

## Chapter 5: Industrialization

The share of industrial production in the economy is an important indicator of the stage a country has reached in the process of structural transformation. In Middle Income countries, the high rates of industrial growth sustained since 1960 have raised the share of industry from 32 percent of gross domestic product in 1960 to 37 percent in 1976. Industrial output has grown somewhat more slowly in the Low Income countries, but the share of industry in their GDP has risen more, because the other sectors, agriculture and services, have grown even more slowly than in the Middle Income nations (Table 30).

into their own. These later-stage activities tend to be more important in the industrial structure of large countries, which are normally better positioned than small ones to exploit economies of scale in process industries. Among small countries the industrially specialized economies diversify earlier into these sectors than the primary exporting countries. Figure 9 illustrates these average patterns of change with respect to the metal products sector.<sup>1</sup>

The industrialization patterns of countries show some systematic differences with respect to their size and specialization in international trade. At a given level of average income, large

**30. Structure and Growth of Production, 1960-76**  
(Percentages)

	Distribution of Gross Domestic Product (at current prices)					
	Agriculture		Industry		Services	
	1960	1976	1960	1976	1960	1976
Low Income Countries	50	38	17	24	33	38
Middle Income Countries	22	15	32	37	46	48
Industrialized Countries	6	4	40	38	54	58

	Average Annual Growth Rate, 1960-76 (at 1975 prices)		
	Agriculture	Industry	Services
Low Income Countries	2.1	6.0	5.2
Middle Income Countries	3.1	7.6	6.7
Industrialized Countries	1.3	4.9	4.2

### Shared Patterns and Problems

Since countries at similar levels of average income have much in common in what people buy and what local industries can make, there tend to be marked similarities in the evolution of industrial structure. For example, food processing is typically an important subsector in countries at low income levels, particularly in small nations specializing in primary products, but it becomes less significant as incomes rise (Figure 9). Other labor-intensive activities, such as textiles, also are important at early stages of development. As development progresses, more capital- and skill-intensive sectors like rubber products, chemicals and metal products come

countries such as Brazil and Turkey, which rely predominantly on domestic markets, have tended to attain higher levels of industrialization than small nations, which rely more on international trade for their development. Among small countries, those poor in natural resources, such as the Republic of China and Hong Kong, which specialize in manufactured exports, have industrialized more rapidly than those such as Costa Rica, Iraq and Malaysia that have ex-

<sup>1</sup>Metal products refers to items in the International Standard Industrial Classification Divisions 38 and 39: fabricated metal products, machinery, equipment and miscellaneous manufactures.

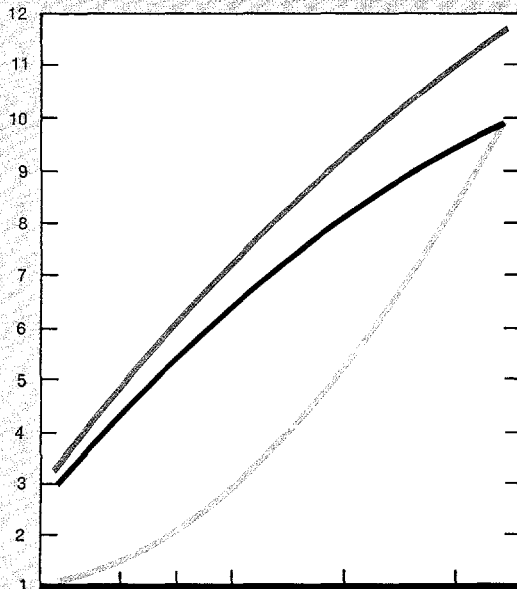
Figure 9

### The Pattern of Structural Change

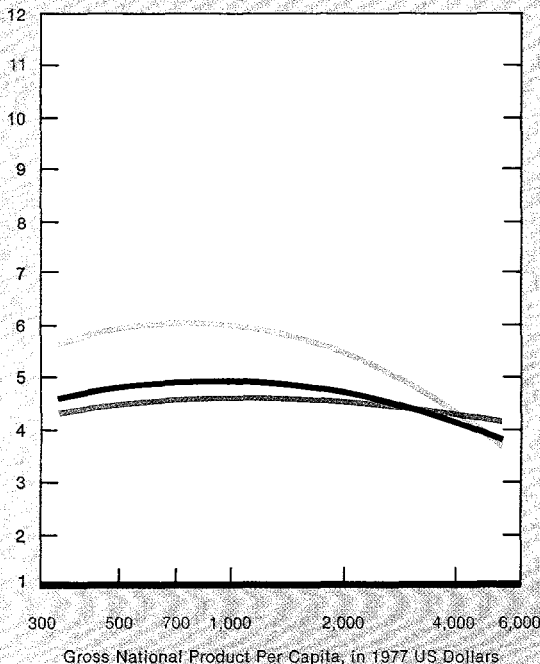
(Percentages of gross domestic product, at 1977 prices)

