticable. This is so even though the policy changes may lead to greater gains to other sectors. Thus a conservative bias is built into much public policy. The best that can be done is to make fairly minor and slow adjustments. In such countries, then, the issue of arguments for trade protection is hardly worth pursuing. The existing policy of protection has to be lived with, even though some changes in its details can be made.

There are other countries which also have an existing system of protection but where it is possible to bring about fundamental changes, provided they are gradual and carefully considered. In these cases it is of some interest to see whether there are valid arguments for protection. If the answer turns out that trade protection should, ideally, be reduced or even eliminated, that at least provides some target for policy—some idea about the direction in which policy should move as opportunity arises—even though sudden or rapid change may not be practicable.

Finally, there are countries on the threshold of development, which do not yet have established systems of protection or vested interests dependent on such a system. Development strategy is an issue because the options are still reasonably open. Here there is a chance to learn from other countries' successes and failures. The issue is, of course, not only whether extensive protection for manufacturing should be provided, but also what the details of the system of protection should be, given that the first issue has been resolved in favor of protection.

First, however, is the fundamental question whether protection is justified. This is of genuine importance to the third type of country. Numerous arguments for protection have been advanced at various times. Some have been shown to have equal validity, given certain assumptions. Here the focus is on the genuinely economic arguments and those particularly concerned with manufacturing. Two which have been most commonly advanced as providing a basis for general protection of manufacturing industry in developing countries—namely, the infant industry argument and the employment argument—are examined here. Various special arguments, possibly justifying particular cases of protection—for example, those concerned with dumping—are discussed later.

The Infant Industry Argument

Firms that engage in a new activity often take losses to begin with. This is true in developed countries as much as in developing countries. There is an inevitable learning period and perhaps a period required for building up goodwill with customers. It is natural for firms to go through an “infancy” stage. But this does not necessarily provide a case for protecting them through this period. Protection means that the consumer or the taxpayer finances this learning period. Indeed, normally firms do not expect that. They do not expect it when they are venturing into new activities in the nontradables sector, and normally they do not expect it when they are launching into exporting. It is mainly when competition comes from imports that firms expect to be protected through the infancy period.

The principal question is why they should not cover their own costs of infancy, given that they will get later returns from their learning experience. Essentially investment in learning is like any other investment. If the firm can draw on its own retained earnings or if there is a capital market on which it can raise funds, why should it not finance such investment as it finances any other capital investment? This is a very basic point, and very often there may be no case for infant industry protection.

Nevertheless, this view may have to be qualified, and in certain circumstances there may be a case for infant industry protection. Following is an examination of the qualifications.

Possible Arguments for Infant Industry Protection

First, it may be difficult for firms to raise capital on the market for this type of investment. This is particularly true of new firms—which also have no internal funds to draw on—and in countries where access to a good capital market is difficult. A firm may expect to take losses for ten years and may find it difficult to convince potential lenders that it will be profitable for the following fifty. Even if there is a capital market, interest rates may be especially high.

If a tariff is provided instead, then the consumer is really providing the finance, since a tariff is like a subsidy to the producer paid for out of a consumer tax. The question then arises how it has become possible to persuade consumers to provide the necessary capital in this indirect way, when it was not possible to obtain the capital on the market. The answer must be that consumers, as such, were not really asked; if they

had been asked they might not have been willing to be taxed to provide these funds. In fact, the tariff is obtained through the political process.

If the problem is one of obtaining finance to cover temporary losses and an adequate private capital market is not available, or if it is not government policy to encourage the use of the world capital market, the more direct method would be for a state development bank, financed from public funds, to make loans on the basis of an appropriate cost-benefit calculation. This calculation would include an assessment of whether the firm's losses will eventually turn into profits.

It should be stressed that this argument does not provide a case for infant industry protection of the subsidiaries of transnational corporations. These corporations are able to generate internal funds and in addition have complete access to the world capital market. They should be able to cover temporary losses out of their own finances. If they are unwilling to do this, it must mean that they do not have faith in their eventual success. It is not clear why, in such a case, a government should have greater faith.

A second basis for an infant industry argument has to do with information and foresight. Indigenous and inexperienced firms, perhaps embarking on significant ventures for the first time, might take an exceptionally pessimistic and overly cautious view of prospects. They do not take account of the prospective growth of the country's economy and hence the size of the market, or they simply discount future profits very heavily, their vision being myopic. Government planners and policymakers may have better information and a more farsighted view. They may see that ventures which will suffer initial losses will eventually be profitable from a private and social point of view and that the eventual learning investment will pay off.

Clearly, one way of dealing with this is for government authorities to make information and forecasts widely available—to improve information. Another way would be to finance initial losses at concessional rates of interest through state development banks. To provide initial protection is a very indirect approach.

This argument, again, does not apply to transnational corporations. They usually have information about market prospects and general economic conditions at least as good as the information available to governments, and they often take a very long view, engaging in major investment for projects that will extend far into the future.

A third basis for an infant industry argument has to do with external economies. It provides probably the main basis for some general pro-

tection of manufacturing industry in some countries, especially in an early stage of development.

If a country is in an early stage of industrial development, manufacturing firms provide benefits for each other which are not reflected in the private returns of the firms that create the benefits. Each firm creates benefits and receives benefits. By their mutual expansion all their costs tend to fall. It is arguable—though not certain—that there is not the same reciprocal provision of benefits in other sectors of the economy or in the later stages of industrial development. The general idea is that the whole manufacturing sector goes through an infancy stage, and the learning that each firm generates has benefits not only for the firm itself but for the whole sector.

External economies of this kind can be generated in a number of ways. Firms may benefit from each others' training of labor, since much of the labor does not remain in the firm where the training took place, but moves on to other firms. Firms benefit from having better trained labor available, even when some of these benefits are eventually expressed in higher wages (workers accept relatively lower wages while being trained).

Knowledge diffusion may also be important. Knowledge spreads from firm to firm, despite patent laws and attempts to keep knowledge secret. No doubt firms also benefit from the geographical proximity of other firms which, like themselves, are going through a learning process.

Finally—and this may be the most important basis for the infant industry argument—the creation of a general atmosphere that is conducive to manufacturing and, more generally indeed, to organized economic activity or to the development of mechanical or scientific interests is crucial to industrial development. Each firm benefits from the existence of other firms, all helping to create this common atmosphere. The whole manufacturing community goes through a sort of common learning process. However, once industrial development is under way, it is hard to make an argument for protection on these grounds.

Employment Argument for Protection

If the protection of an industry is high enough, and especially if it is higher than protection of many other industries, it will increase employment in that industry. However, there is a question whether it increases the general level of employment in the economy. Clearly it

may not do so since it may simply draw labor out of other industries. If it does increase the general level of employment, two issues still arise. The first is whether the extra employment could not have been achieved better by macroeconomic policies—by expansion of aggregate monetary demand through monetary and fiscal policies—rather than through protection of particular industries. The second is that, even if macroeconomic policies would not be adequate (because the problems are, in some sense, structural rather than monetary), a case has to be made for why protection of manufacturing, rather than agriculture, for example, is the right policy.

If protection of manufacturing does not increase the general level of employment, but simply draws labor out of agriculture, it is still possible to make a case for creation of employment in manufacturing if the marginal social productivity of labor in agriculture is much lower than that in manufacturing. It is necessary then to consider why this might be so.

Consideration of the general effects of protection on employment should not address the type of unemployment that can be cured by macro-demand management. There can be no particular reason for favoring manufacturing when there is just a general macro-demand problem. If demand expansion designed to increase employment would worsen the balance of payments, the appropriate associated policy is depreciation of the exchange rate to bring about the necessary switching of the pattern of demand, as discussed earlier in this chapter. The interest here is in the structural considerations.

The issues involved in the employment argument for protection of manufacturing are really very fundamental to development economics and policy. As they have more to do with the nature of the labor market and with characteristics of the agricultural sector in developing countries, they can only be touched upon here. The general theme is that there may conceivably be some case—by no means unqualified—for encouraging manufacturing to absorb more labor than it would in the absence of specific policies.

First, there may be surplus labor in agriculture. If some labor were withdrawn from that sector, output would not fall. Yet a positive wage is required to attract labor into manufacturing, and at the existing wage level some surplus labor remains behind. The surplus labor is part of the subsistence sector or lives on family income which is spread among all the family, even though some members may add nothing to the total product. Therefore, a case for subsidizing the employment of extra

labor in manufacturing by means of protection can be made. On the other hand, it should also be asked whether a better approach would not be to improve productivity in agriculture. These are fundamental issues and choices which must be considered in any development policy that looks at the economy as a whole.

A second basis for the employment argument for protection rests on a wage differential. The wage rates that organized, advanced manufacturing industries have to pay are sometimes artificially high, considerably higher than incomes that potential workers could obtain in agriculture and in the unorganized urban sector of the economy. Thus there is a wage differential. The high wages may be the result of various pressures, but the net result is that firms find it profitable to economize on labor, and especially to substitute capital for labor at every opportunity. Indeed, some enterprises may not be set up at all in a country because of high labor costs. Yet labor may be earning low returns in other sectors of the economy, so that the national product would rise if high-productivity manufacturing could be expanded. One way of doing this is through protection.

Even here there are some qualifications. If the extra profitability that protection creates, and should create, leads to higher wage demands, firms will find themselves paying higher wages rather than employing more people, and the purpose of the whole exercise is lost. Furthermore, if the protection is attained by means of a tariff, it raises the cost of living. Hence it represents a tax on consumers, which may include low-income earners outside the manufacturing sector. The poor would be taxed to get some more people into the high-wage sector. Insofar as wage earners in the manufacturing sector are themselves consumers of protected goods, they may seek increases in wages to compensate for their higher living costs, again negating, at least partially, the intended effect.

Reasons for Preferring Subsidies to Trade Policies

An important theme introduced earlier is that, in general, it is desirable to direct policies as closely as possible to the problem they are supposed to deal with. The various arguments for fostering manufacturing that have just been discussed are not really concerned with trade as such. Trade policies are not necessarily as close as other possible policies to the objective of fostering manufacturing. It is true that manufacturing may face its principal competition from imports, but this does not mean

that tariffs or import quotas go to the heart of the issue. They are likely to create incidental and undesirable effects on the way—secondary (by-product) distortions—which could be avoided by choosing instruments of policy more closely aimed at the objectives.

This point is clearest when the object of policy is to increase employment in manufacturing. Leaving aside for the moment the doubts about whether this is a desirable objective in the first place, in preference to using fiscal policy to help agriculture, this discussion assumes the employment objective as given.

The most direct approach would be to subsidize employment in manufacturing, whether per man employed or in relation to wage payments. The subsidy would have to be financed in some way that does not negate the objective (as a tax on urban labor might do). Short of dealing with the real origin of the trouble, which may be excessively high real wages in the organized manufacturing sector or low productivity in agriculture, such an employment subsidy would be the preferred option.

The second-best method of fostering employment in manufacturing would be to subsidize production—that is, value added—in manufacturing, perhaps through tax concessions or direct subsidies related to value added. This would generally foster manufacturing, but it would also have the undesired effect of encouraging not only labor but also capital to move into manufacturing, even though there is no particular reason to do so. If the problem is to increase employment, then it is desirable that manufacturing production become more labor intensive, raising the ratio of labor to capital. But a general subsidy to manufacturing value added would fail to achieve this purpose. It follows that a general or value-added subsidy would yield the secondary distortion of subsidizing capital in manufacturing, when the real target is to subsidize only labor. It should be added that if the subsidies to manufacturing industry are financed by taxing manufacturing in some way, the system would not even succeed in fostering manufacturing, because the state would be giving with one hand what it has taken away with the other. The main point here is that even if manufacturing is effectively subsidized, it is not the optimal way of fostering employment in manufacturing.

A third-best method of fostering employment would be to use trade policies—namely, to provide a tariff on imports of manufactures combined with an export subsidy for manufactures. This would have the same effect as a subsidy to value added—providing a general stimulus

to manufacturing—and thus attract labor and capital into the sector. In addition, however, it would raise the prices paid by domestic consumers for manufactured goods and would encourage them to shift their spending to other goods. This consumption shift is not desirable and is just another distortion.

Finally, a system of tariffs on its own (or perhaps import quotas) would be fourth best. It would have the effect of protecting manufacturing for sales in the domestic market, but would fail to provide an equal stimulus for exports of manufactures. It would thus distort the pattern of manufacturing output in an antitrade way. In effect, it creates the distortion of a domestic or home-market bias.

To summarize, using a tariff as a way of increasing employment in manufacturing is likely to create three by-product distortions: it encourages capital, and not only labor, to be drawn into manufacturing more than would happen otherwise; it raises prices to consumers of import-competing manufactures and encourages them to shift their pattern of spending; and it creates a home-market bias.

The various policies just described can be viewed as a hierarchy, ranging from first best downward. The general aim should be to get as high as possible in the hierarchy.

The hierarchy of policies approach can also be applied to the infant industry argument. If the objective is to expand manufacturing on grounds of protecting infant industries, a tariff or set of import quotas is clearly not optimal. Compared with a direct subsidy to manufacturing output, it creates a consumption distortion by unnecessarily shifting the pattern of domestic demand away from manufactures. In addition, it creates a home-market bias by failing to protect exports of manufactures. The latter distortion could be eliminated by supplementing the tariffs with export subsidies.

There are various versions of the infant industry argument. If new firms or indigenous firms find it difficult to obtain capital to finance the temporary losses of the learning period, direct action by the government or monetary authorities in the capital market is clearly better, possibly best. As mentioned earlier, the obvious policy would be to establish, or make better use of, development banks. If firms create mutual benefits through labor training and this does not adequately enter the private benefit-cost calculation, the obvious policy is to subsidize labor training. If that is not possible, those types of employment where most training takes place could be subsidized. If the mutual benefits consist of diffusion of knowledge, subsidies that seek to get close to

the processes of creating knowledge, and measures which discourage secrecy and the diffusion process, would be best. It does not follow that it is always possible to find feasible methods that approach the target closely, but certainly it is an aim that should be kept in mind.

While trade policies are clearly often rather clumsy devices, sometimes the problem can be resolved by refining them. Thus, if the objective is to increase employment in manufacturing, and tariffs have to be used as the only available device, tariff rates can be higher for labor-intensive than for capital-intensive products. While this will not achieve the aim as directly as an employment subsidy and will still yield a consumption distortion and domestic-market bias, it will come closer to attaining the objective.

Possible Arguments in Favor of Trade Policies

In spite of these arguments, trade policies are widely used, and they are often preferred to subsidies. The discussion so far has neglected some arguments in favor of trade policies. Here tariffs are compared with direct subsidies, whether to labor or to value added.

The main point about subsidies is that they have to be financed, that is, extra taxes have to be collected. This involves, to begin with, a political problem. By contrast, tariffs tend to be less controversial. While tariffs are indeed like taxes on consumers of imported and import-competing goods, they do not always look that way, and governments often do not incur the same opprobrium from the imposition of tariffs or quotas as from the imposition of taxes. Furthermore, the extra taxes required to finance subsidies also create by-product distortions, the extent depending on the type of taxes. For example, income taxes have many advantages but affect incentives to work. It is highly likely that the by-product distortions yielded by a well-chosen set of taxes would be less than those resulting from tariffs that are specifically chosen to protect an industry rather than to minimize by-product distortions. However, it should at least be remembered that any form of intervention, whether direct subsidies, tariffs, or subsidized provision of capital or public infrastructure, is likely to yield some by-product distortions.

In addition, collection costs of various taxes must be taken into account. In developing countries collection costs for many taxes tend to be high, and sometimes collection may be impossible. The lowest collection costs are usually for taxes on trade, whether import or export

taxes. This is quite a strong argument in some countries for the use of trade taxes, at least at modest rates. But this approach must be qualified. If collection costs of trade taxes are particularly low, it is certainly true that trade taxes should make an important contribution to public revenues, as they often do in developing countries. But it does not actually mean that they should be used specifically to protect industry in preference to appropriate subsidies, for example, employment subsidies. The best policy is to use subsidies, designed so as to minimize by-product distortions, and then to finance the subsidies with general taxes on trade, whether import or export taxes, also designed to minimize by-product distortions.

Subsidies also create a problem of disbursement. In developed countries disbursement is not a difficulty. Subsidies are just negative taxes, and there is usually a well-established fiscal system of collecting taxes and making appropriate deductions. To some extent subsidies can be paid simply in the form of deductions from taxes payable, but in any case disbursement of subsidies is no bigger a problem than collection of taxes. This is also true of those developing countries with efficient fiscal systems. But other countries will have high collection costs and high disbursement costs.

To protect by subsidy means first to collect taxes and then to disburse subsidies financed by those taxes. By contrast, to protect by tariff means that, while there is still a collection problem at the frontiers (or an enforcement problem if a quota is used or if the tariff is prohibitive of all imports), there is no longer a disbursement problem. The tariff automatically taxes consumers and subsidizes producers in one operation. This avoidance of subsidy disbursement costs is undoubtedly a point in favor of tariffs.

IV. The Structure and Details of a System of Protection

In this section it is taken as given that a country desires to protect its manufacturing industry, thus favoring it relative to other sectors of the economy. It is also assumed that trade policies are used as the method of protection, being administratively or politically convenient and perhaps being the country's traditional means. The discussion here is on the details of the policy, focusing on three fundamental issues or decisions: (1) import substitution versus export promotion, (2) uniform protection versus made-to-measure protection, and (3) import quotas versus tariffs.

Import Substitution versus Export Promotion: Home-Market Bias

Should protection be solely for sales to the home market, or should encouragement also be given to exports of manufactures? This is a particularly important issue.

Usually countries begin by protecting their industries with tariffs or quotas. As pointed out earlier, this often has resulted from a balance of payments crisis, with no deliberate decision to use any particular device to achieve protection. The net result has been to foster import-competing manufacturing not only at the expense of other industries, such as agriculture, but also at the expense of potential exports of manufactures.

Exporting is hampered in the following ways by import-restricting measures. First, import-competing activities are made more attractive and thus draw resources from other activities, including those which involve potential exports. Second, particular manufacturing industries that could produce for both the domestic market and for export put more effort into producing for the domestic market, where they are to some extent protected from world competition, rather than for the export market, where they are not so protected. Third, the reduction in imports means that an exchange rate depreciation that might otherwise have to take place is avoided, and hence a rise in the domestic prices of exportables is avoided. Alternatively, this adjustment might have been reflected not through exchange rate alteration but through levels of domestic costs being allowed to rise more than otherwise, since the balance of payments constraint has been eased. Both the failure to depreciate and the rise in the cost level reduce profitability and thus the incentives to export. Fourth, a tariff or quota system discourages exports if the import restrictions are applied to goods that are inputs into exports, whether basic materials, manufactured components, or capital goods. They become scarcer and their prices rise, which increases the costs of exporting. This effect is captured by the concept of effective protection (discussed later): negative effective protection is being provided for exporting when the costs of their inputs are raised by the system of protection.

The net result of protecting manufacturing by tariffs or quotas is then to introduce a home-market bias into manufacturing. While manufacturing is indeed being protected against other industries, which is presumably desired, an undesirable by-product distortion—a bias toward the domestic market—is introduced.

A home-market bias is undesirable for two reasons. First, the benefits of comparative advantage are forgone within the manufacturing sec-

tor. If an even incentive were provided for sales at home and abroad, the country would export the goods it is particularly well suited to produce, whether because they are labor intensive or for historical or other reasons, and it would use the export income to pay for the kind of imports, perhaps high-technology goods, that it is not well suited to produce at its present stage of development. There is a net gain from such trade. The point is well known, and formal proofs and calculations could be provided to substantiate it.

Second, a home-market bias is undesirable because the full exploitation of economies of scale is forgone. The scale of production and length of production runs of protected goods are limited by the size of the home market, which may be quite small. Eventually industries subject to substantial economies of scale may be able to break into exporting even without any assistance. But industries in which scale is especially important and which really need to export right from the start will be inhibited. Instead, the country will produce a large number of products for the domestic market, all on a small scale. The effect of this bias is to discourage specialization in the manufacturing sector.

The importance of the home-market bias depends both on the size of the economy and on its stage of development. A really small economy can hardly stimulate at moderate cost a manufacturing sector for the home market alone. It must aim for the world market or at least the markets of some other countries as well. In these cases the use of tariffs, if at moderate levels, will fail to bring about much manufacturing expansion. Industries where economies of scale are important will not get established. If a significant stimulus to manufacturing is to be provided, there would have to be very high tariffs or (if quotas are used) big price margins between goods sold at home and those available from abroad, which would create high costs for consumers.

The stage of development is also important. A large economy can start by developing manufacturing for the home market. The scale barrier may not be reached for some time, and the market may be large enough to allow a wide range of protected manufacturing at moderate cost. But eventually the domestic market will be fully supplied from protected domestic production in all those cases where scale economies are moderate. Further expansion of manufacturing means moving into fields of activity where there are large economies of scale and the need for long production runs, in which case exporting is necessary. At this point, exporting needs to be assisted at rates comparable to those at which home-market sales are being assisted.

As already mentioned, export subsidies can be provided in various ways. The most direct and efficient way is to pay them out directly; they would be provided by the treasury and financed by the most efficient methods of taxation available to the country, possibly customs revenue. The payments would be related to the value of exports, preferably value added in exporting.

Indirect ways of subsidizing exports are also available. There can be tax concessions on profits derived from exporting; government services such as exports credits can be supplied below cost; and infrastructure and public services can be provided especially cheaply or efficiently for industries that export extensively. Finally, there can be an export bonus scheme whereby import licenses for goods subject to severe import controls are issued to exporters in relation to their export incomes, and the exporters can then sell the licenses.

The Difficulty of Subsidizing Exports

Nevertheless, there are difficulties with subsidizing exports. The most important one, perhaps, is that the subsidization may provoke countervailing duties from importing countries, even if the subsidies are provided indirectly. Indirect subsidies, moreover, usually cannot be very high and so cannot have sufficient effect. For example, the provision of cheap export credit is not likely to yield a rate of implicit subsidy at all comparable to the high rates of tariff protection usually given. Forgoing corporate taxes on profits derived from exporting may be a pointless incentive, since the problem is usually to make any profits at all, and the aim of adequate subsidies is to convert a potential loss into a profit situation.

The more fundamental limitation to adequate subsidies, whether direct or indirect, is the financing problem already referred to, resting on collection costs, political difficulties, and so on. In countries with weak administrative systems, efficient subsidy disbursement may also be difficult.

This problem of subsidizing exports of manufactures when manufacturing is already protected for the home market—and when such protection has to be taken as given—has to be considered separately for each country. But in many cases it is highly likely that some home-market bias will remain in the system of protection, and perhaps very little use will be made of export subsidies. If this is so, two conclusions follow.

First, this situation provides a possible argument for keeping protection levels rather moderate to minimize the home-market bias that is inevitably created. Against this it could be argued that high levels of protection for the home market encourage exporting by giving the producer the chance to make big profits on home sales which can then be used to sell exports at below average cost of production, equivalent, in fact, to dumping. The question of dumping is addressed later, but the evidence suggests that if countries with high rates of tariff protection for manufactures do not have significant export subsidies as well, they do not actually export manufactures on a large scale. Hence this latter argument does not appear to be very strong, leading to the possible conclusion that if the home-market bias is inevitable, the levels of protection should be kept modest.

Second, the system of protection should be constructed in such a way that it minimizes the discouragement of exporting manufactures. Tariffs on imports that are inputs into export industries must be kept low. Special exemption of tariff payments for goods that can be shown to be used in exports might be provided. The export drawback system, which enables manufacturers to be reimbursed for tariffs paid on imported inputs into exports, is already used in many countries—though it is not always efficiently administered. A country should not try and develop high-cost domestic industries to supply inputs for export industries. The aim, in fact, should be to avoid, as far as possible, providing negative effective protection for exports of manufactures.

Effective Protection

Effective protection is the net protection provided for value added in an activity by tariffs or similar measures affecting output and input values. It should be distinguished from nominal protection, which refers to the protection for the gross output afforded by measures affecting output value only. There is a large literature on the subject. The discussion below simply draws attention to the main points.

Assume that all protection is provided by tariffs. The nominal tariff rate is expressed in ad valorem terms in relation to the import price of goods, including transport costs (insurance and freight), that is, the c.i.f. price. In rough terms, to arrive at the effective tariff—that is, the actual tariff on the value added in the production of that product—it is necessary to subtract from the nominal rate the average tariffs on the imported or importable inputs, weighted by the share in the

cost of the total product that is accounted for by these inputs, and then to express the difference as a percentage of value added. Effective protection thus shows the percentage increase in value added afforded by protection over value added which would prevail in a nonprotected situation. If value added is thought of as having a price, namely, the "effective price," then the effective protective rate is the proportional increase in the effective price made possible by the combination of tariffs. Thus a positive nominal tariff on the final product raises this effective price, while a positive tariff on inputs lowers it.

It is usual for nominal tariffs on final products to be higher than tariffs on inputs, thus making effective tariffs higher than the nominal tariff. For example, if the nominal tariff on the final product is a modest 24 percent, and the average tariff on inputs is much lower, say 8 percent, and the free trade price of an input share is 50 percent, then the effective rate is 40 percent, much higher than the nominal rate. The nominal rate of protection greatly understates the rate of protection provided for the activity or value added concerned. Only if the nominal rate of protection on the final product is equal to the rate on the input will the effective rate be equal to the nominal rate.

An increase in the nominal rate of tariff will increase the effective rate of protection, but an increase in the tariff on inputs will decrease the effective rate. The nominal rate might be positive, and yet the effective rate might be negative. For example, if there is no nominal protection on the final product but a positive tariff on inputs, then there would be negative effective protection, so that the effective prices would have fallen as a result of the protective system. Changes in the shares of inputs can also affect the effective rate.

Effective protection may be interpreted more broadly than just being concerned with tariffs or with overall protection for import-competing industries. It can also refer to protection for exporting activities, and it can allow for export subsidies, export taxes, and indeed for all sorts of devices, taxes, and subsidies. This concept can be used to indicate how a complicated set of tariffs, subsidies, taxes, and so on will affect the effective price for an activity.

In view of the earlier discussion, export subsidies and export taxes are particularly important. An export subsidy raises the domestic price of the subsidized product and thus acts just like a tariff, while an export tax lowers the price. If the product concerned is primarily an exported product, then it is protected not by a tariff but by an export subsidy, and the nominal rate of the export subsidy is the relevant figure for the

calculation of effective protection. If the input is an exportable, the rate of export subsidy will be positive, while an export tax can make for negative effective protection. In particular, export taxes on inputs raise effective protection for those industries using them.

A system of tariffs and other devices must be seen in terms of a general equilibrium. Whether an industry is really protected depends on whether it gets more protection than other industries with which it competes for resources. Protection is relative. An industry may get a positive rate of protection, and yet resources may flow out of it because other industries are getting even higher rates of protection. What matters in terms of shifting resources are relative rates of effective protection. A particular industry may get higher nominal tariffs than another industry, but if it also has to pay high tariffs on its inputs so that its effective rate is low, it is unlikely that resources will be pulled into it. In any case, it must be stressed again that it is insufficient and indeed misleading to look at a protective rate—an effective protective rate—on its own. It must be seen in relation to effective rates applicable to other economic activities.

Uniform versus Made-to-Measure Effective Protection

Should a protectionist system tend to be uniform or made-to-measure? This is a big issue that must be faced in designing the details of such a system. In practice, a compromise between these two approaches always has to be made, but decisions are still needed on whether to move more in one direction or another and what the emphasis of the approach should be.

The essential idea of uniformity is that the same rates of protection be provided for all activities in manufacturing so that there is no discrimination other than that which comes naturally out of the price system. While a policy decision is made that manufacturing, or perhaps certain broad categories of manufacturing, be protected relative to other activities, no attempt is made to favor one type of activity within the protected area over another. Rather, the market (operating through privately or publicly owned enterprises) decides on the pattern of industry. Thus, as far as possible, the principle of comparative advantage is applied. This, indeed, is the main advantage of the uniformity approach. In addition, it makes for simplicity in administration and policymaking.

Some of the detailed implications of the uniformity approach are as follows. Uniform protection implies equal rates of effective protection for all manufacturing activities. This means that there is an equal resource pull for each activity relative to the nonprotected sectors. Furthermore, this equal effective protection should be provided not only for import-competing activities but also, in the form of export subsidies, for all exports of manufactures.

Uniform Effective Protection: Complications

The principle of uniform effective protection is very simple, but the practice is complex because equality of effective rates does not necessarily mean equality of nominal rates. Very different nominal rates of tariff and export subsidy may be needed to yield equality of effective rates.

This is simplest to explain in cases where the inputs are all non-manufactured materials which carry no tariff or subsidy (or export tax) at all, so that in the effective protection formula the tariff rate on imported or importable inputs used for the product is zero. Consider two such cases. In one case the share in the cost of inputs at free trade prices is 20 percent; in the second case it is 50 percent. Suppose the object is to get a uniform effective rate of 25 percent. In the first case, where the input share is low, the nominal tariff rate will have to be 20 percent and in the second case only 12.5 percent. Thus the higher the share of the input in total cost, the lower the nominal tariff rate need be to attain a given effective rate.

The matter is more complicated when the inputs themselves are not manufactures. There would be no problem if all inputs of manufactured goods were always themselves manufactures, with no basic materials input at any stage. In such a case, the aim right through would be to attain 25 percent effective protection, and this would be brought about by giving every product a 25 percent nominal rate. But when some inputs are materials or exportables with no subsidies, the tariffs on inputs will be less than 25 percent and in some cases may be zero. This means that the nominal rates have to be less than 25 percent; how much less depends on the values of the tariffs on inputs and the input shares. The nominal tariff for one activity becomes the input tariff for another in a multistage production process where the semi-manufactured and manufactured components are inputs into further processes.

The way this process works can be illustrated in a very simple example. Suppose that making cotton yarn requires a raw cotton input, with no tariff, export subsidy, or tax, and that the input share is 50 percent. To get the uniform effective rate of 20 percent for yarn, the nominal tariff for yarn must be 12.5 percent. The next stage is the weaving process. Suppose the input share of the yarn in cloth (with no other produced inputs) were 40 percent. The nominal tariff for the cloth must now be greater than 12.5 percent, namely, 20 percent. At the next processing step, the printing of cloth, with a 60 percent input share, the nominal tariff for printed cloth would have to be over 20 percent, namely, 22 percent. In fact, the higher the step in the manufacturing process in which the only nonprotected component is at the base of the system, the higher the required nominal rate.

The construction of a system that yields uniform effective protection can be quite complicated, even though the principle is simple. It requires adjustments as technical changes alter input coefficients. The object of the policy may be to provide uniform effective protection only for those activities where there is actually some domestic production, while duty-free entry is allowed for imports of those manufactures where there is no domestic production at all. In that case the system has to take into account the gradual extension of the manufacturing sector in the process of development. If a new activity is established, it will get a tariff—the uniform effective rate—for the first time. But if it produces a product which is itself an input into other manufacturing processes, their nominal rates will have to be adjusted to allow for the higher input tariffs they now face. If they, in turn, produce goods that are components for further processes, the adjustment of nominal tariffs has to go yet one step higher.

If *complete* uniformity of effective protection is the object, uniform effective protection for exports of manufactures should be provided at the same rate as the uniform rate for import-competing goods. The principle is the same for exporting as for import-competing protection. Export subsidies have to take into account that the costs of inputs will have been boosted by tariffs. Of course, if, for reasons listed earlier, export subsidies are not used, such complete uniformity of effective protection cannot be provided.

Qualifications to Uniform Effective Protection

There are a number of qualifications to the simple uniform effective protection idea. First, nonuniform nominal rates are needed to yield

uniform effective rates. This means that there will be distortions in the pattern of consumption of manufactures. The aim of the exercise is to foster domestic production of manufactures uniformly, not to discourage consumption nonuniformly. In principle, the argument for uniformity applies as much on the consumption side as on the production side. But on the consumption side it is nominal rates that matter, and on the production side, effective rates. Consumption distortion affects not only final consumers but also manufacturing industries themselves, which are consumers of manufactured inputs. If a manufactured component has a 50 percent nominal tariff and a possible substitute has one of only 30 percent, socially uneconomic substitution in favor of the low-tariff component will take place.

Given the uniformity objective, the conclusion is that there are two incompatible ideals. One is uniformity of effective rates, which is important in terms of the pattern of production, the other is uniformity of nominal rates, important in terms of the pattern of consumption. In practice some kind of compromise is probably best. A system of uniform nominal rates might be used, to be modified later in cases where very nonuniform effective rates result. Alternatively, a roughly uniform effective system could be used initially and then modified to smooth out nominal rates, avoiding excessive nonuniformities in nominal rates.

Another important qualification has to do with the motive for protection in the first place. Is it really desirable to foster all manufacturing equally? Equal protection might be an objective of policy if the motive is generalized protection of infant industries. The idea may be generally to encourage manufacturing so as to create the right industrial atmosphere, or generally to foster reciprocal external economies, and so on, with no clear idea as to which industries or activities would be better than others. Perhaps the aim of expanding the manufacturing sector is just taken as a given political objective. Alternatively, the aim may be much more specific. In that case departures from uniformity would certainly be justified. A most interesting case is described below.

The principal aim of protection may be to foster employment in manufacturing. Clearly in such a case higher rates of effective protection should be provided for labor-intensive than for capital-intensive activities. It is actually possible to rescue the useful concept of protection uniformity for this case by introducing the concept of the effective protective rate for labor. This concept relates protection not to value added as a whole, but only to the labor input. Other factor inputs, notably capital, are grouped with the produced inputs in calcu-

lating the effective protection rate. This approach means that if the social cost of labor is less than the wage rate that manufacturing has to pay, a uniform effective rate for labor should be provided which will yield a general stimulus to manufacturing on the basis of its labor usage. Labor-intensive industries will then get higher ordinary effective protection than will capital-intensive ones.

A final qualification to the uniformity principle concerns, again, exports of manufactures. It has already been pointed out that if the subsidization of exports is not feasible, or for one reason or another is not carried out, the effects of the protective system on the costs of exports must be taken into account. Tariffs on goods that are important inputs into manufactures should be especially low. It may then be necessary to depart somewhat from the uniformity principle for import-competing industries in order to modify the home-market bias of the whole system.

Made-to-Measure Protection

The basic idea of made-to-measure protection is that industries should get only as much protection as they "need." To give them more than they need is "wasteful." This is a popular approach and hence discussed at some length here.

The central issue is to define the concept of need. To provide a uniform rate of protection, whether nominal or effective, conflicts with this approach. Since costs of industries differ, a particular uniform tariff rate may be just enough to ensure survival of one industry, while in the case of another it may be more than enough to give it the whole domestic market and allow it, as well, to raise prices well above costs.

Thus the issue is really this: on the one hand there is the uniformity approach, simple in principle but complicated in practice, although fairly mechanical, which allows the price system to sort out the industries that will and will not flourish behind the uniform tariff and which scatters excess profits to some while giving others just enough for survival. On the other hand is the made-to-measure approach, which tries to tailor tariff rates to the needs of different industries. This requires that tariff authorities estimate costs of production, which is complicated to do, involving a good deal of judgment and discretion on the part of authorities, and which aims to avoid excessive or unnecessary profits. The choice is not simple.

Below are three detailed cases of the made-to-measure principle. In the first case, domestic production of a good is subject to economies of scale, with costs falling steadily with an increasing volume of sales.

There is only one domestic producer. Export subsidies are ruled out, and it is assumed that costs never fall low enough to make unsubsidized exports profitable. Costs will thus be at their lowest when the domestic firm supplies the whole domestic market. Assume that when the firm has the whole domestic market, its average costs, including reasonable profits, are 25 percent above the price of similar imports. A 25 percent tariff, or a little above, would allow the firm to capture the domestic market, but not to make excessive profits. The tariff-inclusive import price will set an upper limit on the price the firm can charge, so that the tariff rate is used as a form of price control. This might be called its made-to-measure tariff. If the tariff were higher, the firm could charge a higher price, leading to a monopolistic exploitation of consumers by the firm.

The difficulty lies in estimating the correct level of the tariff. If it is too low, the domestic firm may not survive or, indeed, domestic production may not even start. If it is too high, the primary aim of squeezing profits is not achieved. The firm may require an assurance of a tariff before it begins domestic production. Its costs must then be estimated in advance. This is difficult for the tariff authority since the cost data must come from the firm itself.

In the second case, there are a number of potential domestic producers, possibly all subsidiaries of transnational corporations. In each case production is subject to economies of scale, and full-scale economies would be realized only if production were confined to one firm. Suppose again that if a single firm supplied the whole domestic market, its costs plus reasonable profits would be about 25 percent above the duty-free import price. It follows that if a 25 percent tariff were provided, there would be just one firm in operation.

This time, however, the tariff is above 25 percent—suppose it is 50 percent. One or more new firms may now come in as well and divide up the market with the first firm. Each will produce on a small scale, so that their average cost will rise, say, to 50 percent above the import price. The market is now fragmented. Each firm still makes only modest profits, but the consumer is paying for the excessive number of firms. The aim of reducing the tariff to the made-to-measure level is not to reduce profits in this case, but to reduce the number of domestic producers. It follows that an excessive tariff can manifest itself either in excessive profits or—as in this second case—in an excessive number of producers.

There are practical difficulties in implementing made-to-measure protection in this case. The main problem, as before, is to estimate the

cost curve so as to decide what level of tariff will ensure the survival of at least one firm—given that domestic production is desired. The other problem is that when the tariff has initially been fixed at a high level and has brought in several firms, it is difficult politically, and perhaps socially, to reduce it and so squeeze out one or more of the firms. This is difficult even though the tariff reduction would bring prices down and not lead to any decline in total production. It is sometimes mistakenly argued in such a case that the high tariff is necessary to prevent monopoly, since cutting the tariff would force all but one firm out. The answer is that the one firm will not be a monopoly, since it will be competing with imports. It is subject to price control, the price of its product being set by the import price plus tariff.

In the third and final case, the made-to-measure concept is not so clear-cut. Assume that the industry cost curve is a rising one—as output expands, average costs rise. Perhaps there are several firms supplying similar but not identical products. One firm would just survive in the absence of any tariff at all, another firm would survive with a 25 percent tariff (while the previous firm would get excess profits), while a third firm would need a 50 percent tariff. What then is the made-to-measure tariff?

Clearly, the made-to-measure tariff differs for each firm in this case, and ideally a separate tariff classification should apply to each product. But this may present classification problems, and different tariff rates may encourage substitution by consumers or users and create marked distortions in consumption. Furthermore, there will be temptations for evasion by misclassifying imports as far as possible under low-tariff categories. Given that only one tariff can be applied, if this tariff were set at a level that prevented any excess profits being earned anywhere in the product category, very little domestic production might result. It may be necessary to live with excess profits for the sake of getting a certain level of domestic output and import substitution. The made-to-measure idea really falls apart in this case. To pursue the idea means to pursue refinements of the tariff system, narrowing the classifications—which in turn presents administrative and evasion problems.

Made-to-Measure Approach to Export Subsidies

The made-to-measure approach can also be applied to export subsidies. Again, the aim would be to avoid excess profits. Rather than offering a

uniform effective subsidy on all manufactured exports, the subsidy would be less in those cases where high profits are already being made. The aim this time is to economize public funds, given that there are inevitable limits to the amount of financing that can be made available. So the case for made-to-measure subsidization would seem to be quite strong, at least as strong as in the case of tariffs, where the aim is to minimize the implicit tax on consumers.

Yet there is an important difficulty. In the case of exports, it is impossible to talk of producers attaining a particular market limit and so having a particular average cost level as the basis for calculating a made-to-measure subsidy. It is likely that the higher the subsidy, the more will be exported. Only if there is one domestic producer, whose costs fall to some minimum average cost level as exports expand, can the concept be given clear meaning. Presumably the made-to-measure subsidy is then one that brings the price the producer receives on his exports just up to this minimum cost (which includes reasonable profits). But in other cases, any attempt by some firms to avoid excess profits on exports may mean little or no subsidy, and hence little or no stimulus to export.

Selecting Activities under the Made-to-Measure System

The made-to-measure approach has been presented sympathetically here. It has been seen as a way of avoiding or reducing excess profits or fragmentation of domestic production. The question has been, Given that an industry is to be protected, what is the level of tariff to be?

The made-to-measure principle does not tell us which industries, activities, or products are to be protected. This is in contrast with the uniform tariff approach, which is a device for selecting activities to be protected. A certain level of uniform effective tariff is set, and then some activities survive or get established behind the uniform tariff wall, while others do not. It is an automatic selection process on the basis of costs. Those industries which have costs (including reasonable profits) that are above the tariff-inclusive import price will not survive; others will.

In the made-to-measure approach, the selection process is less automatic. Assume that the industrial development policy is still to select different manufacturing industries on the basis of costs, favoring low-cost over high-cost activities and having some cutoff point, just as in the

uniform tariff case. The cutoff point would be set in terms of the maximum effective rate to be made available. This would be equivalent to the rate of uniform effective protection in the earlier approach.

In a country where manufacturing development depends on private initiative, rather than planning, the tariff authority would announce that it would provide made-to-measure protection for any activity not needing more than the maximum rate, say, 50 percent. In other words, 50 percent would not be provided automatically. Rather, firms that believe they could manage with 50 percent or less would propose production or actually initiate it, and then apply for protection. Many may get less than 50 percent, and the 50 percent effective tariff would go to the marginal activity. As in the uniform tariff case, firms would select themselves to be subject to the clearly defined tariff policy.

Where industrial development is centrally planned rather than the result of private initiative, the same basic approach would apply. The development planners would look at various actual and potential activities and estimate their average costs. They would again determine a cutoff tariff rate, say, 50 percent. They would initiate or give licenses to those activities which could manage within that limit. Activities that actually require less than 50 percent protection might, as in the previous case, get a made-to-measure tariff, though this may not be essential when the enterprises are publicly owned and controlled.

Difficulties with the Made-to-Measure Approach

Much can be said in favor of the simple and rather mechanical uniform tariff (and also uniform export subsidies), and there are strong arguments *against* made-to-measure protection, in spite of its appeal as outlined above. It is important to recognize its problems. In practice it may be necessary to make some compromise between the uniform tariff and the made-to-measure approach, the emphasis of the compromise depending to some extent on the administrative system. The weaker the system, the stronger the case for uniformity.

The first and by far most serious difficulty of the made-to-measure system is the adverse effect this system can have on firms' incentives to keep their costs down and hence on efficiency. If low costs simply mean low tariffs and there are no profit rewards for efficiency, then incentives disappear. Inefficient firms survive thanks to high tariffs, and efficient firms gradually lose their incentive to stay efficient. In theory, tariff

authorities could deal with this problem by estimating what costs would be if firms were efficient and by providing tariffs only high enough to allow efficient firms to survive. But from where will the authority get the data to estimate “efficient” costs? Certainly a firm applying for protection will not help it.

A closely related point is the following. Suppose that, to start with, there is a uniform tariff, applicable to a broad category of goods. Some firms make high profits because they have managed to keep their costs down or because they have had the sense to get into fields where there are good market and hence profit opportunities, while others just squeeze by. The high-profit firms are flush with funds and will expand. And it is surely desirable that the more efficient firms—those that know how to keep their costs down and that have been successful in judging markets and opportunities—should be the ones to expand. If the tariff system is then changed to a made-to-measure system, this encouragement to expansion out of their own funds is inhibited. Their profits will be no better than those of the other firms, and hence the efficiency of the whole manufacturing sector will suffer.

The second difficulty is that the administration of the made-to-measure system involves a great deal of detailed judgment by tariff authorities, essentially judgments about costs of firms. Inevitably a lot of administrative discretion will be involved. The more complicated the system, the more scope for bureaucracy and, above all, corruption. The effort that firms are likely to put into the business of trying to influence authorities, to mislead them about costs, and so on, is itself an economic cost. Even in a country with an incorruptible administrative and political system, the actual resource costs of running such a system are considerable. This is a serious matter when there is already a scarcity of skilled personnel, notably engineers, accountants, and economists.

The third difficulty is that the made-to-measure system introduces an additional uncertainty into business planning. It is particularly important for industrial development that government policy provide a framework that reduces uncertainty. Uncertainty creates great costs and discourages investment. A great deal of uncertainty is inevitable because of changing world and domestic market conditions, changing technology, and political upheavals. Economic planning should aim to reduce uncertainty. Yet a made-to-measure system is bound to create uncertainty. Since cost figures are never unambiguous, and since there are the possibilities of corruption and influence peddling mentioned

earlier, there will be great uncertainty in the minds of businessmen when all their profit prospects may depend on complicated and judgmental bureaucratic or political decisions. By contrast, the offer to firms of a simple uniform tariff, or perhaps of a near-uniform system to be constructed on well-defined criteria, helps to create a fairly certain environment.

The remaining difficulties of the made-to-measure system have already been referred to. Even if the system does not affect efficiency, even if there is no corruption and policies are clear-cut and certain, in principle at least, there is the fundamental difficulty of defining, obtaining, and even anticipating the correct cost figures. Furthermore, even if the cost figures were known, there is no unique made-to-measure tariff in those cases where costs rise with output. In these cases an attempt to squeeze profits would mean a squeeze on output.

Import Quotas versus Tariffs

Many developing countries use quotas rather than tariffs as their main method of protection. From the point of view of the protected firm, quotas can have the advantage of greater certainty. Ideally the potential domestic manufacturer would like assurance of a certain size market. If he believes that the size of the domestic market is not likely to change much, but that the principal source of uncertainty is the cost of competing imports, a quantitative quota on imports will certainly meet his needs. If there is variability in the size of the total domestic market, the size of the import quota may have to be varied so as to ensure a constant market size for the local producer, the foreigner bearing the impact of variability in the market.

This argument has obvious weight. It is particularly persuasive when, as is often the case, domestic production is subject to considerable economies of scale and there is little point in production being started at all unless there is assurance of a reasonable market.

By contrast, there is uncertainty in the case of a tariff because it does not insulate the domestic price from foreign prices. It merely creates a constant percentage gap between them. If there is a drop in world prices, or if foreign suppliers decide suddenly to unload cheap goods onto the country's market, a tariff that was originally thought to be adequate by the local manufacturer might turn out to be too low. Another uncertainty is that it is not always possible to predict in advance

how a given tariff will affect the demand for a locally produced product even when import prices stay unchanged. The product may not be a perfect substitute for imports, and it will depend on consumer reactions how a given rise in the domestic price of imports brought about by a tariff will affect the demand for a product.

Import quotas often originate in a balance of payments crisis and then remain to protect manufacturing industry, even though this was not their original purpose. The particular virtue of import quotas in this case is that they bring about a certain decline in the value of controlled imports—assuming now that they are fixed in terms of import values (so many dollars worth) rather than being quantity quotas. By contrast, an exchange rate depreciation has effects on import values that depend on elasticities. Of course, as stressed earlier, the effects on the balance of payments depend above all on what happens to expenditure.

These are the principal advantages of quotas and, no doubt, the reasons they are often used. Sometimes they may also be used because they serve particular interest groups, even though a case in the national interest cannot really be made.

Disadvantages of Quotas

The most important disadvantage is that protection by quotas does not provide a criterion for the selection of activities to protect. A decision must first be made as to which industries should be protected, and then they have to be provided with adequate quotas. Sometimes the criterion is simply to protect any industry or activity that happens already to exist, hardly a sound principle of industrial development. It is essentially a conservative principle and would not only help to sustain uneconomic activities, but would also fail to provide any guidance for new development.

If the selection of industries is to be on the basis of costs, then presumably cost calculations must be made, just as in the case of the made-to-measure approach described above. But with the made-to-measure approach there is some import discipline. If a principle is followed of protecting all activities that need no more than 50 percent effective protection, the discipline is that an effective rate of more than 50 percent is never provided. In the case of a quota, no discipline is provided by potential import competition. An industry claiming that its costs and prices will not exceed prices of competing imports by more than 50

percent cannot be held to this unless there is some kind of direct price control. Possibly the centralized selection method described earlier can be combined with an import quota system. Industrial planners would estimate costs of different activities and establish those where expected costs do not rise above a certain level. The selection would then be backed up by quotas. But there would be no cost discipline for the privately owned or publicly owned firms conducting the activities.

Another disadvantage of quotas is that they create monopoly situations, since they eliminate import competition completely. As pointed out above, a tariff that is not made to measure can also do so, but only if it is prohibitive of imports. Quotas give the local producer an opportunity to raise his price without regard to the cost of imports even when some imports remain. In this respect quotas are inferior not only to made-to-measure tariffs but also to a uniform tariff, which does set some upper limit to the price the local producer can charge. The quota may also encourage excessive fragmentation of domestic production, since the freedom from import competition can lead to too many domestic producers rather than too high profits, just as might happen with a tariff system that is not made-to-measure.

A third disadvantage is that quotas insulate the domestic economy from foreign developments. The protected local producer might regard this as a good thing, and inasmuch as quotas create some certainty, perhaps it is. It may also be desirable to insulate the domestic economy from short-term fluctuations in import prices and from sudden and unexpected changes in such prices. But there is another side. It is not really desirable to insulate the producer from longer-term changes reflecting new technological advances, changes in world demand conditions, and so on. If a decision has been made to protect an industry in the belief that it would need only a 50 percent tariff, but in a changed situation it turns out to need a 200 percent tariff—perhaps because of new technical developments overseas which the local producer failed to adopt—it is not really appropriate to allow the industry to go on as it is. If the tariff were kept at 50 percent there would be pressure for adaptation to the new situation. No doubt temporary subsidies and adjustment assistance might be provided. There would be no such pressure for adjustment with a quota.

The fourth disadvantage of quotas concerns the allocation of import licenses. If the quotas are prohibitive of all imports, so that there are no licenses to allocate, there is no problem. But if some imports of con-

trolled goods are allowed, numerous issues and problems arise. For one thing, unless there is a very firm, clear, publicly stated principle of license allocation, or unless the licenses are auctioned (which is rarely done), uncertainties are introduced into the system rather like the *uncertainties of the made-to-measure system*. If imports which are materials or components for manufacturing industry are controlled, this uncertainty will affect the development of manufacturing industry adversely.

The licenses will have a scarcity value, yielding potential profits. These are really a form of monopoly profits, the profits being reaped through the sale of the licenses. Alternatively, the first recipients of the licenses may be able to sell the imported goods directly to customers at prices well above what they cost to import. It must be stressed that these profits can be hidden in the sales prices of the imported goods so that they do not depend on the existence of a market for licenses. They can also be reflected in high prices of final goods that embody imported inputs in those cases where the producers of the final goods obtained the licenses to import the inputs.

Thus there is a monopoly profit problem, and the issue is who gets the licenses and hence the profits. The profits might go mainly to manufacturers who obtained licenses to import inputs, they might go mainly to domestic traders, they might go to local privileged people who have political influence and who then resell the licenses, they might go to foreign-owned trading firms operating locally, or they might go to the foreign exporters—as they are likely to when imports are controlled by voluntary export restraint arrangements. In the last two cases, foreign profits rise, and the system of quotas has in fact worsened the country's terms of trade, since the extra foreign profits must be regarded as additions to the foreign exchange cost of imports.

The best policy would be for the license profits to go to the treasury, as does customs revenue. This could be done if the licenses were sold on a market. There are various practical problems in this, especially if the level of quota restriction varies a great deal among products, but it is possible.

Finally, in view of the value that licenses have for their holders, businessmen may be tempted to corruption in order to obtain them. Furthermore, they will be prepared to expend real resources on influence peddling, lobbying, and so forth in doing so. The problem is the same as, though probably worse than, that of a made-to-measure tariff system.

V. Trade Policy and Changes in Foreign Prices

Antidumping Duties

Many countries make use of antidumping duties. A General Agreement on Tariffs and Trade (GATT) antidumping code permits countries to impose such duties if a foreign supplier is selling the same or similar products to consumers in his domestic market at a higher price and if his dumping abroad causes material injury to domestic import-competing producers. One might expect a country to welcome cheap imports and to be grateful if the foreign supplier sells his products to the country at lower prices. In such a case, he is of course exploiting his own consumers, in effect subsidizing exports through a policy of price discrimination. If this type of dumping is long term, the importing country could regard it as bringing about an improvement in its terms of trade to which it would adjust its domestic output and production patterns.

This skeptical view of the common concern about dumping should be kept in mind. Nevertheless, there must be more to the concern over dumping than this, for the concern is common, even though the argument just advanced seems so clear-cut. There are in fact two further points to be made.

First, domestic producers often feel it is unfair if foreigners can compete better than they, even though the foreigners' successful competition benefits the nation as a whole by providing cheap imports. Many reasons can be suggested why the foreigner is able to charge a lower price. One possibility is that he may be reaping economies of large scale in the production of the product concerned. If the foreigner can charge a high price to his domestic consumers because of a monopolistic position, perhaps helped by a tariff, he can export at a lower price, possibly at a price below the average cost of production. The average loss on exports is then covered by the monopolistic profits at home. But it will not pay him to export at a price less than marginal cost, for then every extra export sale would lower his total profits. This situation puts him at an advantage over a competitor in the importing country who is not able to exploit his own domestic consumers to the same extent. It is a situation which will seem unfair to the competitor even though it clearly benefits consumers in the importing country. Tariff authorities who are concerned with the interests of consumers and, more generally, with the national interest should not regard this as a good argument

for antidumping tariffs. But they need to appreciate the feeling of unfairness that dumping sometimes generates, and they may sometimes need to give way to it.

Second, a much sounder case for antidumping duties involves so-called predatory dumping. A foreign supplier of imports may temporarily drop his sales price when a new competitor emerges, the aim being to eliminate the newcomer firm in its infancy. The gains to consumers are then only short term; eventually the consumer may lose through the preservation of a monopoly. Short-term price cutting is an instrument of monopoly. It is not always easy to identify such cases, and monopolistic price cutting by foreign suppliers is not directly connected with prices to domestic consumers being higher than export prices. All that happens is that the export price is temporarily cut, even though it may never fall much below the price at home. But there does seem to be some possible case for intervention here under the general heading of antimonopoly action.

Insulation from Foreign Disturbances

The prices of imports may fall suddenly, either temporarily or permanently, for many reasons other than dumping. A world or a localized recession may force foreign producers to unload surpluses on a country's markets. Prices may fall because there have been sudden shifts in tastes, improvements in productivity or new inventions, miscalculations about demand prospects when capacity expansion was planned, or (in agriculture) exceptionally rich harvests. For all these reasons import prices may fall suddenly, to the benefit of local consumers and the chagrin of import-competing producers. The price on the domestic market of the supplying country may decline by just as much, so these price declines cannot be described as dumping in the usual sense. However, if dumping is defined as a sudden unloading of a large quantity of cheap supplies, then these price declines do constitute dumping. Inevitably it provokes demands for protection. The points of view of domestic producers are easily understood.

The difficulty for a government is, above all, to assess whether the price change is temporary or permanent. It would certainly be unwise to forgo a permanent opportunity to get cheaper imports, though there may be a case for intervention to smooth the impact of the lower prices, perhaps by providing a temporary, steadily declining tariff. It can also be argued that domestic producers have to accept the risks of changing

foreign conditions and should attempt to foresee and provide against them.

The central issue is whether a government wishes to shelter its producers from foreign influences. This brings in the infant industry issue again. For firms going through an infancy period and short of their own funds to cover temporary losses and periods of adjustment, and also unable to borrow adequately on the capital market, some shelter may be justified, at least to a limited extent. For others—notably the subsidiaries of transnational corporations—it certainly will not.

Protection Policy and Export Prices

Trade policy can lower the import prices or raise the export prices that a country faces (in terms of foreign currency) and so improve its terms of trade. The aim of improving the terms of trade is different from the aim of fostering the development of manufacturing industry, which is the central theme of these guidelines. But the two aims interact in various ways.

General expansion of the economy will normally lead to some expansion in output of the country's traditional exports. If the country is a significant world supplier of these exports and if world demand is not expanding very rapidly, this would bring prices down, at least relative to the world price level of goods in general. Hence the country's terms of trade would deteriorate. It could be argued that to avoid or moderate such trade deterioration, the country should expand into import-competing industry. Protection of import-competing manufacturing would then be justified by the need to avoid an adverse movement in the terms of trade. This is a version of the standard terms of trade argument for protection. It rests on a terms of trade effect on the side of exports, not imports, and particularly exports of nonmanufactured goods.

If the export industries were run by domestic monopolies, whether private or public, the argument would not be justified. If exports were channeled through marketing boards, they should in any case exploit any monopoly power the country has. Essentially the argument is that the potential monopoly power of the export industries is not being exploited, and that this can be done indirectly by protection of manufacturing.

The basic criticism of this argument is that protection of manufacturing is a very indirect way of improving the terms of trade for nonmanufactured exports. The direct way is to impose appropriate export

taxes, as many countries already do. Indeed, if they do already, there may be no remaining argument for further restriction of exports through protection.

The approach is to look at each export separately and assess the scope for improving the terms of trade. This will depend on the estimated foreign elasticity of demand. If it is high, there is little scope, if low, a great deal. Thus the rates of export tax for this purpose need to be relatively high in cases where the elasticity of demand is relatively low. When a nonuniform set of export taxes would be best, tariff protection is clearly inefficient. It does its work by drawing resources out of export industries indiscriminately, drawing them as much, or perhaps more, from industries with little scope for terms of trade improvement as from industries in which there is a great deal of scope.

Protection Policy and Import Prices

In constructing a system of protection, it is also important to take into account the possibility of terms of trade effects on the side of imports. The prices paid to foreign suppliers might be forced down by tariffs. The foreigner would then pay part of the import tax. While the consumer would still pay a higher price, the gain in customs revenue would come only partly from a consumer tax, since it would also be coming from a tax on the foreign supplier. From a narrow national point of view this is desirable, but it has to be viewed against the extra cost of import substitutes or, more generally, the cost of forgoing some of the benefits of the international division of labor. In principle, for every import there will be an optimal rate of tax. The lower the foreign elasticity of supply of imports, the higher this rate of tax. In the limiting case, where the import price will not fall at all in response to a tariff, the optimal rate of tax is zero.

This particular terms of trade argument for protection is perhaps not a significant consideration for most developing countries and can be ignored. In the short run it may be possible to get foreigners to drop their prices by reducing demand for their products, but most developing countries are not large purchasers in world markets of the sorts of goods they import and have to take world prices as given. This is a matter of judgment and detailed consideration. There may, in the medium run, be some scope for squeezing the profit margins of distribution and transport firms supplying a particular developing country. It is likely, though, that after time for adjustment there would be a consid-

erable drop in the foreign supplies to that particular developing country (unless it were one of the largest), if the prices the developing country would pay were forced down by tariffs to levels well below world prices. But in many cases the concept of world prices is very doubtful, as prices may be the fruit of separate bargains, negotiations, or market assessments, and suppliers may be acting as discriminating monopolists.

In general, the use of the tariff system for this purpose would not seem to be ideal. If there are large private importers in the country, they are likely to have exploited the country's possibilities of monopoly power as a buyer; and if there are no such large firms, it may be better to establish public purchasing agencies that will exercise buying power in a discriminating and flexible way.

The general idea of a structure of tariffs designed to force down prices of imports is the same as the made-to-measure idea. As noted earlier, made-to-measure tariffs were designed, to some extent, to limit or squeeze domestic profits for the benefit of consumers. Now the aim is to squeeze foreign profits. The central problem is similar: to assess what scope there is for squeezing these profits without bringing about an undue fall in supplies.

Bibliography

The literature dealing with the various issues raised in this chapter is extensive. It consists of theoretical literature, whose purpose is to sort out the main issues, and policy-oriented and descriptive writings.

Theory

This chapter is based to a great extent on two books by its author, namely *The Theory of Protection* (Oxford: Clarendon Press, 1971) and *Trade Policy and Economic Welfare* (Oxford: Clarendon Press, 1974). These two books spell out all the issues in much more detail and with more precision and make ample use of diagrams. In particular, the first explores the numerous technical and theoretical problems connected with the concept of effective protection. The second reviews critically numerous arguments for protection. Both books contain extensive references to the theoretical writings in this field.

Another book by the author, *Inflation, Exchange Rates, and the World Economy* (Oxford: Clarendon Press, 1977), spells out more fully (see chap. 1) the concepts of absorption and switching and the role of the exchange rates, as expounded briefly early in the present chapter. There is also a good deal of theoretical content in many of the books mentioned below.

Policy

The most important policy-oriented book in this general area is Ian Little, Tibor Scitovsky, and Maurice Scott, *Industry and Trade in Some Developing Countries: A Comparative Study* (London: Oxford University Press, 1970), published for the Organisation for Economic Co-operation and Development (OECD) Development Centre. It deals with all aspects of trade policies, puts them in the perspective of general economic policies, refers to many examples, and is very clear in its broad policy recommendations. An influential book, it lays particular stress on the need for promoting exports of manufactures and not merely developing an import-substituting manufacturing industry. The same issues are discussed and the literature reviewed in Carlos Díaz-Alejandro, "Trade Policies and Economic Development," in Peter Kenen, ed., *International Trade and Finance: Frontiers for Research* (Cambridge, England: Cambridge University Press, 1975). Broad policy issues are also discussed in two more recent books: Jagdish N. Bhagwati, *Anatomy and Consequences of Exchange Control Regimes*, and Anne O. Krueger, *Liberalization Attempts and Consequences* (both Cambridge, Mass.: Ballinger Publishing Co., 1978), published for the National Bureau of Economic Research (NBER) in its Foreign Trade Regimes and Economic Development Series.

Country Studies

Many excellent country studies of systems of protection and exchange control and of processes of trade liberalization are available. Probably of greatest importance are the six country studies published in the OECD series (on which Little, Scitovsky, and Scott, *Industry and Trade in Some Developing Countries* is based), and the nine country studies published in the NBER series, Foreign Trade Regimes and Economic Development. Many examples of the trade restrictions and subsidy devices referred to

in this chapter can be found in these two series. For example, in Jagdish N. Bhagwati and Padma Desai, *India: Planning for Industrialization* (London: Oxford University Press for OECD, 1970), there is a particularly detailed description and analysis of an import-licensing system, which brings out the adverse consequence of wide-ranging and intricate controls that have developed in an unsystematic way. Such controls are also described in many other books, for example, Stephen R. Lewis, Jr., *Pakistan: Industrialization and Trade Policies* (London: Oxford University Press for OECD, 1970); Timothy King, *Mexico: Industrialization and Trade Policies Since 1940* (London: Oxford University Press for OECD, 1970); Anne O. Krueger, *Foreign Trade Regimes and Economic Development: Turkey* (New York: Columbia University Press for NBER, 1974); and Michael Michaely, *Foreign Trade Regimes and Economic Development: Israel* (New York: Columbia University Press for NBER, 1975). A country that has made particular use of export incentives is the Republic of Korea, as described in Charles R. Frank, Kwang Suk Kim, and Larry Westphal, *Foreign Trade Regimes and Economic Development: South Korea* (New York: Columbia University Press for NBER, 1975). Many countries have gone through reform or "liberalization" episodes in which they have tried to simplify their trade control regimes in various ways, usually associating this with devaluation. This is described in the various NBER studies, for example, Krueger's book on Turkey and Michaely's on Israel, and also others in the series, namely, Robert E. Baldwin on the Philippines, J. Clark Leith on Ghana, Bent Hansen and Karim Nashashibi on Egypt, Jere R. Behrman on Chile, and Carlos Díaz-Alejandro on Colombia (all published by Columbia University Press, New York). A book dealing with trade policies of a number of different countries is Bela Balassa, *Policy Reform in Developing Countries* (Oxford: Pergamon Press, 1977). Finally, studies of effective protection in several countries are contained in Bela Balassa and others, *The Structure of Protection in Developing Countries* (Baltimore: Johns Hopkins Press, 1971).

3

Financial Policies

Ronald I. McKinnon

Appropriate financial policies cannot guarantee an adequate rate of industrial development in a country, but inappropriate policies make such development difficult, if not impossible. This chapter is mainly concerned with the peculiarly important role of the banking system in industrial finance for countries with low per capita incomes. The financially repressive impacts of usury laws, reserve requirements, and the creation of special credit agencies are examined at the microeconomic level. The macroeconomic importance of controlling price inflation is also considered, along with capital flows through the foreign exchange market.

MOST DEVELOPING COUNTRIES have formal plans for industrial development, public infrastructure such as roads and utilities, the future course of education, foreign trade, agriculture, and so on. Yet planners typically do not set targets for, or even assess achievements in, the financial sector. Unfortunately, regulation rather than development is the usual emphasis.

However, no other sector in market-oriented economies is more important for promoting indigenous entrepreneurship. Nascent business firms and artisans in cities or small farmers in the countryside do not function efficiently unless they can borrow or lend freely on a quid pro quo basis. Only then is it possible to have broadly based development, with new technologies being widely introduced, to reflect accurately the social scarcity of capital throughout the economy.

In contrast, formal credit markets in developing countries are often badly distorted and taxed by various public policies. Such a “repressed” financial system creates biases in economic modernization toward urban enclaves; industrial development is dominated by a few wealthy families or favored government corporations with privileged access to subsidized bank credits or by transnational firms with access to foreign capital. The rest of the indigenous economy is left highly fragmented, without a formal capital market. Yields on new investment may be low or negative in some areas and very high in others; many investment opportunities are forgone for lack of financial support. Small rural and urban enterprises in developing countries are often financially isolated, since they can neither borrow nor lend.

Other things being equal, an increase in the proportion of a community’s savings going to physical investment through the financial system should lead to an improvement in the allocation of these savings. This does not mean that direct investment of retained earnings and other savings is not, and should not be, an important element of investment in all countries. Yet, if savings are placed in financial markets, potential borrowers for investment purposes will have to compete for available funds. To the extent that there is competition in these markets, the borrowers with the apparently most productive opportunities will have an advantage in obtaining funds, and savings will be allocated to the most profitable uses, as they should. Even if investment is financed by internal savings, an active financial system will provide opportunities for decisionmakers to consider alternative dispositions of funds and encourage them to limit reinvestment to productive uses. On the other hand, if the financial system is “repressed,” savers will be encouraged to make direct purchases of physical assets, even though they know they cannot allocate the funds to uses as productive as those that might be financed by potential, but frustrated, borrowers. The output-capital ratio in the economy could then become unduly low.

Bringing the bulk of capital accumulation into the formal market for finance is thus an important element of overall development policy. A well-developed financial system should encourage savings and release resources for investment. If a country has only a rudimentary financial system, individuals outside the peasant agricultural sector may choose only among outlays for consumption, sterile (that is, non-interest-paying) money, and loans to entrepreneurs whose final creditworthiness may be uncertain—not because of any fault in character, but because of the uncertainties of trade and possible lack of liquidity.

In contrast, if savings deposits, credit union, or other cooperative shares, liquid certificates of participation, life insurance and pension fund possibilities, and the like are made available on attractive terms, the individuals' choice of outlay will be widened, and a substitution from consumption and nonproductive forms of savings may be expected. That is, the broadening of the range of financial assets available can have a positive effect on savings, even if this effect may be small. Perhaps more important, the consolidation of relatively small private savings in institutional hands permits the allocation of these funds to presumably profitable industrial and other investments that require relatively large blocks of finance.

This chapter begins by outlining a normal process of financial development—including the way capital markets work—as an economy grows from very low levels of per capita income to the higher levels associated with successful industrialization. Then it examines how this normal financial development can be derailed by—or at least lack support from—public policies. Finally, a number of specific regulatory issues that impinge on the provision of industrial financing are taken up. Throughout, the monetary banking system is treated as the mainstream of the organized capital market in the underdeveloped economy.¹

I. The Banking System and Loanable Funds

In developing countries, open markets for primary securities are usually insignificant. This situation does not constitute a distortion but merely reflects the low level of per capita income and the resulting low level of individual saving and investment. Information is insufficient for small farmers or merchants to be able to issue their own notes or publicly traded shares. Small-scale investors cannot issue bonds, common stock, mortgages, trade bills, and so forth in an organized securities market for purchase in significant quantities by household savers. They and other small savers are precluded from doing so by uncertainty about the debt instruments of fledgling entrepreneurs—by the absence of accounting systems and their unknown default potential. These sav-

1. This approach is the particular view of Ronald I. McKinnon, *Money and Capital in Economic Development* (Washington, D.C.: Brookings Institution, 1973); and of Edward S. Shaw, *Financial Deepening in Economic Development* (New York: Oxford University Press, 1973).

ers, in any event, cannot easily diversify their portfolios. Only a small and inadequate number of moneylenders, pawnbrokers, and village storekeepers can extend limited credit directly to worthy private borrowers.

The absence of open markets in primary securities means that the monetary system has a much more important role as an intermediary between savers and investors. Private financial savings in developing countries are largely currency and deposits—claims on central banks, commercial banks, and near banks such as savings and loan associations, *financieras* (development banks), postal savings depositories, and so on. These banking intermediaries issue liquid short-term deposits whose nominal value is virtually guaranteed by the state, a great advantage to small savers. This guarantee arises because society must have a stable means of payment. The provision of money to provide these services has long been recognized as one of the major attributes of sovereignty. It was accepted as a state responsibility long before the development of banks which, as they evolved, tended to take it over. Consequently the supervision of banks has been accepted as a government responsibility in most countries.

Institutional relationships among central banks, commercial banks, building societies, development or investment banks, agricultural credit banks, and so forth can vary a great deal from one country to another because of different economic circumstances and regulatory practices. Many of the differences are not critical for the efficient overall operation of a bank-based capital market. Initially, therefore, consider a situation in which the balance sheets of all organized banking units in an economy are consolidated into "Monobank." Monobank collects all checking (demand) and interest-bearing time deposits from, and also issues coins and currency to, the nonbank public, private households and firms. Monobank's balance sheet, when all interbank claims and liabilities are netted out, is shown in Table 3-1.

TABLE 3-1. THE MONOBANK BALANCE SHEET

| <i>Assets</i> | <i>Liabilities</i> |
|----------------------------------|----------------------------------|
| Loans to private borrowers | Coin and currency |
| Government bonds | Demand deposits |
| Net claims on foreigners | Time deposits (interest bearing) |
| | Net worth (capital subscription) |
| Total assets = Total liabilities | |

In an economy, three distinct roles² can be distinguished for the banking system that are often complementary but sometimes in conflict: (1) the traditional monetary role: providing a stable unit of account, store of value, and means of payment in the economy; (2) the financial intermediation role: bringing private savers together with public and private investors; (3) fiscal support for the government: a source of revenue to the exchequer, to be allocated in parallel with tax proceeds, possibly for consumption purposes or transfer payments.

In mobilizing resources for economic development, the intermediary role of the banks under (2) above is extremely important because open markets for primary securities are not substantial and are highly illiquid. Money in the form of currency and demand deposits, and quasi money in the form of time and savings deposits are, on the other hand, highly liquid. Being legal tender in an otherwise fragmented and illiquid capital market, money yields almost instant purchasing power for goods and services outside of subsistence agriculture. Acceptance of interest-bearing time deposits is officially regulated to ensure their safe convertibility into the means of payment.

Thus in many poor countries the banking system is virtually the only financial means of attracting voluntary private savings on a large scale. It has the potential to promote investment in two important ways: (1) Through the issue of currency (central bank), demand deposits (commercial banks), or time deposits (savings banks), credits can be extended to investing enterprises in the private or public sector, as represented by the left-hand side of Monobank's balance sheet. (2) Less obviously, the banking system can promote *self-financed* saving-investment *within* industrial firms and family-owned farms. In the less developed economy, most small enterprises and potential new ones do not have easy access to outside credits, even from the banking system. But new innovative investments to buy machinery or hire workers require substantial discrete outlays of cash at separated points in time. To finance these outlays, small-scale entrepreneurs accumulate bank deposits or stash currency under their mattresses before making their investments. Thus the economic attractiveness of building up and holding cash balances—as represented by the right-hand side of Monobank's balance sheet—is itself important for self-financed capital accumulation in the less developed economy. Here the term "finance

2. A fourth important role is that of money changer in the foreign exchange markets.

TABLE 3-2. BANK LOANABLE FUNDS IN TYPICAL SEMI-INDUSTRIALIZED AND INDUSTRIALIZING DEVELOPING COUNTRIES (ratio of M_2 to GNP)

| Country | 1960 | 1965 | 1970 | 1975 | Mean 1960-75 |
|---|-------|-------|-------|-------|-----------------|
| Latin America | | | | | |
| Argentina | 0.245 | 0.209 | 0.267 | 0.168 | 0.222 |
| Brazil | 0.148 | 0.156 | 0.205 | 0.164 | 0.168 |
| Chile | 0.123 | 0.130 | 0.183 | 0.099 | 0.134 |
| Colombia | 0.191 | 0.204 | 0.235 | n.a. | 0.210 |
| Mean ratio of M_2 /GNP for four Latin American countries: | | | | | 0.184 |
| Asia and the Middle East | | | | | |
| India | 0.283 | 0.262 | 0.264 | 0.295 | 0.276 |
| Philippines | 0.186 | 0.214 | 0.235 | 0.186 | 0.205 |
| Sri Lanka | 0.284 | 0.330 | 0.275 | 0.255 | 0.286 |
| Turkey | 0.202 | 0.223 | 0.237 | 0.222 | 0.221 |
| Mean ratio of M_2 /GNP for four Asian-Middle Eastern countries: | | | | | 0.247 |

n.a. Not available.

Source: IMF, *International Financial Statistics*, various issues. M_2 is defined as money plus quasi money plus deposits outside commercial banks. M_2 is a stock tabulated as of June 30 for each calendar year, whereas GNP is the flow of output for that year.

motive" is used to refer to the desire of investor-savers to hold real cash balances.

Given this important dual role of the banking system in financing new investment, how can achievements in the financial sector be assessed empirically as industrialization proceeds and per capita income grows?

One way is to devise a rough statistical measure of the flow of loanable funds through Monobank, which is equivalent to the banking system as a whole. Take M_2 to be a broad definition of the banking system's liabilities, as represented in Table 3-1 by the right-hand side of Monobank's balance sheet,³ less the net worth of private banks. To what extent can data on the stock of money, as measured by the ratio M_2 to gross national product (GNP), be an adequate measure of the flow of loanable funds in a typical developing country?

First, the M_2 /GNP ratio is indicative of the absolute size of the banking system that reinvests, in potentially new directions, funds from old

3. As distinct from M_1 , which consists only of coin and currency and demand deposits.

loans that have matured. It also measures the stock of liquidity available for self-financed investments.

Second, the flow of current saving of households and firms shows up in part as changes in the assets and liabilities of Monobank. In particular, the increase in the *real* stock of money is a measure of the realized net private financial saving in the prototypical developing country without open markets in primary securities. The flow of private saving in monetary form that is eroded by inflation—part of the inflation tax collected by the government—is omitted from this measure. However, increases in the ratio of M_2 /GNP provide an indication of real additions to the ongoing loanable funds capacity of the banking system.

By conforming to the International Monetary Fund (IMF) definition of money (currency and demand deposits) plus quasi money (time deposits in commercial banks plus savings deposits in other financial institutions), in the measured ratios of M_2 to GNP may be unduly narrow for some countries. Depository claims on certain kinds of rural savings co-operatives and industrial financieras may be left out, even though these latter kinds of deposits conform to the conceptually broad definition of M_2 . Nevertheless, Tables 3-2, 3-3, and 3-4, which are based on the narrower definition, still give a reasonably comprehensive measure of the real size of, and growth in, the banking systems of: (1) semi-industrialized and industrializing countries (Table 3-2) that are quite typical in not having been able to sustain a high level of economic growth in the postwar period; (2) financially mature industrialized countries (Table 3-3) with open capital markets in addition to the banking system; and (3)

TABLE 3-3. BANK LOANABLE FUNDS IN INDUSTRIALIZED COUNTRIES (ratio of M_2 to GNP)

| Country | 1960 | 1965 | 1970 | 1975 | Mean 1960-75 |
|--|-------|-------|-------|----------------|-----------------|
| Belgium | 0.591 | 0.578 | 0.566 | 0.558 | 0.573 |
| France | 0.385 | 0.532 | 0.538 | 0.675 | 0.533 |
| Sweden | 0.678 | 0.632 | 0.604 | — ^a | 0.638 |
| United Kingdom | 0.493 | 0.509 | 0.510 | 0.558 | 0.518 |
| United States | 0.633 | 0.666 | 0.636 | 0.726 | 0.665 |
| Mean ratio of M_2 /GNP for industrialized countries: | | | | | 0.585 |

a. Data on time and savings deposits in special financial institutions was not collected after 1971.

Source: IMF, *International Financial Statistics*, various issues. M_2 is defined as money plus quasi money plus deposits outside commercial banks. M_2 is a stock tabulated as of June 30 for each calendar year, whereas GNP is the flow of output for that year.

TABLE 3-4. BANK LOANABLE FUNDS IN RAPIDLY GROWING COUNTRIES
(ratio of M_2 to GNP)

| Country | 1955 | 1960 | 1965 | 1970 | 1975 | 1977 |
|--|--------------------|--------------------|--------------------|-------|-------|-------|
| Germany, Federal Republic of ^a | 0.331 | 0.394 | 0.488 | 0.583 | 0.727 | 0.777 |
| Japan | 0.554 ^b | 0.737 ^b | 0.701 ^b | 0.863 | 1.026 | 1.087 |
| Korea | 0.069 | 0.114 | 0.102 | 0.325 | 0.323 | 0.334 |
| Singapore | n.a. | n.a. | 0.542 ^b | 0.701 | 0.668 | 0.750 |
| Taiwan | 0.115 | 0.166 | 0.331 | 0.162 | 0.588 | 0.702 |

n.a. Not available.

a. In addition to deposits and currency, the German series includes bank bonds sold directly to the public.

b. There is a downward bias because deposit information on specialized credit institutions was not collected.

Source: IMF, *International Financial Statistics*, various issues. M_2 is defined as money plus quasi money plus deposits outside commercial banks. M_2 is a stock tabulated as of June 30 for each calendar year, whereas GNP is the flow of output for that year.

rapidly growing countries (Table 3-4) that have undergone substantial financial transformation.

The eight semi-industrialized and industrializing countries in Table 3-2 have made some substantial attempts to industrialize by import-substitution policies, but they have not yet achieved balanced and rapid growth in real GNP. Their financial profiles are typical. They have quite small banking sectors for their levels of per capita income. Their ratios of M_2 /GNP average less than 0.2 for the Latin American countries, and about 0.25 for the Asian and Middle Eastern ones. In each group, these low ratios fluctuate up and down, with no sustained tendency to increase. The flow of loanable funds through their banking systems is therefore quite limited. Indeed, in Chile, a country with chronically high inflation, the real lending capacity of the banking system was only one-tenth of GNP in 1975.

Table 3-3 portrays the other end of the spectrum: industrialized countries with broadly based capital markets within which the banking sector plays an important role. Their M_2 /GNP ratios are about 0.60. Hence, relative to national incomes, their banking systems are about two to three times as large as those of the semi-industrialized countries. In addition, many of the industrialized economies have developed primary securities markets or nonbank financial intermediaries such as pension funds or insurance companies. The overall size of their capital markets relative to GNP is larger than a simple comparison of M_2 /GNP ratios would suggest.

When the data are standardized for levels of per capita income, the wide gap between the financial development of semi-industrialized and industrializing countries and that of industrialized countries is more striking than the differences in their performance in foreign trade. This situation thus does not passively reflect merely underdevelopment itself; misguided financial policies have actively repressed the flow of loanable funds in those eight developing countries. The same is true for most other developing countries not specifically considered here.

Before the discussion of the microeconomic specifics of financial repression and the testing of the above hypothesis, it is important to show that better financial development is actually possible in countries that are not yet wealthy. Each of the five rapidly growing economies (Federal Republic of Germany, Japan, Korea, Singapore, and Taiwan) portrayed in Table 3-4 developed sophisticated banking systems—and high or sharply rising M_2 /GNP ratios—at fairly early stages in their growth in per capita income. To make their rapid rates of growth clearer, the time frame used is 1955 to 1977—about the longest period for which there are IMF statistics. In particular, in 1955 Japan's per capita income was lower than that of many developing countries listed in Table 3-3 in 1975. Yet Japan's M_2 /GNP ratio in 1955 was more than twice as large as that now prevailing in the semi-industrialized and industrializing developing countries, and its financial growth continues apace. As of 1977, its M_2 /GNP ratio of 1.087 was much higher than the mean M_2 /GNP ratio of 0.60 for the industrialized countries, although Japan's per capita income is still somewhat lower than the average for other highly industrialized countries.

The monetary turmoil and high inflation in the early 1950s sharply reduced the "real" size of Taiwan's monetary system: M_2 /GNP declined to only 0.115. Since then its banking sector has grown rapidly to surpass those of semi-industrialized and industrializing countries at comparable stages of per capita income. By 1970 it was about twice as large as those of the average semi-industrialized and industrializing countries. As of 1977 its M_2 /GNP ratio of 0.702 was comparable to those of the industrialized countries, although Taiwan's per capita income was still substantially lower. Again, remarkably rapid financial growth apparently led to, or was necessary for the advancement of, higher ratios of physical capital to labor. (Cause and effect may not be unidirectional. Direct incentives for the accumulation of physical capital may stimulate financial growth.)

Remembering that the German monetary reform of 1948-49 drastically scaled down both bank assets and liabilities, Germany's sub-

sequent growth in M_2 / GNP has been high, and it was sustained throughout the postwar period.

In Korea, development languished before 1964, with little or no sustained growth in per capita income. Major financial reforms in 1964–65 sharply increased the intermediary role of banks in private capital markets over the next five years to provide the domestic finance that supported a major spurt of industrialization. M_2 / GNP rose from 0.102 in 1965 to 0.325 in 1970. Subsequently, Koreans have depended more on taxation and foreign borrowing; domestic financial growth has not been sustained as well as in Taiwan.

Singapore, another success story, has financed its economic development internally largely by maintaining an M_2 / GNP ratio at industrialized country levels.

Growth itself increases the flow of realized private financial saving even further when M_2 / GNP is high. Thus, these five countries have successfully completed a “virtuous” financial circle. Financial development stimulates growth, while growth naturally increases the flow of loanable funds when financial development is robust. The task here, therefore, is to contrast the repression of flows of loanable funds in the slow-growth Asian and Latin American developing countries portrayed in Table 3-2 with the policy of financial liberalization followed by the high-growth economies portrayed in Table 3-4.

II. Interest Ceilings and Financial Repression

It is easy to persuade small savers to keep a minimum level of highly liquid “working” cash balances within the banking system; these consist mainly of coin and currency and perhaps demand deposits. Beyond these basic working balances, small savers will increase their money holdings relative to their incomes only if the menu of interest-bearing passbook savings, time deposits, and possibly certificates of deposit of longer maturity are made attractive. In part, this requires a physical infrastructure of banking facilities and easily accessible services—such as post offices often provide throughout the country. At the bottom line, however, small savers will substantially augment their real cash balance holdings only if the real interest yield is adequate. Indeed, if initially most of the population is poor, a significantly high yield on longer-term deposits of the order of 8 or 9 percent—after adjusting for

ongoing inflation—may well be necessary to encourage a spurt in financial saving such as that enjoyed by Taiwan.

The basic problem is, of course, that banks can pay a high yield to depositors only if they are earning an even higher yield on their loan portfolio. As a practical matter, this is rarely the case, as the semi-industrialized and industrializing countries portrayed in Table 3-2 have a long history of imposing both direct and indirect ceilings on the interest rates that can be charged on loans from the banking system. Depositors then necessarily receive a low yield—which can be highly negative after allowing for price inflation. Potential depositors respond by strictly limiting their saving in financial forms, thus giving rise to financial repression.

Consider, first, the impact of usury laws that impose an interest ceiling. Shakespeare's portrayal of Shylock is typical of the long-standing view of the moneylender. Practically all organized religions impose moral limits (or even prohibitions) on usury. The village moneylender is seen as fattening himself by grinding the peasants' faces in the dirt. While there is an element of truth in these accusations, they are often caused not by any inherent inequities in moneylending, but rather by the attempts to limit usury. Just as prohibition of the sale of alcohol usually leads to large profits for its producers and those designated to enforce the law (and a loss of enjoyment to consumers), so limitations on interest rates can lead to monopoly profits for financiers and a misallocation of resources that denies credit to socially desirable innovators. This is particularly true if the market for bank credit is hemmed in with all kinds of interest-rate restrictions.

In many countries indirect usury conventions impose some moral limits on the level of interest rates. In the United States in the 1950s, it was considered immoral for the government to pay more than 4 percent on its long-term debts; today in Kenya it is regarded as immoral for a bank to charge much more than 10 percent on a loan to a risky borrower for an investment that involves large transaction costs. If the limit set on interest rates is lower than the marginal rate that creditworthy borrowers are willing to pay for the currently available supply of funds, there will be excess demand in the credit markets. Simultaneously, if institutions are limited in the amount that they may charge, they will be limited in what they can pay depositors and others. Hence the supply of funds will be limited, and the volume of the system's total operations is decreased. With increasing returns and competition among in-

stitutions, the minimum cost per unit of transaction will be raised, and, necessarily, the institutional spread between borrowing and lending rates will be widened.

In the circumstances envisaged here (which in fact prevail in many countries), the excess demand can be accommodated only by some form of credit rationing. One aspect of such rationing is that it tends to inhibit innovation. It will shift credit toward enterprises where the administrative costs of lending are low and the threat of default or delinquency appears to be minimal. Enterprises successfully bidding for these low-cost loans tend to be grouped as follows:

- Medium to large firms, where there are economies of scale in reducing the administrative cost per dollar lent. Small firms tend to be excluded altogether.
- Firms with established credit records that have borrowed repeatedly in the past so that new credit investigations need not be undertaken. Nascent enterprises or those introducing new technologies with which banks are unfamiliar tend to be discouraged.
- Firms that possess such easily visible collateral as financial assets and inventories. For domestic firms, exclusive import licenses or simply the personal wealth of the owner may be important.
- Firms with a well-established name—for example, the local subsidiary of a transnational corporation or government-owned utilities and industrial enterprises. Small or unknown domestic enterprises in the indigenous economy are placed at a disadvantage, even though their internal rate of return may be very high.

Credit rationing also inhibits economic flexibility. With a private banking system, for example, it frequently leads to nepotistic rather than economic criteria in determining the allocation of credit, whereas in a nationalized system political influence frequently determines the availability of investment funds.

A repressed system may have two other associated features. First, where there are excess credit demands, an unorganized financial sector—sometimes called the extra-bank market because it may operate illegally—is maintained and even stimulated. Private borrowers outside the supervision of the organized financial system can offer higher returns to depositors and other lenders and use the resulting funds to cover the demands of borrowers who are prepared, or forced, to pay higher interest rates than prevail in the organized sector. Because this unorganized market is unable to provide the legal guarantees provided

to depositors and others in the organized system, the supply price of credit to this market tends to include a default risk that depositors and others would not demand in the organized market. Hence there is a "default spread" in such markets. Paradoxically, it leads to an overall rise in the cost of credit resulting from legal restrictions designed to lower this cost.

Second, lenders in the organized market may be stimulated to lend indirectly to the unorganized market. While admittedly "formal" loans are only rarely made openly to "curb markets," many wholesalers, retailers, and other traders receiving bank loans in effect act as money-lenders to customers without direct access to bank credit. In the best of circumstances, where an unorganized market evolves, a dual financial system develops in which transaction costs are duplicated and a nepotistic credit system is encouraged outside organized and supervised institutions. Monopoly rents accrue to financial entrepreneurs who skim off the spread between market and regulated interest charges.

The financial reforms in Taiwan in the 1950s and Korea in the 1960s included at least a partial freeing of interest rates. Opening the organized flow of capital to market pressures served to relegate the informal markets to insignificant importance. While formalizing credit flows through the organized banking sector was not the only cause of the rapid industrialization of both countries after the monetary reforms, its allocative effects did contribute to this progress. Malaysia is another example of a country in which freely operating financial markets contributed to rapid industrial growth.

III. Preferential Interest Rates

Ceilings are frequently placed on interest rates, or a preferential system of rates is established, so that credit will be available on favorable terms for specific forms of investment or for investment by specific borrowers (such as small businessmen). Such preferential rates can easily have perverse effects. The repressive effect of general ceilings, if they are set below the market-clearing structure of rates, has already been discussed.

Suppose the lender can only charge the officially designated "preferential borrowers" a lower rate than is available from other borrowers. The consequences for a specific sector are directly opposite to those intended and can be particularly serious if the preferred borrowers are

those for whom the transaction costs of credit extension are relatively high. For instance, lenders may be directed to charge small manufacturers no more than the average interest on an institution's loans. But small borrowers borrow only small amounts, with consequently relatively high percentage transaction costs. The lender's net return on preferred lending is then lower than returns on other loans. As a result, financial institutions tend to look the other way when preferred borrowers approach them.

It is frequently desirable to encourage certain borrowers by providing subsidies, but using the credit system to provide an indirect subsidy is not likely to be an efficient means of achieving this end. Administrative supervision and regulation of credit direction require resources if they are to be effective. There are other indirect costs that may be even greater. Forms must be completed and approval obtained. Rules must be understood by officers of financial institutions and potential borrowers. These may even lead to a drying up of credit to preferred borrowers that is equivalent to a prohibitive tax. For the banking system as a whole, earnings are reduced, and the flow of loanable funds available is repressed as depositors withdraw because of low returns.

IV. Reserve Requirements and Monetary Control

Direct interest ceilings are usually applied quite generally to all financial institutions: banks, insurance companies, pension funds, credit cooperatives, and moneylenders in the curb market (who often evade usury restraints, as already noted). In addition, however, organized banking faces reserve requirements on deposits and other restraints on its loan portfolio. These restrictions are equally repressive in that they indirectly reduce the returns to depositors and repress the flow of loanable funds.

Reserve requirements arise quite naturally out of the special monetary role of the banking system. Indeed, they are the principal accepted technique by which the central bank controls the means of payment in the economy and secures stability in the aggregate price level. But if carried too far, reserve requirements become self-defeating as an instrument of monetary control and seriously interfere with the banking system's intermediary role in allocating the economy's scarce capital.

Consider briefly the problem of monetary control and stability in the price level. For purposes of analysis, Monobank (Table 3-1) must be

disaggregated into its component parts: central bank, commercial banks, building and loan societies, and any other institutions that directly issue liquid depository claims to the general public. To keep the example simple, a growing economy that is not currently experiencing either price inflation or price deflation is used. These conditions create stable price expectations. In this situation, what flow of new deposit creation—new liquidity injected into the economy—should the central bank permit or encourage in order to maintain price stability?

Price inflation is a process whereby excess stocks of liquid assets—currency and depository claims—lead to an excess demand for goods and services (over their current aggregate supply) by households and firms. Thus, for a given national income and level of economic development, a central bank must make a rough estimate of what stock of liquidity the nonbank public wishes to hold. A key element in this calculation of the demand for “money” (again broadly defined to be M_2) is the real yield that depositors are currently receiving and that is passed through from the loan portfolio of the commercial and savings banks. If usury restrictions bite sharply, savers will see a low yield on their interest-bearing deposits and their demand for money will be low (Table 3-2). To avoid price inflation, the central bank will then have to be more restrictive in permitting the creation of new money claims as income grows. Thus the effective yield on the bank’s loan portfolio influences how expansive monetary policy should be. Because Taiwan has successfully maintained a high real yield to depositors since 1960, the demand for real cash balances has grown rapidly (Table 3-4). Thus the Taiwanese central bank could allow the nominal money supply—measured in current New Taiwan dollars—to increase rather more quickly, along with the flow of bank credit, without inflating the price level.

In addition to estimating the aggregate internal demand for monetary liquidity, the central bank must control its supply. At one end of the scale, currency and demand deposits are usually considered highly liquid; deposits with several years to maturity are much less liquid. Authorities tend to place rather heavier reserve requirements on the most liquid monetary assets. Indeed, in the modern world, coin and currency have an (implicit) 100 percent reserve requirement because they are directly issued by the central bank. In liberalized and financially mature economies, commercial banks may hold with the central bank reserves of 10 to 15 percent against outstanding demand deposits, 5 to 6 percent against passbook savings, and only 1 to 3 percent against long-term deposits. These reserves plus coin and currency constitute a mon-

etary base. By securing the monetary base, the central bank indirectly controls the total stock of liquidity in the economy. This is an important and necessary condition for achieving price-level stability. (The many discretionary techniques which central banks can use for controlling the monetary base require a more complete tract on monetary theory and policy than that which is presented here.)

Consider now the problem posed at the beginning of this section: How are reserve requirements converted from an instrument of monetary control to one of financial repression?

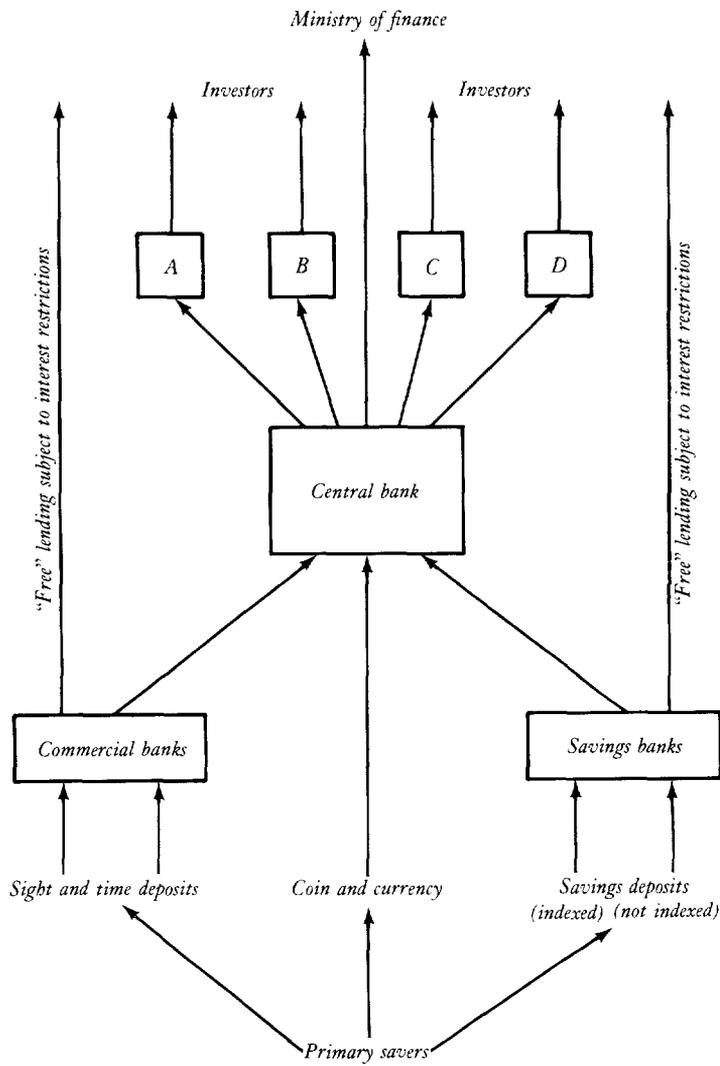
The deposit-taking banks can intermediate between savers and investors if only modest non-interest-bearing reserves of the order of magnitude sketched above need be held against deposits. In practice, however, many developing countries—such as those portrayed in Table 3-2—have reserve requirements in one form or another that amount to well over 50 percent of outstanding demand, saving, and time deposits. The flow of loanable funds is diverted away from open-market commercial credits and toward whatever subsidized uses the central bank has in mind. The government itself becomes the principal borrower from the banking system. This diversionary effect is illustrated in Figure 3-1.

Of course, such a massive but not atypical diversion of funds away from the commercial loan market to low or zero interest-bearing assets must further depress returns to depositors if the banks are to break even. As an example, suppose the reserve requirement is 50 percent for all classes of deposits. Then the nominal rate of interest received by depositors can only be half that paid by borrowers *less* the banks' servicing costs per dollar of deposits collected. Not surprisingly, potential savers respond by reducing their demand for interest-bearing deposits upon which the flow of loanable funds is based. (This effect is greatly aggravated by the presence of inflation, as will be discussed later.) The small M_2 /GNP ratios of the semi-industrial developing countries portrayed in Table 3-2 are, in part, a consequence of the diversionary effect.

Why, then, are such high reserve requirements so common in developing countries? Pressure is placed on the central bank from two principal sources: (1) uncovered budget deficits on current account by the government; and (2) political pressure to channel subsidized credits to particular classes of borrowers through specialized credit agencies, as shown in Figure 3-1.

With respect to the problem of uncovered budget deficits and mone-

FIGURE 3-1. BANK INTERMEDIATION IN A TYPICAL DEVELOPING COUNTRY



Note: A, B, C, D, and so on are specialized credit agencies (banks) that get cheap finance from the central bank. A could be the export promotion fund, B the agricultural bank, C the central mortgage bank, and D the industrial development bank.

tary control, having no recourse to organized open markets in primary securities and not wishing to pay a high open-market rate of interest reflecting the scarcity of capital in the underdeveloped economy, the government has no choice but to force its debt on the banking system. If the central bank bought government bonds directly, the authorities would lose monetary control as base money in the system increased without any corresponding increase in the demand to hold it. By increasing reserve requirements on the deposits of the commercial and savings banks, however, the demand for base money is forced upward to match the new supply. Price inflation is avoided, at least temporarily. However, private borrowers paying commercial rates of interest are crowded out. Hence, government budget deficits are often a prime cause of financial repression in developing countries.

If reserve requirements are already very high, the central bank may well feel it cannot raise them further. Additional deficits may then have to be directly monetized as the government uses base money (the printing press) to cover its expenditures. Inflation becomes inevitable, with further repressive consequences, as described below.

There is one important caveat to this otherwise critical analysis of selling government debt to the banking system. Suppose that the government, instead of running deficits on current account, itself deficit finances new capital formation with high real yields. Then potentially it could—perhaps through use of a development bank—pay these same high yields on the money borrowed from the deposit banks and compete freely with private borrowers for bank credit. Compulsory increases in reserve requirements would then be unnecessary. This solution neatly avoids the loss of monetary control, on the one hand, and prevents yields to savers from being depressed on the other. A halfway solution is for the central bank to pay interest on any compulsory reserves held with it.

V. Inflation and the Financial System

The distortive effects of inflation are well known. If monetary profits can be achieved by the stockpiling of commodities as hedges against inflation, there will be a shift from productive physical investment to sterile commodity hoarding. Any inhibition of physical investment will bear most heavily on new types of investment that are likely to appear more risky (even though the potential of increased profits accompanies the increased risks).

Similarly, with prospective inflation, there is the probability that expected domestic currency profits can be gained from holding foreign exchange and other low-yielding foreign assets when the inevitable exchange depreciation is undertaken. Equally important, firms become reluctant to borrow abroad, and thus to incur debts in foreign exchange. This is another manifestation of net capital outflow from the economy. Such prospective profits, moreover, shift the relative private returns between foreign and domestic investment to the disadvantage of the latter.

Perhaps most important, prospective inflation increases the riskiness associated with all investment decisions. As the expected general level of prices rises, the potential range of future prices widens. If prices are expected to rise by something like 5 percent in the next year, there may be a general level of expectation that they will settle within the 4 to 6 percent range. If the general level of increase is expected to be something like 50 percent, this range may become 40 to 60 percent. It is not impossible that the increased uncertainty may make this range 30 to 70 percent. The effects of this increased uncertainty will not be spread evenly over all investments. They will bear most heavily on those investments that take a long time to mature, because the price level will be more uncertain as the maturity date approaches. A characteristic of highly inflationary economies is that private investors will undertake only projects with a very short time horizon.

Aside from these and other general inhibiting effects on industrial diversification and other innovations to which attention has frequently been directed, inflation has certain direct consequences for the operation of the financial system. For example, the repression problem can be aggravated by inflation. A prospective increase in prices will alter the prospective relative values of financial assets and consumption, unless the returns on financial assets rise to compensate for their prospective decline in terms of constant prices. That is, inflation will lead to a reduction in the flow of funds to the financial system unless the nominal deposit rate of interest is allowed to rise at least as much as the expected increase in prices.

Concurrently, the anticipated constant price cost of credit will decline. If funds borrowed today can be used to purchase goods that may be more expensive tomorrow, the price limit that borrowers will place on credit will rise. In the simplest terms, if today's borrowings can be repaid in tomorrow's depreciated currency, the true cost of borrowing is the interest cost minus the currency depreciation over the period of the loan.

The market-clearing rate of interest will rise if it is expected that prices will rise. While the inflation surcharge may be greater or less than the expected rate of inflation, it will always be positive. If institutional rates are limited by law or convention, the market-clearing rate may be pushed above the institutional rate, with the repressive effects discussed earlier. If the credit markets are already repressed by usury restrictions, inflation will greatly aggravate the consequent problems. Clearly a 5 percent ceiling on the interest rate paid to passbook savers is much more repressive when inflation rises from zero to 20 percent a year. A deposit rate of interest of 25 percent may be necessary to prevent the M_2 /GNP ratio from falling.

Even in the absence of formal interest rate ceilings on bank deposits or loans, inflation can still have a devastating effect on the flow of loanable funds through the banking system when reserve requirements are high. Consider again a situation where initially there is no inflation and the savings bank has a 50 percent reserve requirement, with an average loan rate at 10 percent and deposit interest at 5 percent. The supply of deposits and demand for loans are balanced at these interest rates.