- Small/Primary Exporters
- Small/Manufactured Goods Exporters
- Large Countries

#### Metal Products



#### Food Processing



exploited their natural resource endowments to specialize in exports of primary products.

Many developing countries deviate substantially from these average patterns of industrialization, not least because of the different policies with which they have responded to similar initial conditions. But though these responses differ, many of the key problems and choices encountered by industrializing nations are similar. It is these shared problems and issues of industrialization that are the subject of this chapter.

The problems of industrialization are particularly onerous in the early stages of development, when incomes are low and skills scarce, but a wide range of new institutions and activities needs to be established and coordinated, and crucial choices have to be made with respect to the sector, scale and timing of investments. Successful industrialization has generally required substantial and efficient investment in supporting infrastructure. In industries that compete with imports, difficult choices usually need to be made as to how, and how much, they should be protected against foreign competition: while too much protection stunts learning and productivity growth and nurtures vested interests, too little could prevent an industry from starting at all. In many industrial products characterized by economies of scale, the most economically efficient plant size is significantly larger than that which the initial domestic market will justify. The timing and phasing of such "lumpy" investments thus raises important issues, since building plants that are sub-optimal in scale can often result in unnecessarily high costs. The financing and management of large plants and complex production systems are frequently beyond the capacity of the local private sector, making it necessary to consider the alternatives of public enterprises or foreign transnational firms; each of these institutional modes poses fresh challenges for policy. Perhaps the foremost shared problem at early stages of development is how to foster a stable and consistent policy framework that supports industrialization without discouraging the development of the most important sector of the economy, agriculture.

As industrialization proceeds beyond the initial stages, other issues come to the fore for policy consideration. Growing attention needs to be paid to expanding the opportunities for indigenous managers and entrepreneurs, partic-

ularly with respect to learning to produce, export, and market manufactured goods in an internationally competitive environment. Frequently, this requires a substantial liberalization of the industrial policy framework. At the same time it becomes increasingly necessary to enlarge the pool of technological expertise, so that the country can adapt and innovate industrial technologies appropriate to its endowment of natural resources, capital and labor. The growing depth and interdependence in the domestic industrial structure calls for complex investment planning and coordination, particularly with respect to the intermediate and capital goods producing sectors.

### **The Role of Agriculture**

Debates over development strategy have often swirled around the relative importance to be assigned to industry versus agriculture. Historical evidence suggests that this dichotomy is frequently overdrawn. In particular, the notion that rapid industrialization entails a neglect of agriculture is misplaced; it underestimates the importance of the mutually beneficial links between agricultural and industrial development. Indeed, in most developing countries successful industrialization has been supported by sustained and broadly based agricultural growth. This is hardly surprising in view of the fact that in the overwhelming majority of developing nations, including most Middle Income countries, more people earn their livelihood from agriculture than any other major sector of the economy. A buoyant and productive agricultural sector stimulates domestic demand for industrial goods, supplies cheap food for industrial workers and raw materials for agro-processing industries, earns foreign exchange to finance imports of capital and intermediate goods for industrialization, and facilitates the development of labor-intensive small- and medium-scale industrial units in small towns and rural areas.

Increases in agricultural productivity and incomes are particularly important for generating domestic demand for industrial products at the early stages of development, when agriculture provides employment for well over half of a country's labor force. Detailed micro-studies of farm household behavior in several countries, including Malaysia and Sri Lanka, show that increments in rural incomes have powerful multiplier effects, in that they increase the de-

mand for non-agricultural goods and services and hence the incomes of those providing the goods and services. Moreover, the evidence indicates that the multiplier effects of increases in smallholder incomes are, if anything, greater than those of comparable increments in the incomes of large farms, suggesting that a smallholder-oriented agricultural development strategy would enhance the expansion of a domestic market for industry.