Now suppose anticipated inflation escalates to 20 percent. To compensate depositors and to maintain a supply of loans equal to demand, interest rates would have to rise by 20 percentage points. That is, the deposit rate of interest should rise to 25 percent and the loan rate to 30 percent a year. Given a 50 percent reserve requirement that siphons off half the earnings from the loan portfolio, the savings bank cannot afford to pay such a deposit rate of interest. Indeed, if the loan rate were maintained at 30 percent, the most the savings bank could pay would be 15 percent on deposits—even if otherwise unrestricted. In the presence of 20 percent inflation, this nominal yield of +15 percent amounts to a real yield of only -5 percent. Clearly depositors will withdraw, and the real supply of loanable funds will be reduced in comparison with the initial situation. To clear the excess demand for loans, the open-market lending rate of interest may have to rise to, say, 40 percent, enabling banks to break even by paying depositors 20 percent in the presence of a 50 percent reserve requirement.

In effect, price inflation amounts to a proportional tax on the non-interest-bearing reserves of the banking system. Together they force loan rates up and deposit rates down so that the inflation is borne by both depositors and borrowers. Financial repression is aggravated.

A rather extreme example of this point is provided by the attempts in Chile to liberalize the banking system during 1976 and 1977. Early in

1976 conventional usury restrictions on time deposits and loans were completely abolished, but high reserve requirements were retained on the deposit banks and *financieras* and price inflation continued out of control at over 100 percent a year. Although the banking system was reasonably competitive, the spread between real deposit and lending was 4 percentage points per month for most of 1976, mainly because of the high reserve requirements. With real deposit rates of interest close to zero, the *real* bank lending rate of interest was of the order of 60 to 70 percent a year—a level so high that it astonished all outside observers. Needless to say, the real flow of bank loans made during this period was a mere trickle, despite the fact that the banking system was virtually the only domestic source of loanable funds in the economy.

In 1978 the Chileans made good progress in reducing price inflation to close to 30 percent and in drastically lowering reserve requirements against commercial banks and *financieras*. By early 1978 the *real* loan rate was 2 percent a month (still fairly high), and the real deposit rate was positive at approximately 1 percent a month, for a spread of only one percentage point. The flow of loanable funds began to grow rapidly, as did the Chilean M_2 /GNP ratio after decades of being repressed at unusually low levels (Table 3-2). Needless to say, the reduced volume of implicit financial contributions being extracted by the Chilean government from the banking system, which makes possible the liberalization of reserve requirements, has important fiscal aspects. If the government is to reduce its “taxation” of the banking system, it must reduce its own expenditure or increase conventional taxation.

In the short run, and within limits, inflation may encourage a reconstitution of the constant price value of convenience assets (demand deposits and currency) that will stimulate their acquisition and therefore give rise to the increase in the savings ratio that has been observed in many countries in recent years. This is the current form of the “inflation-forced-savings” phenomenon. However, the limits on this process are very specific. After a point, nonfinancial assets become effective convenience assets, and the allocative role of the financial system largely disappears. The banking system may continue to provide minimal transaction balances, but not other convenience assets such as savings and time deposits.

Inflation has led to some flexibility in interest rates over time, and in a few cases the monetary value of convenience assets and of institutional assets have been indexed to “live with inflation.” In a hierarchy of policies, however, indexing is clearly not the first-best answer to the

problems of inflation. It introduces an additional element of uncertainty and therefore, at least in subjective terms, an additional cost in an already uncertain world. Indexation may alleviate some of the costs of inflation, but it cannot eliminate them all.

VI. Segmentation and Specialized Credit Agencies

So far, this chapter has tended to treat credit as a homogeneous flow. In fact, credit takes many forms—short-term, trade-related bills, short- to medium-term working capital, medium- to long-term industrial finance in all its forms (for example, equity and bond credit), as well as other commercial and agricultural credit. While all these credit instruments are of course linked, the credit markets are to some degree segmented.

On the private nonfinancial side, permanent working capital funds can be used to finance specifically short-term trade credit (that is, transactions outstanding in terms of days rather than months or years). However, entrepreneurs must exercise caution in drawing on short-term finance for long-term investment.

On the financial side, institutions cannot ignore the term structure of their balance sheets. Banks can reasonably devote only a portion of their demand liabilities to long-term assets. Similarly, while assurance companies may lengthen or shorten the terms of their portfolios in response to shifts in the structure of interest rates, even as they maintain their actuarial solvency, they must be sufficiently liquid to meet their possible short-term commitments.

To protect claimants on financial institutions, the activities of these institutions are frequently restricted by legislation or regulation. However, these restrictions also encourage vested interests. Banks object if thrift institutions are allowed to redeem deposits on demand; thrift institutions protest if banks are allowed to pay interest on deposits unless the interest on such deposits is held below a market-clearing level; finance houses maintain that only they, and not the banks or thrift institutions, can organize long-term industrial finance; assurance companies insist that other institutions are incapable of organizing a portfolio that matches a set of actuarial liabilities. Each insists that regulations preventing other domestic institutions from spreading the range of their activities be maintained, and price or rate competition from reliable foreign institutions is deeply resented.

Regulation of the system should be designed to facilitate the transfor-

mation process while supporting the continued solvency of competitive financial institutions. It should not be designed to maintain the quasi-monopolistic positions of individual sectors of the system. Rather, a constant effort should be exercised to eliminate monopoly returns.

When financial institutions operate competitively between themselves and among their borrowers, little government intervention is usually necessary in institution building. But in many countries, historical and social conditions have led to considerable conflicts between private and social financial objectives. In such a situation, development banks or corporations have been established to foster specific types of investment, such as industrial development, with credit decisions removed at least one stage from purely political considerations. Such agencies can act as distributors of government funds that may be provided at concessional rates. Provided that the extent of such subsidies is recognized and kept within the limits accepted for any subsidization element in an overall industrial program, a quasi-independent development agency can provide the technical ability to allocate general appropriations to specific projects. It can also provide a convenient institution for the absorption of technical advice. Similarly, it can provide a channel for the domestic distribution of large-scale foreign loans or grants obtained for general development.

Further, industrial innovation requires not only investment financing but also making knowledge available to such investors as artisans and other small-scale entrepreneurs. Knowledge may be provided, for example, as a result of the requirement that a financial institution granting credit review a borrower's entire financial record. Efficient and imaginative small-scale entrepreneurs are often untrained in accounting techniques. If taught proper bookkeeping and other control methods, the quality of their output as well as of their financing decisions would increase. Guidance in the preparation of accounts may be one of the contributions that lenders can make to the innovation process.

In addition, industrial credit, particularly credit to small-scale innovators, need not be limited to money lending. It may also involve equipment leasing, rental of industrial estates, or the large-scale purchase of supplies for distribution on credit to small-scale producers. Agricultural cooperatives have fulfilled this role in many countries. The scope for industrial cooperatives may not be the same everywhere, but other institutional forms might be used. Banking tends to be highly oligopolistic, and if traditional financial institutions do not feel competent or do not wish to perform these non-money-lending tasks, then

cooperatives, development corporations, and development banks may be able to do so.

That said in favor of constructive institution building, caution is required when considering the role of specialized credit agencies in an economy where the regular commercial and savings banks have been actively repressed by high reserve requirements or low interest ceilings, or both. Often the call for a new special credit agency or development bank is a consequence of this underlying repression. Because the regular banking sector cannot service some obviously vital sector of the economy, the government feels compelled to provide credit on more favorable terms, for example, to finance the production and distribution of fertilizer or to finance new industrial exports or to create a special tranche of low-cost housing credits for the urban poor.

The failure or absence of an open market for credit makes such demands inevitable and often quite reasonable, when considered one at a time. Because a specialized political interest group is involved and because regulated rates of interest are unduly low elsewhere in the economy, there is sharply focused pressure on the government not only to provide such credits but also to give them away at subsidized rates. These credit subsidies are very seldom paid for by the treasury's running a surplus of revenue over expenditures. Indeed, it has been seen how chronic government deficit financing can itself repress the financial system. Rather, the central bank is simply instructed to lend to (or discount the loans of) the new special credit agency at very low (or negative real) rates of interest. The whole process is laid out schematically in Figure 3-1.

This confronts the central bank with a severe problem in maintaining monetary control. If it lends directly to a new special credit agency and does nothing more, the resulting excess supply of base money leads to price inflation. It is less inflationary simply to tap the resources of the traditional deposit banks—commercial and savings—by raising their reserve requirements as a means of financing loans to the new agency. The problem is, of course, that this increases the degree of repression in the rest of the financial system. Essentially, the subsidy to the new credit agency comes at the expense of other potential borrowers and of bank depositors.

The problem is severely compounded in many developing countries (Table 3-2) by the large number of such agencies and by the open-ended government commitments to provide credits for various worthy purposes. Control over the monetary base becomes next to impossible, and financial repression becomes more endemic.

VII. International Aspects

So far, this exposition has been mainly in terms of a closed domestic economy. Because most of the international aspects of industrialization policies are examined in Chapter 10, only a few of the financial aspects are considered here.

A poor country with a shortage of capital may well seek access to foreign industrial finance. But the circumstances under which such finance can truly benefit the domestic economy have to be carefully specified. It is particularly important to make sure that domestic and foreign rates of interest are appropriately aligned and that small-scale domestic entrepreneurs are not artificially disadvantaged in the competition for capital.

Low domestic interest rates will shift trade financing from foreign to domestic markets. Depositors will seek to hold funds abroad if their yields at home have been repressed. Many attempts have been made to limit these capital outflows or to limit the use of domestic savings for trade rather than investment financing. However, the fungibility of credit makes this very slippery ground. If the price incentives are large enough, credit in one or several of its varied forms will slip through even the most efficient and noncorrupt controls.

On the other hand, repressive influences on the domestic financial structure can encourage deterioration in the quality of foreign finance. If domestic rates of interest are below world levels, foreign entrepreneurs or transnational owners of domestic subsidiaries will be encouraged to borrow on the domestic market and minimize the inflow of equity or other foreign capital. Their better credit rating and international reputation will enable them to compete better than small domestic entrepreneurs for the limited funds available. If the foreign-owned enterprise is a success, a higher profit-equity ratio will occur than would have prevailed with a larger equity inflow; that is, repression of domestic financial institutions will tend to maximize the outflow of foreign capital earnings relative to foreign investment. Foreign capitalists should not be blamed for taking advantage of domestic distortions. It is the domestic policies that are at fault.

Several countries have tackled this problem by limiting foreign access to domestic capital markets. There has been some success in this field, but often with high administrative costs. Again, however, credit takes many forms and is often almost unrecognizable. For example, a foreign-owned firm almost inevitably builds up domestic trade debt for taxes, supplies, artisans' fees, and the like. If domestic interest rates are

high, international management will be keen to limit outstanding debts; if domestic interest rates are low, their control will be lax. This is only one example of the difficulty of controlling unwanted capital outflows from a repressed financial system.

Finally, there is one domestic policy to which attention should be continually directed. Many financially distorting policies have been adopted because of balance of payments considerations. Over the long run (say, five years), balance of payment problems can arise if a country, for some reason, usually inexplicable on rational grounds, wishes to maintain a disequilibrium exchange rate. Such a rate will encourage domestic capital outflow and inhibit foreign investment. It usually becomes untenable, and speculators, rather than domestically innovative investors, benefit. Just as domestic financial institutions should not be repressed, the domestic financial system should not be forced to live in an artificial international environment; that is, the exchange rate regime should be consistent with a country's domestic financial requirements. *If the exchange rate or other aspects of the financial regime are in disequilibrium, it is essential to put them right.*

VIII. Institutional Aspects of Liberalization: A Dilemma for Financial Policy

Governments eager to eliminate financial repression and promote rapid growth in the flow of loanable funds face an acute dilemma between second-best and first-best policies.

If the general character of the repressed financial system (including high and variable inflation) is regarded as inviolable, then various second-best microeconomic policies, implicit in the above analysis, may improve the situation. New credit agencies—perhaps with special discount privileges—may be necessary to cover obvious credit gaps not being served by the regular banking system. The authorities may have to work with independently wealthy private capitalists or foreign firms in promoting new projects. A certain tolerance for possible extralegal activities in the inevitable black market for loans might seem wise. A variety of other ad hoc decisions by the planning authorities to divert funds from the rather constipated financial system to support this or that enterprise may have some chance of improving resource allocation when considered one at a time. But savers in the deposit banks would be left with low or negative real yields.

Against this, a first-best policy would move toward a completely open capital market, where borrowing and lending would take place at high equilibrium rates of interest. The M_2 /GNP ratio would rise as depositors received the higher yield earned on bank loans. The real credit flow through the banking system would increase in the mode of the rapidly growing economies portrayed in Table 3-4.

Success here requires the government to move on a broad front in the *opposite* direction from that of the second-best strategy. The authorities must be prepared to withdraw the hundreds of subventions, interest regulations, and special credit facilities that already influence the microeconomic allocation of investment resources in the economy. In particular, the high reserve requirements for commercial banks—which are an important source of subsidized finance for the special credit agencies and the government (Figure 3-1)—would have to be terminated. So, too, direct discounting with the central bank by the special credit agencies or by government itself would need to be ended to bring inflation under control. Thus major fiscal reforms to close a government budgetary deficit, currently covered by tapping contributions from the banking system, may well be necessary to support full liberalization. Chile's experience with partial liberalization—where usury restrictions on interest rates were removed but reserve requirements and inflation remained high—suggest that interest decontrol by itself is not enough.

An important element in a successful reform, therefore, is to have commercial banks and related institutions move aggressively to provide high-interest loans to all comers as their reserve requirements are reduced and their interest ceilings are removed. For small borrowers, these real loan rates need be of the order of 18 to 24 percent so that the banks can cover the administrative costs and still pay depositors an attractive return that properly reflects the opportunity cost of scarce capital in the economy. The deposit-collecting banks may have little experience in aggressively seeking out borrowers who can pay high real yields on their loans that accurately reflect high social productivity of the investments they are undertaking. Indeed, the whole process of seeking small and innovative entrepreneurs in industry and agriculture, outside urban enclaves, may be quite foreign to the banking system's recent experience.

As a competitive bank-based capital market develops—and only then—the subsidized clientele of the specialized credit agencies can be pried loose from privileged credit access and told to seek unsubsidized

credit in the open market. The automatic discount privileges of these credit agencies with the central bank would be terminated, and the latter allowed to secure its control over the monetary base. Undoubtedly, the authorities would find that many hitherto favored borrowers would be traumatized; others obtaining credit on an organized market for the first time would thrive in the mode of rapidly growing economies such as Taiwan or Korea.

Once the price level is stabilized and the banking system grows rapidly to take care of short- and intermediate-term credit needs, selling longer-term securities such as mortgages, industrial bonds, and equities to nonbank firms and households could begin as the financial system matures. Indeed, open markets in primary securities such as common stocks are important adjuncts to a maturing industrial structure in increasing the supply of risk-bearing capital. But these come later rather than earlier in the industrialization process.

Bibliography

Many of the issues discussed in this chapter are treated in more detail in the author's *Money and Capital in Economic Development* (Washington, D.C.: Brookings Institution, 1973). Edward S. Shaw develops a complementary presentation in *Financial Deepening in Economic Development* (New York: Oxford University Press, 1973). Both these books consider many of the points indicated and statistically examined in Raymond W. Goldsmith, *Financial Structure and Development* (New Haven: Yale University Press, 1969).

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4

Labor and Technology

Amartya Sen

Labor plays a unique role in industrialization, for it is both a key factor of production as well as an ultimate objective. Labor is, moreover, not an inert factor of production but one that has a will and preferences of its own. This chapter first discusses issues of efficiency in this context. Section II is concerned with analyzing the extensive nature of technological choice, the criteria that may be relevant, the conflicts that have to be faced, and the special problem of technological dependence and transfer of technology. The ability to make technological choices depends to a large degree on a country's educational structure; that issue is discussed in section IV along with the social constraints that operate in this area. Determinants of direct and indirect employment are also reviewed. Discussion of specific labor policies in manufacturing is to be found in section V. The chapter concludes with a pointer on the pitfalls arising from prevailing pressures that influence policy in this delicate area.

LABOR PLANNING MAY WELL BE the most difficult aspect of industrial development policy. The energy planner who sends electricity through a wire or oil down a pipe does not have to give much thought to whether electricity and oil will like the experience or whether they might decide against it. This luxury is denied to the labor planner. The resource he deals with is endowed with a mind and volition, and whether or not free will is a contradiction in some remote philosophical sense, the will does seem to be free enough to keep the planner guessing. Except in a slave society, the extent of control that the manpower planner has over the subject of his planning gives him little scope for megalom-

mania: he is the General leading his army to battle with a football whistle.

Important as this limitation is, it is far from the most important difficulty that labor planning poses; indeed, it is not clear that it is a difficulty at all. The central problem is not that the subject of labor planning has—"alas"—a will, but that the subject is also the object of the whole exercise: he is a means of production, but he is also its end. Given that fact, it is a matter of comfort rather than regret that the subject has volition and that the labor planner is constrained by people's perception of their own good and that of others. In such a situation the planner cannot easily slip into the illusion that he is dealing with just a factor of production. If the General with the football whistle is a bit ridiculous, a veritable Napoleon would have been an unmitigated disaster.

These simple—and rather obvious—thoughts would hardly be worth stating if they did not have rather serious implications for the strategy of planning manpower and technology. The implications will become clearer as we go deeper into the field. Some are faced straight-away, as they affect the conceptual structure for analyzing technology and the use of labor.

I. Technical Efficiency

One of the most widely used economic concepts in analyzing technology is that of efficiency. A technique is a way of doing something. An efficient technique is a way of doing things that is not clearly more wasteful than alternative techniques. But the economic merits of a technique depend on the relative prices of the resources that have to be used in a given economic situation. Inefficient techniques are those that can be eliminated from the list of potentially acceptable techniques without going into relative prices: they are inferior no matter what the relative weights happen to be (as long as the weights are positive). From the viewpoint of policy, the relevant weights are not necessarily market prices (as they will be under private profit maximization at fixed market prices), but some appropriate social values, for example, some suitably chosen shadow prices. However, the rejectability of inefficient techniques is quite independent of those weights.

What if one of the resources is labor? Say technique A requires less

labor than technique B, but the laborer providing the labor announces that he prefers to work for seven hours under technique B than five hours under technique A for the same remuneration: "It is more interesting work" or "one is ordered around less" or "I hate those production belts of A" or just "I like B more." There are two problems here. The first is that of persuading—or forcing—the laborer to work under "efficient" technique A rather than "inefficient" B. If this requires paying him a higher wage, then of course technique A may not, in fact, be more economic: efficiency comparisons are, in effect, *constant* price comparisons for both techniques.

Suppose this problem is solved, and the laborer—with his arm twisted—ends up working under technique A for the same remuneration. For public policy, there is now a second—and much more fundamental—problem. While technique A may be efficient, which B is not, B could still be taken to be superior from the social point of view. This will be the case if the value put on the laborer's excess suffering from working fewer hours under A rather than more hours under B is greater than the saving, if any, of other resources under A. Inefficiency is no longer a sufficient ground for rejection. The fact that one of the resources is labor has changed all that. And production processes that do not require labor have not been invented yet.

The concept of efficiency as a necessary virtue can be rescued from this unsung demise by declaring that labor must be thought to be *different* in the two techniques. If the same labor used in two different techniques is treated as two different resources, then both techniques A and B are efficient, since neither will then use uniformly more of the same set of resources, and all is well again. Efficiency as a necessary virtue has been saved from death. But, alas, only by choosing for this virtue a fate worse than that. The result of this rape by redefinition is to make efficiency totally supine and mute. There are now two quite distinct resources, namely, labor used in technique A and labor used in technique B, which can no longer be compared; never the twain shall meet for comparison. According to the redefinition of resources with technique-specific labor, *every* technique without exception is efficient!

The box, then, is completely empty. No, the problem is not one that calls for cleverness in redefining things. It calls for an understanding of the nature of production, a recognition that labor cannot be treated as a resource like other resources. And, of course, it calls for facing the far-reaching implications of that simple recognition.

Technical Efficiency as a Prima Facie Requirement

Many techniques of production used in different parts of the world are technically "inefficient" in the sense of having a larger requirement of both labor and nonlabor resources. This is often true of handicraft production. If technical efficiency were a necessary virtue, then such techniques could be condemned straightaway. But, as was seen, technical efficiency cannot be taken to be either necessary or sufficient for social optimality, given the special characteristics of labor.

Does this mean that the achievement of efficiency, or the presence of inefficiency, is of no policy interest at all? That, certainly, is not the case either. Many cause-and-effect relationships satisfy neither the characteristic of sufficiency nor that of necessity. (Having a bullet through one's chest is neither sufficient to kill one, nor of course is it necessary. However, if a person is concerned *only* with necessary or sufficient conditions, sooner or later he will come to grief.)

Inefficiency is a prima facie argument against a technique, and if a technique is to be accepted, despite needing both more labor and nonlabor resources, then there *is* need for justification. Where more productive resources are being used up to make the same output, the question does arise as to why this should be done. It may turn out that there are good reasons. For example, workers may prefer such techniques; or these techniques can be used for production at home while the others cannot be; or these production methods may change the people who are involved in the production process, thereby putting the choice outside the narrow confines of arguments based on pure "economy."

There is also the problem that particular configurations of outputs and inputs may be associated with particular distributions of income, so that it might not be possible to judge the input-output combinations in purely technical terms. If a larger output from the same input is unchangeably associated with a more unequal distribution of income, this gives rise to distributional grounds for preferring a technically inefficient method. But, again, there must be a demonstration that the distributional advantage cannot possibly be obtained from more economic techniques, and such a demonstration may or may not be possible. The status of being a prima facie requirement fits technical efficiency from this point of view also.

Prima facie arguments play an important part in economic policy. There are so many different considerations that could have a bearing on policy that it is difficult to be sure that all the relevant issues have been

explored. To arrive at no conclusion until *all* the relevant considerations have been investigated is, thus, quite a hopeless position to take. But, at the same time, the door has to be kept open for corrections to tentative conclusions, since other relevant criteria might be detected or other information found that might have appeared unobtainable earlier.

The status of a *prima facie* requirement can be illustrated with reference to a particular economic debate of some importance. Actual technological experience can lead to various changes. Many different types of changes may be considered, including changes of values, aspirations, and attitudes. But it could also be a change in a person's productive abilities resulting from the lessons of experience. The use of modern technology beyond what could be justified by current cost considerations has often been defended by referring to its effects on learning and the creation of skills. The argument is of considerable antiquity (going back at least to Frederick List and German industrialization), but it has been widely used in the recent development literature, including current discussions on the strategy for the transfer of technology. If learning could be taken to be an "output" in the usual sense, then it could become a part of the efficiency calculation itself. But it is not easy to identify learning as an output, and it is not really surprising that the usual economic calculations of inputs and outputs tend to leave it out.

Modern industrial techniques in developing countries have sometimes turned out to be very costly as well as technically inefficient in the usual sense. Is this a definitive argument for accepting these choices as folly? It can be argued that this is not the case, since there is also the question of the effect that these experiences have had on the human beings involved. Maybe from this experience things really have been learned that will prove immensely valuable in expanding future technological possibilities, helping to make more effective use of available techniques as well as to increase the ability to develop new techniques. This would change the economic calculations altogether.

Does this argument indicate that these economic decisions have not deserved to be criticized? That is not the case either. There *is* a *prima facie* argument for condemning the choices made, and if that condemnation is to be withheld, then clearly the onus is on those who recommend such withholding to show why these other effects, such as learning, should be accepted as serious enough consequences of the economic operations in question. The Scylla of assuming without demonstration that a justification in terms of learning does exist is no less to

be avoided than the Charybdis of taking it implicitly for granted that such a demonstration could not really exist.

The Importance of Context

One reason why prima facie reasoning is particularly vital for judging a technological proposal is the importance of the context within which it will be carried out. No proposal can guarantee success independently of the economic conditions involved, and a great deal of variation is possible even with identical technological specifications.

At the risk of oversimplification, a distinction may be made among three types of contextual conditions: (1) the operational context, (2) the financial context, and (3) the evaluational context.

The operational context refers to the conditions that affect the productive operations envisaged in the technological proposal. Identical machinery and production technology have been known to have quite disparate production results, depending on a variety of factors including—among others—soundness of management, skills of the laborers, organizational structure, and even the prevailing spirit and mood. Technology does not determine production any more than a book determines the knowledge that is, in fact, acquired from it.

The financial context involves the payments and receipts that go with a technological proposal. These include payments for royalties, patent rights, and the like, as well as payments for work and resources used. They also include the prices at which the products sell. The cash-flow aspects are also parts of the financial context.

The evaluation context covers the valuation of costs and benefits as specified by the operational and financial contexts. For private evaluation based on profit maximization, the evaluation procedure may take the rather simple form of accepting anything that has a positive present value of net cash flows, as calculated from the physical and financial information. For social acceptability, however, the net cash flows are not of interest in themselves but only as indicators of other economic magnitudes that may be reflected by them. Because these reflections are typically incomplete and distorted, a social cost-benefit analysis has to be based on the use of shadow prices.

But shadow prices themselves introduce problems of their own. In some cases, for example, where there are strong increasing returns, shadow prices simply may not exist. Furthermore, even when they do exist in principle, they are typically based on educated guesses; the

increased sophistication of shadow price estimation methods should not blind their users to that fact. Often the values can be specified only within quite a wide range, and an attempt to choose one precise figure is ill conceived. It is, therefore, important to emphasize that shadow prices have to be viewed in terms of ranges of plausible weights and likely outcomes; such sensitivity analysis is an essential component of their use.

Shadow prices are no more than a statement of how much weight the planner wishes to attach to the magnitude in question, expressed in some specific unit of measure, such as an average unit of current national consumption. For example, if the planner wishes to attach a higher weight to consumption going to some depressed group in the nation, then the shadow price on this group's consumption will be greater than unity (that is, greater than that on the average national consumption), say, $1 + p$, where p is the "premium"—or extra weight—on this favored type of consumption. If information is too limited to make sure precisely how badly off this depressed group is, or how much they may be able to benefit from additional consumption of the type in question, then rather than suggesting one value for p , a range may be chosen; for example, not that p must be 0.65, but that it must lie between, say, 0.5 and 0.8.

Similar ranges may be worth specifying also for the variables reflecting the future operation of the project or the program that is being evaluated. There is often a remarkable gap between the operational performance data specified in feasibility studies (or cost-benefit appraisal reports) and actual performance; the persistence of this gap in industrial projects in most developing countries is one of the more scandalous aspects of industrial development planning.

Actual performance, it seems, typically departs in a downward direction. It is, of course, easy enough to explain *ex post* why performance fell short. "Special circumstances" can be identified, but there is no reason why the existence of such circumstances should not be considered in the feasibility study itself. A "good plan, badly executed" is, in fact, a bad plan, since execution is a part of the plan. To be sure, it may not be known precisely what circumstances will crop up and which of the various reasons for less than full performance will apply (if any). But that still should not rule out the presentation of a range of performance figures. It is, of course, sensible for anyone trying to "sell" a project to specify performance figures at the maximum of the range, but for the "buyer" the minimum of the range may be just as important.

If the range is fully specified, then calculations of the net contributions of the project can be made for the entire range by varying the performance indicators parametrically. If the project turns out to be acceptable even under the most unfavorable operational, financial, and evaluational assumptions, then the project is certainly acceptable. If, on the other hand, it is unacceptable under the most favorable assumptions, it clearly should be rejected. If neither holds, ranges of values may have to be specified more and more narrowly until a clear decision emerges. This can be done through deeper investigation into the determinants of the uncertain parameters, taking note of the sensitivity of the results to the parameters in question in the relevant ranges.

The purpose of the "range method" is thus to get a realistic estimate of the contributions of a project without the spurious precision that is the hallmark of so many feasibility studies and cost-benefit reports. To get a definite answer it is not necessary to reduce the range values to point figures; a systematic narrowing is what is called for. All planning takes place under some ignorance, and to pretend that it does not exist is to settle for the comforts of the cloud-cuckoo-land. That would be fatal, especially for technological planning where so much is unknown—and some, indeed, unknowable. The range method provides a way of coming to terms with planning under partial ignorance and of directing efforts toward purposeful reduction of ignorance. It is worth emphasizing that the object here is not the reduction of ignorance *as much as possible*, irrespective of costs and delays, but rather by *as little as is adequate*.

II. Technological Choice

The Extensive Menu

Technological choices are implicit in all production decisions. For the sake of convenience, production decisions may be classified in three categories: (1) choice of techniques in producing a given good; (2) choice of products in achieving a given characteristic; (3) choice of characteristics and products in national output. An example of the first type is the choice between alternative techniques of making a bus. An example of the second is the choice between meeting the need for transportation by buses and meeting it through railways. An example of the third is the choice between developing a transport structure and meeting other needs—for example, nutrition, clothing, or housing.

The first category has been the subject of traditional studies on choice of techniques, while the last is the form in which problems of output composition are usually considered, say, in the context of consistency models based on input-output tables, or of optimizing planning models with a multisector structure. The second category is concerned with the choice between different goods (such as clothing made of traditional cotton cloth and that made of modern artificial fibers) which have similar characteristics (in this case, providing protection and privacy as well as scope for a display of beauty and vanity).

The effect of including choice of the commodity to be used to meet a certain need is to widen the scope of technological choices very substantially. The alternative techniques for producing one *commodity* may well be rather limited compared with those available when alternative ways of meeting the same *need* are considered.

There is, however, a sense in which the choice between two immediate characteristics amounts to a choice among different ways of meeting some more basic characteristic. For example, more housing in a city may be an alternative to more transportation facilities to existing housing for those who have to live far away because of an urban housing shortage. In fact, since the different ways of meeting different needs all contribute to the welfare of the persons in question, in some very basic sense all "characteristics" are substitutes for each other—apart from the biological requirements for survival. Limited income makes more food a substitute for more clothing, and even at a higher level of prosperity a new dress may be a substitute for eating out, going away on holiday a substitute for buying household gadgets.

From the point of view of social policy, the conflicts between the welfare of different persons also have to be faced. Housing in one town competes, for the same resources, with housing in another town, with an irrigation project in a rural district, or with a hospital in another district. The different needs of different people offer different ways of augmenting what may be regarded as social welfare, which is the most basic "characteristic" for the planner. As such, these different needs have to be examined on a competitive basis in the allocation of priorities. In these allocations, distributional decisions are as much involved as production decisions, and technological choices are, in fact, embedded in this larger problem of social allocation. Each combination of beneficiaries, characteristics, products, and techniques contains technological choices mixed with other components of planning.

When it comes to the production of producer goods, the specification

of beneficiaries may be more difficult, since benefits are more indirect. The absence of any idea of who the ultimate beneficiaries are makes it difficult to assess the merits of a proposal. The methods of tracing indirect benefits leave a lot to be desired, but they can be used to get some rough idea of what the ultimate consequences of making more producer goods would be. In some cases, for example, in making fertilizers or in harnessing water for irrigation, it may be easier to identify them than in other cases, as in making nonspecific capital goods. Because the policymaker is ill advised to fall for the common practice of valuing goods for their own sake, an attempt to trace the beneficiaries is indeed an important aspect of policy formulation.

A proposal to use a particular technology can be assessed only in some specified context, covering operational, financial, and evaluational conditions. A description should ideally not merely specify techniques and resources used, but also identify the products that will be made by the techniques (or will be obtained by trading the produced goods), the needs that will be met by the products, and the beneficiaries who will enjoy what is supplied. This may be called an "identified chain," running from techniques to beneficiaries, with specification of operational, financial, and evaluational contexts.

In assessing an identified chain, it must be examined in comparison with other chains, that is, with other combinations of techniques, products, characteristics, and beneficiaries. The identification of the chain converts a technological possibility from an abstraction into a concrete item on a menu of possible actions. The menu is typically very wide, since choices exist at each stage; for example, with respect to the techniques to make the products, products to meet needs, needs of beneficiaries to be met, and even the beneficiaries themselves.

Criteria and Conflicts

The objectives of national planning have, of course, been discussed a great deal over the years. There is not much point in duplicating that discussion, but it is worthwhile to note that the choice of criteria ultimately does relate to the objectives chosen. The usual list of objectives includes: (1) increasing current aggregate consumption; (2) increasing growth rates and thus future consumption; (3) reducing inequalities of current and future distribution; (4) enhancing any particular type of consumption—now and in the future—that may be regarded as special-

ly meritorious (the so-called “merit wants”); (5) having favorable non-economic consequences, for example, on social institutions; and so on. Some of these objectives are partly reflected in market profit calculations, which put a value on output gains and input losses, both at market prices; but distortions arise from market imperfections, externalities, and the like, requiring correction of market prices by some shadow prices. Others are not reflected at all in the market price evaluation since the market is not concerned with valuing these social effects, for example, changing the extent of economic inequality, supplying merit goods, or influencing social institutions. The use of shadow prices is a general tool for correcting market profitability in all these respects.

Some issues are particularly important in evaluating manpower decisions. Consider a technological proposal in a specified context involving the employment of a number of people performing particular operations. What are the different aspects of this employment that should be considered in assessing its social impact? The following list—far from complete—may serve as a beginning.

Production effects. How will the variation of employment affect the output flows? Are the labor requirements “tight,” or is there quite a bit of slack built into the proposal? Can the machinery requirements be reduced by greater use of labor? Are there any *prima facie* efficiency improvements that can be made by rearranging the operational context?

Remuneration effects. What wages will employees of different categories be paid? How do these wages compare with their pre-employment incomes and with the incomes of others in the community? What direct benefits such as schooling facilities and housing will be provided to employees? How will their improved consumption, if any, increase their productivity? How will they spend their income—on what types of goods and from where?

Indirect income effects. How much of an effective rise in income will be enjoyed by those who would have had to support the potential employees had they not been employed in this project? If there are “unemployment benefits,” then savings to the social security system also have to be considered. If the potential employees would have found other jobs, but in so doing would have displaced other workers, thus affecting *their* incomes and those of *their* supporters, these indirect effects are also important to consider—if they can be traced. (To the extent that any of

these effects cannot be firmly traced, calculations based on guesswork will be, to that extent, more tentative—more *prima facie*.) Here, too, it is useful to look at the ranges of values.

Savings effects. Taking into account output, sales, and other effects, and also the additional consumption induced by the employment, what is the net impact on savings? Can savings be enhanced by rearrangement of the financial conditions? Can tax proposals be combined with such projects to increase savings? (This type of consideration is worth worrying about only if the proportion of income saved is judged to be too low.)

Employment and distributional effects. To what extent will the labor supply for the construction and operation of the project have the effect of stimulating employment among people typically unemployed and generating income in a depressed region? How severe is the unemployment in the relevant catchment area? How depressed is the region?

Skill-formation effects. Will the proposal contribute to the development of skills through learning by doing? Will this learning be usable elsewhere? Will it also contribute to the development of attitudes consistent with modern production, such as punctuality? Will the technical experience be of such a type that it will help to develop designing skills also? Will the challenge and the experience lead to the growth of managerial and organizational skill?

Institutional effects. Will the opening of new employment opportunities weaken the traditional institutions such as bonded labor (if any), exploitative sharecropping arrangements (if present), and usurious moneylending (if prevalent)? Will the formation of a union spearhead political changes? Will the employment of women act as a liberating influence? Will the mobility induced by economic opportunities help to break down social barriers such as caste? On the other hand, will there be economic turmoil that encourages crime?

Consumption effects of production. The place of production is where a worker spends a big part of his life; working conditions are thus very much a part of his standard of living. How acceptable and attractive will working conditions be? How much scope does the setup provide for genuine cooperation, as opposed to a hierarchy of master-servant relationships? How hard will workers be worked? How monotonous is the work? How much scope for personal initiative will exist?

Indirect effects on efforts. The families on whom the potential employees would have had to depend for support if they remained unemployed are typically also helped, although there may be resulting problems as well. Will the acceptance of employment elsewhere by some

family members increase the work load of those left behind? If there was a joint family operation, how much additional work will fall on the family members left behind? Will this lead to an increased work load for children, with possible adverse effects on their schooling? These effects, if present, reflect the negative side of the impact on the supporters, the positive side being the gain in income.

This list may look long, but it is, in fact, far from complete. Labor, as noted at the beginning of the chapter, is not merely one of the means of production, it is also its end. It is, therefore, only natural that the impact of a policy on employment will have to be studied from various points of view, reflecting the different ways in which employment can affect the lives of workers and of those related to them by kinship or economic and social connections.

The effects discussed above have involved direct employment only. Indirect employment can be similarly studied in terms of much the same categories. (There are, however, many difficulties with the concept of indirect employment; see section IV below.)

It must, of course, be recognized that these different effects may operate in divergent directions. There is obviously no escape from having to face up to conflicts that do exist. The relative importance to be attached to the various considerations will not be independent of political values. This is as it should be, since policy formulation—even with respect to technology—is not a purely technical exercise, and if political problems arise, political judgments would have to be demanded.

What is, however, a prerogative of honest policymaking is to make these judgments as explicit as possible, so that they are open to evaluation by those who would suggest a different set of political solutions. While the acceptability of many policies depends crucially on the assessment of the political judgments implicit in them, their actual acceptance has sometimes been made possible by the hidden nature of those judgments. If the different effects are spelled out as clearly as they can be, then the political judgments underlying a decision will be difficult to conceal effectively. Matters that deserve public discussion need not be submerged in unclear phrases, opaque numbers, inscrutable algebra, or resounding silence.

Technological Dependence and Transfer of Technology

The technological dependence of the developing countries on the developed ones has received a great deal of attention in recent years. The peculiar feature of this dependence is its asymmetry. An inter-

dependence that operates mutually does not entail a subservient role for either side. However, the technological dependence that exists currently is not of that kind and reflects the dominant role of one group of countries as suppliers of modern technology and the dominated role of another group as mere receivers.

The historical reasons for the emergence of such an asymmetry are worth studying, especially the part played by the development of modern capitalism and the international order that emerged from it. In this study the concern is not primarily with the causation of such a dependence relationship, but with its consequences. However, the consequences have to be assessed with reference to the causal factors that have led to them. The role of large transnational business enterprises deserves particular attention in this context.

Since most of the technological advance in the field of material production in the last couple of centuries has taken place in the industrialized capitalist countries (and, more recently, partly in industrialized socialist countries), there is nothing particularly surprising in the fact that these countries enjoy a technological advantage over others. What is, however, remarkable is the way in which investors have been able to use some of these advanced techniques in economically backward countries to derive a great deal of profit, very often without making any substantial contribution to the technological capability of those backward economies. In a good many cases, modern technology has sat on these developing countries in much the same way a drop of water sits on a lotus leaf: no mark anywhere and always ready to roll off. The real issue of technological dependence lies in the tenacity of this asymmetry and not in its origin.

When a transnational firm invests in a poor country using modern technology, what it seeks, naturally enough, is profits. There is no need to apologize for that, since that is the purpose of the firms. What is, however, disturbing is that given the ability of transnational firms to recruit skills and requisition techniques of production from the developed countries, the firm's own capabilities are not particularly enhanced by promoting skills and techniques locally. There is a genuine conflict here. Practices that are in the best interest of such firms are very often counterproductive for the developing countries in which they operate. A planner of manpower and technology in a developing country must take note of this difference and consider ways to create a situation more favorable to the countries they represent.

Even when modern technology enters the backward economies through the purchase of techniques and know-how, rather than through direct investment by transnational firms, barriers to genuine transfers of technology are considerable. The suppliers of technology typically have a variety of interests, of which making money from selling technology is only one. The other interests (for example, selling products made with the use of the technology in question) often would be ill served by the rapid development of technological capability in the backward economies. Indeed, even direct money-making from technology sales may well be ill served by it. The purchasers of technology may not, therefore, easily get what they are looking for.

Furthermore, the question whether the purchasers are themselves looking for the development of local technological capability must also be examined. Often it is not the case. The national benefit from the growth of technological sophistication may rub off on the local collaborating firms only to a limited extent, the rest being what economists call "externalities" in such skill formation. The policies of these firms and the pressures that they can exert may be guided in the direction of safeguarding their own profitability rather than guaranteeing a rapid development of the national technological capability.

This analysis has been, of course, rather general. To make it more precise would require a much lengthier specification of countries, products, firms, and negotiating machineries. However, the purpose of this discussion is not to pinpoint precise failures, but to point toward a general issue—that of conflicts of interest—which the manpower and technology policy planner has to watch. (If in a particular case there is no conflict and the disparate interests happen to coincide, the policy-maker is lucky, provided he has made sure that it is luck that he has rather than a pair of opaque glasses.)

It is also far from my intention to propose some surefire method of overcoming this problem. In fact, it is not even clear that planning, policy formulation, and project evaluation can fully overcome this problem anyway. What is more clear is that many proposed "solutions" deliver less than they promise. The first step almost certainly is to understand the problem, recognizing that it reflects a dichotomy of interests and motivations that applies not merely between nations but also within a nation. The task of ensuring favorable arrangements for technological development cannot, thus, be left to domestic collaborators (even when they are public firms), but has to be assumed by national

policymakers in charge of the development of technology and manpower. It is for them to try to make the best of a hard job.

Practice may or may not be the way to Carnegie Hall, but that almost certainly is the way to technological capability. In negotiating deals involving foreign technology, this can hardly be overlooked. While the ease of setting up production is much enhanced by leaving matters to those who know (and that may also help immediate performance and profits), that "lazy" course does contribute to further dependence by denying the potential for developing skills through necessary practice. Countries such as China which have been forced to rely on their own manpower to an unusual extent because of political policy and necessity have typically shown remarkably faster growth of real technological capability.

The other issue that the planner has to be very clear about is the *cost* of technology transfer that is implicit in any deal. Such costs are often hidden, in the sense of not being included directly in a price that is quoted as a financial obligation, and take the form of various concessions given by the recipient country to the investing firm or selling agency. These could involve various commercial entitlements, including tax exemptions, but may also cover a guarantee that the technology will not be used to compete elsewhere, or that the products of the firm in the country in question will be protected from foreign competition in the case of direct investment. Much is known about the standard methods by which such hidden costs are incurred, and a new policymaker can probably learn a lot from the penalties that his predecessors have paid.

A proposed project—possibly spelled out by the foreign collaborator—may yield a positive net present value to the country. That is still no reason for accepting it. Technological variants of this proposal and—just as important—other financial arrangements with the same technological variant constitute other alternatives. An alternative can be good, and thus acceptable *if* it is the only one that can be obtained, but still not good enough if there are other feasible variants that would offer a higher net present value. The scope for such comparisons is very great indeed when alternative financial arrangements and hidden costs are considered.

In bargaining with the supplier of technology or the foreign investing firm, it is important to know what both parties will get from the arrangements. Only in a situation of one party choice is it sufficient to use the standard techniques of cost-benefit analysis, that is, examining net

benefits for oneself only. Whenever there are several parties with part coincidence, part conflict, of interests, there is scope for "adversary analysis." There is then a need to play the dialectical role of placing oneself in the position of one's adversary and seeing what things look like from that end of the "bargaining problem." If it turns out that the proposal under consideration is very rewarding for the foreign party, there may be scope for an alternative deal more favorable to the receiving country. The relevant information for the assessment of a proposal for technological collaboration, direct investment, or technology sale consists of not merely the net present values for the nation from the alternative variants that may be considered, but also the net present values of profits to the other party.

Such information may not, of course, be easy to get, and obviously it would make little sense to postpone all negotiations until it was available. Even rough guesswork can help to ascertain whether there is much "give" in store. Further, the ability to get hold of the information is not independent of the efforts to get it, and ultimately relates to the understanding that such information *is* relevant. The deal tends to be particularly unfavorable to the developing countries when the two sides meet round the negotiating table totally as unequals—one well briefed on the commodity that is being sold and on the interests of both parties, the other whistling in the dark.

The Brain Drain Issue

Despite the recognized need for the transfer of skill from technologically advanced countries to backward ones, as far as skilled labor is concerned, most of the movement has been in the opposite direction. Brain drain as a phenomenon, which hastened slowly in the post-World War II years, has assumed gigantic proportions recently. There is nothing extraordinary in the fact that some people would move from one country to another, and there are indeed many positive results that follow from such movements. What is extraordinary about the phenomenon of brain drain is the scale of the movement as well as its directional asymmetry, corresponding to the asymmetry represented by technological dependence.

In assessing the economic effects of such migration, it is necessary to distinguish between two types of losses that the developing countries incur. One is the loss of those skilled people to their country—call it "skill loss." The other is the loss of the investment that the country has

made in the education of those people—such education often having been free to them or heavily subsidized. This may be called “investment loss.”

In the short run, it can be argued, both losses may, in fact, be less than catastrophic. Often the laborers have skills which are in excess supply in the country in question, so that their emigration need not reduce the usability of that type of skill. (Excess supply of skilled manpower is, of course, a problem in its own right and is taken up in the next section.) While it is often argued that the emigrating members of a particular skill category are the *most* able in that category, there is little evidence for this assertion. As far as the investment loss is concerned, past historical costs are not policy variables and are, in a sense, deadwood.

But such a smug dismissal of the problem would miss the real issue involved in the phenomenon of brain drain and its pervasive long-run character. To take up the latter point first, the losses in question are not merely the historical costs incurred in the training of people now overcrowding labor markets, but also the continuing costs of educating more and more people when it is likely that a great many will migrate to richer pastures elsewhere. The investment loss is a continuing problem of relevance to current policy and is not a deadwood issue.

As far as skill loss is concerned, it is not to be pooh-poohed either. While there may be excess supplies in broad categories of skilled labor, a more detailed classification often reveals specific shortages. (Even in broad categories, excess supplies are not universal.) There is also some real loss from the psychology of seeking fortunes elsewhere that affects not merely those who go, but also those who stay on, who often feel somewhat deprived because of their inability to go *or* their decision not to. In fact, while brain drain may represent a *reverse* transfer of technology in the direction *opposite* to technological dependence, it is in fact a reflection of the *same* phenomenon: the economically and technologically advanced metropolis provides a more acceptable habitat for skilled labor than the poor developing countries are in a position to provide.

There has been much discussion recently on how to stop or reduce brain drain, or else on how to make as much economic gain for the developing countries as possible out of the phenomenon. The simplest bureaucratic solution is, of course, to *ban* such movements or to set a prohibitive *exit tax*. But these solutions raise rather fundamental issues of personal liberty and are also not always altogether effective. Another

solution is to tax emigrant labor on a continuing basis through the help of the countries to which they emigrate. Various ingenious schemes for this have been proposed, promising sums that are, to say the least, lavish. If such a scheme were to come into effect, the developing countries not only would profit from the existing deadwood, but also could make this an important long-run source of revenue. Educational costs are remarkably low in many developing countries compared with corresponding costs in the industrially advanced countries and—more important—compared with taxable incomes of skilled manpower in the latter countries.

While such schemes have much merit, they also raise some very difficult issues. The administrative and legal questions surrounding such schemes have been discussed a certain amount. The main difficulties, however, may be political ones. There is, first of all, the question of discrimination *within* the developed countries between immigrants and the indigenous population at a time when the relationship between the two groups is an explosive political problem. Second, some of the emigrants may have emigrated from the developing countries precisely because of the nature of the ruling regime. To tax such emigrants to pay that regime raises important moral and political issues. Third, the apolitical bureaucratic systems of international income redistribution tend to ignore the complex political considerations that govern international relations, and a mechanical rule of automatic transfer may prove to be too blunt an instrument, despite the well-meaning nature of the proposal. Finally, voluntary remittances from expatriates already constitute a high proportion of foreign exchange earnings of several developing countries, and a rigid taxation system might affect the goodwill that is rather crucial for this relationship.

It can be argued that the real solution to the problem of brain drain would have to be found *within* the developing countries themselves, in changes in the social and economic climate that fosters such large-scale, one-directional transfers. Indeed, the solution to technological dependence as well as brain drain may have to be sought largely in changes *within* the developing countries themselves. Development of technological capability and creation of conditions in which skilled manpower finds fulfillment (rather than frustration) are not unrelated tasks. And both relate closely to the approach of industrial development policy with which this book is concerned.

In a cross-country study of brain drain into the United States, it appeared that income differences played little part in explaining con-

trasts in the propensity to emigrate on the part of the four skill categories studied, namely, natural scientists, social scientists, engineers, and doctors and nurses. The most effective explanation was found in the number of people from the poor country in question receiving education *in* the United States. The issue may also thus relate more closely to the educational policies to be pursued by the developing countries than to the broader facts of income differences. If this situation applies generally, then it is a situation within the direct control of the manpower planner in the developing country.

III. Education and Industrial Employment

The Grand Stand on the Head

There have been a great many contributions to the methodology of estimating labor requirements for economic growth in general and industrial expansion in particular. The essential ingredients are a set of labor coefficients, which specify the number of educated workers of a particular type needed per unit of output of each specified type. Starting with rather aggregative models, this methodology has used more and more disaggregation.

These models played an important and creative part in initiating systematic thinking on the problem. But it is doubtful whether the labor force planner of today could get very much help from them. The reasons are not far to seek. First, to assume that for each amount of output of a particular good there is a fixed requirement for each type of resource seems to reverse the direction of the functional relationship involved in a production function. If the amounts of different resources devoted to producing a particular good are specified, the production function for that product—if one exists—may be used to find out how much of that product will be produced. But, on the other hand, when the amount of the product is specified, it does not—except under very special assumptions—tell how much of each resource will be needed. The production function is a “many-one” correspondence, with many alternative combinations of resources producing the same output. It would be a “one-one” relationship only if there were no possibility of substitution among the resources, and there is plenty of evidence to indicate that that is hardly the case in any major branch of manufacturing.

The second reason for doubting the usefulness of the labor requirement approach arises from the fact that there tend to be severe social

and political pressures to expand education, and the economic needs—however flexibly defined—very often fall far short of what the educational system delivers. Indeed, at the clerical and professional levels the more pressing problem tends to be how to expand industry fast enough to absorb the educated labor rather than how to expand educational facilities sufficiently to meet the requirement of industrial expansion. Instead of concern over the requirements of educational expansion for industrial output, the “grand stand on the head” is the worry about the requirements of industrial expansion for educational output.

There is, however, really nothing extraordinary in the educational system’s producing more educated people than industry can accommodate. Educational expansion reflects values that go far beyond catering to industries. The social and political pressures that bear on educational decisions are not geared to meeting industrial demands precisely. Further, even when some category of education is oversupplied, persons receiving that education—especially in a heavily subsidized system—may still benefit personally. It puts them in a competitive position with respect to others with similar qualifications, and in a better position with respect to others with lower qualifications. Thus finding a place in the educational system may be personally beneficial even though socially wasteful. There is considerable evidence that political and social pressures based on likely gains to the person from additional education have frequently led to educational expansion far ahead of the economy’s needs for educated manpower. And this is especially so when the beneficiaries come from the urban middle classes, which can exercise a vocal and powerful influence on the direction of public policy.

Minimal Needs and Maximal Absorption

While the assumption of a fixed requirement for each type of manpower per unit of output is an unreal one, the substitution possibilities that make it unreal are not, of course, endless. For this reason it may indeed be possible to get fairly clear “boundary conditions” for manpower use in industrial expansion. This approach involves looking for not just one set of coefficients for manpower requirements, but two sets—one representing minimal needs and the other maximal absorption of manpower in industrial production. The mechanics of calculation based on these two coefficient matrices will not otherwise be very different from the techniques of such estimation used in the context of fixed requirement exercises.

There is little reason to dispute that educational expansion should cover at least the minimal needs of an industrial plan. In general, this constraint will not be binding, although it can of course be so for particular types of education in particular countries. The minimal expansion plan may be used to ensure that a lack of educated labor does not act as a bottleneck to industrial expansion.

The really difficult policy problem will arise at the other end. If pressure for additional education would result in an expansion greater than the modern sector could absorb, should it be resisted? What are the costs of exceeding the maximal absorption rate? First, of course, are the costs of that education. When education does not lead to an expansion of productive capability, can a poor developing country afford the luxury of an educational extravaganza? Second, it may lead to a lot of frustration, since an educated labor force feels entitled to jobs appropriate to the education received, and it will not always be possible to guarantee that. Third, it leads to an arbitrary substitution of qualified people by people who are overqualified, which is indeed one reason why additional education tends to be personally profitable. Faced with an avalanche of applications, the appointing authorities often take refuge in cutting down the number of applicants to be considered by requiring a higher educational level than is justified by the job description. Fourth, it also leads to pressure for expansion of education beyond the stage in question. Those leaving school, unable to find appropriate jobs, clamor for more education to improve their competitive position further, adding to the forces of overexpansion at the higher levels. Finally, excess qualified manpower also tends to encourage brain drain, which aggravates the problem of wasted investment in the form of costs that may bear little return.

Rates of Return: A Critical Examination

An alternative to the fixed requirement methodology that has often been considered for educational planning is the "rate of returns" approach. The rate of return from a marginal expansion of educational facilities at each level is considered. These rates may be compared (1) with each other for internal allocation of educational funds, and (2) with rates of return in other fields for the determination of the overall educational budget. An educational expansion of a particular type is then justified if the rate of return from it is higher than returns from expanding other types of education and from noneducational investments.

These rates of return are typically calculated on the basis of income differences made by acquiring the additional qualifications in question. But the acceptability of using personal income gains as an indicator of the social contribution of education is very questionable. Furthermore, the presence of unemployment makes for a substantial divergence of personal incomes and social consequences: acquiring an additional qualification that is in excess supply may put a person in a better competitive position with respect to others, but it does not affect the production potential of the economy.

Doctoring private rates of return by multiplying them by the employment ratios (that is, the proportion of people with that qualification who have jobs), a correction sometimes used, is also quite arbitrary. In a situation of 20 percent unemployment, the social return from an additional trained person may not be 80 percent of the wage difference between labor with and without that qualification. It may be none at all, since the new person may simply displace another if he finds a job appropriate to the qualification.

It might be argued that comparisons of rates of return between different types of education, while dubious for guiding social allocation, are relevant for private decisions and as such are of interest to public policy in assessing the pressures that might emerge. This is indeed so up to a point. The pressure for higher education and even school education in many developing countries has undoubtedly been helped by public perception of financial rewards from pursuing such education. But comparisons of rates of return at different educational levels may have little bearing on the decisions of individuals. For example, if they have finished school, the relevant consideration is the rate of return of higher education and not its comparison with that of school education. They may, of course, be interested in comparing rates in different types of higher education, which is a different issue from the comparative rates at different levels.

For social planning, however, these comparative rates would have been of policy interest in deciding where to put public money, had the comparisons been of economic significance. In this respect, the comparisons, as was seen, are very problematic. Thus, for one type of decision these comparisons are traceable but irrelevant, while for the other they are relevant but difficult to trace.

If rates of return are calculated from the private and social points of view as a preliminary to setting educational policy, their limitations have to be properly appreciated for them to be helpful and not counter-productive. They are precisely what they are defined as and include the

arbitrariness that is built into the explicit assumptions used to arrive at these figures. They have suggestive value, but more should not be read into them.

Furthermore, economic productivity cannot be used alone in drawing up an educational plan. Indeed, as far as primary education is concerned, it is widely taken to be a personal "right." The goal of planning cannot include merely material prosperity. The fulfillment of a person's potential as a human being must be a principal objective.

Whether such entitlements should extend beyond primary education is much more open to dispute, especially in those countries in which the recognition of the right to primary education has not been spectacularly matched by performance. Secondary education tends to be more expensive than primary. (This is true even of vocational education in industrial skills which, however, is often neglected in developing countries for historical and cultural rather than cost reasons.) University education is even more expensive. The annual cost of providing a person with a university education in science has been estimated for one developing country to be ninety times the annual cost of providing someone with primary education. In a country with low literacy and low schooling ratios for primary education, the "right" of the privileged to have higher education need not encourage the vision of Daniel distributing justice.

A more universal problem, however, is that not only is it assumed that people are entitled to education, but it is typically assumed that the educated people are entitled to particular types of jobs. It is this dual set of entitlements that causes the frustration discussed earlier in the context of the "grand stand on the head." The demand goes in two stages: (1) "I have finished primary (or secondary) school, and am now entitled to secondary (or university) education," and later (2) "I have finished secondary (or university) education, and am now entitled to an appropriate job."

There is, of course, much merit in an approach that recognizes the right of a person to have a job. The problem arises from the notion of an "appropriate" job and the right to have that and "no less."

IV. Employment Limits

The Consumption Constraint and the Technology Constraint

We move now from educated unemployment to general unemployment. Various methods of estimating unemployment are in use, em-

phasizing different aspects, for example, the “production aspect” (those who can be removed without affecting output), the “income aspect” (those whose incomes are not conditional on the work they do), and the “recognition aspect” (those who do not have the recognition of doing something worthwhile, maybe even in their own eyes). Some people may be unemployed from all these points of view, for example, the typical person who is openly unemployed and living on support from other members of the family or from social security. Others may meet some of these aspects, but not others.

There is also the related concept of poverty. It is often associated with unemployment. But it should not be *identified* with it, since some of the poor are very hardworking, have a net positive effect on production, have an income which, while low, is conditional on their work, and have the recognition of doing useful things. The removal of poverty is, however, no less a legitimate part of employment policy than the elimination of unemployment itself.

The modern sector gives very little hope of being able to accommodate all job seekers in the relevant age cohorts over the next twenty years or so in all but a handful of developing countries. The growth rate of population does, of course, have a big impact on what is and is not possible. While this paper is not concerned with population policy, it is obvious that the job of the labor force planner is made much easier if the tide is stemmed. Thus in countries where population growth rates have become modest, the employment outlook may appear to be manageable, especially if their economies are growing tolerably fast. For countries at the other end of the spectrum, it can be very serious indeed.

The problem, then, is how to accommodate a large entry into the work force each year, in addition to absorbing existing unemployment. It is useful to begin with a naive question: why not simply hire them for doing something or other and be done with it? This stupid-sounding question is worth asking precisely because it helps identify the constraints that operate on employment expansion. If the people in question were hired and paid wages, either more consumer goods would have to be found to meet the additional demand generated by the additional purchasing power, or there would be excess demand for the given supply of consumer goods, with inflationary results. On this analysis, the constraint to employment expansion is not the technological specification of the production process, but the availability of consumer goods that will be demanded if more people are hired and more wages paid. This can be called the “consumption constraint” to employment.

Contrast this constraint with another. It may be argued that more people cannot be hired in a particular production situation because there may be nothing for them to do. The technology may not permit an increase in employment. This may be called the “technology constraint” to employment.

Why not hire them anyway, even if they have nothing to do? Keynes sanctified the exercise of digging holes and filling them up in a different context, but why not apply it in this context as well? The hired people may not contribute to additional output, but technical efficiency—as noted before—is not a necessary virtue where labor is concerned. People may prefer to have employment. Certainly, giving them an income may well save them from starvation. Giving them income through employment rather than as direct grants may even be better for their self-esteem and also for the work ethos in the country. As long as there is the required availability of consumer goods, the limitations of technological specification need not keep employment down. In this sense the technology constraint is not binding when the consumption constraint is not.

If the consumption constraint does bite, then the ability to employ an additional person will depend partly on the output that will be generated by his employment. The output produced is part of the total commodity supply that could be used to meet demand. If technological factors permit the production of output large enough to meet the additional demand arising from the additional wage bill, then the prior availability of consumer goods will not be necessary for increasing employment. In this sense, if the technology constraint is sufficiently flexible, then the consumer constraint cannot be binding.

However, the relationship between the consumption constraint and the technology constraint is not quite symmetrical, and in a sense the former is more limiting than the latter in a wage economy, particularly in manufacturing. There can be technological scope in the production process for many fruitful uses of labor which are not self-sustaining in the sense of meeting the demand for consumer goods created by the additional employment. The fruits of labor may arrive later because of time lags, while the need for consumer goods is more immediate. (There are lags also between income and consumption, but typically quite a bit of the impact is immediate.) In the case of production of producer goods, the impact on the supply of consumer goods may come much later indeed, especially if the producer goods in question are, in fact, capital goods. Thus the existence of good technological scope for

fruitful use of labor does not mean that the fruit is available to relax the immediate consumption constraint on employment.

It could thus be argued that it is the consumption constraint that always sets the immediate limits to employment expansion and that the contribution of technology to employment operates *through* the consumption constraint. When it can relax that constraint immediately, it increases the employment potential straightaway, but it is possible that its impact is delayed depending on the time lags in production and distribution and on the nature of the commodities being produced. At any given point of time, the maximal employment for a wage-based economy is given by the available supply of consumer goods, given the wage rate and the propensities to consume.

Indirect Employment Effects: A Scrutiny

The concept of indirect employment, which is often used in manpower planning, is worth studying rather carefully in the context of the constraints to employment. In assessing policy impact on employment, the issue of indirect employment is frequently an important one. This refers to the additional jobs that come into existence elsewhere as a consequence of the initial investment. The question is whether such employment is a net addition to total employment or simply replacement of one kind of employment by another. If the consumption constraint is binding, the net employment impact of manufacturing employment has to be judged in terms of its effects on the consumption constraint itself.

If the availability of consumer goods is unaffected by the process involving indirect employment, then the additional jobs will only serve to replace other people—possibly even the same people—who could have been hired elsewhere given the supply of consumer goods. This does not mean that in these cases the production process in which the indirectly employed people happen to work has no beneficial effects, but only that indirect employment is not one of them. (The situation is different if the people indirectly employed have a particularly low wage or an especially low propensity to consume. Then there may be more employment generated in this way than in normal alternative employment. And, of course, this is the case if they are employed outside the wage system.)

The same considerations apply even in assessing the effects of employment in a project. If the overall employment in an economy de-

pends only on the supply of consumer goods (given the wage rates and consumption ratios out of incomes generated), then a greater indirect employment does not necessarily entail a larger net effect on total employment. In this approach, the ultimate determinants of total employment are the availability of consumer goods, the wage rates, and consumption ratios; employment effects have to be judged in terms of their impact on these variables, and not in terms of jobs created by particular projects or in ancillary activities.

However, the consumption constraint applies firmly only for an economy that is run on the wage system, with inflexible wages. The picture becomes more complicated when the wage rates can vary and particularly when the wage system is not used.

Nonwage Systems and the Cooperative Mode

When production is organized on a nonwage basis, the consumption constraint is cut at its root. In such a case, additional employment may not lead to additional consumption. This does not, of course, mean that the workers will starve to death. The consumption constraint affects employment not because of the total consumption of workers, but through the *incremental* consumption as a consequence of *additional* employment. If, for example, the consumption of a group is fixed—no matter at what level—then the issue of utilization of their labor will be divorced from the question of availability of consumer goods, since the consumption requirement will be independent of the amount of employment.

It is, therefore, not surprising that nonwage modes of employment seem to have had positive consequences on the utilization of labor in such countries as China and North Korea. If the technology constraint is not binding whenever the consumption constraint does not bind (as seen earlier), and if nonwage employment modes can make the consumption constraint unbinding, there is no economic reason why full employment cannot be quickly achieved. Fuller employment clearly has been among the spectacular successes of countries making use of the nonwage mode of employment. Fuller utilization of labor has also led to many productive achievements, especially in the formation of rural capital.

There are, however, other barriers that must be considered in this context. First, even with a nonwage employment system, there clearly will be an additional consumption requirement as a consequence of

more work because of the calories consumed in the process of work itself. There is some scope for argument about how the amount of energy required for work compares with the energy required for leisurely survival, and it is possible that this type of additional consumption requirement will be rather small compared with the wage rate, even in the poorest countries.

Second, nonwage systems raise quite serious incentive problems when they are not part of a family operation but involve large groups. This is especially so in the field of industrial production, but applies even in agriculture. To make effective use of nonwage labor in cooperative enterprises requires cultural reorientation of the kind that the Chinese tried to achieve after the experience of the "Great Leap Forward." However, nonmaterial incentives seem to have been used in China with a great deal of controversy, and there is evidence that such methods are much less widespread today than some years ago.

Third, nonwage cooperative systems do raise political issues of control. They involve a great deal more than economic organization. The appropriateness of such methods depends on the political conditions of the country in question, and there is no point in trying to make broad generalizations about their acceptability and workability in different countries. The political preconditions for successful use of nonwage cooperative methods are indeed exacting.

V. Labor Policies in Manufacturing

Wages and Working Conditions

For the bulk of the work force in developing countries, the conditions of work are harsh and remuneration is low. However, there tend to be some pockets of relatively higher wages and regulated working conditions, mostly in the modern manufacturing sector. A number of factors combine to create these conditions. Modern manufacturing not only provides opportunities for high productivity, it also requires relatively high discipline and application from the work force. Absenteeism through ill health or poor housing is costly not only to the laborer and the family, but also to the firm. There is a premium on alertness and responsiveness to direction. An eight-hour working day is usually regarded as the maximum that can be worked efficiently. The work force in manufacturing is usually an elite group, and it is rewarded by elite working conditions and relatively high remuneration.

These economic tendencies have been reinforced by international concern for improvements in working conditions. International institutions such as the International Labour Organisation (ILO), the trade union movement, even governments of industrialized countries have helped sometimes to spread the use of minimum wage scales, the eight-hour day (reinforced by overtime rates), shift-work premiums, and similar conditions, to the developing world.

Labor in modern manufacturing has been relatively easy to organize. Trade unions have become strong, strengthening and maintaining the remuneration and fringe benefits. Manufacturers are quite often comfortable in this situation because it minimizes industrial strife; they sometimes reinforce this by such fringe benefits as assistance for housing, health insurance, and educational facilities—vocational and other.

In many countries, industrial bargaining between unions and employers results in industrial remuneration that is substantially higher than for the economy generally. In some countries wage levels, especially in the modern manufacturing sector, are underwritten by minimum wage regulations. Higher wages—even in a limited sector—undoubtedly have some beneficial effects, not only because workers get paid more and work in better conditions, but also because the extended family system distributes such remuneration widely. But it also has some costs. A relatively high labor cost may encourage high capital intensity at the cost of employing labor. (This is important both for technological choice *within* an industry as well as for choice *between* industries. There is some evidence that the latter may be quantitatively more important than the former.) It may also attract more people to overcrowded cities in search of jobs that offer high prizes. Penal rates for shift work may also contribute to low utilization of capacity.

An organized high-wage sector has many consequences beyond encouraging higher capital intensity, lower capacity utilization, and greater migration to industrial regions. Unionization can alter the political balance in the country and create conditions for change. The higher wages can set standards to which workers in other sectors will aspire. They can raise productivity through the positive effects of higher consumption and a sense of having a stake in the job. While it is important to avoid thinking of the small group of protected industrial labor as the only target group for the benefits of public policy, it is also necessary to avoid basing public policy exclusively on the more immediate consequences (for example, the effect of high wages on technical choice).

Neither the ILO rule book nor the economic textbook is a substitute for careful assessment of the diverse consequences mentioned above.

The Dual Economy and the Informal Sector

While nonwage labor in large-scale production has to be of the cooperative type, in smaller-scale operations nonwage methods can be used in family-based production structures. Family farms are of course very common in traditional agriculture, and this is one aspect of the dualism between the rural and the urban sectors. But the informal sector also tends to cover a remarkably high proportion of the urban labor force, and dualism exists within the urban economy itself.

It has sometimes been suggested that the urban informal sector serves as a point of entry for rural labor to urban areas on its way to being absorbed into the modern sector. The pull of the high wages in the protected modern sector attracts more people from the rural areas than the modern sector can accommodate. It has also been argued that those who take the gamble but lose out then set themselves up in the informal sector, earning low incomes. This may indeed happen to some extent, but does not seem to be the typical case. The informal sector exists as a productive sector in its own right, providing goods and services to the urban community (including the informal sector itself). The standard of living enjoyed by members of the urban informal sector seems to be typically quite a bit higher than that enjoyed by the bulk of the rural community. There may thus be no particular difficulty in explaining why people end up there, and the failure to make it to the modern sector need not account for a very large proportion of the urban informal labor force.

It is obvious that as far as employment absorption is concerned, the informal sector has advantages over the modern sector in terms of the technology constraint. It is less bamboozled by modern technology and labor regulations into conforming to rigid labor and production patterns, and its flexibility gives it greater scope for lapping up opportunities for fruitful work as they arise.

But it is no less important to recognize that the informal sector also has remarkable advantages with respect to the consumption constraint. Opportunities for fruitful work can be seized without having first to expand the wage bill prior to the output being produced. The reward in the form of greater income comes only when the output is sold, and not

before, thereby avoiding the problem of the time lag between wage payment and output availability, as in the wage system.

As far as the size of consumption is concerned, there is also some contribution toward the relaxation of the consumption constraint. This is partly because in the informal sector earnings are typically substantially lower than in the modern sector. It also appears to be the case that informal sector working members often do have the psychology of part-entrepreneurs, and are thus much concerned with saving and reinvestment.

All this is not to suggest that the informal sector is the way to the solution of the problem of industrialization of developing countries. Indeed, that is far from the case, since the enormous potentials of modern technology are of immense long-run significance to economic development. But the immediate problems of employment creation, and in some cases of the production of "appropriate" goods, are ill served by the modern sector, and it is here that the informal sector has great potential. Its advantage in this particular respect applies not merely to the technology constraint, but also to the stricter limits of the consumption constraint. And this covers both timing and size.

VI. Does the Labor and Technology Planner Need an Enemy?

The labor and technology planner does not need an enemy; he has his friends. The tasks of his job necessitate that he cooperate with his friends, but these tasks also require that he be careful about their advice, proposals, demands, and pressures. To dwell on these issues may seem an ungracious way of ending this chapter, but it is a way of putting some of the strategic issues in perspective.

First, there is the accountant. A practical man, he. No nonsense about all these "criteria and conflicts." His standards are exacting and typically applied to the financial notion of "soundness" that he has made his own. The market prices he takes more seriously than the economist, and the effects on human beings tend to be observed through financial glasses. The technology planner would, of course, need the exacting standards of what is clearly the second oldest profession in the world. But while he must listen to the accountant, the planner cannot accept that profession's criteria of soundness and must set

his own, taking into account the direct and indirect consequences of his policies.

Second is the engineer. The main source of technological knowledge, he is indispensable for a technology policy. But very often he seems able to assess technological proposals without even knowing the context. The planner, however, cannot do this: he must look not for technological performance as such, but for the consequences of that performance on the human beings affected by it. For him the context is important, as is—of course—the identification of these consequences. The labor policy planner also has to recognize that the engineering requirements of trained labor may be only one influence among many that are relevant for educational policy. And that the limits of overall employment have at least as much to do with the availability of consumer goods as with the technological specifications of men per machine.

Next, the statistician. The planner will certainly need his estimates: without statistics, planning will be a blindman's buff. The statistician's professional standards are high. On many factual assumptions made in planning, he will be able to point out that the "null hypothesis" asserting the opposite has not been satisfactorily rejected. This the planner has to live with. However, for the planner the problem is not how to eliminate ignorance, but how to make his policies as non-arbitrary as possible given what he knows. He must use—if necessary—ranges of values rather than single values.

And there are, of course, the economists. They come as marching armies with the banners of their respective schools, bands playing different tunes simultaneously. Some come riding hobbyhorses, which the planner must endeavor not to fall under. There are many such horses, including: technical efficiency being necessary, if not also sufficient; cost-benefit analysis as the answer to every question; fixed input-output coefficients rigidly determining labor requirements; or the rate of return as an unfailing compass. There are others. Including some the present author may be riding, as the reader has no doubt observed.

But the professionals are not the planner's only friends. There are also the political leaders, who—it is only fair—should feel they have the right to rule the roost, since they get their authority from the people. *Vox populi* is, however, sometimes less than unambiguous, while pressures from sectional interests may be delivered with remarkable clarity

(for example, business interests that run counter to the development of technological capability, or interests of urban middle classes in the allocation of educational funds).

There are also the other planners with whom the planner of technology and labor utilization must cooperate. They set the constraints on what he can do, though the acceptance of the division of roles need not be a grudging one. But some of the "independent" initiatives could mess up integrated manpower planning. The problem is illustrated in a hypothetical statement attributed by Ronald Dore and his collaborators to an imaginary minister of education: "Our job is to educate people. It is the job of the economic ministries to ensure that they find employment."¹ Robustly independent initiatives can lead to independently robust crises.

There is also the indispensable project formulator, proposing a particular project with the objectivity of a mother showing off her baby. Subsequent performance may typically fall short of the operational specifications, but such departures are easy to explain *ex post*, even though they are better handled *ex ante*. He may also be able to encourage the labor planner by showing such favorable effects for the project as the volume of indirect employment it would cause. As discussed, these may or may not stand up to economic scrutiny.

And there are the friends from abroad who will supply modern know-how: the transnational firm, the technological consultant, the foreign collaborator. Their help is necessary for the use of modern technology. But the handshake may be more expensive than it looks. And with a glued palm it can be a lasting experience. The domestic planner of technology may have to do not merely the usual cost-benefit calculations, but also those as seen from the position of the other side; such adversary analysis may be necessary to see what room he has for the unfriendly act of bargaining. The same applies to relations with givers of aid and credit: the best way to examine *any* horse is to look it in the mouth.

Finally, there is the manpower itself—the friend for whom all this policy planning is undertaken. Its interests are the ultimate ones, but they are not uniform, since manpower comes divided into classes, occupational groups, educational categories, regional communities, and income percentiles. Some of these interests are more vocal and pow-

1. Ronald Dore, John Humphrey, and Peter West, "The Basic Arithmetic of Youth Employment," ILO Working Paper no. 2-18/WP9 (Geneva, 1976), p. 1.

erful than others, and the manpower planner may be subjected to pressure to give more to them even though their needs may be much less compelling than those of others.

A specific problem that was discussed in this context is the “grand stand on the head”: not educational expansion to meet the needs of the industries, but industrial expansion to meet the needs of the educated. Industrial expansion must, of course, serve labor. But not just educated labor, and not just with jobs in the modern sector. The labor planner does, of course, know—with Francis Bacon—that if the hill will not come to Mahomet, then Mahomet must go to the hill. But while he may know this from the point of view of Mahomet, many seem to see it from the point of view of the hill.

The making of policy concerning technology and labor is a technical subject, and much of this chapter has been, in fact, concerned with the methods and techniques that could be used. But the making of these policies also involves a great deal more than technical skill. It is for this reason that the chapter is ending on this inelegant note of ungracious warnings. His best Sunday behavior the policymaker may indeed have to reserve precisely for Sundays.

Bibliography

This chapter has drawn heavily on the author’s *Employment, Technology and Development* (Oxford: Clarendon Press, 1975), referred to here as *ETD*. Many of the issues discussed in this chapter have been analyzed in greater detail in that book.

The literature is vast and regionally diverse, so that the need for keeping the list short makes the selection inevitably somewhat arbitrary.

Technical Efficiency

The case for technical efficiency, despite the presence of various constraints, has been spelled out clearly by Ian Little and James A. Mirrlees in *Project Appraisal and Planning for Developing Countries* (London: Heinemann Educational Books, 1974), especially pp. 367–73. The ambiguities of the concept of efficiency and the limitations of its policy implications have been discussed in Amartya Sen, “The Concept of Efficiency,” in Michael Parkin and Avelino R. Nobay, eds., *Contemporary Issues in Economics* (Manchester, England: Manchester University

Press, 1975). The institutional variability of technical performance has been brought out by such studies as Gordon Winston, "Capital Utilization and Economic Development," *Economic Journal*, vol. 81 (1971); and Carlos Díaz-Alejandro, "Industrialization and Labor Productivity Differentials," *Review of Economics and Statistics*, vol. 47 (1965). The context-dependence of evaluation has been analyzed in *ETD*, Pts. I and II, including the use of the range method when the information is partial.

Technological Choice

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Employment Limits

A useful collection of articles can be found in Richard J. Jolly, Emanuel de Kadt, Hans Singer, and Fiona Wilson, eds., *Third World Employment: Problems and Strategy* (Harmondsworth: Penguin Books, 1973). Employment constraints under wage and nonwage systems have been contrasted in *ETD*, chaps. 7-9. See also David Morawetz, "Employment Implications of Industrialization in Developing Countries: A Survey," *Economic Journal*, vol. 84 (1974).

Labor Policies in Manufacturing

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5

Taxation Policies

David Lim

The principal role of taxation is, of course, to raise funds for the recurrent and investment expenditures of government. But the composition of taxes affects the structure and pace of industrial development. Taxation policies are, albeit indirectly, an important component of industrial policy. The first section of this chapter briefly introduces the range of widely used taxation instruments, and their structural effects are discussed in section II. Many countries have gone beyond such use of taxation to use exemptions from taxation as incentives to accelerate industrial development. This is the topic of the last two sections.

THE PRIMARY PURPOSE OF government taxation policies is to raise the revenues required to finance government expenditure. Except in abstract theory, however, no taxes are neutral in their effects on allocation—that is, consumption and production patterns can be manipulated by altering the structure of prices.

The possibility of using taxation policy to manipulate production and consumption patterns has led all governments to use fiscal measures to fulfill objectives other than that of simply raising revenue. Most governments, for example, have devised tax and subsidy structures intended to reduce production and consumption of nonessential or luxury goods, or to lower the cost to consumers of products considered essential for minimum standards of living. The imposition of such social objectives on taxation policy clearly has implications for those policymakers concerned with the country's industrial development. At the same time, because taxes are not neutral, policymakers can use them to

achieve industrial objectives. Officials concerned with the formulation of industrial policy need to be aware of the impact of tax structures (and changes in them), in the absence of any compensating measures, on the rate and composition of industrial development. They also need to be aware of the possibilities of modifying tax structures to achieve industrial objectives without compromising the achievement of the other objectives of tax policy (for example, income distribution or revenue raising). Where conflicts occur, they should be able to design acceptable tradeoffs.

I. Description of Taxes

Table 5-1 shows the major forms of taxation, classified by their taxable bases. All income-based taxes are direct, all consumption-based ones indirect. With very few exceptions the indirect sales taxes on consumption are by far the most important source of revenue in developing countries. The reasons are not hard to find. The large subsistence sectors, low literacy rates, poor communications, shortages of skilled tax personnel, and general paucity of data in developing countries do not allow for a comprehensive personal income tax system. The small size of the industrial base and the generous tax exemptions frequently granted under investment incentive programs reduce the role of the corporate tax in the collection of revenue from the modern sector. Indirect consumption sales taxes, on the other hand, are much easier to collect. Imports and exports pass through a limited number of points; excise taxes are usually collected from a few producers of a few products; and sales taxes at the preretail level are relatively manageable because of the limited number of manufacturers and wholesalers.

The following are the more important of the taxes listed in Table 5-1.

Company income taxes are based on the income (profits) of a company. The most efficient and widespread method of imposing them is through a flat rate (that is, some fixed percentage of profits), because by not varying the rate with the level of income, neither of the determinants that maximize short-run profits—marginal cost and marginal revenue—is affected. In other words, a flat rate tax on profits is neutral with respect to all the marginal evaluations made by consumers and producers and has the same impact as a lump-sum tax.

Among *personal income taxes*, the most common are those levied on in-

TABLE 5-1. CLASSIFICATION OF MAJOR TAXABLE BASES AND TAXES

| <i>Taxable base</i> | <i>Major taxes</i> | <i>Usual rate</i> | <i>Administrative arrangement</i> |
|---------------------|--|---|-----------------------------------|
| <i>Income</i> | | | |
| Company | Corporate tax | Ad valorem | Direct |
| Personal | Income, poll, capital gains, gift, and inheritance taxes | Ad valorem | Direct |
| <i>Property</i> | Death duty, wealth and real estate taxes | Ad valorem | Direct |
| <i>Consumption</i> | | | |
| Sales taxes | | | |
| Single point | Customs, excise, manufacturer, wholesale, and retail taxes | Ad valorem except excise, which is usually specific | Indirect |
| Multiple point | Turnover and value-added taxes | Ad valorem | Indirect |
| Expenditure taxes | | Ad valorem | Indirect |
| Factor taxes | Payroll, land, real estate, and general factor taxes and compulsory superannuation contributions | Ad valorem or specific | Indirect |

dividuals, usually on a progressive scale, with the tax taking an increasing proportion of income as it rises.

Consumption sales taxes can be conveniently divided into two categories. The first is the single-point sales tax, levied only once in the sale of an item. The point of impact can be at the import, manufacturing, wholesale, or retail level. Customs duties, excise (production) taxes, and manufacturer, wholesale, and retail sales taxes fall into this category. In the second category—the multiple-point sales taxes—the turnover sales and value-added taxes are the most common. In certain cases a combination of the two categories is used, for example, a single-point retail sales tax with a value-added element. The product coverage of these two categories may be selective or comprehensive.

Expenditure tax is a tax on personal income less savings. Although it is levied in much the same way as an income tax, its taxable base is expenditure and not income. As such, it is a consumption rather than an income tax.

Factor taxes cover the whole range of taxes on the use of factors of production, including capital assets and labor. They are classified as consumption taxes because factors of production are “consumed.” The taxable base is the volume of factors of production consumed.

II. Structural Effects of Taxes on Manufacturing

As indicated in the introduction to this chapter, practically all feasible taxes and tax structures are nonneutral in their impact on allocation. Indeed, it is this characteristic that allows taxes and tax structures to be used for purposes other than simply raising revenues. Those officials responsible for the formulation of industrial policy need to be aware of the actual or potential distortionary effects of different taxes and combinations of taxes on the structure of manufacturing industry. Chapter 2, on trade policies, has already dealt extensively with the distortionary effect on industry of one of the most important types of tax—the trade (import and export) taxes—showing how variations in the level and structure of these taxes can have a marked influence on the level and composition of industrial output. The following section examines briefly the structural effects on manufacturing industry of the other taxes listed in the previous section. In doing so, it will pass over quickly, or even ignore, distortionary effects of less relevance and importance.

Income Taxes

The distortionary effect of the flat rate corporate tax can be dealt with quite simply: it produces a bias in the allocations against whatever sector it is applied to. Thus if the tax is applied only to manufacturing firms, resources will, *ceteris paribus*, move into sectors where profits are not so taxed—for example, agriculture, mining, or services. If the tax is applied to profits earned in all sectors, then, as indicated earlier, the tax will be allocatively neutral among those sectors, but will be biased against all of them as compared with other types of income. Resources will tend to flow into uses which generate income not classified as profits for tax purposes, such as rents, royalties, or interest.

Similar logic applies to the effect of personal income taxes. Labor is less likely to flow to (and therefore more likely to be more expensive in) sectors where income tax is levied. In addition, where either company or income taxes are progressive, as the higher rates come into force, resources will be switched to other uses or firms will be broken down into less economic but separately taxed units, and workers will use more time for leisure.

Under the neutrality approach to the analysis of taxation methods (in contrast to the benefit and ability-to-pay approaches found in the standard literature), income taxes, when applied on a nondiscriminatory basis, are generally preferred to indirect taxes as they do not distort consumers' choices of commodities. This emphasis on income rather than on consumption-based taxes does not, however, consider externalities and ignorance. In addition, direct income and profits taxes tend to be inefficient in developing countries as they are relatively expensive to collect. In view of these considerations, most tax regimes combine both income and consumption-based taxes, with an emphasis on the latter.

Consumption-Based Taxes

The most popular type of consumption-based tax is the sales tax; it comes in many forms. Some sales taxes are levied at a single point at the manufacturing, wholesale, or retail level. Others, of which the turnover and value-added taxes are the most common, are levied at multiple points in the production-marketing chain.

Single-Point Sales Taxes

Under the neutrality approach to taxation, the retail sales tax is preferred to either the wholesale or the manufacturing sales tax. First, the point of impact is the same whatever the production-marketing system, so that firms have no incentive to shift their activities. The imposition of a manufacturing sales tax encourages some manufacturers artificially to push to the wholesale level as many of their manufacturing activities and costs as possible in order to avoid the point of impact of the tax. At the same time, this tax discriminates against those manufacturers who have economic reasons for the vertical integration of their production and wholesale activities.

The use of a wholesale sales tax eliminates these distortions but un-

fortunately introduces its own. It encourages a manufacturer or wholesaler to shift his activities to the retail level and then integrate backward. Backward integration by large retailers results in production costs that are lower than those encountered by manufacturers or wholesalers who sell directly to the public, perhaps because of the larger scale of their operation and the economies which flow from that. However, the economies that result from the backward integration of wholesaling and manufacturing activities could also produce this effect. The large retailer who integrates backward is therefore favored.

The use of preretail sales taxes can also lead to distortions in consumption patterns and resource allocation. There are significant differences among goods in the value added by wholesale and retail activities. The levy of a sales tax at the manufacturing level will result in a high ratio of tax paid by consumers for goods which have a low value added at the wholesale and retail levels, and a low tax burden for goods with a high value added at the postmanufacturing level. The consumption pattern will therefore be distorted as consumers will substitute goods with low tax burdens for those with high tax burdens. Another consequence may be an undesirable pattern in resource allocation. Typically, the value added by wholesale and retail activities is low for items of common usage and high for luxury goods. The relative tax burden on consumer spending will therefore be high on items of widespread consumption and low on luxury goods. The implication for equity will not be readily acceptable, nor will the implication for resource allocation, as this situation favors the use of scarce resources for the production of nonessential items.

The levy of a sales tax at any preretail level under imperfect conditions results in a practice known as pyramiding, whereby the price to the consumer increases by an amount that is larger than the tax imposed. The potential for pyramiding is greatest with a manufacturing sales tax because the percentage markup varies directly with the size of the value added between the point of impact of the tax and the final retail price. With the differences in value added of various commodities, the varying degrees of market imperfection encountered, and the differences in demand elasticities, pyramiding results in different relative tax burdens can distort consumption patterns.

In addition to the positive aspects of the retail sales tax in terms of neutrality, it may have certain administrative advantages. The base of the tax is the broadest, since it covers manufacturing, wholesale, and retail activities; thus the rate required to obtain a given revenue can be

lower than that levied under the preretail sales tax. An important consequence of this may well be less incentive to evade the tax.

At the same time, the retail sales tax has a number of administrative difficulties. The first is that the large number of retailers involved would tax the resources of even the best-equipped tax collection machinery in developing countries. This problem is heightened by the fact that the retail sector in developing countries usually includes numerous small roadside sellers with little education, no fixed business address, and little likelihood of having kept records of their transactions. In most developing countries, the numerical dominance of such retailers is matched by their share of total retail sales, so that the operation of a retail sales tax would be very ineffective.

Tax exemptions and rate differentiation are often used to prevent regressivity and discourage the production and consumption of luxury goods. These objectives are especially important for developing countries because of the limited possibility for progressive direct taxation and the need to curtail the consumption of consumer goods in favor of capital goods. However, it may be difficult to provide for tax exemption and rate differentiation under a retail sales tax. Retailers, or rather their often poorly educated shop assistants, may have difficulty working out the different rates or in deciding which goods have been exempted. The record of sales by different rate categories may therefore be inaccurate.

The tendency to allocate sales to tax-exempted categories or to those with lower tax rates is present under any indirect tax scheme. It is especially strong in the case of the retail sales tax because of its large base and coverage and the probable lack of staff in most tax inspectorates in developing countries. The numerous and dispersed selling points also foster corruption on the part of the rank-and-file members of the inspectorate, as spot checks and cross-checks by more senior members cannot be carried out frequently.

When collection costs are taken into account, the retail sales tax is recognized as not being the first-best sales tax for developing countries. Only a very few impose it. Modified versions of the retail sales tax, which retain most of the advantages of the tax in its pure form without suffering from the worst of the administrative problems, are not possible.

One suggested solution is to exclude small retailers completely. The tax is then collected from three sources: first, from sales by registered retailers, wholesalers, or manufacturers to the unregistered public; second, from their sales to one another of goods meant for final consump-

tion; and third, from sales to unregistered retailers. The advantages of extending the sales tax all the way to the retail level are maintained, while the problem of collecting tax from the small-scale informal retail sector is eliminated.

Such an arrangement, however, is imperfect. The first weakness is the bias created against large registered retailers. An unregistered small retailer who buys from unregistered artisan producers pays no sales tax at all, while one who buys from registered firms escapes tax on his value added. This problem is probably not serious because large-scale retailers can often buy at favorable discounts. Moreover, when they sell to the unregistered small retailers, to all intents and purposes they will charge retail and not wholesale prices, so that the sales price will have incorporated the retail sales tax. Other administrative problems arise in choosing a benchmark sales level and seeing that firms do not subdivide their operations to avoid paying tax.

These problems are related to the central issue of the importance of small operators in the value added of the retail sector. If the small retailers are important in terms of their number and their value added, then the modified retail sales tax, as adopted originally by Honduras, would not be practical.

Another possibility is to tax both wholesale and retail sales but allow retailers to reduce their tax liability by the amount of tax paid in their purchases from wholesalers. The advantages of this dual-level sales tax, with a value-added element incorporated, are that it avoids the distortions created by preretail sales taxes and is easier to manage because wholesalers are fewer in number. The problem with this procedure is that it would have to apply to all retailers and would raise the basic question of how to deal with the small-scale family-run enterprises and uneducated operators in the informal retail sector. Moreover, the addition of the concept of value added increases the complexity of the tax considerably.

Multiple-Point Sales Taxes

Under the neutrality approach, the value-added tax (VAT) is preferred to the turnover tax because it creates less distortion. The turnover tax encourages the complete integration of the production and distribution processes because there will be fewer transactions and therefore a smaller tax liability. The extreme vertical integration encouraged will reduce the scope for economies from the specialization of functions.

Firms which are not in a position to integrate their activities vertically, especially small firms, will be discriminated against. At the same time, competition will be discouraged, with important adverse consequences on efficiency.

The operation of the VAT also does not encourage any forward integration. In the example given in Table 5-2 it can be seen that there is no incentive for a miller to integrate his activities forward to the baking level. The relative tax liability on the integrated and the nonintegrated value added is exactly the same at 10 percent. Spreading the cumulative tax of \$360 among the wheat farmers, millers, bakers, and retailers is also less likely to bring about protests than concentrating the whole burden of \$360 on the retail group.

The VAT is also administratively superior to the turnover tax in that the operation of the tax credit system as a central feature of the VAT provides an efficient cross-auditing system. To use the same example, the retailer who claims a tax credit of \$240 from his gross tax liability of \$360 will make doubly sure of obtaining documentary evidence (receipts) from the baker to show that he has indeed purchased \$2,400 worth of flour. The system thus serves as a cross-check against the

TABLE 5-2. A UNIFORM 10 PERCENT PRODUCT VALUE-ADDED TAX (VAT) ON WHEAT, FLOUR, AND BREAD (dollars)

| Production-distribution channel | Purchases | Gross value added | Sales | 10 percent VAT | | |
|---------------------------------|-----------|-------------------|-------|----------------|---------------------|-----|
| | | | | Gross | Credit on purchases | Net |
| Farmer | 0 | 1,000 | 1,000 | 100 | 0 | 100 |
| Miller | 1,000 | 500 | 1,500 | 150 | 100 | 50 |
| Baker | 1,500 | 900 | 2,400 | 240 | 150 | 90 |
| Retailer | 2,400 | 1,200 | 3,600 | 360 | 240 | 120 |
| Total | 4,900 | 3,600 | 8,500 | 850 | 490 | 360 |

Note: This table illustrates the working of a uniform 10 percent product VAT for the production and distribution of bread beginning with a certain volume of wheat, where the tax liability is calculated by the tax credit technique. The first stage is the production of wheat, where the total sales of \$1,000 consists entirely of gross value added, on the assumption that there is no purchase of inputs. As it is a product VAT, the taxable base is the gross value added of \$1,000, and the gross tax liability is \$100. There is no credit on purchases of inputs as there are no purchases of inputs, by assumption, therefore the net tax liability is \$100. The second stage is the milling of wheat into flour. The value added by the miller is \$500 which, together with the purchase of \$1,000 worth of wheat, gives a sales value of \$1,500. The gross VAT is then \$150, but after an allowance is made for the tax credit of \$100, the net tax liability of the miller is only \$50. It can therefore be seen that the tax credit of \$100 for the miller is the VAT paid by the wheat farmer. The essence of the VAT is therefore that the tax should be levied only on the value that is added to the production by the miller. The same principle of taxing only on the margin is applied right through to the retail level. The total tax collection of \$360 is equal to the amount that would be collected if a single-stage sales tax of 10 percent were levied at the retail level.

underreporting of sales by the baker and all other enterprises below the retail level. The only stage at which cross-auditing does not work is the retail level, but the extent to which the retailer can underreport his sales may be limited. His purchases are known (\$2,400 in this example), and with the use of standard markups his potential sales can be estimated.

Another advantage of using the VAT is the greater ease with which tax exemption for capital expenditures can be implemented. If the consumption variant of the VAT is operated, then the baker can reduce his gross value added by the amount of the capital expenditure for the year under consideration and thereby reduce his tax liability. The same tax exemption can be implemented under a turnover tax system by exempting the manufacturer of producer goods from the tax. The trouble with the turnover tax is that small-scale manufacturers of multipurpose goods may have difficulty in deciding whether the goods sold are for use as producer goods or for final consumption at the point of sale. The treatment under the consumption VAT is more direct and, according to the experience of Denmark and Sweden, considerably easier.

If the defects of the turnover tax are so serious, why do so many developing countries use it in preference to a VAT as a source of revenue? The answer is partly historical and partly administrative. In the beginning, the turnover tax was used as a general business tax levied at a low rate because of its multistage nature. The distortions created when the tax rates are low are relatively unimportant, although they become increasingly significant as the rates are raised to obtain more revenue. Any attempt to change to a single-stage sales tax then becomes very difficult, because it would mean imposing a much higher tax rate on a smaller base. For example, it has been estimated that to produce the same revenue as is collected from an 8 percent turnover sales tax in Chile would require a single-stage retail sales tax of 20 percent or a single-stage manufacturing sales tax of 30 percent.

This is not to argue that no change is possible once a country has started using a turnover sales tax. Changes to VAT have been carried out successfully in a few developing countries, including Brazil. However, the switch to VAT has been principally in the countries of the European Community which, like most other industrialized countries, have stronger tax collection machinery and better compliance records than developing countries.

A drastic way of reducing the administrative requirements of the VAT is to limit its coverage to the preretail level only. This modified version of the VAT would, however, suffer from all the distortions of any preretail sales tax. A less drastic step is to exempt small firms, but this

would reduce the effective operation of the tax considerably. Suppose the miller were registered, but sells some of his flour to small, exempted bakers who then sell some of their bread to a large, registered retailer. The bakers in the link are exempted from the VAT and need not supply fully documented invoices to the retailer who needs them to work out his net tax liability. Exempting small enterprises from the tax for administrative convenience and introducing rate differentiation for equity considerations would hamper the efficient operation of the tax.

Conclusions

The overriding conclusion is that it is difficult to have a hierarchical ranking of taxes for industrial development purposes per se because of the need for tax systems to fulfill several objectives concurrently. A tax that causes no distortion may produce a high degree of inequity or ignore externalities. Where income redistribution and the provision of public goods are important objectives, it will be difficult to argue for the use of the tax simply because it is allocatively neutral. The problem is compounded in developing countries because the inefficiency of the tax collection machinery provides another constraint on the decisionmaking process.

Most developing countries have, in fact, gone beyond the passive and indirect use of taxes in their industrialization programs. They have made active and direct use of taxes as instruments of industrial policy, without the constraints they previously faced of having to cater to non-industrial objectives. These direct and active taxation policies largely take the form of exemption from taxation as incentives for the acceleration and direction of industrial development.

III. Tax Incentives

Different objectives may imply different tax systems. The previous section examined distortions associated with different taxes and assessed their potential impact on the structure and level of industrial output. This section focuses specifically on how the nonneutrality of alternative tax structures and instruments may be used by industrial policymakers to achieve their objectives for the industrial sector. Such objectives are specified in terms of both the overall rate of growth of industrial output and its composition. Underlying such an approach is the belief that price signals in a market economy are too weak or too distorted to lead

to the desired rate of growth in the industrial sector or to the desired composition of output.

The use of taxes as instruments of industrial policy can, then, be discussed in terms of their effect on (1) the total flow of investments into the industrial sector and (2) the allocation of that flow among different product lines. With regard to the second issue, there is a need to examine whether the composition of industrial output is better controlled by the introduction of indirect taxes specifically for that purpose or by the discriminatory application of direct tax incentives.

Tax Holidays

Complete elimination of the tax liability is achieved by granting tax holidays whereby business firms are totally exempted from the prevailing corporate tax for a given period. The period of exemption varies, but five to ten years seems to be the most popular (for example, in Ghana, Malaysia, Nigeria, Pakistan, Taiwan, Thailand, Senegal, and Uruguay). The tax holiday provides greater liquidity to firms that make profits in the early stages of operation and reduces the element of risk involved, thereby, it is believed, encouraging investment.

The forms in which tax holidays are provided vary considerably. The most common is simply to grant an exemption for the profits made during a certain period. In some countries (such as Malaysia, Nigeria, and Togo) the length of the period varies directly with the level of capital expenditure. Other countries (such as Ghana, Liberia, and Sierra Leone) provide greatly extended tax-exemption periods for especially large-scale and capital-intensive schemes that are considered to be crucial to the country's economic development. A few developing countries (for example, Malaysia and the Philippines) have introduced tax holidays whose duration varies with the number of workers employed. In some developing countries the location of a plant in designated underdeveloped regions, the production of "priority" commodities, and the use of local raw materials are also important determinants of duration (as in Ecuador, Israel, Malaysia, Morocco, Pakistan, and Puerto Rico). In the wake of outward-looking industrialization programs, some developing countries have included success in exporting as another criterion.

Partial exemption from the corporate tax is less popular but still widely used in developing countries. It, too, comes in many forms. The first is tied to the provision of tax holidays. Another variation found in some developing countries such as India and Costa Rica allows

only a part of a firm's profits to be exempted from the corporate tax. Other countries such as Cameroon, Dahomey, Gabon, Ivory Coast, and Mali stabilize the tax rate at the level prevailing when the agreement is drawn up and extend it for periods of twenty-five years. The firm is also exempted from new taxes introduced during the period. The idea behind these provisions is to reduce the tax liability, and the conditions under which the reduction is granted may correspond closely to those imposed when a full tax exemption is given.

Depreciation Allowances

Another type of partial tax exemption allows for accelerated depreciation. The firm is permitted to write off the cost of its capital investment in a short period (say, five years) against its gross revenue. (Countries which have used this are Jamaica, Kenya, Morocco, Korea, and Turkey.) In some developing countries this exemption is provided in addition to the ordinary depreciation allowances. Accelerated depreciation allowances reduce the firm's tax liability in the early days of its operation by postponing some of the liability to the future. The firm also benefits from the value of the compounded interest on this postponement. The postponement is believed to encourage investment in two ways. The more important is by reducing the element of risk which compensates for the discrimination that risky projects generally face in the normal corporate tax system. The second is by increasing the liquidity of the firm. The provision of an investment allowance or an investment tax credit, usually during the first year of operation, has the same effects.

One form of investment incentive, which provides a mixture of tax holidays and depreciation allowances by deferring the ordinary depreciation allowances until the holiday period has expired, is used in Gabon, Ghana, Jamaica, Malaysia, Nigeria, Pakistan, and Sierra Leone. This provision is really equivalent to giving the tax exemption twice—once with the deferral under the tax holiday period and again when the depreciation allowance is deducted from taxable income in the post-tax holiday period.

Investment Subsidies

An investment subsidy is a form of incentive that is seldom given. Under this scheme, firms receive a subsidy proportional to the cost of their capital expenditure in addition to the ordinary depreciation allowance.

The principle involved is therefore similar to that of an investment allowance scheme. However, the subsidy is granted whether the firm has taxable income or not, which makes it particularly attractive to risky enterprises and to enterprises that do not produce profits immediately.

Loss Carryover

Another form of investment incentive provides for carrying over losses incurred during the tax holiday period and offsetting them against profits made during the post-tax holiday period; it has been used in Israel, Jamaica, Nigeria, Mexico, Puerto Rico, and Trinidad and Tobago. Typically, some limit is set on the period for the carryover. The same procedure for carrying over losses is adopted as in the case of investment allowances or accelerated depreciation. The time limit in this instance usually lasts until the investment allowance or depreciation is exhausted.

Reinvestment Allowances

A form of incentive widely used to encourage a firm to expand is the reinvestment allowance. Whatever part of the firm's income is reinvested is exempted from the corporate tax. Such a scheme obviously cannot be operated in conjunction with a tax holiday program, but it is compatible, for example, with the operation of investment allowances. Among the developing countries which provide for the full or the partial tax exemption of reinvested earnings are Brazil, Colombia, Honduras, Morocco, Peru, Taiwan, Tunisia, and Uruguay. In some developing countries (such as Sierra Leone) reinvestment of earnings is encouraged in another way. An individual income tax is imposed on that part of the tax-exempted corporate earnings that was distributed as dividends either during the tax holiday period itself or within a certain specified period after the tax holiday ends.

Additional Measures to Encourage Foreign Investment

Fiscal incentives are provided for both local and foreign investors. In addition, most governments of developing countries, because local capital is in short supply, have taken steps to assure foreign investors that in addition to receiving tax exemptions of various kinds, they will not be subject to arbitrary or discriminatory actions. Thus governments

usually commit themselves not to expropriate foreign firms or, if they do so, to provide fair compensation. Developing countries generally also agree to allow the free or generous repatriation of capital invested and after-tax profits, as well as the free or generous remittance of interest and dividends.