Limited and stagnant rural purchasing power is a particularly severe constraint on the industrial development of the large poor countries of Asia, which have to rely principally on domestic markets for their industrialization. Where significant increases in agricultural yields and incomes have loosened this constraint, as for example in the Indian states of Haryana and Punjab over the past two decades, rapid gains in industrialization have been recorded. In such cases, while much of the increase in industrial output has occurred in textiles and other consumer goods purchased by rural households, part of the increment reflects the expansion of fertilizers, pesticides, agricultural implements, tractor parts and other intermediate manufactured products, which have, in turn, made agriculture more productive and highlighted the potential for mutually reinforcing links between the two sectors. Furthermore, when agricultural growth has been broadly based, the increments in purchasing power have induced the expansion of labor-intensive industrial activities, many of them in small-scale enterprises located close to rural markets.

In the early stages of development, when agriculture dominates the economy, it is inevitable that some of the resources for industrialization come from agriculture. But the manner and amounts in which such resources are transferred can have profound consequences. All too often the methods deployed have included artificially low prices to agricultural producers, taxation of agricultural exports, an overvalued exchange rate, heavy protection for manufactured goods, including those purchased by the rural sector, and other measures which have turned the domestic terms of trade against agriculture and dampened the incentives for its development. Frequently these policies have been compounded by deficiencies in transportation and marketing infrastructure, and inefficiencies in agro-processing industries, which have levied further implicit tolls on agricultural

incomes. From an economic viewpoint, land taxation and the mobilization of rural savings through financial institutions are more desirable means of transferring resources from agriculture to industry; these played a significant role in the early development of Japan. More recently, the Republic of China, the Republic of Korea and the Indian state of Punjab, among others, have achieved considerable success in using financial institutions to channel rural savings to other sectors.

Agriculture remains important to the industrialization process for nations in the middle income range. In many of these countries, agriculture still accounts for well over half of merchandise export earnings, which are necessary to finance the burgeoning imports of intermediate and capital goods for industrial production. With a growing proportion of the labor force employed outside agriculture, Middle Income countries need to produce food efficiently if they are to escape the unwelcome consequences of massive food import bills, or the inflationary pressure on industrial wages exerted by high food costs. Countries such as the Republic of China, the Republic of Korea and Malaysia, which invested heavily in irrigation, land improvements, other rural infrastructure and agricultural research in their early stages of development, have been reaping the benefits of high agricultural productivity and incomes, and cheap food. In contrast, nations such as Chile, Jamaica and Zambia, which paid insufficient attention to agricultural development in earlier years, are finding that high food import bills severely limit the foreign exchange available for industrial development. Appropriate agricultural pricing policies are equally important. In West Africa, for example, the Ivory Coast's concern to provide adequate incentives for producers has been rewarded with decreasing dependence on food imports, whereas the unattractive producer prices adopted in Ghana have contributed to a substantial decline in food production per capita.

In many Middle Income countries, rural purchasing power remains fundamental to the domestic market for industrial goods. This is particularly true in larger countries such as Brazil and Turkey, which need to give greater priority to broadly based agricultural development, especially if protection in international markets reduces the potential for selling industrial products abroad. Conversely, in rapidly

growing Middle Income countries, including the Republic of China, the Republic of Korea, Mexico and Nigeria, the sharp increases in effective demand for agricultural products offer significant opportunities for stimulating domestic agriculture, especially on small farms, and effecting a wider dispersion of the benefits of fast growth.

## **Government Support for Industrialization**

### **Infrastructure, Planning and Finance**

In most developing countries governments have played a crucial role in initiating and supporting the early stages of industrialization. They have been mainly responsible for the building of roads, railways and port facilities which have reduced transport costs, integrated markets, and made development possible. State undertakings have usually been created to produce and distribute the power, water, sewerage and telecommunications services essential to the growth of industrial activities and the concomitant development of towns. The economies of scale inherent in the provision of these utilities typically entailed large-scale projects that were beyond the capabilities of the local private sector at early stages of development; moreover, the widespread practice of subsidizing these basic services could not have been pursued by private companies. However, in many developing countries, policies for underpricing public utilities have outlived their original justification of nurturing modern industrial activity; continued reliance on such policies strains national budgets, undermines the financial and managerial autonomy of the utilities concerned, and gives misleading signals for investment decisions. Finally, government investments in transport infrastructure and public utilities have generated substantial demands for equipment and for construction materials and services, which have created significant opportunities for local industrial expansion, even though much of the demand was initially met from abroad.