Much of the commitment to provide liberal arrangements for the transfer of funds overseas by foreign firms is designed to offset the mistrust engendered by the immediate postcolonial years. Another factor is the recognition of transfer pricing at other than competitive market prices by vertically integrated transnational corporations. The subsidiaries of these corporations trade with each other across national boundaries to reduce marketing costs and uncertainty in the supply of important inputs, as well as to deny their competitors access to their sources of supply and markets. Any attempt by the host country, say, Colombia, to restrict the remittance of posttax profits of the subsidiary of an American transnational corporation can be met by overpricing the components imported from another subsidiary, say, in Venezuela, or from the parent company in the United States. The cost of production of the subsidiary in Colombia will therefore be artificially increased, with a subsequent decrease in its recorded profits. Profits are therefore transferred and the effect is similar to that when free remittance of profits is allowed. The scope for transfer pricing at other than competitive market prices may be limited to the extent that the competitive market prices of the goods concerned are publicly known, as well as to the extent that subsidiaries of transnational corporations act independently.

Specific fiscal inducements for foreign investors include preferential treatment of repatriated profits by the tax authorities of the capital-exporting developed countries (usually described as the home countries). A few home countries exempt repatriated profits from tax completely, but most of them levy a corporate tax on earnings abroad which is equal to the difference between the tax rate applicable in the home country and the tax rate imposed in the host country. The following illustration of this arrangement involves the tax liability of an American subsidiary operating in Malaysia. Suppose the American and the Malaysian corporate tax rates are 48 and 40 percent respectively and that the subsidiary's \$10 million profit for the year is to be repatriated to the United States. The host country (Malaysia) typically has prior taxing rights and so obtains a revenue of \$4 million. The U.S. Treasury then imposes a tax rate of 8 percent (48 less 40 percent) on the subsidiary's

profit to obtain \$0.8 million. The total tax liability of the subsidiary is therefore \$4.8 million, which is the amount that would have been paid if the higher American tax rate had been imposed on the subsidiary's profits.

This is the most common arrangement made between host and home countries to avoid the double taxation of profits. It really provides no positive incentive value. In fact, the host country is being forced to levy the same tax rate as that imposed by the home country. A lower tax rate or a tax holiday in the host country as part of an overall investment incentive program cannot benefit the firm in any way. There is a needless loss of revenue by the host country if the project is established and operating at a profit, and the tax authorities of the home country become the only beneficiary.

A more positive arrangement is to have "tax-sparing" agreements under which repatriated profits are reduced for tax purposes by an amount equal to what would have been paid out as taxes if the host country had not introduced a tax holiday. The taxable base and therefore the tax liability are reduced. In the example used above, where the initial taxable base is \$10 million and the tax liability \$4.8 million, a tax-sparing agreement would reduce the taxable base to \$6.0 million, with the tax liability falling to only \$2.88 million.

Conclusions

Given that the aims of the direct and active use of taxation are to increase the overall level and the composition of investment, it would be useful to be able to classify the above incentives according to those two functions. First are the incentives aimed at increasing only the total level of industrial investment flow, with any distortionary effects being purely unintentional. Second are the incentives introduced to influence the composition of industrial investment.

The granting of a tax exemption for profits made during a certain period is a prime example of the first category of incentives. It is more difficult to classify the tax holiday whose duration varies directly with the level of capital expenditure. Traditionally it has been used only to attract investment, and any bias it creates in favor of the establishment of capital-intensive techniques and industries is accidental. However, it can be argued that the other provisions which sometimes accompany the investment-centered tax holiday suggest an intended bias toward capital intensity. A case in point would be the provision for extending

considerably the tax-exemption period for those schemes which are particularly large scale and capital intensive. Another is the provision for postponing depreciation allowances until the investment-based tax holiday period has expired.

There is no ambiguity about the intention behind tax holidays whose duration depends on the number of workers employed, the location of the plant, the type of product manufactured, and the use of local raw materials. These incentives were introduced to affect both the total level and composition of industrial investment. The granting of tax holidays only to firms which have been successful in penetrating the international market can also be seen in this light.

Depreciation allowances and investment subsidies are aimed solely at increasing the overall level of investment. Though they favor the establishment of large-scale and capital-intensive firms, that bias is unintended. The same may be said of the reinvestment allowances.

IV. The Effectiveness of Tax Incentives

Overall Investment Rate

For an economy with no private foreign investment, it is unrealistic to believe that the overall investment level (industrial and nonindustrial) as a percentage of GNP will rise as a result of the provision of tax incentives. A rise in the investment ratio can come about only with a rise in the savings ratio. This is true because of the national accounting rule that gross private domestic investment must equal the sum of gross private savings and government surplus.

Tax incentives on their own do not, by and large, provide an incentive to savings. They also entail a reduction in tax revenue for a given GNP level, with a corresponding increase in private disposable income. Because some of this increase in private disposable income is consumed, the net effect may well be a reduction in the savings (private and government) ratio. The implication is that the investment ratio cannot be expected to increase without a corresponding increase in the savings ratio.

Empirical studies show that, in general, foreign investors and host governments differ sharply in their estimations of the major determinants of private foreign investment. Foreign investors usually consider the most important factors to be: establishment of, and adherence to, a national development program; favorable terms for the transfer of prof-

its and repatriation of capital; nondiscrimination against foreign ownership and control; freedom from detailed and burdensome regulations on organization, ownership, and management; and protection of their share of a domestic or export market. The emphasis that most host governments give to tax incentives is therefore misplaced. The fact that most foreign companies take advantage of the tax concessions does not mean that the availability of the concessions is instrumental in the firms' making the initial, fundamental decision to invest. Since the concessions are available, foreign companies would be irrational to refuse them.

Most foreign companies with international interests base their investment decisions not on short-run maximization of profits per se but on achieving minimum rates of return below which investment will not be made. For such firms it would be incorrect to define as incentives the tax concessions provided for projects which, at the prevailing corporate tax rate, show net profit rates equal to or greater than the minimum acceptable rates. The prevailing tax rates do not constitute a disincentive as such.

The only time that tax incentives affect private foreign investment is when other developing countries are already providing them. A country that does not grant them will be at a disadvantage in competing for private foreign investment. Indeed, foreign companies may have learned that the best strategy for minimizing their tax payments is to insist on incentives, even if they would have invested without them. For some host developing countries it becomes more important to grant incentives than to introduce fundamental reforms, and they are generous with incentives over time as the initial ones fail to attract adequate funds. Other countries, to the contrary, have unilaterally reduced or altogether eliminated giveaway incentives because they recognize that they are largely redundant and that there are considerable opportunity costs in the revenue forgone. A less radical step would be to reduce the wasteful competition within a group of neighboring developing countries (such as the Association of South East Asian Nations or the Andean Group) by adopting a more standardized incentive program and a common strategy to avoid one country's being played off against another.

Total Industrial Investment Level

Although tax incentives cannot be expected to increase the overall investment ratio significantly, they can influence the composition of total

investment. For example, tax incentives could be granted to the industrial sector but not the construction sector. Even though the overall investment ratio may not be changed, a probable effect would be to shift investment funds from the "uncovered" construction sector to the "covered" industrial sector. Under these conditions, the industrial investment ratio will rise and that of construction fall. Thus one of the aims of providing tax incentives—to increase the total industrial investment level—would have been achieved.

It is important, when assessing the effectiveness of tax incentives in altering the composition of investment, to be aware of the effect on general equilibrium in addition to the direct or partial effects. Take the case of a government successfully granting industrial tax incentives through monetary policies to generate growth in the GNP equal to that obtained without tax incentives. Under these conditions the provision of tax incentives produces no "income effect," only a "substitution effect," or a redistribution of investment from the uncovered sector to the covered industrial sector. The direct or partial effect is an increase in industrial investment as a result of the drop in the interest rate (that is, the user's cost of capital). The same reduction in taxes will, however, raise the interest rate so that there is also an indirect effect which acts to reduce the amount invested. Thus if general equilibrium considerations are taken into account, the stimulative impact of incentives on industrial investment is seen to be smaller than the direct effect.

Two broad categories of incentives have been used to bring about such substitution effects. The first consists of two types of tax holidays: (1) exemption from the prevailing corporate tax for a certain period; and (2) a tax holiday whose duration depends on the level of capital expenditure. The second category consists of cost-lowering incentives, the most common of which are accelerated depreciation allowances, investment allowances, and investment subsidies.

The incentives that may best bring about increased industrial investment are unfortunately not the ones that are the most neutral allocatively. That characteristic is found principally in the exemption from the prevailing corporate tax for a given period. The use of such a tax holiday least distorts the choice of production technique. As the value of the incentive depends entirely on the ability of the firm to make a profit, it will encourage the most efficient method of production. Provided that the market prices of capital and labor are close to social prices, this will mean a method of production that makes appropriate use of the factor endowments of the country. For example, the use of such a tax holiday

in a labor-abundant developing country would encourage either the establishment of labor-intensive industries or the use of labor-intensive techniques of production. Moreover, as the levy of a corporate tax penalizes more profitable activities more heavily than less profitable ones, a profit-based tax holiday is likely to encourage the growth of efficient firms.

Accelerated depreciation allowances and investment subsidies are the second-best choices under the neutrality criterion, as they encourage the establishment of capital-intensive activities, even if such a result is not intended. At the same time, they may also encourage the establishment of unprofitable firms, for while the profit-based tax holiday subsidizes capitalized earnings and therefore favors relatively profitable enterprises, the investment-based incentives provide a subsidy that is dependent on the level of investment and not the level of profits.

Unfortunately, the most allocatively neutral incentives may not be the most effective incentives for increasing the level of industrial investment. The profit-based tax holiday is a “perverse” type of subsidy, providing little assistance where it is most needed—for firms making little or no profits—and a great deal of assistance where it is least needed—for firms making high profits. It is likely that the highly profitable firms would have invested even if no incentives had been offered. For foreign firms looking among developing countries for a venue for investment, the existence of tax holidays may be the most influential. Experience suggests, however, that this type of incentive is not necessarily the most productive or adaptable.

Another criticism of the profit-based tax holiday concerns its short-term perspective. It is granted under the assumption that firms maximize profits in the short run and that such profit expectations are formulated clearly enough for the effects of the tax holiday to be considered meaningfully. Firms that plan investments over a considerable period may not find any incentive in a mere five-year exemption. However, if the exemption period were extended to cover a longer time span, perhaps of ten years, it would become meaningless in terms of need. Firms with long-term investment plans thus usually find investment-based incentives more attractive because they lower the costs of production in the often difficult early years of operation.

Firms with risky investment programs may also be more attracted by investment-based incentives. Whereas the subsidy provided by the tax holiday materializes only when profits are made, that provided by the

investment-based incentives is proportional to the level of investment and hence offers a greater degree of security.

These considerations relating to time perspectives and risk may have special relevance in attracting private foreign investment. The implicit assumption behind the tax holiday with regard to foreign investment is that foreign investors require profits in the short run to recoup their original investment and that relief from the normal incidence of taxation is the most efficient way to achieve this and hence to maximize the flow of foreign capital. This assumption may be justified for small firms that are neither subsidiaries nor associates of large international companies, but it is unlikely to be consistent with the rationale of investment decisions by large transnationals.

It is difficult, in this respect, to assess the stimulative and neutrality effects of the tax holiday whose duration depends on the level of capital expenditure. It can be argued that such a holiday captures the worst features of the profit-based tax holiday and conventional investment-based incentives. By requiring that the subsidy materialize only when a profit is made, the scheme discriminates against long-term and risky projects and is thus limited in its stimulative impact. By linking the value of the subsidy to the level of capital expenditure, it distorts the choice of production techniques by favoring capital-intensive enterprises. This argument means that the use of such an investment-based tax holiday is inferior to the profit-based tax holiday under the neutrality criterion and inferior to the conventional investment-based incentives under the stimulation criterion.

The Redundancy Issue

As the results of studies of investment, and particularly foreign investment, become available, it is being argued with increasing weight that the various incentives to investment discussed here are largely redundant. Most beneficiaries are likely to invest without incentives. It is also possible that subsidized firms may have displaced other potential new firms or the investment planned by existing firms. They may also have driven some existing firms in the same industry or in competing industries out of business.

The redundancy issue is central to any assessment of the effectiveness of investment incentive programs in attracting investment. Unfortunately, the existing methods for assessing the effectiveness of

incentive programs cannot deal with this problem satisfactorily. They are described below.

In the *accounting cost-benefit method* the cost is revenue forgone in providing the incentives; the benefit is the value to the host country of the employment opportunities created by the firms established under the incentive program. Because this approach ignores the redundancy problem, the cost-benefit ratios obtained are not very useful. At one extreme, where there is complete redundancy, the jobs created do not represent any net gain, while the revenues sacrificed constitute a real loss. At the other extreme, where there is no redundancy, the benefit is real as the jobs would not have been created without the incentives, while no cost is involved as there would have been no revenue to collect.

In the *rate-of-return method* the technique is to calculate the posttax rate of return of a project and then compare it with a world rate of interest. When the posttax rate of return is greater than the world rate of interest, there is no need for incentives. Any incentive would be redundant. When the posttax rate of return is smaller than the world rate of interest, the firm would not be interested in the project as it can earn a higher return in other countries. The provision of an incentive to raise the posttax rate of return so that it exceeds the world rate of interest is then necessary to induce the firm to establish its plant. The rate-of-return method does not treat the redundancy problem satisfactorily because it is concerned only with firms covered by the incentive program. It implicitly adopts a *ceteris paribus* approach insofar as the investment by potential and existing firms outside the investment incentive program may be curtailed.

The *investment function approach* establishes the determinants of investment and then assesses the effect that the incentives have on these determinants. By knowing the impact that incentives have on the determinants of investment, it would be possible to assess the impact that incentives have on the investment decision itself. Profit maximizing can be incorporated into the model, and different production functions adopted to obtain the investment function used. The procedure for assessing the impact of incentives begins with the estimation of the investment function adopted for the firms before they were given the incentives. The next step is to limit the analysis to the incentive period and to substitute the values for the determinants obtained when the subsidy element of the incentives has been incorporated. The investment level obtained is therefore that which results when the influence of the incentives is taken into account. The third step is a repetition of

the second step, but incorporates the values for the determinants without the subsidy element of the incentives. The investment level obtained is that which would have resulted if the incentives had not been provided. The difference in the two levels of investment is therefore the investment that has been induced by the provision of the incentives.

The investment function approach likewise does not deal adequately with the redundancy problem. It is essentially concerned with the pre-incentive and the postincentive profitability of firms that have received tax incentives. The impact that the provision of incentives has on the investment plans of firms not covered by the program is not considered.

The data required for such a study, moreover, are unlikely to be available. A large number of firms currently enjoying incentives may have been established only after the incentives were given, allowing no comparison between pre- and postincentive positions.

In the *survey method*, firms now enjoying tax incentives are asked whether the granting of incentives was instrumental in their decision to invest. The weaknesses of such a method are obvious. First, there may not be any correspondence between what businessmen say and what they do. Second, the sample of respondents is not likely to be random. It is quite probable that it will consist mostly of the most favored and most adversely affected businessmen.

Coverage

The analysis so far suggests that none of the existing methods for analyzing the effectiveness of tax incentives in encouraging investment is very satisfactory. The analysis has not, however, been useless, for it has thrown some light on the coverage needed by incentive schemes to handle the redundancy problem.

A number of criteria have been used to decide the desirable coverage of an industrial incentive scheme. The first is to provide incentives to all new firms or investments, regardless of the goods they produce or the way in which they produce them. The second is to limit the incentives to firms producing new or priority products or to firms which show production and performance characteristics that are considered important for the growth of the industrial sector. The third is to have the decisions made by a committee acting on whatever criteria its members think relevant for industrial growth.

The comprehensive coverage strategy is best equipped to deal with the redundancy problem. It increases the present value of every potential project, whether that of a new firm or of an expanding one, so that

an important source of redundancy is eliminated. Although perhaps some of the beneficiaries would have invested without any help, and some existing firms may have been forced out of business by the subsidized firms, the other two strategies do no better in dealing with these sources of redundancy.

The comprehensive strategy is not widely used in developing countries despite its superiority. It is far more expensive than the other methods and does not give the government much say in the types of firms and industries established. Another disadvantage may lie in the multiplicity of firms and industries encouraged. One consequence is a loss of economies of large-scale production, as many producing units become established in a limited domestic market. Another consequence is the dissipation of scarce skilled personnel, as they become spread among the many firms and industries. A third is the underutilization of the capital plants and equipment.

The more common strategy is to restrict the incentives to firms producing new or priority products or those that conform to certain desirable production and performance characteristics, such as labor intensity or export orientation. This approach is likely to lead to greater redundancy. Another disadvantage is that it may be difficult to determine which activities to promote. Different planners may have different views about the types of firms and industries that should be encouraged. Disagreements also arise as a result of interdepartmental or interministerial differences. On the other side, the advantages of using the restrictive approach are that it is cheaper to operate, is less likely to encounter opposition and retaliatory measures from home countries, and increases the host countries' control over the type of firms and industries established.

Most of the weaknesses associated with the restrictive approach can also be found with the committee approach. The redundancy and identification problems remain, and their significance may well increase substantially with the corruption and bribery that a committee approach encourages. A high degree of uncertainty may also result, as the composition of the committee will change. Investors may prefer to deal with a set of well-defined rules than with rules that vary with changes in committee membership.

Composition of Industrial Investment

While tax incentives have been classified into those meant to influence the total investment flow and those meant primarily to influence the

composition of the investment flow, such a twofold functional classification is of course not completely mutually exclusive. For example, it was pointed out that the profit-based tax holiday, the most allocatively neutral incentive from the first category, encourages the establishment of enterprises with short gestation periods. They may turn out to be "footloose" activities with very low value added. The profit-based tax holiday also discourages the establishment of risky and long-term enterprises. Investment-based incentives, though meant primarily to increase the total investment level, favor the establishment of capital-intensive enterprises, while investment-based tax holidays distort the choice of production technique as well as discriminate against long-term and risky projects. These biases are not intended, but are nonetheless important and real.

The most common of the tax incentives which intentionally affect both the level and the composition of investment flow are tax holidays whose duration and therefore level of subsidy depend on the number of workers employed, the use of local raw materials, and the location of the plant. The aims of these incentives are not only to increase the total level of industrial investment but also to direct the investment into projects using more labor and local inputs and into a country's less developed regions.

The ability of labor subsidies to increase the level of industrial investment is doubtful. Labor is abundant in most developing countries and therefore cheap relative to labor in developed countries, even when the important issues of skill, experience, and motivation are considered. It makes little sense to subsidize labor under such circumstances. If low "efficiency wages" cannot attract investment, it is doubtful whether an incentive program based on labor subsidies can.

Even if labor subsidies succeed in attracting industrial investment, they pose major problems. Care is needed to ensure that capital-intensive enterprises which foster rapid technological change are not adversely affected. There is the administrative problem of preventing the integration of labor-intensive activities into basically capital-intensive enterprises for the duration of the tax exemption period. The incentive may have no influence on the choice of technique by foreign firms that tend to adopt capital-intensive technologies with which they are familiar, regardless of relative factor prices.

The stimulative effect of incentives based on geographical location and the use of local raw materials may also be limited. The level of subsidy provided by the location incentive is usually very small. It is often added almost as an afterthought and rarely compensates for the

external diseconomies of operating a plant in a remote region. Local raw materials will be used if appropriate and cheap enough. Tax incentives rarely make a cost difference sufficient to stimulate their use.

Countries wishing to stimulate exports may offer incentives to attract entrants into export-oriented industries. But firms which succeed in penetrating world markets are those which make appropriate use of a country's factor endowments, location, and similar considerations. They are keenly aware of competitive factors and tend to invest on the basis of long-run advantages. The stimulative impact of such incentives is thus doubtful.

If the stimulative impact of these tax incentives is limited, therefore limiting their ability to direct investment flow into desirable avenues, would the introduction of a differentiated indirect tax regime achieve the desired results? The problem with the use of a differentiated indirect tax system is that its indirectness is liable to introduce distortions into the system. It is likely to be effective in influencing the types of goods produced but not the way in which they are produced. Take the example of a labor-abundant developing country introducing a differentiated indirect tax regime in which light manufactured goods are taxed less heavily than intermediate or capital goods. The hope is that the production of light manufactured goods will be encouraged by low-technology and labor-intensive methods. However, the scheme cannot guarantee that capital-intensive methods will not be used to produce such goods. Incorporating restraints relating to production characteristics would be impractical.

The second weakness of the differentiated indirect tax system is the possibility of shifting the tax burden. The supply and demand conditions of the goods whose production is to be discouraged may be those that facilitate the shifting of the tax burden to the consumers so that the disincentive effect on the producers is reduced. Take the case of a government wanting to discourage the production of cigarettes and alcohol. It increases the manufacturing sales tax on these products, imposing the sales tax on the manufacturing and not the retail level because of administrative considerations. Because the demand for cigarettes and alcohol is relatively price-inelastic, it is easy for the producers concerned to shift some of the tax increase to consumers. Therefore the increase in the tax does not constitute as severe a constraint as intended.

A third weakness is that its use is not consistent with the use of indirect taxes as a major source of government revenue in developing countries. The total or partial exemption of manufactured goods from

indirect taxes as a method of influencing the composition of the investment flow will mean a significant drop in revenue. Import-substituting industrialization usually begins with the production of such goods as alcoholic beverages, textiles, and tobacco, which have been the traditional sources of excise taxes because of their widespread demand and low price elasticities of demand.

These considerations suggest that increasing the level and influencing the composition of investment is better dealt with by the direct method of selectively granting tax incentives. This may not be any more effective in actually increasing the level of investment, but it does have the virtue of producing a smaller number of distortions.

Conclusions

While tax incentives cannot be expected to raise the overall investment ratio significantly, it can be argued that they can change the composition of overall investment by shifting it from the uncovered sectors to the covered industrial sector. There is, unfortunately, no completely satisfactory method of estimating the size of this substitution effect. The incentives may have been redundant, and the subsidized operations may have discouraged potential but uncovered investment projects or driven existing operations out of business. The extent of the redundancy and displacement effects in any incentive scheme is difficult to estimate. The accounting cost-benefit method, the rate-of-return method, the investment function approach, and the survey method are all inadequate in this respect.

The analysis, however, is not altogether fruitless: it is possible to make some useful comments about the coverage of the incentive scheme and the types of incentives to adopt. A comprehensive coverage scheme is superior to a restrictive coverage or one decided on an ad hoc basis. By increasing the present value of every potential project, whether planned by a new or an existing firm, it eliminates the displacement effect. The redundancy problem remains, but the other two strategies are no more successful in dealing with it.

It would seem that the redundancy problem is best dealt with by examining the nature of the subsidy provided by the different tax incentives and the rationale behind investment decisions. Profit-based tax holidays provided over the normal period may be perverse incentives and lack incentive value. They also discriminate against long-term and risky projects and are inconsistent with the rationale behind the in-

vestment decisions of international companies. There is a strong case for arguing that the incentive value of investment-based incentives is greater.

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6

Direct Controls in the Private Sector

Stephen E. Guisinger

The distinguishing characteristic of direct controls is their discretionary nature. Direct controls are applied selectively, from firm to firm and industry to industry, at the discretion of administrators. The first part of this chapter (section I) discusses the characteristics of the most frequently used form of direct control, industrial licensing. This is followed by a discussion of its objectives (section II), while section III reviews the experience with the use of this control. Licensing not only makes demands on the licensee, but also confers privileges. The possession of a license, whether to import raw materials or inputs or to produce a certain volume of goods, gives the possessor monopolistic privileges from which he obtains economic "rents." The existence of opportunities for such profits means that developing countries frequently have to supplement licensing systems with price controls to avoid the exploitation of consumers of industrial goods. Price controls are discussed in section IV. The chapter concludes with a discussion of reforming direct control systems.

GOVERNMENTS IMPOSE RESTRICTIONS and requirements of various types on the manufacturing sector. Manufacturing is often noisy, dirty, and dangerous and produces noxious effluents. Safety, health, and environmental standards with corresponding regulatory mechanisms have therefore evolved to impose minimal social standards on manufacturing enterprises.

In developing countries, direct controls over industry play an addi-

tional and more important role. In the early stages of industrialization there is often a dearth of entrepreneurs, and resources are very scarce. Planners view the market mechanisms—which are usually in their infancy—as inadequate. Governments therefore often intervene directly in the industrialization process to stimulate investment and to optimize its effects on employment and output. Investment and production licensing is relied upon in many countries to stimulate desirable investment and to curtail socially unproductive activities.

Production licensing is, of course, not the only form of direct control exercised over manufacturing. Trade and monetary policies often take the form of direct controls, as do locational and labor policies. Because these controls are usually conceived separately, they are often in conflict with, rather than complementary to, each other. Indeed, investment and production licensing are often largely intended to correct market distortions caused by other policies.

Frequently, licensing is quite restrictive. The two interrelated questions that are the central focus of this chapter are: what has restrictive licensing achieved in developing countries, and could other policy instruments have achieved the same objectives more efficiently?

The term “licensing” in this chapter refers to all discretionary controls on private industrial investment (excluding those discussed elsewhere in this volume, such as import quotas). While most developing countries “license” industrial firms in this sense of the term, they do not necessarily use that phrase. Some countries refer to industrial franchises as “entry agreements.” In others, laws are passed to give the government considerable latitude to grant and withhold incentives and privileges, a power that has the same effect as licensing though it does not carry the name. To simplify the discussion, all of these discretionary controls are grouped under the general rubric of licensing. It should be noted that private licensing agreements—in the transfer of technology, for example—are not included under this definition, though in many countries private licensing agreements are regulated through industrial licensing systems.

I. Industrial Licensing Procedures

An investment license can be thought of as the franchise a government grants to an enterprise to manufacture under certain stipulated conditions. In industrialized countries, franchises are granted more or less

automatically and stipulations are minimal. Governments in these countries regulate the activities of private firms through general laws that affect all firms rather than through selective controls tailored to individual investments.

Developing countries have, however, shown a preference for regulating private sector activity by limiting access to franchises, granting industrial licenses only if prospective investors meet certain terms and conditions. These terms and conditions frequently vary from industry to industry and even from investor to investor. The relatively small size of the industrial sector in most developing countries has made such an individualized approach to industrial licensing administratively feasible, though, as is described below, weaknesses in the administration of licensing systems in some countries have proved to be a major stumbling block to rapid and efficient industrial development.

The experience of developing countries in the application of industrial licensing has varied widely. In some, governments have preferred to rely primarily on controls over flows of goods and services (import quotas, tariffs, and other indirect taxes). In these countries investment licensing and foreign exchange licensing are one and the same. In other countries industrial licensing and capital goods licensing are distinct, though clearly related, decisions. In some countries licensing is restrictive, in others extremely liberal. Some countries apply similar standards in reviewing applications from domestic and foreign investors, while others apply more restrictive criteria to applications from foreign investors.

Procedures for issuing investment licenses vary considerably among countries, but a typical process would be as follows. An investor submits to an agency of government, or perhaps a committee representing several agencies, an application containing a complete description of the proposed investment. The application is forwarded to the relevant branches of government for review. If the proposed investment satisfies the criteria established by government, the applicant is granted a license. If the proposed investment does not conform to licensing guidelines, the applicant may be given an opportunity to reformulate and resubmit the proposal. If differences between the investor's proposal and the government's requirements are minimal, a conditional license may be issued, indicating deficiencies that must be eliminated before the investment is undertaken. In some countries there are two stages in production licensing: a license is granted to enable a firm to invest, but the firm has to return to the licensing authority to assure it that the

investment has been carried out as approved before it receives a license to produce.

Licenses to obtain imported inputs (at market prices or on privileged terms, for example, with an exemption from payment of import tariffs and other charges) may follow automatically or may require a separate application. The granting of an investment or a production license may or may not be linked to access to industrial land, to local raw material inputs where these are in scarce supply, or to local or foreign credit at privileged rates. Linking licensing to such things clearly affects the consistency of licensing policies and the time the entrepreneur has to spend dealing with the bureaucracy.

Whether or not such privileges are linked, whether the entrepreneur has to approach only one authority or whether he has to make separate approaches to the production licensing authority, regional authorities, customs departments, central banks, development banks, and other institutions, the possession of a license or licenses confers substantial monopolistic privileges on the licensee.

Governments adopt a variety of criteria for granting licenses. They may require that an establishment be of a certain size, employ a certain number of workers, use a certain percentage of domestic raw materials, be located in a certain region of the country, or have majority control in the hands of local investors or even local investors of a particular race. The tendency to expand the obligations of license holders has increased in recent years. Traditionally, in the import-substituting phase of industrialization, these have been related to steadily increasing the ratios of local content in the value added (generally stated in local rather than international prices). For example, a firm might begin with the assembly of imported parts, but it is usually expected that it will gradually increase the ratio of locally produced components. This process is initiated with small items for which there is a replacement market. In the case of automobile assembly such items might include radiators, batteries, and windshield wipers. The process is gradually extended to require local production of other components—for example, the body, the chassis, and finally the engine block itself.

More recently countries have begun to use the licensing system to impose export quotas on firms, in the expectation that to some extent the monopolistic rents earned in the domestic markets would be repaid in social terms by the high costs of exporting, at least initially.

The importance of investment licensing in industrial policies of de-

veloping countries obviously depends on the restrictiveness of the criteria and obligations for approving license applications. The criteria and obligations may be clearly specified, or they may be general and subject to administrative discretion. Restrictiveness is difficult to measure, but the industrial licensing systems in a number of developing countries can only be interpreted as having that characteristic. India and Pakistan are often regarded as having very restrictive licensing systems, but countries following the Japanese model of development have also used highly restrictive and detailed licensing systems, at least in the initial stages of industrial development. Some countries have used licensing less restrictively, although the granting of rights and privileges under licensing regulations has only rarely been automatic.

II. Objectives of Licensing

No two countries have had the same set of objectives for industrial licensing, but certain common objectives can be discerned.

Priority Investments

Perhaps the most common justification for industrial licensing is to ensure that only investments that have priority are undertaken. What constitutes priority of course varies from country to country. Licensing authorities in some countries employ objective criteria in determining priorities, which may include the foreign exchange cost-benefit ratio, fixed assets per unit of wage and salary, value-added coefficients at both domestic and world prices, indigenous raw material coefficient, and indices of backward and forward linkages. More recently, cost-benefit analysis has come into wide use. In some countries determination of priority still depends on a subjective evaluation of the proposed investment's merits. If it appears to meet a pressing consumer need, supplies a vital raw material to domestic users, or seems to save foreign exchange, a license may be granted. Nonessential industries are those which planners regard as duplicating existing capacity or providing luxuries (such as passenger cars, television sets, or cosmetics).

It should be recognized that even so-called objective tests of priority involve subjective evaluations on the part of licensing authorities. For example, a country may use several indices but have no formula for

weighting the indices. Approval thus ultimately involves a subjective judgment. Even if licensing authorities employ social cost-benefit analysis, subjectivity still remains in the choice of shadow prices and the analysis of risk, particularly if income distribution is given weight.

Priority is sometimes interpreted as an all-inclusive objective, in which case it becomes the only objective. But there are others that licensing authorities have sought to satisfy in addition to priority.

Scale of Operations

One aspect of an investment's social efficiency that has been of principal concern to licensing agencies is scale of operations. If levels of protection are high, new investments can yield high private rates of return even though the plant is only a fraction of the minimum efficient size (defined as the point where economies of scale are exhausted and the long-run average cost curve begins to flatten out). By restricting licenses only to investors who plan to build a plant of the minimum efficient size and by assuring full-capacity operation of all plants of efficient scale, governments have attempted to ensure the long-run efficiency of the industrial sector. Quite clearly, if economic rates of return were used to determine priority, a separate criterion for minimum efficient scale would be superfluous. But where such criteria were not used in the past, minimum scale was one of the important yardsticks for assessing the social value of investment proposals.

By the same token, licensing can be used to prevent the entry of large-scale plants where a government wishes to protect small-scale firms from large enterprises. In some countries planners have sought to reduce, rather than increase, the average scale of plants by limiting entry into certain industries to small- and medium-size firms. These industries have been ones in which scale economies are not particularly important, such as cotton weaving, leather products, and other simple processing activities that have minimal requirements for capital and technology. The purpose of limiting access is to insulate smaller firms from the high-volume, low-cost competition of large producers.

Ironically, some of the cost advantages enjoyed by large-scale firms stem from licenses, particularly foreign exchange licenses, that permit importation of raw materials and capital goods at favorable exchange rates. Licensing to protect small- and medium-size producers is thus seen as the appropriate solution to the by-product distortions arising

from other forms of licensing. Unlike the licensing previously described, where technical efficiency was the objective, the purpose of licensing only small- and medium-scale producers in certain industries is to ensure social efficiency by providing employment opportunities to workers and entrepreneurs who would not be able to find employment in large-scale industries.

Control of Monopolies

The control of monopolistic tendencies is another frequent objective of licensing systems. In some developing countries, ownership of industrial assets has been concentrated with a small number of individuals and families because of scarcities in entrepreneurial talent and imperfections in capital markets. To disperse ownership of industrial assets more widely and to prevent monopolistic abuses, some developing countries have placed ceilings on the amount of licenses granted to large industrial interests. Rather than attempting to regulate actual monopolistic behavior, they have relied on licensing to foreclose such opportunities by ensuring that industrial licenses are widely distributed.

This objective often runs counter to the objective of guaranteeing a minimum efficient scale of operation. The desire to ensure competitiveness has often encouraged entry by several firms, particularly at the initial assembly stage of operations. Where transnational corporations have made "defensive" investments in an effort to retain protected markets, they have encouraged the trend toward what was in fact not competition but oligopoly. Given the limited market size of most countries, at least in the early stages of industrialization, licensing has tended to encourage oligopoly among local producers as well.

Increasing local content through backward integration generally requires greater scale for minimum efficient operation. For example, whereas it may be economic to assemble as few as 20,000 motor vehicles a year from a completely knocked-down package of components, an efficient body-building plant using relatively labor-intensive techniques requires an annual throughput of 50,000 to 100,000 units; for engine blocks economies of scale start at some 250,000 units a year. Developing countries have found it extremely difficult to reduce the number of firms in an industry to achieve economies of scale once several firms have established production facilities. The overall effect of such oligopolistic tendencies has been toward unduly capital-intensive

plants that fall short of the minimum size for efficient production and toward relatively low levels of capacity utilization. These oligopolies are insulated from effective competition at home or from abroad.

Regional Balance

Industrial licensing has frequently been employed to bring about a better geographical balance of industrial activity. One legacy of rapid industrialization in developing countries has been the concentration of industry in major urban areas where infrastructure, commercial services, and inter- and intraindustry links (external economies of scale) were available. The licensing procedures themselves, because they gave rise to rents which were frequently higher than the profits of actual production, encouraged manufacturers to stay near the source of licensing privileges. Concentration of employment opportunities in the modern sector then triggered immigration for which the urban areas were generally unprepared. Thus some governments have used licensing to restrict industrial investment in capital cities and to disperse industries to other urban areas. Some have even attempted to use licensing to provide industrial employment in rural and semiurban areas.

Establishing National Control

Foreign investment in industry is regulated to some degree in all developing countries, and licensing of new foreign investment projects is a principal means by which national control is exercised over private foreign capital inflows. Motives for licensing foreign investment vary widely among countries, but three are common.

First, there is a strong sentiment in most developing countries that control over the means of production in all sectors should ultimately be in the hands of nationals. The sentiment often arises from deeply felt nationalistic ambitions, but there are pragmatic considerations as well. Among these is the belief that foreign business activity, particularly in the industrial sector, retards the growth of domestic entrepreneurial talent. Foreign entrepreneurship is often recognized as valuable in the earliest stages of industrial development, but at a certain stage the costs are seen as outweighing the benefits. Some developing countries refuse to let foreign investors acquire existing domestic firms.

Another aspect of the preference for national control is the desire to bring about greater awareness of and responsiveness to national needs and objectives on the part of foreign investors. It is believed that local

participation in foreign investment projects, and even possibly local majority ownership, is necessary to ensure that foreign investment projects use appropriate technologies, locate plants in disadvantaged regions, abstain from polluting the environment, and pursue other socially valuable actions that the foreign investor might overlook in a narrow, private cost-benefit calculation.

A second set of concerns that has reinforced desire for greater government control over foreign capital inflows revolves around perceived imbalances in the bargaining strength between foreign investors, particularly the transnational corporations, and domestic investors. Governments have intervened in the foreign investment process to strengthen the hand of domestic investors and ensure that the nation reaps the maximum gain possible from foreign capital. They have on occasion denied foreign investors licenses in industries where profit rates are high. Where transfers of technology are involved, they have used licensing to ensure that the technology acquired is appropriate, does not duplicate what is already available within the country, and is not excessively priced.

Governments have also attempted through licensing to capture a greater share of the benefits of a transnational firm's total system for the local subsidiary. For example, they have sought to eliminate restrictive covenants on the subsidiary's ability to export its products to third countries. More governments are beginning to insist that a greater part of research and development, and especially basic research in contrast to minor product modifications, be carried out in the subsidiary. They have also pushed for greater autonomy of subsidiaries, particularly in the area of price setting, and have expressly forbidden any restrictive agreements between parent and subsidiary involving the prices charged for goods in the host country market.

Establishing Racial Balance

In some countries with significant and commercially advanced racial, tribal, or other minority groups, licensing has been used, formally and informally, to move toward a desirable political balance in manufacturing ownership and employment.

Regional Integration

In countries belonging to some form of economic union, another objective of licensing is assurance of an efficient allocation of industrial activi-

ty throughout the union. Countries belonging to the Andean Group, for example, have recognized that their national markets are too small for certain lines of industrial production and have agreed to share their markets on a reciprocal basis. To ensure that these efforts at specialization are not undermined by uncoordinated investment decisionmaking, governments of these countries deny their own investors licenses in certain industrial processes in return for the right to manufacture other goods for distribution throughout the economic union. (See Chapter 10 for a discussion of regional integration.)

III. Licensing in Practice

How well have systems of industrial licensing achieved their objectives? Given the diversity of objectives, it is undoubtedly true that some have been better met than others. Moreover, given the variety of countries in which licensing has been applied, it is also likely that some have performed better than others. Unfortunately, empirical studies of the impact of industrial licensing are nonexistent because of the lack of quantitative measures of the restrictiveness of licensing systems and difficulties in separating the effects of licensing from the simultaneous effects of other policy instruments. Much of what is known about licensing is anecdotal and for the most part illuminates social costs of licensing rather than social benefits. Nevertheless, to judge the overall effectiveness of licensing, some account of the social costs of licensing must be made. It is therefore useful to review the experiences of developing countries in implementing industrial licensing systems.

Uncertainties and Delays

One inevitable result of discretionary licensing systems is a greater time lag between a firm's decision to invest and the actual beginning of construction, as compared with automatic licensing systems. Another is that when a firm makes a decision to invest, there is always a margin of uncertainty whether it will actually be allowed to move ahead.

Delays arise because the investment approval is seldom a one-step process. To obtain a license, an investor must submit an application for review by the licensing agency. In most cases the licensing agency must secure approval from other concerned units—including at least the ministry of finance and the central bank, and frequently several others.

Uncertainty over final approval increases in proportion to the number of separate units to be consulted.

Delays and uncertainty raise both private and social costs of investment. In the case of projects requiring imported capital goods, increases in prices of capital goods during the application review period constitute a real social cost attributable to the licensing system. Forgone social output caused by delays is also a real cost. Licensing increases both the risk and cost of proposing investment projects and thus lowers overall investment activity. If unsuitable projects are weeded out, licensing produces a clear social gain. But if socially useful projects are not undertaken because of perceived risks or increased costs, real social losses occur.

No empirical evidence exists on the increased risk created by licensing systems, but there is information from India on the length of delays caused by industrial licensing. In 1965 the Swaminathan Committee report concluded that no license approval process should take more than 165 days and recommended a two-stage process by which a letter of intent could be issued within 30 days and other clearances could be issued shortly thereafter. A 1973 study sponsored by the Ministry of Industrial Development found the typical time lag for a letter of intent was 390 days. In three cases studied, the total time lag—from initial submission to receipt of final clearance—ranged from 593 to 978 days. While the costs of these delays can be only imperfectly estimated, the same study concluded that since India's import prices for capital goods were rising at 10 percent a year during the early 1970s, it was difficult to escape the conclusion that the minimum cost of delays was 10 percent of the total import bill for capital goods or roughly \$50 million a year. No estimate of forgone consumption was attempted. Steps were subsequently taken to reduce such delays.

Another aspect of the problem of uncertainty is that unsuccessful applicants are frequently not informed of the reasons for the rejection of their applications. They then do not know how to reformulate their proposals to meet the criteria employed by licensing authorities.

Uncertainty is also created when licensing authorities refuse to grant a comprehensive license for all phases of an industrial project. Investors frequently wish to make an industrial investment in several sequential phases to allow capacity to expand in step with growth of the domestic market. Sometimes licenses can be obtained for only the first phase of the investment, with no guarantees for the successive phases. Investors must either collapse all phases into one project that will operate at

uneconomic levels during the project's life, choose a smaller-scale plant which is perhaps inappropriate, or abandon the project altogether.

In some countries the uncertainty associated with licensing has deterred innovation. Licensing discourages basic research because there is no assurance that resulting products could ever go into production. Moreover, product development is hampered because new licenses must be obtained each time a product is substantially modified. Licensing only adds to the already existing riskiness in research and development expenditures and thus leads to a lower level of such expenditures overall than would otherwise be the case.

Encouraging Large-Scale Enterprise

Licensing systems have on occasion achieved the opposite of their original purpose, which can only be regarded as a type of perverse efficiency. Some purposes of licensing are more vulnerable to this perverse efficiency than others, but there are so many instances in which licensing has become a barrier to its own ostensible ends that it must be recognized as a major social cost.

The one use of licensing where perverse efficiency is perhaps most apparent is in controlling monopolies. In principle, licensing authorities can preclude industrial concentration by refusing to grant licenses to large industrial units. In practice, however, licensing has sometimes actually strengthened the hand of major industrial groups. Major corporations are generally able to devote more resources and bear the higher waiting costs of the processing of license applications than are medium and small firms. Large industrial concerns frequently assign one or more key executives to work full time in government liaison. When governments announce new industrial programs for which licenses are to be issued, large firms are generally first to respond. Once a firm has experience in negotiating licensing procedures, the knowledge obtained has a value (it is in fact a form of deadweight rent that does not contribute to the production process), and this value can be exploited by the firm. This system, then, encourages not only monopolies but also powerful industrial conglomerates.

In some countries large firms have simply preempted all the new licenses granted, sometimes by submitting multiple applications through several dummy corporations. These firms may or may not choose to use their licenses. In the meantime, smaller firms have not been able to obtain licenses and are denied access to the expanded mar-

ket. This reinforces the dominance of large firms. Even where large firms are denied licenses to promote competition, they may still acquire the assets of smaller license holders. Where antitrust laws have been instituted to control the sale and merger of corporations, large firms have found ways around this barrier by using shell holding companies.

Regional Issues

Perverse efficiency has also been observed in licensing for regional balance. The goal is to bring about a more efficient and equitable allocation of industrial activity and to prevent the tendency of industrialists to locate plants in major urban areas, either to satisfy their personal preference or to be near centers of political power.

The notion that direct controls such as licensing can be used to bring private choices in line with social needs is well intended. However, the licensing process may then become entangled in conflicts among sub-national political units—state and provincial governments—over the allocation of licenses. Political pressures may mount for an equitable distribution of licenses on some basis—population, for example—which may have no relation to efficient or equitable spatial allocation. If proportional allocation were pursued in each industrial category, plants in some regions would undoubtedly fall below minimum efficient size and the gains from specialization would be sacrificed. Fortunately, no licensing system has been carried to this extreme, but the existence of a national licensing agency responsible to a legislative body in which sub-national units are strongly represented has led to considerable interference.

Part of the explanation of perverse efficiency lies in the failure of governments to provide proper administration of licensing systems and especially in the susceptibility of civil servants to corruption. Any system of direct controls administered at the discretion of public employees creates an atmosphere conducive to bribes and payoffs. Objectives of licensing systems may therefore be subverted by simple administrative failure, and in fact objectives sought are virtually opposite to those achieved.

Asymmetry

One limiting feature of licensing apparent in countries where it has been a principal tool of industrial policy is its asymmetrical impact.

Unlike policies that work through the price system, licensing can regulate entry of firms into an industry, but it cannot, by itself, create positive incentives for entering the industry. Thus, licensing can be effective only in deflecting activity from one profitable industry to another or in selecting among equally efficient producers. It cannot induce a firm to move into an industry that is unprofitable in terms of private returns or get an inefficient producer out of any industry.

Although this limitation is obvious, it appears to have been overlooked, for example, in efforts to use licensing to disperse industries from major urban areas. Unless licensing restrictions are accompanied by positive incentives to reduce the higher costs of rural production, licensing may result only in a lower level of total industrial investment.

Absence of Economic Criteria

A perplexing paradox of licensing is that it is undertaken to improve both efficiency and equity in resource allocation, but explicit criteria of efficiency and equity are rarely adopted by licensing authorities. Licensing decisions are typically ad hoc, relying on subjective judgments about the merits of individual applications without giving clear indications of the substantive factors involved in the decision. Where systematic criteria are used, they tend to be based on measures of technical efficiency, and technical efficiency and social value are not always the same. Technical efficiency may result in plants that are excessively large in relation to the country's market size. Technical criteria have been wrongly or inconsistently applied, with a resulting loss in economic output.

Absence of a uniform test of economic merit has in some instances led to allocating licenses on a simple first-come, first-served basis. The announcement of a new investment schedule has triggered a spate of applications as entrepreneurs rushed to have their application at the top of the pile. Concentration of license applications in the very early years of development plans has generally resulted in neither good plans nor well-designed projects.

The lack of economic criteria can be traced to several sources, some more important in certain countries than in others. In part, the need to satisfy various political constituencies has deterred the introduction of objective criteria. Because many licensing agencies have been staffed by engineering and technical personnel, the analytical skills needed for economic evaluations have generally been lacking. Finally, staff size of

licensing agencies has typically dictated the extent of analysis rather than vice versa.

The introduction of cost-benefit techniques has improved the situation significantly in many countries in recent years. Whether the method used calculates the domestic resource cost of effective protection for products that are to be produced, or whether it is a more complete cost-benefit evaluation of a project, a standard approach enables licensing authorities to compare the likely social as well as financial returns on projects and so select among them systematically, according to predetermined cutoff points of social return. Judgment is still, of course, a factor, both in calculating current shadow prices and in estimating risk. However, the quality of judgments tends to improve with the discipline of an evaluation framework and with experience. Interagency cooperation on the setting of shadow prices for such nontradables as unskilled labor remuneration, capital, and power can improve the process further.

Cost-benefit analysis not only can have a major impact in facilitating selection among competing projects and in eliminating socially undesirable projects, it also can help improve the design of projects submitted by identifying the components that contribute to their high cost. Again, however, cost-benefit analysis cannot play the role of proposing and executing new projects. This remains the function of the entrepreneur or public enterprise.

IV. Price Control

Another important form of direct control is regulation of the prices that manufacturers can charge. Extensive price controls over the manufacturing system are less widespread than licensing, but in some countries their impact is at least as important.

The means of controlling industrial prices vary considerably. In some countries industrialists must obtain government approval before changing prices. In other countries controls are less stringent: governments establish target prices, and firms are required only to register any price changes with the government within a short period after they take effect. In some countries a two-tier market is established, with a certain minimum quantity of industrial output sold in fair-price shops at controlled prices, while the remaining output is sold on the open market. Sometimes countries prefer to exercise control over prices at the manu-

facturing stage, while others set prices at other stages of the distribution process.

Objectives

A common objective of price control is promotion of a more equitable distribution of consumption in society by assuring low prices for certain basic manufactured goods. Products typically selected include cloth, cooking oils, sugar, kerosene, matches, and soap. Ration cards are issued to prevent abuse of this system, and producers are required to sell a certain portion of their output to the government, which in turn distributes the goods to fair-price shops.

Another objective of price control systems is to assure a steady flow of raw materials to government enterprises at favorable prices. Steel in India, for example, is produced by both private and public sector enterprises, which are required to sell their products to the government at set prices. Cement is another manufactured good frequently procured at set prices by the public sector for its own use.

A third objective is moderation of inflationary pressures. Because industrial products feed in, as intermediate goods, to other products and because the number of suppliers for industry is small relative to the number of suppliers in agriculture and services, governments in some countries have placed the burden of their counterinflationary policies on industry.

In addition to being set by government, price controls can also arise from monopolistic situations. If licensing procedures bolster monopolistic trends fostered by protection against external competition, manufacturers are likely to be able to earn substantial monopoly rents in addition to normal operating profits. Price controls are often an attempt to limit such rents, a fourth objective.

Price Controls in Practice

Without question, government controls have been effective in the short run in regulating prices of industrial goods in some countries. Whether the long-term effects of these controls have been beneficial to industrial development or to the overall level of economic welfare in the countries applying those controls is problematic. As in the case of licensing, evidence on the separate effects of price controls in the allocation of resources is available only in anecdotal form. Certain weaknesses of the

operation of price control policies in those countries that have had the most extensive experience with them are, however, quite apparent.

A common problem that price controls share with industrial licensing is the lack of a systematic rationale and explicit guidelines for decisionmaking. In India price controls were established in the steel industry to ensure delivery of steel to priority sectors at "reasonable" prices. In a 1963 report on the operation of the control mechanism, it was noted that no definition of priority had ever been made explicit. Indeed, it appeared that perverse efficiency was at work, since the effect of the price control system was to ensure that steel was delivered at artificially low prices from public sector producers to private sector users, while the private sector was not subject to controls over the prices it could charge for its products.

One consequence of price policies that subsidize the user industries and other consumers is that without countervailing subsidies to the producing firms, incentives for investment disappear. The short-run gains of cheap industrial products are ultimately paid for over the long run by chronic shortages resulting from lack of investment. In the case of cement in India and fertilizers in Pakistan, for example, controlled prices led to perennial lags between demand and supply. Governments frequently choose to set prices so that producers are allowed to cover their costs and earn a "fair" profit. Pricing according to the fair-profit criterion instead of marginal costs may lead to considerable inefficiency in production.