The state's role in early industrialization efforts has extended beyond the provision of expensive large-scale physical infrastructure. Following World War II, growing numbers of developing nations espoused industrialization as a prime goal of government economic policy and launched a broad array of initiatives in its pursuit. Much of the impetus for development planning came from and was focused on the requirements of industrialization. The large

investment and foreign exchange requirements of industrial and infrastructure projects, and the high degree of interdependence among them, spurred governments to draw up comprehensive and detailed medium-term projections and plans for economic activity. These early efforts at development planning highlighted the inherently interconnected nature of government fiscal, monetary and foreign trade and payments policies, and nurtured a coordinated approach to development strategy. Investment planning also catalyzed the identification and appraisal of alternative projects, provided early warnings on emerging bottlenecks in production and manpower supplies, and permitted the implications of alternative policy packages to be assessed.

Some governments went further and attempted to use development plans as detailed blueprints for the central direction of economic activity. In several countries, particularly those at low levels of development, the volume and quality of central planning and detailed state intervention required for such a strategy outstripped the capacity of their planning and implementation apparatus; coordination was often faulty; projects were delayed by lack of complementary inputs; cost overruns were frequent; plans were too rigidly adhered to in the face of unforeseen events; and the capacity for decentralized decision making was stunted. These experiences have increasingly led to the use of more decentralized and flexible planning procedures such as "rolling plans" and multi-year budgets, which attempt to bridge the exigencies of short-term economic policies and the medium-term planning needs on which investment decisions must be based. In developing countries with more advanced industrial structures, the high and growing capital costs of minimum-scale plants, the growing interdependence among industrial activities, recent advances in complex analytical techniques and the availability of skilled analysts combine to offer cost-saving opportunities from the planned timing, scale, location and phasing of investments in industries such as fertilizers, petrochemicals and mechanical engineering.

Besides providing infrastructure and a coordinated policy framework, developing country governments have spearheaded efforts to marshal skills and financial resources and direct them to industry. Numerous specialized institutes have been created to train indigenous

managers, entrepreneurs, administrators and industrial technicians. In nations where the historical legacy of such skills was particularly scarce, as in many countries of Sub-Saharan Africa, programs have been established for the transitional use of expatriate personnel in private and public industrial ventures. Such policies have not been free of difficult issues such as salary disparities between expatriate and indigenous staff, the appropriate rates of "citizenization" of jobs held by expatriates, charges of neo-colonialism, and other vicissitudes of post-colonial cross-cultural cooperation; nonetheless they have usually permitted more rapid and efficient industrialization than would have been possible otherwise.

Governments have channeled finance to industry through a number of means, including direct lending and equity participation in industrial enterprises and the creation of industrial development banks, which act as conduits for domestic and foreign financial savings. Beyond supplying medium- and long-term finance to industry, the development banks provide a wide array of technical services and propagate the application of modern investment appraisal criteria. In some developing countries, including India, the Republic of Korea, Mexico and Tanzania, the major government-supported development banks have become pivotal institutions in industrial development. In most developing economies, governments have also been active in delineating and monitoring the role of foreign transnational firms in transferring capital, skills and technology to local industry. The means they have used range from defining investment and tax codes for private foreign investment to assisting domestic private and public entities to negotiate contracts with foreign firms.

#### **Public Enterprises in Industry**

One set of public institutions for furthering industrialization in developing countries merits special attention. These are industrial enterprises owned and operated by government. Such enterprises have been created in many developing countries for diverse reasons, including the desire to launch and control large capital-intensive plants producing fertilizers, petrochemicals or steel, which might not have been undertaken by the private sector or would require regulation of monopolistic profits if they were; the goal of deploying state economic power to balance that of domestic industrialists

and foreign transnational firms; the need to increase the supply of trained managers and technical staff; and nationalization of existing private units to take over the "commanding heights" of the economy, or, alternatively, to forestall bankruptcies and layoffs in private enterprises of marginal profitability. In many Low Income countries, particularly in Africa, where the dearth of indigenous private industrial entrepreneurs frequently narrows the choice of institutional modes to state enterprises or foreign firms, the former are often preferred.

Some of these underlying objectives have been fulfilled. Large-scale industrial projects beyond the capacity of the local private sector have been set up in many countries. In India public enterprises have made pivotal contributions to the establishment of a domestic capital goods manufacturing sector and the evolution of a professional cadre of industrial managers. In the Republic of Korea, public enterprises played a key role in the development of internationally competitive fertilizer and iron and steel industries. Turkish state enterprises facilitated the introduction of new manufacturing technologies and modern sales organizations, while the training programs of these firms supplied substantial numbers of managers and skilled workers to other industrial units. Public sector management of nationalized units has sometimes been more dynamic and far-sighted than that of their private predecessors. In a number of countries, negotiations and joint ventures with foreign firms have been aided by the existence of public industrial units; this is particularly true of sectors engaged in processing petroleum and non-fuel minerals.

However, in most countries there is growing concern about the low profits and operational inefficiencies of many state enterprises. Most public undertakings in developing countries operate in monopolistic domestic markets protected from international competition by tariffs and quotas, and receive significant benefits from tax exemptions and priority allocations of scarce foreign exchange and domestic credit. Yet substantial losses are common and high profits are exceptional. Their history of poor profitability stems partly from their pursuit of other, social, objectives, such as employment and the development of backward regions, and partly from the fact that many of these enterprises are recent ventures in difficult sectors

where an extended learning period can reasonably be expected. But all too often the explanation lies with the framework of policies and incentives within which state enterprises operate. Frequently, public enterprise managers are granted very little discretion regarding pricing, wages, hiring practices and investment decisions. Wage and salary scales are narrowly bound by legislation, product prices are controlled by other state agencies, and investment decisions are subject to detailed and dilatory scrutiny by the central government, which also intervenes in the day-to-day operation of the undertakings. Overmanning at all levels is common since public undertakings are often viewed as employers of last resort; hiring decisions frequently result from the exercise of political patronage while dismissal procedures are cumbersome and ineffectual. Furthermore, state enterprises are often favored targets for labor strikes.

These practices lead to frequent losses which are almost invariably financed from the national treasury or the banking system; bankruptcy is rare. The prevailing environment provides little incentive to workers and managers to improve their performance and thus tends to perpetuate the existing problems. The costs of poor performance extend beyond the state enterprises, especially in countries where they produce a large proportion of industrial output. The cumulative losses burden the national treasury and preempt credit which could have otherwise gone to more productive users. In some countries, such as Mali and Turkey, the funding of public enterprise losses by the banking system has been a significant source of inflation and macroeconomic instability.

It is easier to diagnose the difficulties, many of which are shared by some state units in industrialized countries, than to devise and implement solutions, especially since the latter will depend to a large extent on political factors. However, the experience from a number of countries suggests some broad guidelines. First, large industrial projects in the public sector merit particularly careful pre-investment scrutiny, since once they are initiated the practical possibilities of reversing a mistake through permitting bankruptcy are limited. Second, the non-commercial objectives of a state enterprise need to be limited and specified, if they are not to be used as blanket justifications for inadequate performance. The experience between

1950 and 1970 of Italian public enterprises under the holding company, the Institute for Industrial Reconstruction, provides an example. Agreement on the nature and scale of a particular social objective was arrived at between the government, the holding company and the individual enterprise, which then received earmarked funds, at predetermined levels, to pursue the specific social objective. The company was not expected to compromise its quest for profits.

Experience from Mexico and Italy indicates that competition between private and public firms tends to make both more efficient in industries where economies of scale and the size of the domestic market limit the number of units. In sectors where public firms occupy near-monopoly positions, competitive discipline can be exerted through more liberal import policies. The benefits of competitive pressure are more likely to be reaped if measures are taken to grant public enterprise managers greater autonomy with respect to product pricing, financial management, employment practices and investment decisions, coupled with greater accountability for their performance. The historical evidence also suggests that the dynamism of state enterprises is likely to be enhanced through joint ventures with private domestic and foreign firms. Finally, a number of countries, including Argentina, Brazil, Japan, the Republic of Korea and Singapore, have successfully followed the practice of selling public enterprises to the private sector once the pioneering role of the government has been discharged. In this way, the government's limited managerial and financial resources can be used sequentially to pioneer new ventures and promote competition within specific monopolistic industries.

#### **Technology for Industrial Development**

•Successful industrialization requires the acquisition and mastery of new technological processes and the development of capacity to adapt and innovate technical and organizational changes that will raise productivity in developing country conditions. Much of the technical progress in developing country industries has been achieved through experience accumulated on the job, and through small changes in physical plant, layout and organization. Such gradual changes more than doubled the annual production capacity of a Brazilian steel plant in seven years, with very little new physical investment.

Similar, though less dramatic, gains have been recorded in many successful industrial firms in other sectors and countries.