V. Reforming Direct Control Systems

As a rule, the greater the commitment to comprehensive economic planning in a developing country and the greater the capacity of the administrative machinery in that country to implement development plans, the greater has been the reliance on direct controls. While historically this has been true, there is no basis in economic theory for preferring direct controls over indirect controls such as taxes and subsidies, and indeed the reverse would more likely be true. The appeal of direct controls over indirect forms of intervention has its roots in the fact that the impact of direct controls is swift and sure. Moreover, the social costs of direct controls are seldom immediately apparent, while the social benefits are. Perhaps most important, direct controls, unlike cash subsidies and tax rebates, make no claims on the fiscal resources of the

state apart from the costs of administering the control system. All of these attributes make direct controls popular with planners.

However, the social costs of direct controls noted in previous sections—delays, uncertainty, propensity for perverse efficiency, asymmetry of effect—beg a fundamental question: do direct controls represent the optimal means of correcting market distortions in developing countries?

Upon close examination, the answer to this question would appear in some cases to be yes, in others, no, and in some, uncertain. The important point to be underlined, though, is not that direct controls are sometimes optimal correctives, but rather that in many instances direct controls are only the third- or fourth-best correctives and that superior and more workable policy alternatives are available.

In some instances direct controls are the best correctives. Such cases are admittedly relatively few, but these exceptions are nonetheless important. For example, when bargaining strengths between transnational corporations and developing countries are truly unequal, the government's licensing power may well be more able to exact better terms for entry agreements on behalf of the local subsidiary than any other form of government intervention. Because of the very complex nature of parent-subsidiary relationships, indirect controls in the form of taxes or incentives are not likely to prove feasible. Licensing, by default, is then the first-best policy for maximizing the national gain from foreign investments. This is not to say that direct controls should be the only policies employed in regulating foreign investment. Price policies can still be effectively used to attract appropriate foreign investment and ensure a better gain from it. Nevertheless, at the margin some direct controls may be essential in securing for the host country maximum returns from foreign capital.

Some policies that may be valid in their own right create the need for direct controls. For example, protection against foreign competition creates an environment in which there is a danger of the erosion of economies of scale through excess entry. This situation is exacerbated when strong international oligopolies are competing for a (long-run) share of world markets, the economies of scale in the initial stages of production are not very great, or political circumstances make pressure for higher tariffs successful. In theory a tariff could be pitched at a level at which only one firm would enter. In practice this may not deter other entrants, and will lead almost inevitably to a push for even higher tariffs. Restricting entry by licensing may thus be an essential com-

TABLE 6-1. POLICY ALTERNATIVES TO DIRECT CONTROLS IN THE INDUSTRIAL SECTOR

| <i>Objective</i> | <i>Policies superior to direct controls</i> |
|-------------------------------------|--|
| <i>Licensing</i> | |
| Control of monopolies | Antitrust legislation, tariff policy, wealth and estate taxes |
| Industrialization of backward areas | Wage subsidies, investment credits, provision of public infrastructure |
| Development of small-scale industry | Public infrastructure, provision of credit |
| Selection of priority industries | Coordination of tariff and domestic indirect taxes, cash subsidies |
| <i>Price control</i> | |
| Equity | Cash subsidies, fiscal policy |
| Control of inflation | Monetary and trade policies |
| Subsidies to user industries | Cash subsidies |

ponent of protection of infant industries in which economies of scale are important.

In a far greater number of cases, licensing and price controls will prove to be less than first-best correctives, and in these instances policy-makers should focus their attention on devising superior, alternative policies. Most objectives discussed in the first section of the chapter fall into this category. Table 6-1 summarizes policy alternatives that can achieve the same objectives at lower social costs. The point of this summary table is not that the alternative policies are necessarily superior, but that both in theory and from the experience of some developing countries these policies, if administered wisely, have the potential for achieving the desired objectives at lower social cost than direct controls.

For many countries, elimination of restrictive licensing may not be a feasible short-run goal for political and other reasons. Nevertheless, reforms in the system of allocating licenses can still be undertaken that will reduce waste and increase the probability that their intended objectives will actually be achieved.

One important step is partial decontrol. A number of governments have now concluded that licensing is needed more in some industries than in others and have "delicensed" a number of them. Limits on exemptions have been raised with respect to the minimum size of investment subject to licensing, and the definition of "substantial expansion," for which licenses were required in the past, has been expanded from 10 to 25 percent of registered capacity.

In many cases efficiency in licensing systems can be increased substantially by simple administrative reforms. The broad outline of these reforms is fairly obvious from the preceding discussion of weaknesses in existing systems. Where possible, a single agency with power to enforce deadlines at each step in the review process should be established. The objectives of licensing policy should be clearly stated, and quantitative guidelines for evaluating proposed investments in terms of those objectives should be made explicit. Progress of each application should be monitored as it moves through the licensing approval process. Any delay caused by missing information or lack of authority to act should be immediately stated. Where possible, sequential approval by concerned agencies should be replaced by simultaneous approval, a procedure that should greatly reduce the time required for processing an application.

Most important, perhaps, each proposed investment should be subjected to a social benefit-cost analysis, incorporating as weights on the benefit side objectives of the present licensing system. If, for example, industrial employment in a backward region is socially valuable and further industrial expansion in crowded urban areas represents a social (external) cost, then these valuations can be incorporated in social benefit-cost calculations through appropriate weighting.

Finally, licensing may, in many countries, be a redundant activity because other agencies—the banking system or the foreign exchange control agency, for example—accomplish the same purpose through their screening of applications for credit or foreign exchange, which are rationed to promote priority sectors of the economy. Little is achieved by independent and perhaps conflicting processes of investment approval.

Bibliography

Direct controls in the industrial sectors of developing countries have not undergone the same degree of analytical scrutiny that trade, monetary, and fiscal policies have. The United Nations Industrial Development Organization (UNIDO) has surveyed, from time to time, the problems arising from the application of licensing; see, for example, *Industrial Development Survey* (New York: United Nations, 1974), pp. 27–28. Perhaps the most thorough examination of the advantages and disadvantages of direct controls is found in chap. 6 of Ian Little, Tibor Sci-

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7

Public Enterprises

Deepak Lal

The purpose of this chapter is to analyze the role of public enterprises in the industrialization process in developing countries. The first section discusses the objectives that industrial public enterprises have been intended to fulfill. It leads to an assessment of the economic argument for public enterprises in promoting efficient industrialization, the subject of section II. Once a government has decided to set up public enterprises in manufacturing, the important questions are: (1) how the enterprises should make investment decisions and (2) what pricing policies they should adopt. These questions are discussed in sections III and IV. Section V turns to various organizational and managerial problems of public enterprises and shows how an analytical framework can be used to devise appropriate policy.

PUBLIC ENTERPRISES PLAY a significant role in the industrialization process in many developing countries. They are most important in such socialist countries as Algeria and Tanzania, but their contribution to total manufacturing production is also marked in such mixed economies as India. They are even used as an instrument of government policy in countries such as Korea and Brazil that are following basically capitalistic roads to development. In recent years there has been a resurgence of public enterprises in manufacturing, particularly in oil-rich countries and those seeking to increase local ownership of manufacturing firms.

Public enterprises include a variety of management-ownership forms. In mixed economies the extent of public ownership of the means

of production and control over firms' internal decisionmaking can be present in differing mixtures. Normally public control of an enterprise requires that the government own a majority of the equity, but there are cases where control of a firm's internal decisionmaking may be exercised without equity (as, for instance, in the so-called sick mills in India). Conversely, in the worker-managed firms of Peru, though the government may own the capital, control over decisionmaking rests with the workers or managers. It is therefore necessary to distinguish between arguments for public control of enterprises and those for public ownership of the means of production, even though in practice most public enterprises in developing countries are both publicly owned and publicly controlled.

I. The Objectives of Public Enterprises

Countries that consider private entrepreneurs to be unwilling or unable to take a lead in industrialization turn to public enterprises for an essentially promotional role. Such an entrepreneurial function may be important if there is a lack of domestic entrepreneurs—typically the situation in rural subsistence economies just emerging from colonial domination—or if, after periods of war, entrepreneurs are excessively averse to risk. Similarly, where, for historical and institutional reasons, the supposedly middle-class “virtues” fundamental to entrepreneurial drive are found only in the military or bureaucracy, reliance on public enterprise may be the only feasible method for initiating industrialization.

Public enterprises may also be used to correct racial imbalances in entrepreneurship. Entrepreneurs are often confined to a racial minority whose relatively high returns from entrepreneurship are resented by the racial majority. In such countries, public enterprises can provide opportunities to build up the entrepreneurial and managerial skills that some groups lack.

In the early stages of industrialization there is likely to be a dearth of capital, even though there may be no shortage of entrepreneurs. The funding required for such large, capital-intensive industries as steel and fertilizers cannot be assembled because an efficient capital market is lacking. The private banking sector may not yet be able to intermediate between savers and entrepreneurs. (See Chapter 5 for a discussion of monetary and credit policies and how these may assist or hinder investment in manufacturing.) Public involvement in the financing of enter-

prises either through public ownership or through public control by loans from public financial institutions may be unavoidable. However, it must be noted that if involvement by government in the direct or indirect financing of industries is not carefully handled, it may inhibit the promotion of an efficient equity market in the future.

When promotional public industrial enterprises are developed, the question arises whether they should be sold to the private sector once established. Such sales were usual in Japan in the past; Korea, the Philippines, Brazil, Pakistan, and Singapore have also followed that policy at some stage. The basic argument in favor of selling is that it is difficult for governments to run public enterprises in manufacturing because of the constant changes in demand and supply conditions. These make manufacturing very risky, particularly in market economies that are trade oriented, and require continual adaptation to that changing environment. The concomitant risk, the very essence of entrepreneurship in manufacturing, raises the danger of failure. It is difficult for a government to declare a public enterprise bankrupt even though the costs of keeping it in operation are generally much higher than those, such as severance payments to workers, in closing it down. The same logic of course applies to private enterprises. Some inefficient firms are propped up by the government through tariffs, quantitative restrictions on imports, or protection against the entry of new firms, as indicated in previous chapters. Sometimes—and not only in developing countries—they are taken over by the government and, as public enterprises, become a burden to the public purse, reversing the disinvestment process. However, in most market economies, bankruptcy is usually the ultimate fate of unsuccessful entrepreneurship, and the entrepreneur, as the risk-taker, bears the brunt of the costs just as he enjoys the high profits when successful.

Public enterprises have also been established on purely economic grounds. It is often argued that a developing country cannot afford the misallocation of resources created in a market system as a result of the imperfections that arise when market prices do not coincide with social prices. It is assumed that a public enterprise can avoid such pitfalls by careful evaluation of social as well as economic and financial objectives in the context of national planning.

Noneconomic political objectives have also been of some importance in the establishment of public industrial enterprises. A large body of socialist thought identifies socialism with public ownership of the means of production. In predominantly socialist developing countries,

the bulk of medium- and large-scale manufacturing activity is accordingly publicly owned and managed. The belief that direct government control over the "commanding heights" of the economy is a necessary condition for the establishment of socialism was stated explicitly in the Indian Industrial Policy Resolutions of 1948 and 1956, which demarcated the industries which were to be exclusively reserved for public enterprise. The "commanding heights" were identified as large-scale, capital-intensive "base" sectors which were important in the early stages of production in manufacturing activity. Public enterprises have accordingly been established in steel, fertilizer, heavy engineering, basic chemicals, and petrochemicals. This policy is typical of many developing countries. A number of other countries, though not committed to socialism, have also felt that the political consequences of a concentration of private wealth are undesirable and need to be countered by public ownership or control of key enterprises. The belief is that by owning basic industries the government can avoid the political opposition from industrial groups that emerged in Europe, North America, and Japan in the past. It can also supply inputs to the private sector on socially optimal lines. The economic reasons for the establishment of public enterprises are thus frequently underlined by and intertwined with political objectives.

Not all socialists would agree that ownership of the means of production is an essential component of socialism. Substantial numbers of those of the social democratic persuasion argue that the basic end is equality and that public ownership of the means of production (or of the "commanding heights") must be judged purely as a means toward that end. Efficiency then becomes the criterion in production, with the emphasis on equality in the distribution of public and private goods that compose the national product. In this view, public ownership need not be identified with socialism, but should be judged along with various other public policy alternatives for the achievement of equality. Not to do so would be to confuse means with ends.

Public enterprises have also been used to avoid the buildup of foreign capital interests or to nationalize them when they have been deemed inimical to a country's economic or political interests. Despite ideological differences, public enterprises are seen in this and other contexts in many developing countries as a useful means of extending state political power per se; it is arguable whether, among the alternatives that are available, the public enterprise mechanism is the most appropriate for this end. Indeed, it is even questionable whether the extension of state

political power leads to increased welfare and hence whether even that end is justifiable.

II. The Economic Rationale for Public Enterprises

Market Failure and "Optimal" Intervention

For economists, the failures of the market that give rise to the necessity for government intervention are failures relative to the performance of a utopian model of a perfectly competitive economy. The conditions for the existence of a competitive equilibrium, one which is Pareto-efficient (that is, for a given income distribution it is not possible to make one person better off without making someone else worse off), have been rigorously worked out by recent theoretical work in welfare economics. If any of the conditions are absent, that in itself could provide a case for government intervention.

In a perfectly competitive world, consumers and producers face prices they cannot influence by their own actions. Wanting to maximize utility and profits, they will choose the optimal consumption and production bundles of commodities. These bundles will be consistent in that in each time period aggregate consumption will equal aggregate production plus initial endowment. The result is that for any given initial endowment, a Pareto-efficient allocation of commodities will exist, and it will entail the fulfillment of the so-called marginal welfare equivalences, namely: (1) the marginal rates of transformation in production of different commodities are equal to their marginal rates of substitution in consumption; (2) the marginal rates of substitution between any pair of factors are the same in all the industries in which they are used; and (3) the marginal rates of substitution of any pair of commodities are the same for all individuals consuming both goods. By treating the same physical commodity at different dates as many different commodities, intertemporal marginal equivalences for an efficient intertemporal program of commodity inputs and outputs can be derived. Furthermore, if universal futures markets exist, there will be a Pareto-efficient competitive equilibrium even in the presence of uncertainty about the future. Economic agents will be able to make contingent contracts for different commodities which are now differentiated not only by physical and temporal characteristics but also by whether or not certain conditions or states exist in the world at particular times. They will then be able to maximize their expected utilities according to their own sub-

jective estimates of the probability of various unknown future states of the world.

If the income distribution associated with a particular Pareto-efficient competitive equilibrium is considered to be socially just, a full social welfare maximum (a Pareto optimum) will be achieved. At such a Pareto optimum, market prices of goods and factors would equal the marginal social cost of producing and the marginal social value of using the relevant goods and factors. In this case market prices would be the social prices, and decentralized investment and production and consumption decisions taken on the basis of such prices would be socially optimal.

Even if the conditions required for achieving an optimal income distribution are ignored, all the assumptions necessary to assure a competitive Pareto-efficient allocation are not likely to exist in the real world. In particular, the assumptions relating to the independence and convexity of consumption and production sets and the universality of markets are unrealistic. The existence of externalities in production and consumption rules out the independence of production and consumption sets; indivisibilities in consumption and production (increasing returns to scale) rule out convex consumption and production sets. It is also obvious that, in the real world of uncertainty, universal contingent commodity markets are notable for their absence. As long as the non-convexities in the consumption and production sets are not large relative to the economy, then an approximate competitive equilibrium is likely to exist. However, without universal markets it is not likely to be Pareto-efficient.

In a sense, therefore, it is the lack of universal markets that is most likely to prevent the unfettered market mechanism from achieving a Pareto-efficient allocation. Externalities really constitute a special case of the nonexistence of markets. The problems arise because it is difficult (if not impossible) to create a market for these external "commodities," chiefly because pricing a commodity in any market requires the exclusion of nonbuyers from obtaining the commodity; in the case of many externalities, it may be technically impossible or extremely resource-intensive to ensure such exclusion. Clean air or water, for example, cannot be treated as separate commodities to be supplied to some individuals and not to others. For other types of externalities for which exclusion may be possible, the number of buyers and sellers in the market for externalities is likely to be small, and hence the market would necessarily be imperfectly competitive. More generally, transaction costs, which are attached to any market and indeed to any mode of

resource allocation, mean that not all possible markets exist. This in turn leads to inefficiency in the competitive allocation. Market failure is the particular case where transaction costs are so high that the existence of the market is no longer worthwhile.

Thus any real world market economy is not likely to be Pareto-efficient, first (and less plausibly), because of the existence of technological indivisibilities which lead to increasing returns in production over a range that is large relative to the economy;¹ and second (more certainly), because of the transaction costs attached to markets (including the costs of exclusion, as well as those of acquiring and transmitting information). For these reasons, many markets will not exist or else will be imperfect. This will mean that the marginal welfare equivalences, whereby the market prices of goods and factors equate the marginal social cost of producing and the marginal social value of using the relevant goods or factors, will no longer hold.

Furthermore, even if the economy were perfectly competitive, there would be different Pareto-efficient allocations associated with different income distributions. As it is the initial endowments which will determine the particular Pareto-efficient allocation and its associated income distribution, the actual equilibrium of a competitive economy, though Pareto-efficient, may not yield the maximum social welfare. It may thus be necessary, even in a perfectly competitive Pareto-efficient economy, for government to intervene. By using neutral fiscal devices in the form of lump-sum taxes and subsidies, it can reallocate the initial endowments suitably in order to attain that Pareto-efficient, competitive equilibrium which achieves the full social welfare optimum (the so-called first-best welfare or full Pareto optimum).

Given the breakdown of the assumptions of perfect competition, there would appear to be a similar *prima facie* case for government intervention to correct the divergences that may exist between the marginal social value and the marginal social cost.² As in the case of legislating the optimal income distribution, if neutral fiscal devices are avail-

1. "Less plausibly" because, for an open economy facing given terms of trade, most goods will be tradables and hence in the absence of government intervention could be "produced" through the (indirect) foreign trade "technology," with constant returns to scale. Even in this case, where there are increasing returns in production in some industries, though they are not large relative to the economy, government intervention may be required to legislate the optimum production and investment decision rules for the industries subject to increasing returns.

2. These divergences between marginal social value and marginal social cost can generally be said to result from distortions in the conditions that would prevail under perfect

(Note continues.)

able and can be used to eliminate the divergences between marginal social costs and marginal social values, then again through government intervention a first-best social welfare optimum could be achieved.

However, governments are not likely to find any feasible neutral fiscal devices, either to legislate the optimal income distribution or to correct divergences between marginal social costs and marginal social values. The use of other than neutral fiscal devices (whether these be in the form of price-reliant instruments such as income or indirect taxes and subsidies or in the form of administrative controls) would lead to new wedges being driven between some other marginal social costs and marginal social values. These will in turn entail welfare losses, which will have to be counterbalanced against the welfare gains that would result from curing the initial divergences between marginal social costs and marginal social values. There will thus in general be a second-best optimum at which, by using the distortionary instrument of public policy to correct an initial divergence between the marginal social cost and the marginal social value, the *net* gain in social welfare is maximized. As is obvious, welfare will be lower at the second-best than at the first-best welfare optimum, and at a second-best welfare optimum it may not be optimal to eliminate completely the initial divergence between marginal social cost and marginal social value.

This absence of first-best corrective devices to cure market failures can in turn be ascribed to the transaction costs associated with the use of these instruments of government intervention. Moreover, the transaction costs associated with alternative instruments, which can be differentiated into those which work indirectly through the price mechanism and those which are more direct, such as bureaucratic controls, will also differ. Thus it is possible that, even in the presence of well-known cases of market failure, there may be no feasible instrument of government intervention which would yield a net increase in social welfare, as compared with that produced by the imperfect market mechanism. More important, when comparing alternative feasible in-

competition. Any distortion, then, can be looked upon as driving a wedge between marginal social value and marginal social cost and hence causing a divergence between them (and market price). Thus transaction costs drive a wedge between the buyer's price (marginal social value) and the seller's price (marginal social cost) of the relevant good. A market for a particular good (for instance, a futures, contingent commodity market) will fail to exist if the wedge between the buyer's and seller's price is large enough to make the lowest price at which anyone is willing to sell the commodity above the highest price anyone is willing to pay for the commodity.

struments of public policy, in particular those relying on the price mechanism and alternative direct methods of allocation, the differential transaction costs must be taken into account. It cannot be assumed that welfare losses resulting from the existence of transaction costs in a price system of allocation will necessarily be eliminated by an alternative direct method of allocation. The latter may fail for bureaucratic reasons (to be contrasted with market reasons) in terms of equally high, if not higher, transaction costs, for example, in acquiring information on demand and supply conditions in the absence of markets.

The Case for Public Enterprise

Government regulation or direct ownership is called for in industries which are natural monopolies, that is, industries such as railways or electric power supply utilities which are subject to increasing returns to scale. Manufacturing industries, on the other hand, for the most part produce traded goods, and their effective supply curve to the economy is characterized by constant returns to scale. Trade is generally an alternative to government regulation of an incipient or actual monopoly, as foreign competition will eliminate this possibility on the part of domestic producers. Public utilities are classic examples of natural monopoly industries, and not surprisingly most countries, developed and developing, have found it desirable either to nationalize them or to subject them to close regulation. For many public goods, state provision not only may be desirable, but it may be the only feasible means at the optimal level. The difficulties of nonexclusion and/or the limited numbers involved on either side of the market for externalities in such goods may result in the absence of a market or one that is inherently imperfect. (Because such public goods are outside the scope of this study, they are ignored in the rest of this chapter, even though much of the theoretical literature has been concerned with the various aspects of public policy required to optimize the provision of these goods.)

This then leaves various distortions in the economy which cause divergences between marginal social value and marginal social cost and the continuance of which implies that the allocation of investment and production through *laissez-faire* will not achieve optimal use of resources. Moreover, as noted above, with the restrictions on the availability of neutral fiscal devices, any form of government intervention to cure these divergences will lead to by-product distortions. Thus the most that can be attained is a second-best welfare optimum in which

the net gain from the removal of the initial divergence between marginal social value and marginal social cost is partially offset by the loss caused by the creation of some other divergence.

Nationalization of industry will be one of the various instruments of public policy that government can use to intervene in order to attain a second-best welfare optimum. Other alternative instruments can in general be made equivalent to various tax and subsidy policies. The important question is: *can nationalization of industries (other than natural monopolies or those producing public goods) result in outcomes which affect the efficiency and equity of the economy in an essentially different way from what could be achieved by taxes and subsidies?*

In principle, the government could, through appropriate taxes and subsidies, achieve any pricing of inputs and outputs in the economy that a public enterprise is meant to achieve. The difference must therefore ultimately flow from the difference in ownership and control of public and private enterprises. In countries where stock markets and other institutional devices for dispersing private industrial ownership are not likely to exist and where, if they do, they are unlikely to be used by the bulk of the population, public ownership could be a feasible means for incremental industrial asset redistribution. There may thus be an equity justification for public ownership in industry that makes the use of this particular policy instrument desirable.

Similarly, even though in principle the government could achieve its second-best social welfare objectives through the use of an appropriate mix of distortionary (and hence quasi-optimal) taxes and subsidies for the inputs and outputs of private industry, in practice the available set of second-best taxes and subsidies may also be severely restricted. More important, even if the appropriate taxes could be levied, the administrative costs associated with their levy (or disbursement in the case of subsidies) may make the alternative of public ownership more cost effective.

Against these arguments in favor of nationalization must be set various practical difficulties in the actual management and operation of public enterprises, which have arisen in most countries, developed and developing. These problems relate to the suppression by nationalization of the twin functions of the market of providing the incentives and information (virtually at no cost) required for maintaining productive efficiency. These market forces tend to be sluggish or absent when public enterprise investment and pricing policies become part of a bureaucratic process. One purpose of the discussion of investment

and pricing policies in the next part of this chapter is to provide rules which enable the government to decentralize these decisions effectively; another purpose is to show which tools will both provide the requisite incentives to managers and allow the monitoring of their performance.

III. Investment Policies

The experience of public enterprise management in developing countries suggests that it is of central importance that the government be clear as to the basic objectives public enterprises are supposed to serve. Investment and pricing rules should be devised for purely entrepreneurial purposes for public enterprises which will operate in an otherwise market-oriented economy, so that public enterprises will function as private enterprises would if they existed. However, where public enterprises are set up to achieve second-best efficiency and equity objectives, the recent developments in what may be termed the “welfare economics of imperfect economies” are most relevant. It is in this area of public sector investment and pricing rules that economic analysis can be of considerable assistance. This section therefore focuses on the determination of investment rules for the public sector in an imperfect economy, where it is assumed that existing distortions between marginal social values and marginal social costs are pervasive and are unlikely to be removed in the near future.

Any non-lump-sum tax or subsidy will lead to a divergence between the marginal social value and marginal social cost of a commodity or factor. It is useful to think of the existing divergences between marginal social values and marginal social costs in the economy as equivalent to given fixed taxes or subsidies, even though the source of the divergence could be a variety of distortions, such as those relating to increasing returns, externalities, monopoly power, or fragmented markets.

Investment Decisions and Shadow Pricing

Given the existing distortions in factor and commodity prices, investment decisions based on market prices would not lead toward the second-best welfare optimum. The first question to ask is therefore: in such an economy, how should the government make public sector investment decisions, taking into account the effects of its actions not

merely on economic efficiency, but also on equity (both interpersonal and intergenerational)?

Social cost-benefit analysis provides a systematic approach to this problem. Just as financial cost-benefit analysis provides a framework for the comparison of the financial (private) profitability of alternative investments, given existing market prices, so social cost-benefit analysis provides a systematic basis for comparing the likely social returns on projects, essentially by shadow pricing the relevant quantities by their social values. Two basic variants of social cost-benefit analysis have been developed: the method suggested in the UNIDO *Guidelines*, and that in Little and Mirrlees, *Project Appraisal and Planning for Developing Countries*. They differ partly in their choice of numeraire, which in the Little-Mirrlees method is uncommitted social income expressed in foreign exchange, as compared with that of the *Guidelines* of aggregate consumption in domestic currency. They also differ in their relative need for averaging across the multiplicity of exchange rates at which traded commodities exchange in the domestic markets of most developing countries, as well as in their treatment of the shadow prices of non-traded goods.

The choice of numeraire can be of some importance when distributional objectives need to be taken into account, for the numeraire must be homogeneous (and hence invariant to the system of distributional weights) if it is to be an accurate yardstick. An elastic ruler would be pretty worthless in measuring length. If the interpersonal distribution of consumption is to be taken into account, then the value of aggregate social consumption will vary with the system of distributional weights chosen.

The Little-Mirrlees numeraire (uncommitted social income) provides a relatively homogeneous numeraire (at least from the viewpoint of the government) for the alternative items of national income from which it could be chosen. It also has the merit, as seen below, of enabling various public sector pricing rules to be put systematically into the same framework as in the case of investment decisions.

Given this numeraire, the Little-Mirrlees rules for public sector investment decisions can be outlined briefly. Any investment project entails changing the time stream of consumption in the economy. An evaluation of these inter- and intratemporal changes raises two types of weighting problems which are part of the difficulty of making different types of costs and benefits commensurable. As social welfare is usually taken to be a function of the consumption accruing to various individ-

uals in a country, there is the need to make the consumption gained or lost as a result of an investment project at different dates commensurable. If, moreover, the consumption accruals to different groups at a point in time are not equally valuable socially, it will also be necessary to make them commensurable. As public income can be used to provide consumption to any group currently (through consumption transfers) or in the future (through investment), the various consumption changes that occur can be converted into public income equivalents if a set of weights (rather like prices) is available which translates the consumption changes of a specific group at a particular date into current public income values.

In addition, however, the investment project's costs and benefits will involve different currency items—those in foreign and in domestic currency. The exchange rate normally converts the foreign currency values into domestic currency. If, however, as is typical in most developing countries, the exchange rate is overvalued and not unified (implying a multiplicity of effective exchange rates as a result of the tariff and quota system), then the domestic currency valuation of foreign currency items at the official exchange rate will not give their relative social value. It will therefore be necessary to convert the various foreign currency items into their equivalent social values by using the implicit exchange rates for each commodity. This process is greatly simplified if all commodities are valued (in a relatively open economy) in terms of their foreign exchange value. Little and Mirrlees suggest that relative social values of commodities are most easily measured in terms of relative "border" prices, that is, the prices the country has to pay for imports or gets for its exports. (This assumes a country cannot influence its terms of trade, in which case the relevant marginal costs or revenues in foreign trade of the commodities will be their accounting prices.) These border prices will be the relevant accounting prices for fully traded goods, that is, for goods for which the impact of marginal changes is taken to be on foreign trade. For goods that do not enter foreign trade at all because of prohibitive transport costs, the accounting prices will be given by the cost of producing these nontraded goods in terms of the numeraire, namely uncommitted social income expressed in terms of foreign exchange. This is the Little-Mirrlees method for valuing nontraded goods, for which increased demand is met by increased production.

There will be, however, a third category of goods—which can be labeled partially traded—for which an increase in demand could affect

domestic production, foreign trade, and domestic consumption. It will be necessary to determine the proportion in which the extra demand is met from each of the above three sources. This done, the social costs of meeting the demand will be the weighted average of the social costs of a marginal increase in domestic production, decrease in domestic consumption, and increase (decrease) in imports (exports) of the goods, the weights being the estimates of the proportionate share of these alternative sources in meeting the increase in demand.

For the proportions which come from foreign trade and domestic production, the above general principles for determining social costs can be used. But what of the proportion that comes from decreased consumption? The effect of the increased demand for the partially traded goods would have led to some bidding up of their domestic prices, and hence the switching of consumer expenditure away from them to other goods and services. The accounting cost of providing these alternative goods and services to consumers will then be the social cost of obtaining the goods from domestic consumption for use on the project. It will normally not be possible to determine the "other goods and services" to which consumers shift their expenditures. However, if it is assumed that they consist of the same goods and services that make up the average consumption bundle for the economy, then by revaluing the components of this bundle at accounting prices, it is possible to determine its total accounting value. The ratio of the value of the consumption bundle at market prices to that at accounting prices will be the average aggregate consumption conversion factor for the economy. If the groups whose consumption is affected by the increase in project demand for a particular good can be identified, then, given their expenditure pattern, specific consumption conversion factors can be derived for any particular group of consumers.

These rules do not apply only where the economy is at, or moving toward, free trade. They can be derived within a second-best general equilibrium framework in which public sector investment decisions have to be made on the basis of given distortions between marginal social value and marginal social cost, some of which could be due to the existence of nonoptimal tariffs.

Having determined the social values of the commodity inputs and outputs, it is still necessary to take account of any distortions that may exist in labor markets and the general problem of weighting the various consumption changes (at shadow prices) which the investment project entails, intra- and intertemporally. For labor, it will be necessary to determine the accounting prices of types of labor which are dif-

ferentiated from each other both by differences in quality and by their location in space and time. The shadow price of seasonally unemployed agricultural labor will be different from that of skilled urban labor employed in modern factories. In determining the accounting prices of a particular class of labor in general, two main sets of considerations will have to be taken into account. The first is the output forgone in earlier employment, valued in terms of foreign exchange (the numeraire used here), resulting from the employment of a laborer on the investment project being appraised. The second is to weight any income gains which the worker or his family might receive if the wage paid in his new employment is greater than that received in previous employment. These weights will have to reflect such social objectives as the desired change in both the intratemporal and intertemporal distribution of income and consumption. These weights must ultimately depend upon value judgments, and there are obvious advantages to deriving them from an explicit and consistent set of value judgments. Given these weights, the net social cost of the increase in workers' consumption in terms of the numeraire (public income expressed in foreign exchange) can be determined and added to the social cost of the output forgone by their employment on the project to yield the accounting wage.

The discount rate in the Little-Mirrlees procedures—the accounting rate of interest—is given by the rate of change in the value of their numeraire (uncommitted public income) and will normally be different from the social discount rate used in methods which take aggregate consumption as their numeraire.

The derivation and application of appropriate shadow pricing rules is a means of improving public sector investment decisions. It is particularly important that a social evaluation of public sector industrial projects be institutionalized. Project appraisal has become common within ministries and departments as well as in central planning offices to evaluate major investments in both the private and public sectors. A centralized approach to the estimation and updating of the relevant shadow prices has become essential in many countries. Past experience suggests that, in making investment decisions about public enterprises, exclusive reliance on macroeconomic projection models and on techniques of the type used in material balance-planning models can be misleading. The investment choices suggested by such macroeconomic models should be checked by detailed appraisals.

Much of the art of good project analysis consists of forming judgments about national parameters. As these involve the specification of and choice between conflicting objectives, it is important that these

judgments be made centrally. The development of national income accounts provided a powerful tool for devising sensible macroeconomic policies. Similarly, it is hoped, the derivation of economy-wide shadow prices, once institutionalized in the same way as national income accounting, will enable the various microeconomic interventions of the government (whether they be in the form of its choice of alternative public sector investments or its pricing policy) to be made more rationally and consistently.

IV. Pricing Policies

Even more than public investment criteria, the pricing policies of public enterprises in most developing countries offer much scope for improvement. Particular pricing rules adopted by a public enterprise may have a pervasive effect on the economy through the market mechanism, distorting the use of resources and having social impacts other than those intended. Various ad hoc rules are often adopted, and the economic rationale behind many pricing policies is hard to discern. In some countries where public sector pricing policies are considered to be an instrument in anti-inflationary policies or income distribution, public sector prices are kept artificially low. At other times prices have been raised to whatever level the market will bear to generate public sector surpluses.

Two conflicting forces usually press on those who set prices: (1) the need to finance continuing public investment through public sector surpluses, which leads to pressures to adopt some form of average cost (or break-even) pricing formula; and (2) the desire to take account of the social effects, which normally means selling at prices lower than average cost and, in some cases of basic goods such as textiles, even below marginal cost.

The principles underlying the system of shadow pricing discussed above also enable these various conflicting objectives to be taken into account systematically and consistently in the quasi-optimal pricing policies of public enterprises. To see the general principles involved, as well as the link with the Little-Mirrlees shadow pricing rules, consider the problem of setting the price for nontraded consumer goods produced in the public sector. Clearly, the government should not set a price for this good which is below its marginal social cost. Suppose, however, that the government does set a price which is marginally

greater than marginal social cost. In addition to distributional effects, this will entail a loss of consumers' utility equal to the difference between the price set and the marginal social cost. Against this, however, must be balanced the change in public income (over and above that taken into account in deriving the Little-Mirrlees shadow prices) which results if the price set by the government is greater than the marginal costs of production at *market* prices—that is, marginal social cost *plus* the price effects of all distortions (net taxes). In other words, the marginal gains in terms of public income resulting from charging a price higher than the marginal cost of production at market prices has to be traded off against the marginal loss in terms of consumption which a marginal increase in the public sector output entails. Note that the gain is in terms of public income (the Little-Mirrlees numeraire), but the loss is in terms of private consumption. However, as part of the Little-Mirrlees shadow price set, there will be an estimate of a national parameter (the premium on public income in terms of private consumption) whose value enables private sector consumption changes to be translated into their equivalent public income value—taking into account the aggregate public income (and savings) constraint on the economy as a whole. On this basis it can be said that, at the second-best optimum, the quasi-optimal price of the public sector output will be achieved when the marginal loss in consumption converted into its equivalent public income value equals the marginal gain in public income.³

In the extreme case, if the premium on public income (savings) is infinite, the optimal price will be that at which marginal revenue is equal to the marginal cost of production at market prices—that is, the full monopoly price. In this case the public sector should behave as a private monopolist would in its pricing policy. If, on the other hand, there is no utility attached to public income (that is, there are no constraints on public income and hence on generating the desired level of savings over time), then the public sector's output price should be equated to the marginal social cost of production.⁴

3. As the price of the public sector output increases, the marginal increase in public revenue will reach a maximum when the marginal costs of production at market prices equal marginal revenue. It would never be optimal to set a price such that marginal revenue would be greater than the marginal cost of production at market prices. The marginal *increase* in public revenue is, therefore, given by the difference between marginal cost of production at market prices and marginal revenue.

4. Thus if q is the price set for the public sector unit output, whose marginal *social* costs of production are p and whose marginal cost of production at *market* prices is

Normally, however, the value placed on public sector income will fall between zero and infinity, and hence the quasi-optimal price will lie between the marginal social cost of production and the full monopoly price. The quasi-optimal divergence of the price from the marginal social cost of production is greater, the higher the value set on public sector income (savings) and the lower the elasticity of demand for the good.⁵

The value placed on public sector income (savings) takes account of the second-best intergenerational distributional problems and the extent to which current public income (and savings) are constrained. Within the same Little-Mirrlees framework, the interpersonal (intra-temporal equity) aspects can also be easily taken account of when determining the optimal price for a public sector output. The same framework can be readily extended to take account of interdependent demand curves in the public and private sectors or within the public sector, as well as in the pricing of public sector intermediate goods for sale to the public and private sector.

In fact, for nontraded producer goods produced in the public sector, the public sector pricing rules are relatively straightforward. In general, taxation on transactions between producers is undesirable, a condition which suggests that the price charged for public sector producer goods sales within the public sector should be the marginal social cost divided by the average divergence between accounting and market prices in the economy (the Little-Mirrlees standard conversion factor). This is based on the following argument. The price paid by private producers for the public sector's intermediate output will reflect its marginal value product at market prices for its use in the private sector. The marginal social benefit of the intermediate output's marginal use in the private sector will then be the value of the marginal physical product of the output evaluated at shadow prices. If the standard conversion

($p + t$), then, if s is the premium on public income in terms of private consumption and e the elasticity of demand for the good, the optimal pricing formula will be:

$$q[1 - (1/k \cdot e)] = p + t/k$$

where $k = (1 + s)/s$. As s approaches infinity, k approaches 1, and hence the optimal price is $q(1 - 1/e) = p + t$, that is, the full monopoly price. However, if s approaches 0, k will approach infinity and $q = p$.

5. This last aspect of the rule, the so-called inverse elasticity rule for optimal public sector pricing, as well as for optimal distortionary taxation to raise a given government revenue, is well known in the literature of second-best pricing policies for public enterprises.

factor measures the average difference between shadow and market prices, then the marginal social benefit will equal the price multiplied by the standard conversion factor. The second-best optimum will be where the marginal social benefit is equal to the marginal social cost, that is, where the price is equated to the marginal social cost divided by the standard conversion factor.

For public sector outputs which are tradables, pricing rules can also be readily formulated within this framework. With given tariffs and the production of a tradable consumer good by both the private and public sectors, clearly the given tariff-inclusive price will be the right one to charge. If, however, the tariff can be altered or the government is the sole producer of the good under a prohibitive tariff (so that it is in effect a nontradable), then the same considerations as are relevant in setting the price for a nontraded consumer good, discussed above, would apply.

In fact, to the extent that the quasi-optimal public sector pricing rules involve pricing the goods above the marginal social cost, they are equivalent to the determination of the quasi-optimal taxes on public sector outputs. These quasi-optimal tax rules under a variety of constraints have been studied by various authors, but obviously the precise rules will vary with the particular constraints that are specified. Nevertheless, the basic principles will be linked to the shadow pricing framework discussed in this part, and hence the particular rules for specific cases can be readily derived within this framework.

V. Management and Control

The problems of management and control have persistently bedeviled public sector enterprises. They are in essence the problems of assessing public sector performance and of providing managers with adequate incentives to attain technical efficiency in their operations. Poor financial performance is a common feature of many public enterprises. Both the proponents and opponents of private enterprise use the lack of financial profitability to grind their own axes. The proponents argue that public enterprises which are set up to subserve social objectives should not be judged by crude financial profitability, while opponents claim that not to do so at all is an open invitation to perpetuate waste and inefficiency.

As it happens, both groups are to some extent correct. Where private and social profitability diverge because of the various divergences between market and shadow prices, it is social profitability that is the

relevant criterion for judging public sector performance. But it is not necessarily the case that all socially profitable public investments need be financially unprofitable. It also cannot be assumed, without doing the necessary sums, that a financially unprofitable public enterprise is necessarily socially profitable. Public sector company accounts must present both the social and financial profitability accounts of various enterprises, for it is by its social profitability that a public enterprise's performance should be judged.

In a sense, the maintenance of social profitability accounts would be equivalent to the government's actually making the prices facing public enterprises equal to the relevant shadow prices. Thus, for traded goods, the public enterprise's social accounts would show the social cost as the border price of the goods, that is, as if the various import duties had been rebated. As such rebates would be merely transfer payments within the public sector, the government instead of actually transferring the money could equally well tell the public sector accountants to assume they had received the rebates. The same argument applies for any implicit taxes or subsidies in the difference between the market and shadow prices of nontraded inputs, as well as for the implicit wage subsidy in the difference between the shadow and market wages paid for labor by the public enterprise. Where public enterprises provide a form of unemployment relief by employing an excessive number of workers, such subsidies should be evaluated. Other forms of employment assistance are often much less costly.

However, in practice it may be better for these transfers actually to take place. Most managers prefer clear-cut financial objectives. The actual payment of the necessary subsidies (or taxes) to public firms would make their financial cash flows identical with the social cash flow, and conventional management tools for judging performance could then be readily applied. This desire of managers to see their shadow profits converted into something more substantial should not be a cause for worry, as it would not involve any net change in the government's financial situation. (This is not true, of course, if the implicit tax paid by the public enterprise is in effect a monopoly rent paid to a private producer for an input.) Similarly, if the industry would suffer a loss when the optimal price to be charged does not cover average social cost, as is the case with nontraded goods subject to increasing returns to scale, the appropriate subsidy should be paid to the enterprise.

If these practices became common, a much more meaningful appraisal of public sector performance would be possible. Furthermore, to the

extent that the transfers were actually made, the incentives for managers to base their productive decisions on shadow prices would be restored. This should also aid public sector efficiency.

Such an approach would require new attitudes toward the training of managers for public enterprises in manufacturing. At present managers are recruited either from the private sector or from other public service institutions and services. In the former case they do not appreciate the difference between social and private costs and returns and tend to run the enterprises to maximize financial returns, even if it means social subsidies through protection, price controls, or similar instruments. At the same time they tend to minimize risk in their new circumstances, thus combining the worst of the private and public enterprise worlds. Those managers who come from customs, education, or other administrative posts, on the other hand, have no experience in the dynamics of manufacturing and of the importance of risk taking. They are not familiar with the difference between private and social costs and returns. In some of the least developed countries they even lack such basic skills as double-entry bookkeeping. A country that is seriously concerned with establishing public enterprises in manufacturing has to give attention to the training of existing and new managers in the special skills required in public service business management.

It is necessary to reinforce further the incentives for management by ensuring that their material and psychic rewards are directly linked to social profitability. This is likely to be the most intractable aspect of public sector control and management. For even though in principle there may not appear to be much of a difference in the separation between ownership and management in the large public or private corporation, in practice there is likely to be an important difference because of the differing natures of the owners. As the literature on the modern private corporation has emphasized, there is still a powerful stimulus for managers of corporations to behave in the profit-maximizing way posited by theories of the firm which assume the existence of owner-managers. The threat of takeovers, which would be likely to occur if the stock market valuation of the company falls too low, reinforces such behavior because takeovers are normally followed by the sacking of top management. The latter are naturally anxious to prevent such a disaster. In this way owners (stockholders) can exert some influence on managers to maximize profits.

The problem with a public corporation is that there is no obvious source of such influence on its managers. True, public sector managers

will be subject to pressures from their "owners," the departments and ministries who often control their policies, but unlike stockholders, public sector owners are likely to be swayed by many objectives other than the social profitability of the enterprises under their control. The relatively anonymous pressures of the stock market on private corporation managers are replaced by powerful political pressures which often have little to do with efficiency. The problem of eliminating inefficient public enterprises is thus much more difficult.

To suggest that politicians and civil servants should judge public sector managers in terms of social profitability just as private managers are judged by stockholders in terms of private profitability is likely to be a counsel of perfection. For better or for worse, public enterprises are more likely to remain subject to the political process. This is inherent in their very form of ownership and control. To the extent that in many cases productive efficiency is likely to be sacrificed to political expediency, there could be a strong case against public enterprises. Hence, if a feasible system of government intervention could be designed which would manage the price mechanism so that private enterprises would subserve social ends, it would be preferable. It could tend, purely on grounds of second-best economic welfare, to serve the commonweal much better than the public enterprises whose efficiency is eroded by changing political forces.

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8

Infrastructure and Location

Mrinal Datta-Chaudhuri

Rosenstein-Rodan's "big push for balanced growth" strategy is the point of departure for the discussion of the role of infrastructure in industrialization in section I. The problems of location are then discussed in section II. Even if indivisibilities connected with infrastructural investment are ignored, a number of difficult issues have to be resolved in determining the location of industrial activities. Section III addresses the close links between patterns of industrial location and urbanization in a developing economy. Section IV discusses the role of the transport sector in this process. The problems of economic policy with respect to infrastructure and location in a mixed economy are then drawn together in the last section. As the issues of industrial location in a geographically dispersed economy can be posed only in the context of an overall regional policy, this section has a necessarily brief discussion of such policy, while indicating the questions involved in formulating public policies for industrial location.

THE ISSUES UNDER DISCUSSION here necessarily cover a wide range of development policy problems. Some have not been adequately researched, and consequently the development policies in this area have been framed on the basis of simple beliefs, some of which have turned out to be misjudgments. The main objective here, therefore, is to discuss some of the inadequacies in the framework of current development policies, with the hope that it might help in the design of sound prescriptive models.

The crucial role played by infrastructure (or social overhead capital) in the industrialization process was first forcefully brought out in 1943

in Rosenstein-Rodan's pioneer study of Eastern and Southeastern Europe. The special features of social overhead capital formed some of the building blocks of the development strategy Rosenstein-Rodan and his followers recommended for underdeveloped countries. That strategy called for a "big push" toward "balanced growth" among various sectors of the economy. After World War II the planning commissions or development ministries that drew up economic development programs, and the newly constituted international agencies, began to apply the big-push strategy to the new nations emerging after the collapse of the old empires. Economists and policymakers have since been debating the various aspects of this strategy, certain facets of which have been widely accepted, while others have been found to be of limited relevance.

Rosenstein-Rodan's analysis clearly relates the establishment of new economic activities (or, sometimes, the expansion of existing ones) to specific regions. He makes the point that the absence of infrastructure inhibits the setting up of production industries in backward regions, whether in mature industrial economies or in developing economies. In fact, one way of defining a developing economy could be to say that most, if not all, of its regions are backward.

Development economics, like other branches of economics, is essentially built on the concept of an economy that is a political unit. Hence economic policies can be used to affect development. Economists posed the problems relating to the development process in such terms as choice of technique, choice of a growth path for an economy, or choice of a structure of domestic production, given certain import and export possibilities. In each of these cases it is possible to describe the domestic economy (whether it be a market or centrally planned economy) as an integrated unit for the purpose of production and consumption.

Trends in international trade theory have supported the prevalent practice of ignoring the possibilities of regional imbalances within an economy. Most specialists in international trade were inclined to argue that, with the mobility of commodities and factors of production, there should be no need to pay particular attention to problems of inter-regional allocation within an economy.

Investigations of the economics of location during the last two decades cast serious doubts on this position. Even if the problems of infrastructural facilities are ignored, the siting of manufacturing industries usually requires an analysis of the location of plants. It then becomes unrealistic to ignore economies of scale and indivisibilities, two

key aspects of the economics of location. Moreover, when the transport and communication activities that are supposed to link markets at different locations are closely examined, certain special features of resource allocation in geographical space emerge. There appears to be a tendency toward the agglomeration of economic activities and the creation of certain kinds of external economies which further accentuate the agglomeration process.

I. Infrastructure and Industrialization

The big-push theory rests on three sets of indivisibilities. The first is indivisibility in production, particularly in the supply of social overhead capital, a phenomenon involving lumpiness in the creation of such capital. The second, which arose from the low price elasticity of demand in a poor economy, involves the strong complementarities in the structure of demand. The third relates to the supposedly kinky nature of the supply schedule of savings.

Rosenstein-Rodan regarded the first type of indivisibility as the most important source of external economies in the process of development. Its services are indirectly productive and become available only after long gestation periods. Its most important products are investment opportunities created in other industries. Social overhead capital comprises all those basic industries like power, transport, or communication which must precede the more quickly yielding, directly productive investments and which constitute the framework of infrastructure and the overhead costs of the economy as a whole. Its installations are characterized by sizable initial lump and low variable costs. Since the minimum size in these basic industries is large, excess capacity will be unavoidable over the initial period in the underdeveloped countries. In addition, there is also an irreducible minimum industry-mix of different public utilities so that an underdeveloped country will have to invest between 30 and 40 percent of its total investment in these channels.

In addition to this source of indivisibilities and scale economies on the production side, there are strong complementarities on the demand side. If the economy's capacity to generate investment funds improves substantially when aggregate income starts growing rapidly, the requirements of a successful development strategy seem to be clear: planning authorities should initiate a massive investment program with a

sectoral composition carefully worked out to take care of the various complementarities and indivisibilities for both supply and demand.

Implicit in this strategy is the assumption of a closed economy, and some economists have been quick to point out the decisive role this assumption has played in the analytical framework. Unfortunately, the framers of development policies did not analyze its full implications, even though the importance of market size in resource allocation has been recognized in economic literature since the days of Adam Smith. In traditional theory, international trade is supposed to take care of the constraints imposed by the complementarities of demand in a poor or small country.

The extent to which a developing country at any particular time can take advantage of commodity transformation through trade and specialization is an empirical question. It is important to recognize that quantitative economic analysis does not always provide convincing answers, and such is the case here. It is impossible to take an axiomatic stand on this issue for all developing countries. Developing economies vary in their export potential; trade possibilities do not remain static, but tend to increase with development. This limits the applicability of the balanced growth component of the big-push theory. But development economists by and large have recognized the importance of external economies in the development process, particularly in the creation of infrastructure. External economies are included in the balanced-growth theories of Lewis and Nurkse, in Hirschman's theory of unbalanced growth, and in the concept of "critical minimum effort" developed by Leibenstein.

Although these theories emphasize the importance of externalities in the sphere of production, when it comes to the formulation of a rational development strategy for a developing country, they fall short of providing operational criteria for the creation of lumpy investments in infrastructure. First, the sectors which constitute the infrastructure must be identified. Second, economic criteria for the investment and management of social overhead capital must be indicated. Third, the economic links between the services of the infrastructure and the working of the directly productive sectors of the economy must be known.

With respect to the first, a narrow definition of infrastructure would focus on the "hard" public utilities such as transportation and communication, power generation and transmission, urban facilities such as sewerage, and water supply. In the development of agriculture and allied activities, irrigation systems and other construction works direct-

ed toward water management form the infrastructure. In terms of social overhead capital, given the broad range of issues in a developing economy, education, scientific research, sanitation and public health, and the entire structure of the judicial-administrative system within which economic activities function should also be included. The current state of knowledge, however, makes it almost impossible to quantify relationships between the latter type of infrastructure and directly productive activities, and there is therefore no way of going beyond generalities to evolve precise investment criteria for this kind of infrastructure.

Although often difficult in practice, quantification is possible for the hard public utilities, as it is for agricultural overhead. A two-sector model may be used to analyze investment criteria in the presence of scale economies in the creation of overhead capital.

Two types of capital— K_a and K_b —are distinguished. K_a is the directly productive, quick-yielding capital which, combined with labor, produces output. K_b is the indirectly productive infrastructure that lays down the basic framework within which directly productive economic activities can function. The model framework may be specified as follows:

- Capital of the b type is strongly complementary to a . Investment in a capital will be productive only if it has been preceded by sufficient investment in b capital.
- The b sector is highly capital intensive and usually consists primarily of structures and installation. It is typically characterized by a significantly higher capital-labor ratio than the a sector.
- There are substantial economies of scale in creating b capacity. Indivisibilities mean that cost lumpiness is involved in creating transportation, communication, or power and water systems as a whole.
- Both b and a capital are specific to the roles for which they have been created and cannot be shifted.

The problem is to find out in what manner savings should be allocated between the a and b type of capital to achieve optimal growth. The optimization exercise clearly shows that in the initial phase of development the economy should concentrate on creating as yet unproductive overhead capital. Because of scale economies in this sector, considerable excess capacities of overhead capital need to be created. In the next phase, savings go to create directly productive capital, and, with

the quick-yielding nature of these investments, output increases at a fast rate. Soon the stage is reached when excess capacities in the infrastructure become exhausted, and the economy once again needs to concentrate on creating overhead capital, and so on.

The phase in which the economy concentrates on the creation of infrastructure is, in Rosenstein-Rodan's language, the stage of the big push. A highly aggregative model of this sort cannot, of course, capture either the diversities within the infrastructure or the complexities of production caused by commodity composition or location. Hence the model prescribes phases involving extreme specialization. Nonetheless, when indivisibilities and scale economies are important features of the infrastructure, the model does throw light on certain workable investment criteria and a rational development strategy. It shows how the stages of the big push are likely to decrease in importance as the economy develops. A mature industrial economy need not pay undue attention to the problems created by external economies for the working of a decentralized system. For an economy in the early stages of development, however, careful programming of social overhead capital is extremely important, so that productive investments are not inhibited for lack of overhead facilities, and excessive amounts of scarce resources do not become locked up in unproductive infrastructure facilities.

So far, the discussion of the problem of industrialization and of creating the necessary infrastructure has been based on the assumption that the developing economy is one integrated market, that is, without regional allocation in a small geographical area. The assumption makes sense for city-states such as Singapore and Hong Kong. For many other small countries, it is also a fairly good first approximation for investment allocation. For a large and geographically dispersed country, however, the question of creating social overhead capital (transport and communication facilities, power, urban services, and other systems) cannot be posed meaningfully without specifying where these facilities are to be installed. They must obviously be established where the various productive enterprises will be located. If geographical distribution, composition of commodities, and time pattern of growth of the directly productive economy were known beforehand, it would be possible to work out the required distribution of social overhead facilities. The problem is to make all choices simultaneously within the context of the overall resource constraints of the economy.

This kind of grand optimization exercise is beyond the current state of knowledge of computable models. Even if heroic assumptions were

made regarding the geographical pattern of the growth of the productive economy, the investment allocation of overhead capital in a multi-regional economy would present difficulties. It would be especially difficult to evolve simple guidelines for the scale, location, and phasing of these investments for a geographically dispersed economy.

II. Industrial Location and Industrialization

The externalities and economies of scale in the creation of overhead capital are not the only problems in planning for an optimal strategy of industrialization in a geographically dispersed economy. The locational or regional allocation problems involve complexities of their own. A developing economy, particularly a geographically dispersed one, cannot afford to ignore these problems in the process of its industrialization because of the substantial likelihood that scarce resources will be wasted through regional misallocation.

The choice of location or regional allocation in the process of development is made in the context of certain conflicting or seemingly conflicting policy objectives. The creation of employment and income for the unemployed and underemployed has admittedly become the most important goal of development. The lack of investible resources and considerations limiting the absorptive capacities of the economy mean that these goals cannot be attained quickly. Over a period of time the process of economic development (industrialization, in particular) does allow more and more people to find gainful employment and thus decreases poverty and backwardness. The problem of intertemporal choice in this sphere—employment today against employment tomorrow—has been emphasized in the literature on development planning. A similar problem of interregional choice is present in any large country and is a particularly difficult dilemma to resolve politically, especially in a federal country where the process of regional allocation must occur through certain institutionalized mechanisms of bargaining.

Overall economic development requires growth at different rates in different areas. If attempts are made to industrialize very poor and backward regions before their absorptive capacity has been built up, such efforts may well retard the growth of more developed areas and slow overall development. This in turn will delay genuinely productive investment in backward areas. Inefficient regional investment allocation leads to a waste of scarce resources and often burdens the transport

system unnecessarily. Production costs rise and lead to losses in savings and investment potential. Inefficient plants operating at unsuitable locations require subsidies (which are frequently hidden in complex, administered pricing formulas), leading to further waste and price increases.

Every large country is familiar with such distortions. In India, for example, an oil refinery was established in Assam to refine the small quantity of crude oil produced in northeastern India, even though the bulk of the refinery products had to be shipped to distant Calcutta. The capacity of a highly capital-intensive industry such as an oil refinery to generate local employment was low, and a considerable loss of resources resulted from the sacrifice of the economies of scale in the construction of the refinery and from the considerably higher transportation costs for its products (as against crude oil).

Another case in India involved the railways' practice of subsidizing long-distance shipping of coal from the Bengal-Bihar coal fields to industrial and other consumers in western India. The objective presumably was to promote industrial development in western India by reducing energy costs. But in fact this inhibited the development of higher-cost coal fields in central India which, given the geographical distribution of primary resources and markets in India, were more efficient. It also prevented the use of other energy sources, notably fuel oil, which probably would have been more efficient for industries in the western and southern regions of India. Such well-motivated but misguided subsidies induce uneconomic technological and locational choices for a whole variety of industries. The location of these industries in turn influences the location of other industries through input-output linkages. Powerful vested interests develop to prevent the removal of the subsidies, and the whole process becomes irreversible.

Another example (again from India) of well-motivated but counter-productive policy intervention to promote "balanced regional development" is the parity price for such construction materials as steel and cement. The delivery price of construction steel and cement were equalized for the different regional markets in India to remove the differential advantages of the various regions in initiating investment programs. It can be argued that this policy in fact hampered the growth potential of certain regions meant to benefit from this policy. The mountainous states of Jammu and Kashmir should logically have used local wood and forestry products for building construction, rather than steel and cement which had to be transported over a long, difficult

route. The well-endowed forestry-based industries in the states would have developed rapidly. The price equalization policy thus led to double wastage of national resources by promoting unnecessary transportation for construction materials and inhibiting the exploitation of local natural resources.

The illustrations bring out the nature of the conflicts and the complexities of formulating regional allocation policies in a large or geographically varied country.

The case for technical efficiency must not be overstated. Labor markets in developing economies are notoriously imperfect, with inadequate mobility and high costs of information. Therefore planning authorities may logically decide to choose a rational second-best policy for siting industries in regions where the unemployed and underemployed are concentrated, rather than hoping that these people will be able to move to job opportunities created in the most advantageous locations. Still, such a second-best policy will be rational only within a framework that captures the interrelated technological, behavioral, and institutional relationships governing the structure of the economy. Piecemeal, ad hoc interventions tend to be counterproductive.

The important question is thus: to what extent can development planners meaningfully consider an optimal pattern of location of economic activities in the process of industrialization? In recent years the theory of resource allocation in geographical space has made significant progress. The results of investigations in this area suggest that even in the classical environment, that is, one without indivisibilities or internal and external economies, determining the optimal pattern of location for the various activities in a large and complex economy becomes computationally prohibitive. In fact, it is often difficult to establish the optimality of any pattern of location. A tendency toward agglomeration may be expected, whether a central authority or factory managers are determining the locations. It seems, moreover, that even in the classical environment, an optimal locational pattern is unlikely to be generated by the market mechanism.

These conclusions cast serious doubt on the confidence that earlier authors had in the argument that interregional economics was essentially an extension of well-known propositions of international trade theory, built around the comparative statistics of general equilibrium theory. The introduction into the theory of resource allocation of geographical space, with uneven distribution of natural resources and transportation, creates a number of complexities that trade theory can-

not handle. For example, once transport costs are taken into account, any siting solution aimed at minimizing cost (or maximizing profit) tends to lead to a nodal solution. If an assembly plant is to be located on a line between the source of all its inputs and another point that is the sole market for its product, the problem is to choose a site which minimizes total transport costs, that is, the costs of moving the inputs from the source to the plant plus the cost of delivering the product from the plant to the market. The plant must lie between the source and the market. If the transport cost of moving a unit of any commodity is proportional to the distance, then, obviously, the minimum cost solution is either the source or the market. A more realistic assumption is that the unit transport cost goes up less than proportionately with distance, but this assumption only reaffirms the earlier result of a nodal solution. If handling costs for loading and unloading are introduced, the nodal nature of the solution is further reinforced. If any transshipment is involved (because of the necessity of changing over from one mode of transportation to another), then such transshipment points form nodes and may attract industries. Efficiency in resource use implies a tendency toward locating industries in mining cities, cities which produce important producer goods, those which are big market centers, or port cities. As the product of one industry is sometimes the input of another, over a period of time the larger cities grow to attract more industries, generate more purchasing power, and emerge as very large centers of population and industrial growth.

These tendencies existed even in the context of efficient resource allocation in a classical environment, that is, one without indivisibilities or internal or external economies. But when the problem of industrial location is discussed, decisions have to be made at the plant level, and here it is impossible to ignore indivisibilities or scale economies. Any programming of locational decisions at that level, therefore, has to incorporate the essential externalities of the production structure.

The methods of dynamic programming and integer programming are ideally suited to this problem. Several researchers have used nonlinear programming techniques for choosing sites in planning under indivisibilities and economies of scale. But given the current level of computer technology, these techniques can be applied only when the problem is a relatively small-scale one.

Apart from trying to choose sites through programming techniques, it is important to investigate the extent to which a price mechanism can induce optimal locational choices in a framework of decentralized deci-

sionmaking. Knowledge in this area remains inadequate. The competitive price mechanism may not be negated as a satisfactory allocation device by the presence of indivisibilities alone, but almost certainly would be if these indivisibilities were combined with interdependence among firms, the results of interindustry flows. There have been some suggestions of using shadow pricing rules based on separable fixed and variable costs, which would support the optimal decision. These rules, no doubt, indicate the direction in which corrective fiscal and pricing policies should move. However, results fall far short of demonstrating the workability of any general economy-wide decentralization procedure when indivisibilities and scale economies are important and widespread.

In discussing the working of the price mechanism with respect to locational choices, it is important to keep in mind that the behavioral rules of perfect competition are unrealistic in the spatial context. In geographical space, every seller has a natural market area, and competition naturally leads to the clustering of different sellers next to one another.

The point is easy to demonstrate when the locational pattern of any kind of a service center on a road is examined. The optimal location for the first service center is the one which minimizes the aggregate transport costs of all consumers. But whatever the location of the first seller, it is rational for the second seller to locate near the existing one to maximize his own market area. When geographical space and market areas are introduced, the profit-maximizing pricing policy of any seller is no longer the competitive one, but involves price discrimination.

For a firm, particularly a unit of manufacturing industry, choosing a location rationally involves evaluating costs and revenue fairly far into the future, something that cannot be done with certainty. Decision-making under conditions of uncertainty brings in new dimensions of the problem: the needs to assess the probabilities of the various uncertain outcomes and to take a position in an inherently risky situation. Typical items of uncertainty are the availability of the materials and services required for production units and access to a profitable market.

Materials are often supplied by other firms, sometimes transported from other places. With respect to service, the first requirement is for a labor force with the requisite skills. Second are such infrastructure as water, electricity, transport, and communication services. Third come financial and market institutions. A large industrial unit such as a giant steel mill often provides most of these services itself. It builds its own

township with housing and other urban facilities and creates its own units for procuring inputs, for marketing, and for supplying financial services and such technical services as repair and maintenance. But small- and medium-size units depend on outside agencies for these services. Thus while the siting of large units is decided on the basis of the usual determinants of location theory—geographical distribution of natural resources, transport costs, and economies of scale—small- and medium-size industrial units must consider in addition to these factors, the availability and costs of other kinds of market and public services. In a developing economy, particularly in its backward areas, there may be substantial uncertainties in these categories.

Small- and medium-scale entrepreneurs are averse to risk and thus tend to locate in large urban agglomerates where they can be sure of getting regular services from public utilities and well-developed markets. These advantages outweigh the seemingly cheaper small-town locations where, for example, they may not be able to obtain necessary spare parts and services of competent mechanics quickly. They would be likely to have to maintain higher inventories of raw materials and finished products because of irregularities in transport and supply networks. Further, other agents who can share in the costs of services are not available outside big cities.

These are only some of the problems inherent in locational choice under conditions of uncertainty. Other questions include the behavior of rivals, the state of the environment regarding production decisions, and the diffusion of the learning process affecting production techniques. Other factors, involving transport and communication, have not been adequately analyzed, but clearly they are greater in developing than in industrialized countries, and greater still in the backward areas. The forces of industrial agglomeration are thus more powerful in developing countries than in mature industrial societies.

III. Industrial Agglomeration and Urbanization

A large body of literature centered on regional analysis has analyzed the impact of economies of plant location on urban development. Surveys of the economies of location indicate that even if an optimal pattern of the location of economic activities could be designed, there would be a tendency toward clustering. This tendency is likely to be stronger in a

decentralized, price-guided system than in a centrally planned economy, and in a developing rather than an industrialized market economy.

Strong interindustry linkages and other external economies are seen to result, over the course of industrial expansion, in the creation of "growth poles" that are at the center of urban growth. Key industries are those which are particularly effective in attracting other manufacturing and commercial activities. Such a geographically concentrated and rapidly growing economic center attracts social as well as economic activities. The forces of agglomeration in the process of industrial growth thus lead to the creation of big cities. These cities in turn attract commercial establishments, financial institutions, and other industries. Job seekers from rural areas and other backward regions migrate there in search of jobs. The creation of new jobs fulfills the expectations of some, in turn arousing more expectations in backward areas, and more people rush in. Given this spiral of expectations and attractions, the city spreads into a vast megalopolis. The high growth rate of these cities, coupled with their unplanned nature, creates congestion and pollution and places excessive demands on public utilities and other services. Since these services are often free, or at least not priced according to resource costs, the apparent cost of an incoming industry is often less than its true social cost.

Social scientists, policymakers, and journalists all over the world have been showing concern at the seemingly limitless growth of these megalopolises. Developing countries are often advised to avoid the mistake of allowing concentrated growth in a few urban centers as developed countries did in their early phases of industrialization. But what is the right size for a city, and what is the right pattern of urbanization for a particular economy? If the answers were known, the next question would be how a society influences urban growth to correspond to a desired structure.

To answer these questions, all the various economic relationships which determine locational decisions at the micro level must be identified. Input-output relationships are easy to identify and quantify. Other costs and benefits arising from a firm's proximity to the market, however, relate to its informational links with the various market and non-market institutions; these are difficult to identify and almost impossible to quantify. This is why most optimization exercises for city sizes are of limited operational usefulness. For the same reason, the search for an alternative growth pole to act as a countermagnet to an overgrown

megalopolis often results in wastage in the form of newly created infrastructure that remains largely unused.

IV. The Role of the Transport Sector in the Process of Development

It is evident from the discussion of the economies of location in the first and second sections that of all the various infrastructural services, transportation plays the dominant role in the locational pattern of economic activities. Its importance has long been recognized by policymakers, journalists, and economists and is reflected in the development programs prepared by developing countries today. Transport often absorbs 20 to 40 percent of total development expenditures, in addition to the considerable amount of private capital allocated to transport equipment. Such expenditure requires that the use of resources for transport be carefully assessed. Although transport costs are often ignored in industrial planning, they can be a vital factor in efficiency and competitiveness and other aspects of economic growth.

The expansion of the transport system can trigger a process of self-sustained growth. The development of a transport network links different regional markets of an economy and leads to better allocation of resources through a more rational division of labor. In the short run, the reduced transport costs that result from expansion of the system create greater demands for the products of a region. Because delivery prices for consumer goods are lower, benefits accrue to consumers as well. In the long run, new investments are encouraged in different locations (particularly in the backward areas), partly because industries are attracted away from other locations and partly because idle (or unprofitably used) resources are redirected into new enterprises.

While this no doubt is a standard pattern, it is still difficult for a development planner to evaluate transport development projects. The identification of the costs and benefits accruing to existing and already located firms and individuals is not difficult, although quantification is invariably extremely tricky. Forecasting the magnitude and the pattern of induced investments and movements, however, can be hazardous, and economists usually resolve the difficulty by ignoring or assuming away these items. Yet often the essential justification for building a road to a backward area is the expected growth of new activities there. Unless someone is prepared to make a judgment regarding the future

investments expected, the road will not be built and the development potentials of the regions may not be realized.

This aspect of investment in transportation (or in social overhead capital in general) is, according to some development economists, the most important in the context of economic development. As Nurkse said, "it respects a non-specific, initiatory, pioneering type of investment . . . Projects of this sort are built not to meet existing need but to create one. Their role is that of trail blazers."¹ The trouble is that the "trail" is difficult to measure and the extent of the "blazing" hard to predict.

There are other problems in evaluating transport projects. The difficulties of indivisibilities associated with all infrastructural investments have long been known. The problem of evaluating the services of an indivisible asset has attracted the attention of successive generations of economists. Many have analyzed the problem of costing and pricing transport services which are subject to indivisibilities and overhead costs.

The problem of pricing transport services is closely related to that of evaluating an investment project. The importance of deriving transport costs that reflect the true social opportunity costs for resources employed in providing transport services was discussed in section II. When there are indivisibilities and overhead costs, it is difficult to measure the resource costs of an additional unit of transport services demanded by economic agents. There is general agreement that the price should include the relevant incremental costs which are principally a function of prospective volume in relation to present volume. But the length of time and rate at which the prospective volume is likely to be achieved, the prospects for its continuance over the longer run, and its seasonal and other peaking patterns are all relevant to determining appropriate incremental costs.

The time horizon is also very important in calculating the relevant incremental costs. Over time different categories of demand for transport services can be shifted or are absolute to varying degrees. Some kinds of demand for passenger transportation, for example, are easily shifted. When fares are lowered for some routes at some time, passengers can readily change their plans to take advantage of them. If the fare

1. Ragnar Nurkse, "Further Comments on Professor Rosenstein-Rodan's Paper," in Howard S. Ellis and Henry C. Wallich, eds., *Economic Development of Latin America*, Proceedings of the International Economic Association Conference (New York: St. Martin's Press, 1961), pp. 74-81.

structure changes again, demand can again change without difficulty. The relevant time horizon for computing incremental costs for this category of services should be low to benefit consumers.

Another category of demand for transportation is much less flexible. The pattern of transportation required to move intermediate goods to a factory may not be easily shifted in response to a change in the fare structure. Therefore, the location of industrial units is decided on the basis of expected long-run transportation costs.

Thus to ensure the optimal allocation of the economy's resources, a discriminatory fare structure should be devised for certain categories of transport services, based on the short-run excess capacity of the transport system. For certain other categories, notably for industrial raw materials, it is important to devise a fairly stable fare structure based on long-run development and the transportation network. Taking a short-run view of the latter category of services may cause technological and locational miscalculations with respect to user industries, resulting in permanent or semipermanent misallocation of resources.

In addition to this classical problem of devising pricing formulas for services which are subject to indivisibilities and overhead costs, another problem associated with pricing transport or communication services arises from the congestion that almost inevitably develops along certain links of a network. Users' costs do not reflect the additional costs of such congestion. Various policy options, including high charges for peak use of facilities, have been developed to deal with this problem.

V. Infrastructure and Location in a Mixed Economy

The development of infrastructure services is a precondition for the location of directly productive industrial enterprises in a backward economy. The degree and the manner of control by the public sector varies from country to country, but public authorities everywhere play an important role in regulating the development and the management of these services. The problem is to determine the desirable content of public policy in this area for a developing economy.

The instruments of policy available to planning authorities tend to determine what action will be taken. In a centrally directed system where government is directly involved in making investments in all the overhead and productive activities, it is, in principle, possible to coordi-

nate the direction and phasing of the entire investment program of the economy so as to keep excess capacities to a minimum. In practice, it is extremely difficult to coordinate a vast investment program efficiently by any system of direct command, although the achievement of the USSR in this sphere was quite impressive in the 1930s. It used its meager transportation facilities to the utmost, while allocating most of its resources to expand directly productive activities.

In a mixed economy most of the directly productive enterprises are in the private sector, where profitability affects decisions. The government can influence private calculations of profitability only indirectly through a system of taxes and subsidies. It can also exercise direct one-sided controls through licensing to prevent private investments in certain areas. But the government lacks any means of directly inducing private investment into an area. Thus the instruments of planning in a mixed economy are (1) direct investments in infrastructure and certain productive industries, (2) selective fiscal policy involving taxes, subsidies, and credit control, and (3) licensing of private investments and rationing of certain inputs. Obviously, in such a situation it is impossible to reverse the causal sequence in which overhead investment must precede direct investments. Consequently, the system must tolerate substantial excess capacities in the various overhead facilities. Sufficient public investments should go into the creation of infrastructure so that the industrialization process is not hindered by a lack of these facilities.

It is, however, essential to economize the scarce resources of a poor country. Social criteria for formulating and evaluating investment programs involving overhead capital are crucial. The methodology of the social cost-benefit evaluation of investment projects has advanced greatly in recent years, but infrastructure projects are still hard to evaluate for lack of any truly satisfactory method of valuing nonpriced or non-traded goods and services. Moreover, there is no satisfactory way to deal with the externalities of the kind inherent in transport or communication networks because the resource allocation and price theories on which these investment criteria are based usually are too abstract to handle these difficulties.

Rosenstein-Rodan's original suggestion was to adopt a programming approach instead of the usual project approach. As noted already, given the current state of the art in computer technology, it is unrealistic to assume that economy-wide programming models can help to solve deci-

sionmaking problems at the micro level. The problem of economy-wide allocation is particularly difficult when both intersectoral and inter-regional dimensions are present.

For geographically dispersed, overpopulated, backward economies, certain overall judgments about regional development policies are possible and can provide a workable framework for evolving investment criteria regarding infrastructure and the location of industrial enterprises. In a country such as India, for example, it is unrealistic to assume that expanding the large- and medium-scale manufacturing industries and associated service sectors can solve the problem of poverty and unemployment in the near future. Even given the most optimistic assumptions regarding the growth rate and labor intensity, the expected rate of increase in employment in this sector will remain inadequate in the face of the overall supply of labor. Therefore, agriculture and agrobased rural activities must be restructured to meet the distributive goals of society.

If these premises are accepted, the objective of promoting balanced regional development for a country such as India will require that comprehensive area development programs be prepared at different regional levels to generate work for the unemployed and the underemployed in agricultural and allied activities. Details of such programs are beyond the scope of this chapter. Such a regional development strategy, however, can tackle the problems of poverty in depressed regions and also free the country's industrialization program from the need to meet the distributive objective through nearly impossible and potentially wasteful policies of geographical dispersal.

A simple decomposition, proposed above, would make the problem of locational choices in industrial development more manageable. If agriculture and allied activities can meet the essential objectives of regional equity, then the industrialization program can make efficient use of resources. A multiregional planning exercise using simplifying assumptions (for example, ignoring indivisibilities and scale economies) can provide some preliminary answers.

Once a regional pattern of development for different industries is available, it is possible to construct a broad picture of the demands for energy and interregional transportation for the multiregional economy. Then a sectoral programming model for energy and transport can be developed. An overall view of the interregional flow of commodities will facilitate investment choices in the transport sector. The basic criterion for project choice is the same as for any project in the commodity production sector: maximization of present value. The real difficulties

arise when judgments regarding induced investment in a backward area are needed.

Although investment programming and project evaluation in the energy and transport sectors present many tricky problems with respect to estimating demands and evaluating future benefits, methodologically they do not require any drastic change in the usual framework of economic analysis concerning investment choice. It is with the other elements of infrastructure—the urban facilities such as water, sewerage, and market and nonmarket institutions necessary to attract industries and trade to an urban center—that cost-benefit analysis may not be useful. These services are either free to private entrepreneurs or cannot be charged at a rate that adequately reflects resource costs. Moreover, it is often difficult to quantify some of them fully. Therefore, instead of applying cost-benefit analysis, demands for these services must be forecast and plans prepared for supplying them as cheaply as possible.

It is important to take a long-term view of the expected growth rate of an urban center before preparing the physical plan of its urban infrastructure, since there are indivisibilities in this infrastructure, and congestion may well develop. Today, regional economic scientists are convinced that developing countries should not make the mistake of permitting unplanned urban development, as happened in the mature industrial economies. The forces of agglomeration in the industrialization process are so strong, particularly in the early phases of development, that lack of planning inevitably produces giant megalopolises in which the quality of life is low. It also leads to inefficiencies in the use of resources.

Given this premise, there is the problem of how to disperse economic activities effectively. It is necessary to identify alternative urban centers which can act as growth poles and to create infrastructure in those places to support vigorous urban industrial developments. However, it is unclear whether the creation of infrastructure alone will affect other productive enterprises. Japan's experience in developing new areas and removing bottlenecks in the Tokaido megalopolis is instructive. A unified development strategy was devised to correct regional imbalances, eliminate the growing inefficiencies of large cities, and create new bases for development. To these ends, public investments were channeled to create (1) an industrial base by providing factory sites and water, transportation, communications, and electric power supplies; and (2) a proper environment by providing housing, water supply, sewerage, educational, and entertainment facilities. Local governments also offered tax concessions to the enterprises coming into the new towns. Despite

these efforts, the new centers seldom succeeded in attracting many enterprises. Entrepreneurs preferred to invest in the congested areas within the Tokaido megalopolis rather than move to these apparently cheaper locations.

India's experience in promoting industrial estates has been similar. The estates established near the metropolitan centers by and large succeeded, while those in backward areas have low occupancy rates. The field of the economics of urbanization needs much more study before a package of dispersal policies can be recommended that will prevent wastage of scarce resources and have a chance of success.

Beyond the development of social overhead capital, the other important policy issue in regulating the location of industries in a mixed economy is the pricing of transport, energy, and other important services. Their importance has already been discussed in the first and second sections. To formulate a rational pricing policy in the transport and energy sector, it is possible to work out approximate rules so that prices reflect long-run resource costs.

The problem is much more complicated with respect to other kinds of overhead capital. Edwin von Boverter has written in the concluding chapter of a collection of essays on spatial economic theory:

In the interest of equalizing marginal private and social overhead costs, all firms should be taxed so as to raise their cost levels to their marginal social costs. The application of this principle would limit the expansion of centres with negative agglomeration economies and encourage the growth of centres with social overhead costs whose marginal values are below their respective average; the latter case would call for subsidies out of the surplus of other regions. In this case welfare economies would thus strongly justify inter-regional transfer payments in this connection.²

This more or less summarizes the knowledge and hopes in this field. Precise quantitative bases for these fiscal policy prescriptions seem as yet beyond the reach of economists.

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9

Industrialization and Agricultural Development

Edmar L. Bacha

Agriculture has an overwhelming weight in the economies of developing countries, particularly at the beginning of the industrialization process. However, there has been a tendency to push agricultural growth into the background in favor of industrial development. The relationships between agricultural and industrial development are the subject of this chapter. The range of issues is so large that it has been necessary to be selective. The analysis focuses on two critical roles performed by agriculture during the process of industrial development: providing food for industrial workers and supplying foreign exchange.

THE INTERRELATIONSHIPS between growth in manufacturing and that in other sectors of the economy are critical for industrialization as well as for overall development. Policymakers have long been conscious of the importance to manufacturing of investment in infrastructure. However, economic analysis has largely neglected intersectoral links, concentrating instead on either macroeconomic or sectoral and subsectoral issues.

Full treatment of the linkages between manufacturing and other sectors would require a book in itself. Industrialization is affected by the availability and prices of inputs from agriculture, forestry, and mining; the characteristics of the social infrastructure; public utility services and their prices; and the whole gamut of commercial services. Food supplies to urban industrial areas are also an important factor. In turn,

manufacturing supplies to other sectors such materials as fertilizers, construction goods, and capital goods. Underlying the industrialization process are population shifts from rural to urban areas.

This chapter focuses on what is generally the most important of the connections between industrialization and other sectors—the relationship with agriculture.

Agricultural economists usually analyze the role of agriculture in economic development in the context of models of closed economies. Foreign trade is absent, and final demand linkages and input-output relations ensure a perfect complementarity in production between agriculture and industry. International trade theorists, on the other hand, caution that when trade intervenes, demand interrelationships need not imply supply complementarities. Exports and imports may be large enough to offset the relation between domestic demand and domestic supply of major commodities. In the stylized view of agricultural economists, industry and agriculture produce only goods for domestic absorption which for one reason or another cannot be subject to international trade. In the simplified vision of international trade theorists, all agricultural and industrial goods are internationally traded. Empirically, the first view aptly describes the economy of large countries, but the second has more applicability to countries of less than 15 million population, in which imports typically are 40 percent or more of the total supply of commodity consumption.

The position taken here is midway between the models of international trade theorists and the agricultural economists. In section I, dealing with food supply, agricultural production is assumed not to be subject to international trade, whereas industrial commodities can be freely imported and exported. The analysis is conducted in terms of a dual economy where agriculture provides the growing urban sector with both workers and wage goods. Attention is focused on the problem of producing an agricultural surplus for the urban market and on the connections between economic growth and the agricultural terms of trade. In section II, dealing with export agriculture, the roles are reversed: agricultural output is a traded commodity and industry a producer of domestic goods. Industrialization and export agriculture are discussed in terms of a simplified analysis of a foreign exchange-constrained economy, in which the industrial sector neither exports nor competes with imports. The discussion centers on the consequences for the pattern and rate of economic growth of the developing economy of a “squeeze” on agriculture through foreign exchange controls.

The purpose of these semi-open models is not to discuss the advantages or disadvantages of food self-sufficiency or autarkic industrialization, but rather to inquire into the policy issues that arise under such empirically relevant scenarios.

The difficulties associated with policies relying solely on the price mechanism to promote a “virtuous circle” of interactions between industry and agriculture are reviewed in the third and final section.

I. Industrialization and the Food Supply

In this section, two-sector models are used to study the interrelationships between industry and agriculture. While historically labor market linkages have been perhaps the first connection between the two, product markets eventually became the dominant focus of their interaction, as described below. The need to provide food for the growing urban labor force gives rise to so-called marketed surplus problems. Here these are analyzed in the context of the Soviet and the Japanese experiences. In the final part of this section, the thesis that agricultural growth in mixed market economies is causally linked to the agricultural terms of trade is discussed in terms of the induced innovation hypothesis proposed by Hayami and Ruttan.

The Dual Growth Models

The relationships between subsistence agriculture and manufacturing industry rarely fit the enclave growth model in which a modern export sector develops by importing labor, capital, food, and raw materials, with traditional agriculture remaining as a purely subsistence activity without any connection to the growth of manufacturing. Foreign-controlled plantation economies approximated this enclave model, as did some highly capital-intensive, foreign-dominated mining operations, until developing countries began to appropriate the economic rents accruing to such operations.

The first connection between agriculture and industry is established by the use of an unskilled labor force from agriculture in the industrial sector and its ancillary service activities. A stylized view of the labor market relationships between town and country in the early stages of economic development runs as follows. Industry is a labor-using activity which can draw freely from a pool of surplus agricultural labor.

These labor resources are made available to industry at a constant wage in terms of industrial goods. Economic growth is defined as the transfer of labor from subsistence agriculture to market-oriented industry. Implicitly, industry is defined as everything that is modern and growing, and agriculture everything that is traditional and stagnant. Intersectoral product flows are ignored because of two assumptions: (1) extended family systems in the rural sector supply urban workers with the required wage goods through nonmarket channels; or (2) wage goods are imported at constant prices in terms of domestic industrial goods.

Both assumptions are untenable. The latter leaves open the question of where the modern sector is going to obtain the foreign exchange to pay for the wage goods; it does not recognize that, culturally, wage goods may be specific to the local economy and hence not available from foreign sources; and it ignores that governments are usually adamantly opposed to letting a significant fraction of basic food consumption be imported from abroad.

The assumption that migrant workers provide for their own subsistence through informal rural connections is equivalent to saying that the terms of trade between agriculture and industry remain constant as workers move from country to town. The equivalence would follow because under fixed terms of trade it can be assumed that the urban wage is fixed in terms of industrial goods. In fact, the urban wage consists of a bundle of wage goods in which agricultural, not industrial, products predominate. The terms of trade will remain constant as labor is withdrawn from agriculture only if (1) the marginal product of labor in agriculture is zero, so that total agricultural output remains constant in spite of the labor transfer, and (2) the migrant worker consumes the same amount of agricultural goods as when he was a rural dweller. The second assumption ignores transport and commercialization costs, which are important, as well as the eventual need for a higher industrial wage to induce workers to migrate. The zero marginal productivity assumption has been the object of a long and heated debate in the development literature, with many experts suggesting that this is an acceptable presumption only for clearly overpopulated rural areas.

In the absence of informal subsistence mechanisms, the need to provide food for the industrial labor force establishes a product market relationship between agriculture and industry. As industrial employment grows and income per capita expands, the urban demand for agricultural products increases.

If it can indeed be presumed that under these conditions the terms of trade will not change, the policy implication is clear—policymakers need worry only about industrial growth. Agriculture will respond swiftly to the increasing urban demand by making better use of its partially idle labor and land resources.

There is a problem with the assumption that market-oriented agricultural growth is constrained only by lack of demand and that, if urban demand materializes, rural output will respond along a highly price-elastic supply curve. Historically this has been the case in only a few countries, and they had strongly market-oriented agricultural production. Several Southeast and East Asian countries, some African countries, and such areas in Latin America as Argentina and southern Brazil fit this pattern. In other countries the “benign neglect” of agriculture and even active policies were unable to avoid the grave difficulties that occasioned the voluminous literature on the marketed surplus problem.

The Marketed Surplus

The important question is how to guarantee a continuous supply of agricultural goods to the growing urban sector. The neoclassical answer is simple: raise agricultural prices. But this would mean paying more for farm products and would leave less resources for industrial accumulation. The higher the volume of industrial goods that has to be put aside to pay for agricultural inputs (both wage goods and raw materials), the lower will be the volume of industrial goods that can be added to the capital stock of the modern sector.

The Soviet industrialization debate of the 1920s showed that the dilemma is particularly acute in the case of a crash industrialization program. The issue was further complicated in the USSR because agriculture was based on private peasant farming, whereas industry was state-owned and run. Under these conditions, as Preobrazhensky noted, “an exchange of the smaller quantity of labor of the [socialist] economic system for the greater quantity of labor of the [nonsocialist] economic system” was needed to secure a rapid industrial advance from the low initial base.¹ This famous “law of primitive socialist accumulation” stands for the whole set of government market controls which serve one

1. Evgeny Preobrazhensky, *The New Economics* (London: Oxford University Press, 1965), p. 91.

purpose: to bring about a shift of resources from the private to the socialized sector over and above the share the latter could obtain as a result of the operation of competitive economic relations.

The trouble with this scheme is that the relationships between a modern industrial sector and a backward peasant agricultural sector are not symmetrical. Food is indispensable for industry, while the peasants' need for industrial products is secondary, if not superfluous. Faced with dwindling supplies of industrial goods and increasing claims for their own products, peasants may simply refuse to play the game and step back to a closed subsistence economy. This was the situation in the USSR. The price squeeze that resulted from a policy of holding down food prices was met by the peasants' massive withdrawal from the market, which threatened to bring the Soviet economy to the brink of disaster. Stalin's solution was to step up forced collectivization of the peasantry. Through state farming, he managed to break the peasants' veto power over his decisions on economic policy and so managed to industrialize peasant Russia. However, the human costs were enormous (Preobrazhensky himself died in the great purge of 1937), and long-term agricultural productivity growth became, and still is, a bottleneck in Soviet economic development. The lesson seems to be that developing countries not contemplating forced output by the rural sector will find it difficult to follow Preobrazhensky's recommendation to further industrialization by reducing the relative prices of agricultural products.

For an example of how to resolve the terms of trade dilemma, agricultural economists point to Japan from the Meiji revolution to World War I. Despite its meager endowment of land, Japan's agricultural and industrial development went forward concurrently. Farm output expanded within the existing framework of small-scale agriculture with remarkably low demands on foreign exchange resources. The major factors responsible for the high rate of growth in agricultural output were the increased productivity and greater utilization of existing land and labor made possible by the diffusion of new technology. While it has been argued that this process did not require major capital inputs, the Meiji period did see substantial investment in rural infrastructure. It is, however, true that rural-to-urban capital flows occurred. A policy of high land taxes was adopted, which drew a substantial share of the increased agricultural productivity for investment in the industrial infrastructure, while avoiding the disincentive effects of the Soviet experience before collectivization.

It is moot whether a similar option exists for contemporary developing countries. More important now are institutional and organizational reform, infrastructural investments, and research and development, all highly complementary inputs in the creation of new production potentials in agriculture. The complementarity between infrastructure investments and investment in research and development raises a serious question about the validity of the assumption that primary emphasis on scientific progress can provide a relatively inexpensive route to rapid growth of agricultural production during the early stages of development.

Where modernization of agriculture requires heavy initial investments, it is not possible a priori to anticipate the direction of intersectoral capital flows between agriculture and industry in a process of concurrent economic growth. But is not this question of intersectoral financial flows just a red herring? Should agriculture and industry be analyzed as separate entities, as if they were two independent countries? The answer might be in the affirmative in the USSR of the 1920s, where a socialized industrial sector confronted an antagonistic peasant society. But it should not be true for planning processes in politically integrated developing countries if planners are concerned with the welfare of the country as a whole rather than with the interests of specific social groups within it.

What this means is that, in principle, the sectoral location of an investment activity should not be an issue in planned investment decisions. However, the planning process of many developing countries has been characterized by a considerable degree of urban bias. Agriculture is often treated as inherently low in productivity, industry as high in productivity. Empirical misconceptions, ideological biases, and class interests mingle together to explain such an antirural attitude. Policy measures are sometimes designed to deliver subsidized inputs, credits, and extension activities to farmers to mitigate such bias, but in practice these measures largely tend to benefit medium- and large-scale farmers. This policymaking pattern has been criticized as one of the main reasons economic growth in developing countries since World War II has failed to reach the poorer groups in the population.

A pro-rural strategy has been advocated in its stead as part of a broad reconsideration of the development problem. The reasoning behind this is simple enough. Most of the poor are in the countryside. Given current rates of rural population growth and likely rates of urban labor absorption, it is argued that the poor will remain in the rural sector for a

long time. If alleviation of poverty is the main objective of development policy, then it follows that the problem should be attacked at its root, without waiting for an eventual absorption of most of the labor force in the modern urban sector. Measures should be adopted to increase the productivity and income of the rural poor even if they result in less resources for urban industrial capital accumulation, which mostly benefits the middle- and upper-income groups. Such a strategy is of course in sharp contrast to the industrialization-first doctrine with which this analysis of the interactions between agriculture and industry began.

Growth and the Terms of Trade

A proposal to improve the terms of trade for agriculture is invariably a component of a rural-focused policy package. Hayami and Ruttan defend the argument for raising relative agricultural prices not on traditional supply and demand grounds, but rather on grounds of its alleged effects on the rate of growth of agricultural supply. Briefly stated, their idea is that both the direction and intensity of technological progress in agriculture are functions of relative prices. When land is scarce and rents are rising, technological progress takes the form of land-saving biochemical innovations. When labor is scarce and wages are increasing, technical progress occurs in the form of labor-saving mechanical devices. The intensive use of fertilizers in Japan and of machinery in the United States are examples of the induced factor biases of technical change in agriculture.

Similarly, it is argued that the intensity of technical progress in agriculture depends on the incentive provided by the relative prices of agricultural products. The same does not apply to industry because technology can be much more easily borrowed from industrial countries. But technological change in agriculture is more location-specific than in industry and hence more dependent on indigenous innovation. Even when new technology is borrowed, as in the case of the green revolution, it can be argued that its rate of adoption will be a positive function of the price ratio between agricultural products and modern inputs. An empirical study by Timmer and Falcon of fertilizer use in rice-producing areas of Japan, Burma, Thailand, Indonesia, Philippines, Malaysia, Taiwan, Sri Lanka, and Korea suggests a strong positive association between the relative prices of rice and fertilizer and the level of fertilizer applied per hectare.² A cross-section regression calculation for 1970

2. C. P. Timmer and W. L. Falcon, "The Political Economy of Rice Production and

indicated that the different price ratios of rice to fertilizer faced by farmers in these countries accounted for 85 percent of the variation in fertilizer application per hectare.

The implications of these findings and recommendations for the marketed surplus problem are as follows. Suppose that the preference function of planners excludes agricultural production: they are concerned only with industrial growth. Agriculture is needed to the extent that it provides a specific input—food—without which industrial workers would starve. Suppose also that agricultural output expands at an exogenously given rate as long as relative agricultural prices are at or above a minimum value, x (x might be the minimum price ratio for survival and reproduction of the agricultural population in a market-oriented context). In this case, clearly, the terms of trade have to be brought down to x in order to maximize the rate of growth of industry.

Introduce now the Hayami-Ruttan presumption that the rate of growth of agricultural production is a positive function of relative agricultural prices (remembering that the planners' only concern is the rate of industrial growth). In this case, it is apparent that the terms of trade should be set at a value somewhat larger than x , say, $x + y$, to obtain the maximum growth rate of industry. The value of y will depend on the price elasticity of response of the growth rate of agricultural output.

Finally, if planners—as they should—value agriculture's output not only for its contribution to industrial growth, but also for its independent addition to national income and welfare, then the agricultural terms of trade should be set at an even higher value, say, $x + y + z$, with the value of z depending on the relative valuations of agriculture and industry in the planners' analysis. This reasoning is purely qualitative and somewhat speculative in nature, but a country specialist knowledgeable about the relevant supply functions might be able to determine at least an approximate range of values for x , y , and z .

Needless to say, these analytical exercises must be taken with a grain of salt: price policies may be important but they are not everything. Only recently, Ashok Mitra condemned the policy of high cereal prices practiced in India since the 1960s, arguing that it benefited large farmers but failed altogether to expand agricultural output. The merit of this argument cannot be addressed here, but it should be noted that the failure to expand output was not necessarily irrational economic behavior; institutional constraints may well limit the price responsiveness of

Trade in Asia," in Lloyd G. Reynolds, ed., *Agriculture in Development Theory* (New Haven: Yale University Press, 1975).

the agricultural sector. This is shown in de Janvry's analysis of rural stagnation in Argentina, which offers some strong qualifications to Hayami and Ruttan's induced innovation hypothesis.

De Janvry argues that in Argentina the limits of frontier expansion were reached in the 1940s and that further agricultural growth would have required the introduction of land-saving, yield-increasing innovations. These were not undertaken, and clearly part of the failure to introduce them was due to the price policies followed in the period. But de Janvry maintains that a larger part was explained by the pattern of concentrated land ownership. Large farmers shied away from land-saving technologies because of the relatively high labor and management requirements of such biochemical-agronomic packages; they were more interested in adopting mechanical innovations to save on labor and management costs. Governmental research stations, attuned to the needs and preferences of the dominant farm interests, supported their position. Consequently, in spite of land scarcity, yield-increasing innovations were not developed. While agricultural mechanization increased the supply of labor to the urban economy, it did not increase land productivity much and consequently had little impact on output levels and exportable surpluses.

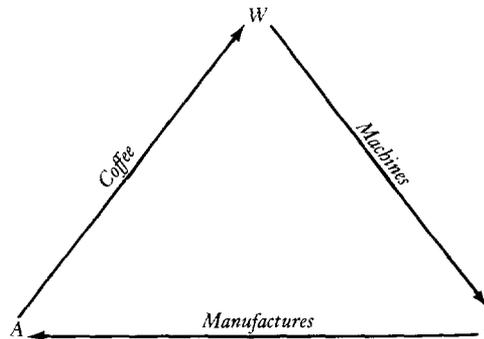
De Janvry's thesis suggests that the Hayami-Ruttan induced innovation hypothesis may work well for countries with a fairly democratic system of land tenure and ownership, but that resource allocation for research and development in other countries may have a strong anti-social bias where land is unequally distributed and public institutions are dominated by landed interests.

II. Industrialization and Export Agriculture

Viewed from the intersectoral perspective, the main difference between the analyses of the last section and those of this section lies in a redefinition of the role of agriculture. Earlier, it was described as that of supplying industry with food. Here its output is foreign exchange.

To facilitate the discussion, consider the case of a developing country with a budding, fully protected domestic-market-oriented industrial sector, the material inputs of which are indirectly supplied by domestic agriculture through the export of primary products to the rest of the world. The relevant policy issues are illustrated by reference to the historical experiences of Brazil and Argentina since the 1930s.

FIGURE 9-1. THE TRADE PATTERN BETWEEN AGRICULTURE, INDUSTRY, AND THE REST OF THE WORLD



A triangular trade pattern is established between agriculture, industry, and the rest of the world, which can be visualized from the Brazilian growth process from the 1930s to the early 1960s. Agriculture (*A*) sells coffee to the world (*W*) and buys manufactured products from industry (*I*), which in turn acquires capital goods from foreign markets. (These relationships are illustrated in Figure 9-1.) In its role of foreign exchange supplier, agriculture in fact functions as the machine-producing sector of the economy. For the sake of the argument, take the dollar prices of coffee and imported machines to be given and assume that coffee production depends only on a specific input—say, land—the growth of which is exogenously determined. How can the growth rate of domestic industry be raised under these conditions?

One clear possibility is to increase the cruzeiro price of manufactures relative to the cruzeiro price of machines. If this is done, the industrial sector will have more of its own product—say, cement—left over after paying for the machines and can add that to its capital stock. In practice, the relative price change can be done by freezing the cruzeiro-dollar exchange rate at a time when the internal price of manufactures is being raised by domestic inflation. This certainly happened in Brazil from the immediate postwar period to the early 1960s. In fact, the price twist was carried to such an extreme that, by the end of the 1950s, the purchasing power of a unit of domestic industrial goods in terms of imported machinery was two and a half times higher than in the late

1940s. As the exchange rate lags behind industrial prices to increase the purchasing power of domestic manufactures over imports, the domestic price ratio of coffee to manufactures goes down. Domestic inflation increases the prices of industrial goods, while the cruzeiro price of coffee, under given world coffee prices, accompanies the more sluggish growth of the cruzeiro-dollar exchange rate.

This method of increasing industrial capital accumulation raises several issues. First, the assumption that the external terms of trade (the dollar price of coffee divided by the dollar price of machines) are given does not fit the facts. The amount of coffee exported by Brazil does affect the international coffee prices.

Second, the quantity of coffee that Brazilian farmers produce is a function of the domestic terms of trade (cruzeiro price of coffee divided by the cruzeiro price of manufactures). Abundant empirical evidence on the supply response of Brazilian coffee farmers indicates that the quantity produced cannot be taken as exogenously determined. Coffee production is a profit-making activity that shares with other sectors the available endowments of labor and capital. In the context of the two-sector model under discussion, this means that as the relative price changes, there is some substitution in production between coffee and manufactures. Again, this is true for agricultural production more generally.

Third, while a surplus is generated for the industrial sector through the relative price twist, the conclusion cannot be drawn that this surplus will be invested productively. It may be wasted as conspicuous consumption or else embodied in a form—say, cement—with very low marginal productivity indeed.

Consider the first two issues together. Since Brazil has a monopoly power in the international coffee market, it follows that up to a point it is to its advantage to turn the domestic terms of trade against the coffee sector in order to reduce exports and raise world coffee prices. In the determination of the optimal price policy from the national point of view, attention has to be paid to the fact that the long-run foreign demand curve is more price elastic than the corresponding short-run relation. As a consequence, to keep competition at bay and foreign consumers loyal, the optimal price will be found at a lower level than that which would maximize short-run earnings. Thus if a country has a monopoly power in international trade, turning relative domestic prices against exports would be, up to a point, not a squeeze on agriculture but a squeeze on foreigners. The latter could be justified in terms of national welfare.

Argentina more than Brazil provides a pure case where industrial development was achieved by a squeeze on domestic export agriculture. Trade policies similar to those applied in Brazil were followed from the early 1940s to the mid-1950s. Argentina was certainly an important supplier of meat, wool, and grains in the world market, but, from a long-run perspective, foreign demand price elasticities for Argentinian products were high enough to justify the assumption of given world prices.

The degree of price discrimination in Argentina in favor of industry and against agriculture can be gauged by the evolution of the purchasing power of domestic manufactures over imports, as previously defined. According to Díaz-Alejandro, this quotient increased by an average of 54 percent between 1930-39 and 1945-55. Díaz-Alejandro submits that Argentina's slippage behind other countries of recent settlement since the 1930s was causally associated with the price shifts and related economic policies. He reasons, in terms of the relationships shown in Figure 9-1, that the industrial sector in Argentina during this period would be better described as a home-goods sector than as a truly import-substituting sector. Cement, for example, is not exported, and domestically it is only a poor substitute for imported machines. But this home-goods sector expands by drawing resources away from export agriculture, causing a reduction in the supply of foreign exchange to the economy. Additional investment in the industrial sector can only take the form of cement, to continue the example, because foreign exchange is not available to convert domestic savings into imported machines. Because cement substitutes poorly for machines, the incremental capital-output ratio is very high. Díaz-Alejandro concludes that in an economy with a severe foreign exchange bottleneck, not even a gross saving of 20 percent, as was the case in Argentina, will bring rapid growth. Under such conditions, the transformation of savings into tangible machinery and equipment becomes a difficult task.

From this example, it would appear that for most developing countries the capacity to transform smoothly *ex ante* savings propensities into nonconstruction capital goods requires either expansion of foreign exchange earnings or a balanced, in-depth program of industrialization.

The contrast in the 1940s and 1950s between the uncertain growth rates of Argentina, based on the development of light manufactures, and the vigorous expansion of Brazil, based on a better integrated industrial structure, seems to confirm Díaz-Alejandro's argument that, given the decision not to promote exports of either rural or manufactured products, emphasis on light manufacturing is misplaced. A for-

ward-looking policy should address primarily the more complex industries and key social overhead facilities for which state support is of greater strategic importance. Nevertheless, it may be argued that Brazil's strategy was excessively costly and that only the country's sheer size and diversity made it viable. Brazil eventually had to move to a less inward-oriented policy to sustain rapid industrial and overall growth. Similar policies have not proved effective in the very large countries of South Asia, and they have been costly and ineffectual in medium- and small-scale countries.

III. The Transition Period

The argument of the last two sections focuses on two critically important relative prices, namely the prices of food and of foreign exchange in terms of the prices of local manufactured products. The policy-induced squeezes of these relative prices are the main indications of the antirural development strategies of the 1940s and the 1950s. Since the 1960s, policymakers in developing countries have become increasingly aware of the need to adopt development policies that are less discriminatory toward the agricultural sector. At the same time, they are also aware of the grave costs of ignoring the difficulties of making such policy shifts. In the past, abrupt policy changes came about as a result of food shortages or foreign exchange crises. In dealing with them, some economists seemed concerned only about the long-term levels of fully adjusted prices and quantity variables. Their use of orthodox stabilization policies met with repeated failure, even when promoted at the point of a gun. That outcome should make economists realize that the long-run policy objective of "getting the prices right" raises extremely difficult problems in terms of short-run adjustments. These need to be taken much more seriously than they have been in the past. After sharp and sudden increases in the prices of food or of foreign exchange, developing countries have found themselves trapped in a stagflationary spiral (output down, prices up, with wages starting to chase prices), a situation which is worlds away from the idyllic picture of the islands of tranquility found in neoclassical textbooks.

"If you wait long enough (keeping a tight rein on money supply), the short-run anomalies will go away by themselves." This frequently heard statement of faith as to the healing powers of the price system has been, in fact, a counsel of despair for the mass of the population. Only

military dictatorships can afford to follow such advice. Democratic governments have to take into consideration that in the short run the economy may react to price changes in a very adverse manner. Moreover, since the long run is nothing more than a sequence of short runs, convergence to a neoclassical equilibrium may in some circumstances be reached only if an active interventionist policy is followed to deal with the short-run problems.

The stagflationary consequences of naive "get the prices right" policies seem to be related to two characteristics of developing economies, namely, sluggish quantity adjustments to broad price changes and stickiness of nominal prices and wages. Serious analytical work has only recently begun on the implications of these and other structural characteristics for the formulation of stabilization policies in developing countries. The following are simple examples of some mechanisms that may preclude a smooth adjustment of a developing economy to an abruptly implemented package of price adjustment policies.

Consider the consequences of increasing food and raw material prices in the context of an orthodox monetary policy. Nominal wages are constant and industrial prices are normally determined by a markup over current costs. The prices of both food and manufactured goods will rise, although the latter will increase by less than the former. If the money supply is inelastic and prices are increasing, real income will have to fall to bring the money market back into equilibrium. This may happen either through a generalized liquidity crisis, or, more prosaically, through a reduction of private investment in response to higher interest rates. Because food output is constant in the short run, the brunt of downward adjustment will fall on industrial production.

Stagflation does not depend on the assumption of a rigid money supply. Imagine that monetary policy is accommodating, but that rural producers' marginal propensity to save is higher than that of nonrural producers (a reasonable assumption given that most of the latter are either rural or urban workers). When agricultural prices increase, real income is transferred from nonfarmers to farmers; consequently, aggregate consumption declines, food stocks accumulate, and industrial production adjusts downward. As in the previous example, both agricultural and industrial prices are higher than before.

Stagflation is also likely to be the outcome of large devaluations when prices and wages are sticky. That result is immediate if a rigid money supply policy is followed. As a result of the devaluation, both export and import prices go up. The imports, which enter industrial produc-

tion as inputs, will cause a price markup, and industrial prices will increase as well. If the money supply is given, once again real income will have to decline; because exports are fixed in the short run, manufacturing production for domestic use must adjust downward. Imports fall because domestic output is lower, and the trade balance improves. While the devaluation has "worked," the price level is higher and real income lower than before.

Where monetary policy is accommodating, devaluation may still be accompanied by a stagflation if the following hold: (1) imports initially exceed exports; (2) the marginal propensity of exporters to save is higher than that of nonexporters; and (3) government revenues are increased by devaluation, for example, when there are significant export taxes. In developing countries all these conditions are likely to occur, hence devaluation will be associated with output declines and price increases in this case as well.

What these examples suggest is that "get the prices right" policies alone are likely to have negative side effects in the short run. These policies are not designed to deal with critical short-run situations, but rather to rectify resource misallocations over the medium and long run. If the Latin American experience teaches anything, it is that price policies have to be both steady (nicely illustrated by the minidevaluation system introduced in Chile by the Christian Democrats and later successfully adopted by other countries) and supported by other interventions (such as agricultural research and experimental stations or a judicious incomes policy).

When prices are markedly out of line, however, what should a government do? In some instances, a social compact may be formed in which the different social groups in the country agree to share the short-run costs of the price adjustments. Price correction policies then can be implemented at once. There will be a one-time increase in the overall price level, when the terms of trade shift in favor of agriculture, but inflation will be kept in check thanks to a reduction of urban markup rates and a freeze on wage rates. Transfer payments from the government budget to the social groups most deeply affected by the price changes will probably be needed to cement the social agreement.

If monetary policy (as it should) accommodates a once-for-all increase in the price level, recession may be avoided without appeal to expansionary policies, for private investment should respond favorably to the improved socioeconomic prospects of the country. Once this ini-

tial large step is made, a steady price policy will ensure that no further shock treatments are required.

To perform this operation successfully, the government obviously needs a high degree of legitimacy, as was the case with the Labor party government in Israel in the 1960s, when a shift out of costly import-substitution industrialization was made. If governments are "soft" (to use Myrdal's terminology), shock treatments should be avoided. The South American experience suggests that in this case a markup and wage inflation may be avoided only by authoritarian rule. Under these circumstances, muddling through a gradual adjustment of relative prices may be the only reasonable policy alternative that is consistent with the maintenance of a democratic political system.

These political considerations are guesses derived from the observation of the experiences of particular countries. The interactions between economic policy decisions and the political process are very poorly understood by economists and other social scientists. This is particularly unfortunate for the consideration of the relationships of agricultural to industrial growth. It is in these interactions that the real problems lie, preventing price policy shifts that would favor concurrent growth of agriculture and industry. However, governments in most developing countries now seem to be sufficiently aware of the economic inefficiencies that are associated with the antirural industrialization policies of the 1950s and are concerned with how to change such policies without economic and political disruption.

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Several recent books criticize the antirural biases of the policies of developing countries. Michael Lipton, *Why Poor People Stay Poor: Urban Bias in World Development* (Cambridge, Mass.: Harvard University Press, 1977), provides a scholarly advocacy of alternative growth strategies.

Ashok Mitra, in *Terms of Trade and Class Relations* (London: Frank Cass, 1977), emphasizes the social class limits of rural-focused development strategies in India.

"Getting the prices right" is easy to preach but difficult to implement. One problem is the lack of macromodels focusing on relevant socioeconomic variables for short-run economic policymaking in developing countries. Lance Taylor, *Macro Models for Developing Countries* (New York: McGraw-Hill, 1979), is a first attempt at putting together relevant macromodels, incorporating the lessons of successive failures of orthodox stabilization policies.

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10

The International Environment

Helen Hughes and Göran Ohlin

The industrialization of developing countries is transforming the international production structure, with concomitant requirements for adjustments in the world economy. Section I of this chapter indicates the principal relationships between trade in manufactures and the flows of capital, technology, and labor that are the vehicles of this transformation, together with the policy issues to which they give rise. This is followed by an examination of regional integration among developing countries as a route to industrial development. The policy adjustment implications of the changing international structure of production for countries at different levels of development are discussed in section III, which concludes with a brief overview of adjustment prospects.

IN THE 1960S DEVELOPING countries began to compete noticeably with industrialized countries through trade in manufactured goods, and private capital flows from industrial to developing countries, and a reverse movement of labor, accelerated. However, the importance of the changes in the international structure of production, and of trade and factor movements, became prominent only in the 1970s. The flow of private capital, swollen by global inflation, began to be noticed, and the presence of short-term and permanent migrants in industrialized countries reached a level that created social problems in the host countries. The exports of manufactures from developing countries were growing at about 15 percent a year, and the number of developing countries

exporting more than \$100 million worth of manufactured products annually grew from a handful to more than thirty. The range of products exported increased rapidly from the rather simple, labor-intensive exports of the 1960s to include sophisticated and high-quality goods. Then the rise in the price of petroleum and the industrialized countries' prolonged recession made the necessary adjustments to the changing international environment more difficult. The integration of the developing countries' industrialization into the world trading framework has thus become a major international issue.

I. Trade in Manufactures, the Flows of Capital and Technology, and Labor

Trade in Manufactures

As indicated in previous chapters, manufactured products are generally traded goods, and participation in world trade in manufactures has advantages for most countries, particularly for medium-size and small countries. Most countries need to trade to obtain resources they do not possess, and the development needs of rapidly growing developing countries lead to a high propensity to import. They therefore need to export. Moreover, all but the very large developing countries need to export manufactures to ensure adequate economies of scale and competitiveness for their manufacturing sector. Provided that trade takes place at competitive market prices that reflect long-run cost, both exporting and importing countries will in the long run benefit from trade. It is thus commonly agreed that trade has advantages for both parties to a transaction.

The competitiveness of developing countries in manufactured products first became evident in the 1960s when several East Asian countries started to export products such as clothing, footwear, textiles, and toys in large quantities. At first they seemed to follow the trail that Japan had blazed in the 1920s with exports of very cheap, low-quality, mass consumption goods produced by labor-intensive techniques, but by the early 1970s it was evident that their competitiveness was much more broadly based than a narrow interpretation of relative factor endowments in terms of labor and capital would suggest.

Because of the international character of higher education, technological developments that did not require large-scale capital invest-

ment became "footloose." For example, some firms in Hong Kong, Korea, Singapore, Brazil, and Mexico, where overall levels of industrialization were still low, were able to use microcircuits (which were in the vanguard of new product cycle developments) to manufacture for export a variety of sophisticated components and finished products. High technology also played a role, if a more mundane one, in the transition from human to synthetic hair in wigs exported from Korea.

Part of the growing diversity of developing country exports derives from the role of transnational corporations. Their managerial and technological capacity has enabled them to produce high-quality products even in nonindustrial countries. Because of the importance of maintaining brand names and market shares in their global strategies, transnational corporations have avoided the production of low-quality exports by their subsidiaries in developing countries. The particular function of transnational corporations in stimulating developing country exports has, however, come through their ability to divide the entire processing and marketing chain of activities, loosely called manufacturing or industrial production, into segments related to the resource, factor, and other production costs of different countries and the transport costs that link them, without running into investment, technological, management, or other bottlenecks that might otherwise impede the location of export production in developing countries.

It is sometimes suggested that intra-transnational corporation trade is somehow of lesser value to the exporting country than other forms of exports. Political and psychological issues are clearly part of this perception. Countries may gauge the intrusion, real or psychological, into their national life as too high a price to pay for the benefits of such trade. Where taxation policies are weak, inappropriate transfer pricing among the branches of transnational firms may be costly to the developing country, although it may also benefit it if tax distortions are caused by inappropriate taxation policies in the transnational corporations' parent country. But there are also great benefits in intra-transnational corporation trade because it is one way of overcoming the numerous invisible barriers to foreign trade such as cultural, legal, linguistic, and marketing difficulties.

Another source of exports paradoxically lies in the high levels of protection that many countries used to establish capital-intensive industries. To ensure that at least minimum economies of scale for efficient production would be reaped, many such plants began with large excess capacities. As they became more experienced and cost efficient they

started to export to use their capacity more fully. In some cases they were assisted by export subsidies. Transnational corporations involved in such industries had initially in the 1950s embargoed exports from subsidiaries in developing countries, but under competitive pressure from more forward-looking corporations, and with policy pressure from the host countries, such practices have been markedly reduced. Developing countries have thus become exporters of such products as cement and steel and heavy chemicals.

Resource-rich countries are extending primary metal processing downstream as domestic markets develop, but such production is usually competitive only if some export components are included, because the economies of scale are large and local markets small. The petroleum-rich countries with small populations have an abundance of fuel and capital, and they are therefore moving into export-oriented capital- and energy-based industrialization.

Protection by industrialized countries has also distorted developing country export patterns. The main area is in textiles, where bilateral and multilateral agreements have limited the overall long-run growth of exports from developing countries to some 7 to 9 percent a year. The main effect has been to restrict expansion by highly competitive East Asian producers. To some extent the purpose of such restrictions has been to give less competitive producers better export opportunities, and the widening sources of developing country textile exports indicate that this objective has been met at least to a limited extent. Entrepreneurs subject to quota restrictions in the East Asian countries have been forced to upgrade production to escape quota limitations, and to move to areas of production where quotas do not apply. In some cases they have established subsidiaries in other developing countries to take advantage of quota availabilities, leading to the formation of new developing country transnational corporations.

Relatively high industrialized country tariffs on processed primary products (frequently leading to escalating effective protection) have impeded the location of downstream processing in developing countries for some products. However, in some cases, relatively high tariffs on the primary products themselves, or on early stages of processing, have stimulated imports of more processed goods by reducing the effective levels of protection of downstream manufactures. Other factors such as storage and transport costs, distance from markets, and the costs of shipping complementary inputs to developing country manufacturing sites have also played a role. Countries such as Korea, Singapore, and

Hong Kong have been able to develop export opportunities out of the industrialized countries' tariff anomalies.

The advanced and semi-industrialized countries have begun to export components, capital equipment, and durable consumer goods which are the mainstay of trade in manufacturing among industrialized countries. The products range from nails to ships. The sources of their competitiveness are firm rather than industry specific, and the growth of these types of exports is thus bringing the developing countries into the mainstream of intraindustry trade. Adjustment to production and trade changes within an industry is usually easier than to changes between industries. Capital is less affected, and it can be affected positively, with new export markets. Workers can be retrained and relocated more easily, often within the same firm. Transnational corporations can frequently adjust to production and trade changes within their own structure.

In sum, interindustry trade, particularly that based on the relative abundance of labor in developing countries, is not necessarily the most favorable basis for a new international division of manufacturing. Proposals starting from the rather naive concept of the international division of labor need some caveats.

Simple and labor-intensive products such as mass consumption footwear, clothing, and textiles tend to be highly supply elastic, but less demand elastic. In this, they tend to be similar to some of the agricultural products grown in developing countries. The developing countries have a very large reserve of underemployed people, and the work force is growing rapidly and will continue to do so for another thirty years, until the recent declines in fertility trends begin to be reflected in the age composition of the population. There is likely to be very considerable competition for labor-intensive exports among the developing countries. Some of the larger semi-industrialized developing countries still have substantial underemployment, and it will take time to eradicate it. The high elasticity of supply for such goods as clothing and textiles therefore tends to lead to a downward pressure on prices and wages as more developing countries attempt to compete in these manufacturing exports. Some tendency in this direction is already evident, with prices of such developing country exports as textiles rising less rapidly than those of machinery. Declines in barter terms of trade have been offset by rapidly rising total export earnings. The greater productivity of machinery, resulting from technological improvements, has also compensated developing countries for apparent declines in barter

terms of trade. However, if a large number of semi-industrialized and industrializing countries, particularly the larger ones, such as China, India, Brazil and Mexico, Pakistan and Bangladesh, were to move very rapidly toward a high labor-intensive export orientation, there is a possibility that some of the agricultural export gluts of the past would be repeated in industrial goods. It is therefore argued below in section III that the pacing of the rate of growth of labor-intensive exports from developing countries and the broadening of their manufactured exports base are favorable to the restructuring of the international economy.

The Transfer of Capital and Technology

Transnational corporations have traditionally been seen as the principal instruments of transferring capital and technology (in the broad sense, including management skills) to developing countries. Their role quickly became one of the most controversial subjects in the discussion of development. Looking back to the origins of foreign investment and its early impact, this is not surprising.

Foreign investment in colonial and neocolonial countries originally flowed into resource-rich agricultural and mineral production. Combined with the metropolitan countries' political power, this led to high resource and monopolistic rents for the producing corporations and sometimes also for consumers in the metropolitan countries, and to relatively low returns to the host countries. Production took place mostly in foreign-controlled enclaves with little impact on the host country economy as a whole. Investment in public utilities, such as railways, urban transportation systems, and power production, came next. These natural monopolies again provided opportunities for high monopoly rents for the investing corporations. After World War II investment in these areas declined as the newly independent countries took control of their natural resources and public services, but with industrialization a new venue for investment opened up in manufacturing and associated banking and other services. Much of this was defensive of current and future manufactures markets threatened by the protection of infant industries in developing countries. After a slow start in the 1950s, with capital flows going mainly to Latin America, foreign investment expanded rapidly in the 1960s, spreading to the other continents. A few countries, however, following the example of centrally planned economies and Japan, severely restricted foreign investment inflows, deciding that the potential economic and other costs were likely to exceed the benefits.

Unfortunately the terms on which transnational corporations came to developing countries to participate in the industrialization process often led to high costs and relatively low returns to the host countries, exacerbating the ill repute of transnationals. The chief attraction lay in protected markets, and the higher the protection, the greater the attractiveness of an import-substituting investment. But (as Chapter 2 argues) the higher the protection, the greater the likely misallocation of resources and the higher the monopolistic rents reaped by the investor. The overvaluation of currencies which accompanied high exchange rates reduced the cost of an investment to a foreign firm, and within a country repressive financial policies (as discussed in Chapter 3) generally favored the foreign firm by giving it access to low-cost capital at the cost of smaller, indigenous competitors. Tax incentive policies (discussed in Chapter 5) generally favored large, capital-intensive firms, again sometimes at the cost of the local entrepreneur who was, in the early years at least, in some cases not included in their benefits. In some countries when the high profits of import substitution fell off with local competition and market saturation, export incentives were added to the incentive package.

In the early days of foreign investment the developing countries did little to mitigate the transnational corporations' monopolistic profits and behavior through bargaining and direct control. On the contrary, transnationals often obtained choice industrial sites at subsidized prices. They paid little attention to the appropriateness of the technology they transferred, usually merely replicating home plants. They failed to train local workers and managers, and often used second-rate staff for whom they could not find positions in parent facilities. When forced to employ local skilled workers and technicians, they frequently hired them away from indigenous firms. They did not attempt to export. They often took part in behind-the-scenes political machinations with extremely conservative local groups, they went into production without regard to social consequences (for example, in the promotion of artificial baby foods), and they called on their home country governments to use political pressure for private financial ends. Their home countries also subsidized them through favorable tax treatment. The cumulation of incentives to foreign investment often led to redundancy. The transnational corporations would have invested even without all or part of them.

In the 1960s and early 1970s, analyses and critiques of the impact of transnational corporations on developing countries, the nationalization of several mining corporations' interests, and increased competition

with the entry of Japanese and more European firms into developing countries, led many transnationals to reexamine their approach. It also led to changes in hosts' and home countries' policies. Some transnationals became concerned with training local staff and developed an interest in appropriate technology, just as governments were beginning to be alarmed at high work force entry rates, particularly in urban areas. The transnational corporations, because of their home company support, were often able to adapt technology to developing country conditions, and they understood the advantages of high capital utilization, so that they were sometimes ahead of local firms in moving to multiple-shift work. A new group of transnationals, whose principal interest in developing countries was for export-oriented production, began to invest. As others followed, there was an ensuing decline in embargoes on exports. New forms of direct foreign investment began to emerge with a shift from equity to export credits and loans (which were often guaranteed by the parent corporation), with licensing agreements governing the transfer of technology, and with management agreements in some cases replacing a capital interest altogether. Together, these trends in "unbundling" foreign investment led to a substantial increase in both local ownership and local control. Problems of course remain. Some transnational corporations have been slow to adapt. If monopolistic conditions prevail, licensing fees can be just as excessive as direct profits on equity. Some export embargoes are still known to exist. Transfer pricing between subsidiaries and parent firms at other than "arm's length" (competitive market) prices persists where it can be used to avoid tax payments.

Most developing countries now recognize that the overvaluation of currency, high protection and export incentives, a repressed financial system, and liberal taxation incentives for capital-intensive production are not conducive to rapid and equitable industrial growth, and that they favor high monopolistic earnings by transnational corporations. They are very concerned about appropriate manpower training and technology (as discussed in Chapter 4). They cannot, of course, reform their policies in all respects overnight. For example, while neighboring countries persist in giving high tax and other incentives to transnational corporations, it is very difficult for one country to abolish them. Thus, while undertaking to reform and improve commercial, monetary, taxation, and other policies, developing countries have placed a great deal of stress on controlling transnational corporations directly through licensing and similar controls. Systematic social (shadow price) cost-ben-

efit analysis has helped to reject socially undesirable investments and to reformulate others in terms of improved technological or product mixes to make them more beneficial to the host countries. Such analysis has also helped countries to bargain over technological and other licensing fees, the ratio of expatriates to be employed, and the share of local ownership and that of exports in production. Sometimes countries have gone too far in such negotiations, frightening off transnational corporations altogether and losing potential production. But the growth of local entrepreneurship and technical expertise in the last twenty-five years, access to world capital markets, particularly by well-managed and rapidly growing firms and countries; and less concern with the latest practice as distinct from appropriate technology have reduced the need for foreign investment, enabling the developing countries to evaluate its costs and benefits objectively.

The home (for the most part industrialized) countries are also taking a more balanced view. In the past, foreign investment was sometimes seen as an alternative to or substitute for aid flows. Together with arguments for defensive investment and national interest this led to subsidies, mainly through tax incentives, for investment in developing countries. But investment, particularly in manufacturing, also has an impact on trade and employment, leading to considerations of its impact on the home country. Periods of unemployment at home thus inevitably call for restraints on investment abroad. The net result has been a more balanced view of investment flows to developing countries, with a tendency toward neutrality in their tax treatment.

Migration of Labor to Manufacturing Industries in Industrialized Countries

Some industrialized countries with relatively low ratios of population to land have traditionally been countries of immigration, but the ending of the colonial era and the associated political settlements also led to some migration to other industrialized countries, principally France and the United Kingdom. With full employment in industrialized countries in the 1960s a new type of short-term immigration began to flow to the rapidly growing countries of northwestern continental Europe. Germany and Switzerland were the principal recipients of these "guest workers."

To the individuals concerned, the benefits of such migration evidently exceeded the costs. There have always been more applicants than places for short- and long-term migration, and the pressure for

illegal migration has been very strong, and into the United States successful, to a very considerable degree. The estimates of illegal immigrants, mainly from Latin America, resident in the United States range from 2 to 4 million people. Although migrants have for the most part come into the work force at the lowest going wages to do the least attractive jobs, both wages and jobs were more attractive than in their home country. Host countries in Europe in addition usually paid substantial social security benefits to the migrants, either together with their wages or as a lump sum on their return home. While living conditions for the temporary workers were usually very inferior to those enjoyed by local workers, they were rarely as bad as and often much better than in the home country. The workers accumulated considerable savings, and they usually returned to their home country with new skills and sufficient capital to improve their standard of living markedly.

The economic impact on the home countries was mixed. In some cases an excessive number of relatively skilled workers was drawn away. Agricultural production sometimes suffered. But on the other hand many of the returning workers contributed new entrepreneurial and skilled inputs to the home economy. Workers' remittances have had a substantial impact on the balance of payments of the developing countries bordering the Mediterranean, on some Caribbean and Latin American countries, and more recently, with migration to the oil-rich countries of the Middle East, on other Middle Eastern and South Asian countries. For permanent migrants the industrialized countries offered a personal opportunity to catch up with the industrialized countries' living standards within a generation or two. Employers were keen to secure additional labor in tight market conditions. It was sometimes argued that the encouragement of such immigration delayed technological change, investment, and increases in productivity in the industrialized countries. Where this was true, it contributed to the competitiveness of developing country exports by avoiding the substitution of capital for labor through new technology.

Labor has thus been a substitute for capital and trade in economic terms, although, as Chapter 4 argues, it is vastly different from other factors and outputs of production in real and human terms. Migration, particularly short-term migration which generally separated men from their families, had undesirable social effects on both the home and the host countries. The breakup of family life in the home countries was matched by social problems in the host countries. This became evident

in the early 1970s and came to a head in the mid-1970s recession in industrialized countries when the number of short-term migrants in Europe was greatly reduced. It was thought that trade in manufactured goods, together with the export of capital and associated technology from industrialized countries, was socially more desirable than the migration of people from developing to industrialized countries. Adjustment to the changing international production structure may therefore be expected to take place in the future mainly through trade and capital flows.

II. The Role of Integration in Industrialization

When the limitations of inward-oriented industrialization became evident in the 1960s, particularly in Latin America where it was most advanced, it began to be argued that some form of integration could expand the markets and trade of developing countries without the rigors of international competition. In some areas there was strong political motivation for common regional action, and it was thought that, as in the European Economic Community (EEC), political and economic action could be mutually supportive.

Regional and other economic arrangements among countries take place at various levels. It is very helpful, for example, if nations that have economic relations use the same weights and measures, railway, road, and harbor regulations, and so on. Trade arrangements can range from the exchange of preferences on selected goods, through free-trade areas where all goods are traded freely within the area, to customs unions which in addition have a common external tariff. A common market permits the free movement of factors as well as of goods and services, and an economic community requires the harmonization of fiscal, monetary, labor, and other policies which affect the allocation of resources. Incentives to investment, particularly to foreign investment, have to be harmonized at a fairly early level of integration if foreign entry into manufacturing is not to be distorted toward the members giving the most generous (though perhaps redundant) incentives.

The argument for integration among developing countries grew out of the high costs of protection in individual countries combined with the conviction that developing countries could not compete in world markets for manufactures. The principal integration argument was therefore for the expansion of domestic markets through increased

economies of scale in a sheltered environment. Capital-intensive enterprises, which were subject to economies of scale and thus clearly not economic for one country, could be planned when several countries formed a regional arrangement. With new economies of scale, existing relatively inefficient production methods could be changed for more efficient, lower-cost ones. In practice, however, such moves were not always advantageous to existing units, which would have to be consolidated and changed to take advantage of the new economies of scale available. Where strong oligopolies existed, as for example in durable consumer goods or other brand goods, both local and transnational corporations were unwilling to consolidate their production, although with time there has been some growth in trade in components. At given levels of protection transnational corporations have been able to push import substitution further than they could have in individual countries. Whether this genuinely benefits the partner countries (as distinct from the firms) of course depends on what would have happened in the absence of an integration agreement. If the components would have been produced at high cost within each country, the agreement was beneficial. If the alternative would have been production for world markets at lower, internationally competitive costs and prices, the agreement would have led to losses. The effects of integration agreements must always be compared with the alternatives: high protection in one country or world trade at lower prices.

In practice, free-trade arrangements have not been very successful. For example, trade among Latin American countries has grown more slowly despite the Latin American Free Trade Agreement (LAFTA) than among Southeast Asian countries. Developing country customs unions have adopted as their common tariff the highest existing tariffs already in existence among the members. Existing and prospective firms could continue to earn high (and even higher) profits without consolidating production. It was of course argued that a larger market would lead to greater specialization and competition, but the effective size of the markets in the developing country regional arrangements formed was usually too small for such benefits to be very large. In practice, the costs of integration, which had not been taken into account in the 1960s arguments, began to overtake the benefits. After a short spurt in manufacturing growth, industrialization stagnated. Attention has therefore turned to the reasons regional integration has so markedly lacked success.

In contrast to the European Economic Community, groups of developing countries joined in various integration agreements generally lacked the physical and commercial infrastructure for a high level of trade. The Latin American countries at least shared a common (or similar) language, and in Central America and East Africa distances were relatively short, but in general transport and commerce were not well developed. In many instances transport costs were lower to the former metropolitan country than to a neighboring developing country. Nor was this entirely the result of imperialist transport structure residues. Land transport is generally costlier than sea transport, particularly when the infrastructure is still lacking.

It soon became evident that integration among countries with similar natural endowments but at different levels of development was fraught with greater difficulties than integration among economies at similar development levels. The benefits of external economies tended to favor the center that was already established so that new enterprises clustered where workers were relatively skilled, public utilities operated well, transport facilities were good, and commercial services were available. That is, the attractions of growth poles (discussed in Chapter 8) worked against the poorer countries. The gains from integration thus became skewed toward the richer countries, which had to buy off their poorer partners. This problem was mitigated where the partners' resources were highly complementary, but then of course there was really little need for integration agreements. Trade would have taken place anyway unless trade policy was badly out of line with resource endowment.

The experience of the European Economic Community suggests not only that the political will to unite is a necessary ingredient of success, but also that it has to be strong enough to bear considerable economic costs. The members of the EEC were prepared to pay high agricultural prices as the cost of political union. Among developing countries, even where the will for political union has been strong, the low level of development and of per capita incomes limited the economic sacrifices that could be made. Indeed, the economic costs of integration undermined the desire for political cooperation, so that political unity was sometimes ill served by attempts to integrate economic policies.

The planning of region-wide, publicly owned multinational plants to reap economies of scale, which was at the core of the regional integration approach, turned out to be largely wasted. Rather than consolidate national plants which were sometimes already well advanced or even con-

structed, the regional authorities have tended to plan very capital-intensive large-scale enterprises prematurely for what were essentially still very small and poor markets by global standards. The supply and downstream linkages were usually so attractive that no country wanted to give up the opportunity to attract such key industries as steel. Identifying future comparative advantage in such industries as engineering has been fraught with so many uncertainties that there have been few practical results. Thus in spite of an enormous effort that has had a very large opportunity cost in the time of government officials and representatives of private firms (not to speak of international agencies and their consultants), the attempts at planning multinational plants for regionally integrated markets have largely come to nothing. Most multinational enterprises have evolved independently of integration agreements.

It has also become evident that the greater the degree of integration the greater the problems that arose. In a free-trade area the major problem faced was that of trade deflection. Goods from outside could enter the area through a low-tariff country, and then be resold within the free-trade area to higher-tariff countries. There were ways of dealing with the deflection problem, for example by the issue of certificates of origin, but these were bureaucratically complex and hence costly.

For a customs union it was necessary to agree on a single tariff and quota structure to be imposed on imports from the outside world. Such agreement involved multinational negotiations about such issues (discussed in Chapter 2) as whether the tariff system should be uniform or made-to-measure, whether infant industries should get special protection, whether tariffs or quotas should be used, and so on. It was because quotas were particularly difficult to allocate among countries that customs unions usually opted for high tariffs. These nevertheless have often had to be supplemented by quotas by the individual countries. The effects of common external tariff formulation have therefore usually been to raise protection quite substantially. The less-developed member countries which did not share equally in the ensuing industrialization lost on this account as well. If a member country did not produce a product, its interest was to get the tariff as low as possible. If the country ended up buying a high-cost product from its partner instead of a low-price product from outside the union, there was trade diversion, which was a loss to the buying country. The lower the tariff the less trade diversion there was; even when such diversion was not avoided by a low tariff, a low tariff forced the partners' producers to keep their prices low.

If a product was likely to be produced within the country, there was both a consumer and a producer interest. The consumer interest was again to have as low a tariff as possible, but the producer interest was to have a high tariff. The higher the tariff, the more the partners' consumers would be paying to the home producers, raising the latter's incomes and fostering manufacturing production in the country. This did not necessarily mean that the country should wish the tariff to be as high as possible, without limit. Domestic consumers, after all, always lost from an increase in the tariff, and the standard arguments against high tariffs—that high-cost domestic producers replace cheaper products from outside—still applied. There was still a cost-benefit exercise to be carried out for each country. But when a country was to be part of a customs union there was an additional benefit to be derived from raising the level of tariffs on goods produced by that country and exported to its partners, which was not derived if the tariff area embraced only its home market.

Further difficulties arose when an integrated area wished to turn outward and export manufactures. For an individual country this was a complex policy issue requiring the reduction of protection and/or the introduction of subsidies for exports that offset the high cost of protection and encouraged "infant" exporters. The reduction of protection was resisted by a multiplicity of vested interest groups, which seemed to be even more difficult to deal with politically in a multicountry than in a single-country environment. Export subsidies have to be financed out of the budget, or, if they take the form of tax exemption, they mean that revenue will be forgone. In practice it has not been possible for integrated groups to come to such arrangements because of the complexity of costs and benefits involved. The costs of high protection have thus tended to persist long after they might have been mitigated in an individual country. This resulted in a continuing bias against agriculture (and other nonmanufacturing sectors), with ensuing wide differences between rural and urban earnings. The factory workers in the formal, protected sector enjoyed the benefits of protection, but they were a small section of the work force. Relatively high wages for given jobs were gained at the cost of overall employment expansion. Balance of payments constraints impeded overall growth. Paradoxically, the member countries of an integrated area paid a high longer-run cost for the relatively short-term boost engendered by the initial integration measures.

Developing countries have thus far not moved beyond commodity

market integration through trade, although they have been urged toward monetary and fiscal policy integration. The experience of industrialized countries suggests that such moves should be undertaken only after all the costs and benefits are carefully evaluated. Monetary and fiscal policies not only have resource allocation effects, but also are critical instruments in affecting the national distribution of income. The social objectives of countries vary widely, and at different levels of development and with different cultural backgrounds even relatively similar objectives may require very different policy measures. Membership in any sort of regional grouping means giving up some measure of national independence. In an all-encompassing economic community the loss of independence impinges heavily on social and political objectives.

There are also difficulties of sheer size and the problems of reaching a consensus in a heterogeneous society, particularly in a democratic political system. It is not by accident that the two industrialized countries with the highest per capita income—Switzerland and Sweden—are small countries that have not joined the European Economic Community. The difficulties of reaching a consensus on economic policy have become apparent in the United States in recent years, even as some of its early advantages have been eroded. Until the reduction in protection by the industrialized countries in the 1950s and 1960s the United States had a uniquely large market. The countries of northwestern Europe and Japan that participated in the trade liberalization of the last twenty-five years have caught up in this respect. Barriers to trade still exist, but they are trivial in comparison with the 1930s. The European countries and Japan have, however, retained their policy-making flexibility in relatively small national units. It seems that this is giving them a considerable advantage vis-à-vis the United States. The United States in many respects bears the costs of being a very large true "economic community." Among developing countries India has similar costs.

It is now generally recognized that past patterns of integration in developing countries have not been successful. Integrated groupings have stagnated economically, broken up, or they are in trouble. It is also widely recognized that the countries which avoided integration entanglements, but took advantage of world markets for industrial specialization and economies of scale, grew much more rapidly than those which joined regional arrangements. Yet the political impetus for integration remains strong. In international debates it is being argued that

growing threats of protectionism by industrialized countries against the developing countries make regional integration, or some other form of cooperation among developing countries, essential. This is leading to considerations of new integration schemes. In contrast to the inward-looking integration proposals of earlier years, it is now being suggested that developing countries that have already achieved a considerable measure of industrialization move outward, and into exports, by reducing protection to each other as a preliminary step toward reducing protection against the outside world.

A scheme for exchanging preferences without a regional context has already been tried in an arrangement among Egypt, Yugoslavia, and India, which, it was hoped, would attract other developing countries. The arrangement led to a very small increase in trade for a small list of products. The preferences accorded, though negotiated at length with a considerable input of resources, were not large enough to offset the export inertia of Egypt or to divert Yugoslavia's rapidly growing exports from industrialized countries.

The 1970s integration impetus among Southeast Asian countries is another variant on this theme. The initial moves have been toward a trade preference area, with a low-tariff customs union as a cost-reducing, and not trade-diverting, second step. Negotiations have proceeded cautiously on the exchange of preferences, the impetus toward multinational plants is very limited, and industry-wide "complementation" agreements are being negotiated very carefully so that the growth poles in the more advanced countries will not absorb the bulk of the increase in industrialization that is expected to occur. It is recognized that even the small measure of trade diversion implied could have a long-term opportunity cost in turning entrepreneurs' attention away from other potential long-term markets. However, the path proposed is not dissimilar to that pursued by the European Economic Community, which was formed in a period of rapid domestic growth and international trade liberalization as an outward-turned free-trade area. The arrangement builds on a relatively advanced regional trade infrastructure, and a great deal of attention is being paid to such pedestrian but economically highly rewarding issues as the coordination of transport routes, customs practices, and banking regulations.

The unsuccessful experience of integration among developing countries should not be taken as an argument against their political and economic cooperation. Both are highly desirable, and both, indeed, are growing. After declining in real terms through the 1960s and early

1970s because of the rapid growth of North-South trade, trade among developing countries has begun to grow again in relative as well as absolute terms, but largely outside formal integration areas. There are growing flows of capital and labor among developing countries, and developing country transnational and multinational firms are growing. There is much to be done to improve infrastructure facilities to strengthen such economic relations further. However, it seems that the integration route, particularly in the form of capital-intensive plants producing for highly protected regional markets, is not likely to accelerate, and in some cases could impede, the industrialization of developing countries. Global international markets thus remain of prime importance to industrial growth.

III. International Adjustment and Its Implications for National and International Policy

Trade, capital, and labor movements among countries are both competitive and complementary. Direct foreign investment embodies technology and management skills that can bring jobs to workers in developing countries, and trade can bring the finished products to the industrialized countries at low cost. Where local entrepreneurship is available together with technical skills—and this increasingly is the case in semi-industrialized and many industrializing countries—the capital flows can be in the form of borrowing from financial institutions, and technology and technical and management skills can also be obtained separately. Such unbundling is increasingly preferred by developing countries because trade and banking flows are thought to have lower social costs than, and are therefore preferable to, the flows of direct investment and labor. But even trade and indirect capital flows have costs as well as benefits. Most of these costs have to be met within a country, but some are associated with a country's relations with the rest of the world and therefore have international implications.

Issues of National Adjustment Policy

Entrepreneurs, capital, and labor have to shift out of declining and uncompetitive industries into competitive and rapidly growing ones. Such shifts are typical of the manufacturing sector, and they tend to occur within manufacturing more frequently and more rapidly than in

other sectors (although this is not always true). Changes within manufacturing follow from technological change, market saturation and changes in taste, and changes in market structure and trade patterns. The shifting structure of manufacturing is responsive to relatively high demand elasticities for manufactured products, and it contributes to the relatively high supply elasticity of manufacturing. It has already been noted (particularly in Chapter 5) that these characteristics make manufacturing in some senses the riskiest of the production sectors, with a corresponding importance of entrepreneurship as a factor of production. The ebb and flow of industrial production has institutional implications for capital markets, industrial organization, and trade unions. It is sometimes accompanied and sometimes caused by population movements and other geographic shifts.

The faster the rate of an economy's growth, the more rapid such adjustments are likely to be, and the easier. Entrepreneurs and workers are more easily absorbed in new activities, while relatively high profitability and capital accumulation make up for the premature obsolescence of capital equipment. Workers and entrepreneurs are more willing to take risks than in periods of stagnation and high unemployment. The market-economy industrialized countries thus made very considerable structural adjustments in the 1950s, 1960s, and early 1970s without major problems. A rapid liberalization of trade through the formation of the European Free Trade Area and the European Economic Community, and through the Dillon and Kennedy Rounds of international tariff reduction under the auspices of the General Agreement on Tariffs and Trade (GATT), caused few difficulties. The United Kingdom saw a major transformation from textile to engineering production in the Northwest, there was a sharp reduction of coal mining, and the U.S. transnational corporations' investment in Europe led to major industrial changes. While there was some political opposition to the latter, there was little protectionist sentiment despite the very great impact of rapidly increasing trade on workers and firms. In marked contrast, the recession of the mid-1970s saw a growth of protectionist sentiment and some protectionist action through subsidies to local production and nontariff barriers, mainly, however, against imports from other industrialized countries.

In contrast to the strong liberalization trends of the 1950s and 1960s, some exports of manufactures from developing countries became subject to protectionist action almost as soon as they came into industrialized country markets. Tariffs on textiles and footwear were not reduced

commensurately with other tariffs, and import growth quotas were imposed to control the pace of market penetration.

The tendency toward protection arises because if the long-term benefits of trade are to be reaped, the short-term adjustment costs must be met. The firms and workers affected by import competition, or by the competition of other exporters in third-country markets, have to find new gainful employment opportunities. Where industries are particularly concentrated geographically, or where the workers affected are disadvantaged, this is difficult even in high-income countries in full-employment conditions. The workers who are displaced by labor-intensive imports from developing countries tend to be the least trained and mobile. A high proportion are women with very limited opportunities of moving into more skilled employment, and often with limited ability to move geographically because they are a family's second income earner. It is true that increased import opportunities open up new export markets, but semiskilled women textile workers cannot readily be transformed into precision mechanical engineering workers in another part of the country. Consumers are likely to benefit, but they are usually not well organized, and to the extent that they are both workers and consumers, jobs come first.

The impact of labor-intensive developing country exports has other characteristics which are relevant to the political economy of protectionism. Developing countries tend to come in at the bottom of the market with very low-cost products, reflecting very large differences in wages. Once production and marketing problems are overcome by developing country (or transnational corporation) entrepreneurs, exports can be increased very rapidly because labor supplies are ample. For this reason it also takes time for costs of production to rise, although the impact of exports on economic growth eventually increases per capita incomes and forces countries to move into other, less labor-intensive products. But other still poor developing countries then come in, again with low costs and prices. In contrast to trade among countries at similar levels of development, the trade impact is generally industry-wide. Adjustment is relatively easy within industry groups such as metal working, which produce a very broad range of products with broadly similar skills. It can often be carried out within a transnational corporation. When an industry as a whole is being phased out, however, small and financially weak and less efficient firms either disappear or are absorbed by others. When the turn of the last big firms comes, political resistance to adjustment is usually very strong. Geographical

concentration, defense arguments, and prolonged slow overall growth exacerbate the difficulties of adjustment, adding to more conventional protectionist arguments.

While the increase in employment in developing countries that accompanies export growth is generally regarded as a strong welfare argument, the proportion of benefits accruing to the poorer groups in developing countries is becoming an issue. Manufacturers may cream off a large proportion of the benefits through profits, and such profits can be very high if the workers are repressed. But even low-paid workers tend to be among relatively high-income earners in developing countries, because employment in manufacturing is elite employment. Thus the transfer of incomes that occurs tends to be from the least privileged and lowest-paid workers in the industrialized countries to relatively highly paid workers in the developing countries. Again this is usually not a characteristic associated with trade among countries at similar levels of development.

It is clearly not in the industrialized countries' interest or in the global interest to cling to labor-intensive production. Some may be retained for minimal self-sufficiency, and some areas of production that are design or fashion intensive retain their competitiveness in high-income countries. However, industrialized countries need a commitment in their own interest to adjust out of uncompetitive production. Such a commitment requires adjustment policies that include retraining facilities, relocation allowances, and in some instances capital grants to firms and regions affected by industrial decline. But specific adjustment policies can only be palliatives. Trade policy is only part of overall macroeconomic policy and cannot substitute for manpower, monetary, and other macroeconomic policies. Countries need a commitment to full employment and growth in a meaningful sense if adjustment policies are to be able to play their palliative role.

The developing countries' domestic policies are also relevant to the industrialized countries' ability to adjust to their growing imports. The case for limiting the rate of growth of labor-intensive exports and diversifying the exports of manufactures is well understood in the most highly industrialized developing countries. To ensure equity among exporters and importers the pace of adjustment in trade has become the subject of international negotiation. It is discussed further below.

Industrialized countries have recently taken further steps to reduce tariffs, and they have taken important initiatives in international action against nontariff barriers in the completion of the Tokyo Round of mul-

tinational trade negotiations. Their levels of protection are now far below those of most developing countries. To diversify their exports, both by product and geographically, and to enable the industrialized countries to facilitate import adjustment by exporting more, it is the developing countries' turn to review their trade policies. The difficulties of adjustment to lower levels of protection in developing countries must not be underestimated. Developing countries do not have the social security cushions that are available to displaced workers in industrialized countries, and they are loath to abandon any investment already in place because of their scarcity of capital. It is likely that even substantial reductions in protection in most developing countries, and particularly in the semi-industrialized ones, would affect only a relatively small number of workers employed by marginal firms, but any short-term disruption in employment and in the balance of payments would require some action, and in some countries considerable restructuring would be required. Some of the semi-industrialized countries have nevertheless begun such restructuring unilaterally, but others will require a great deal of encouragement and considerable balance of payments and long-term restructuring assistance to do so.

Issues of International Adjustment Policy

In international terms the costs of trade and other economic relations take the form of having to abide by international rules of the game. Such rules are partly implicit and partly codified and institutionalized in such agencies as GATT and the International Monetary Fund. They necessarily impinge on a country's sovereignty and limit its policy options in international relations and sometimes in related domestic policies. However, participation, in contrast to the colonial era, is voluntary and by negotiation. Most centrally planned economies have not chosen to join the international institutions, although they have developed their own in the Council for Mutual Economic Assistance. They by and large honor the principal of implicit international rules and seek the benefit of such explicit ones as most favored nation treatment in trade. Developing countries have for the most part argued on grounds of poverty and protection of infant industry that international trade conventions should not apply to them. They have been exempted from GATT rules against export subsidies and have negotiated Generalized Schemes of Preferences with major industrialized countries to reduce the level of protection facing them. In the past, they attached little

importance to international trade negotiations. They benefited from trade liberalization that took place, but they might have gained much more if they had actively participated.

The rapid industrialization of the more advanced transitional and semi-industrialized countries, and the rapid rate of growth of industry of some of the industrializing countries, suggests that a reexamination of the issues is overdue. The value of the Generalized Schemes of Preferences has been eroded by tariff reductions, and it is clear that industrialized countries are no longer willing to exempt the higher-income and more industrialized developing countries from countervailing action against export incentives.

The principle of reciprocity in international trade relations is not well understood. It appears on the surface to indicate that each participant to a negotiation will give up an apparent benefit, such as a high tariff, so that a partner country may do so too, in a process designed to reduce tariffs overall. But the participants in such negotiations know that it is in their own interest to lower their tariffs (as Chapter 2 indicates). Given flexible exchange rates, it would be in their interest to take such action unilaterally, without agreement by partner countries. They usually cannot do so because of the opposition of their own manufacturers who profit from existing trade restrictions. The principle of reciprocity was therefore introduced into GATT negotiations largely to give the negotiators a weapon against such vested interests. The government can argue at home that only with reciprocity and its concessions can entry to other markets be obtained, and thus overcome local opposition. Many developing countries, recognizing the costs of high protection and export incentives, now face precisely this problem. Engaging in international negotiations on a reciprocal basis can become an important policy instrument in improving domestic productivity while seeking access to foreign markets.

Given the characteristics of labor-intensive exports from developing to industrialized countries, it seems likely that agreements governing the pace of market penetration into industrialized countries of these products will continue to be necessary to avoid even greater protection. The industrialized countries' concerns with equitable wages in developing country export industries are not, as is sometimes alleged, mere protectionism in disguise. It is not intended to impose unrealistic minimum wage and working conditions derived from high-income-country practices that would cripple the developing countries' export capacity. Instead it is proposed to ensure that the gains from trade reach the

poorer groups in developing countries. Developing countries will have to become increasingly involved in negotiations on such issues if they wish to influence their outcome.

The evolution of codes of conduct that have emerged from the Tokyo Round of trade negotiations to control nontariff trade barriers will be governed by the attitudes of the participants. The codes have a potential for reducing nontariff barriers against developing countries, but the potential will be fulfilled only if the developing countries participate on a full-membership basis in the system that is being established by GATT. Similar initiatives are required in rules governing international transport and other trade-linked services.

Questions of equity among developing countries are becoming of increasing importance to take account of the range of income and industrial development between the nonindustrial and semi-industrialized countries. The Generalized Schemes of Preferences were essentially product-oriented preferential programs, with country considerations brought in with quotas through the back door. With the Tokyo Round tariff reductions, these preferences will become of trivial value. An international graduation approach that would differentiate among countries according to their level of income and industrial maturity and give them privileges accordingly is beginning to emerge. Privileges are likely to be phased out with rising levels of income and industrialization or to disappear altogether as the rapidly industrializing countries merge into the industrialized countries' liberal trade community with all its obligations as well as its privileges.

Developing countries have traditionally taken a more positive approach to capital markets institutions, becoming members of the International Monetary Fund, the World Bank, and the regional development banks. The World Bank and the regional development banks have made funds available predominantly to developing countries since the 1960s. The International Monetary Fund has exempted developing countries from its exchange control regulations and evolved special facilities for the lowest-income developing countries in the mid-1970s. These institutions, together with bilateral donors, assisted the growth of manufacturing by direct and indirect support in the early years, complementing the flow of private funds and by their presence facilitating borrowing from private financial institutions. From the late 1960s private capital sources gradually became more important, particularly for those semi-industrialized and industrializing countries that chose to become heavily involved in international economic relations. By the

mid-1970s private flows were swamping capital flows from official sources.

These changes have been accompanied by substantial improvements in the implicit rules which govern capital transfers. Most developing countries that wish to attract foreign capital now explicitly provide for transfers of investors' interest, profit, and capital repatriation payments. Most have also guaranteed the payment of compensation on a mutually agreed basis in the case of nationalization. Industrialized country governments on their side have subsidized insurance against the political risk of investing in developing countries and centrally planned economies. The ease of access of developing countries to industrialized country capital markets is demonstrated by the rapid increase in their debt. Such borrowing has been advantageous to the developing countries because real interest rates are low, effective maturities have been lengthened by loan rollovers, and the long-run debt burden is being reduced by inflation.

Some attempts have been made to translate the implicit rules that govern private investment into codes of conduct, particularly for the transnational corporations and developing country governments. Such codes may serve as guidelines for corporations and countries in search of investment policies, but the only possible sanctions are already present: transnational corporations will not invest on favorable terms in countries that do not treat them fairly, and developing countries will keep out transnational corporations with a bad reputation. Some international action could be helpful in reducing tax evasion. A more neutral treatment of foreign investors would be helped by discussions among home and among host country governments. In particular, excessive incentives resulting from competition for foreign investment could be reduced. A reduction of such incentives would reduce transfer pricing at other than "arm's length" competitive market prices, but direct negotiation between host and home countries will continue to be needed as well. International taxation guidelines could perhaps be helpful.

Conclusion

The role of the developing countries in the international economy has changed dramatically with industrialization. The next decade is likely to see an even greater expansion as trade in manufactures continues to expand. A strong, rapidly growing international environment can facilitate industrialization in developing countries by providing markets,

imported inputs, and imports of capital and technology. This was clearly the case in the 1960s. But the pace of developing countries' industrialization and its characteristics are not dependent on the international environment. All countries, developing and industrialized, must take responsibility for their own development. Domestic policy instruments give them a great deal of latitude. The experience of the last thirty years has shown, and that of recent years has underlined, that developing countries have their future in their own hands. Those which have followed growth-oriented policies, taking, with care, advantage of the opportunities participation in the international economy offers, have had a strong growth experience. Some, at similar levels of development, with similar resources and facing the same environment, have done less well. Important as international issues are, they should not form an excuse for not dealing with domestic problems, whatever the level of a country's industrial development.

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