Developing countries still depend heavily on industrialized nations for new industrial processes and techniques. The overwhelming majority of these originate in developed countries (including European centrally planned economies), which are estimated to account for over 95 percent of world spending on research and development. New technology is transferred to developing nations through diverse channels, including the capital goods imported by these countries, direct investment by foreign transnational companies, engineering consultancy, education and training, turnkey projects, licensing agreements, management contracts, and a variety of informal business links. Countries at early stages of industrialization tend to rely more heavily on transfer mechanisms, such as foreign private direct investment, that combine technology, capital, skills, marketing and management in one package, while nations with more developed industrial structures are better positioned to define and contract for their specific technology needs. Over time, the growing sophistication of technology buyers and increased competition among the proliferating suppliers of technology have induced a general tendency toward the more specific, unpackaged forms of technology transfer. The trend has been slower in high technology industries, such as petrochemicals, motor vehicles, precision machine tools and computers, where developing country buyers lack the requisite expertise and the sources of supply are few.

The international market for industrial technology is an imperfect one, and a complex arena for buyers from developing countries, especially the less advanced among them. The costs of acquiring technology are frequently bloated by the manipulation of prices for transactions between constituent units of transnational companies; technology contract clauses that restrict the buyer's exports and require purchases of imported inputs from the supplier; and by certain developing country policies, including excessive industrial protection, unduly generous tax inducements to foreign investors and indiscriminate, sometimes duplicative, acceptance of technology contracts.

A more open, stable and competitive environment for industrial trade and investment and the elimination of unnecessary tax inducements in

some developing countries could substantially reduce the costs to developing countries of acquiring technology. In recent years several countries, including Argentina, Colombia, India, the Republic of Korea and Mexico, have established national technology registers and similar agencies to screen prospective technology contracts between foreign and domestic firms, with a view to reducing the excessive costs of duplication, unduly high payments and severely restrictive clauses. According to preliminary evaluations, the Colombian and Mexican programs have had significant success in reducing costs and acquainting domestic entrepreneurs with cheaper alternative technologies. Recent international initiatives have also led to negotiations on international codes of conduct for technology transfer and transnational corporations.

Costs are not the only concern of developing country purchasers of industrial technology. Frequently the industrial processes designed and developed in the relatively capital-rich industrialized countries are too capital intensive for developing nations, and their indiscriminate adoption aggravates unemployment and underemployment in these countries. Studies indicate that developing countries could significantly increase both employment and output by adopting more appropriate technologies. Individual firms in these countries rarely have ready access to information on profitable alternative technologies. Recognizing this, a number of countries, including Ghana, India, Indonesia and Mexico, have founded institutes for research and dissemination of such information. Of potentially greater significance for the long term is the recent emergence of technology exports from a few industrially more advanced developing countries. These exports could significantly widen the array and terms of technology acquisition available to other developing nations.

During the present decade a few countries, including Argentina, Brazil, the Republic of China, India, the Republic of Korea and Mexico, have begun to export capital equipment, turnkey plants and engineering consultancy services, and to undertake transnational corporate investments. India has been exporting capital equipment for textiles, sugar processing and cement for some time; its more recent exports have included a growing range of machine tools and other engineering products. Argentina has exported turnkey plants for meat refrigeration and fruit processing, while Brazil and Mexico

have won turnkey contracts in steel manufacture. The competitiveness of these technology exports is founded on a history of learning, improving, and adapting technological processes and products imported from industrialized nations, the relatively low cost of highly skilled manpower, the suitability of the technologies for developing country conditions, and their presentation in relatively unpackaged forms so that buyers can specify their needs. Such technology exports are still small in the global context, but they presage significant and growing opportunities for trade and technological links among developing nations.

The experience of these few technologically more advanced developing nations highlights the significance of the domestic engineering and metal-working sectors in furthering the development of technological expertise and industrial efficiency. In developing countries with relatively advanced industrial structures and a sizable skilled labor force, there are strong reasons for encouraging the production of machinery. Exports of machinery and transport equipment are projected to continue as the most dynamic element of world trade in manufactured goods. Much of the increase in demand for these products is likely to come from developing countries, which in 1976 absorbed over 30 percent of world exports, but supplied less than 5 percent of the total. Development of machinery manufacturing could increase a country's exports of machinery and engineering consultancy services, augment its ability to adapt and innovate industrial processes suited to indigenous resources and conditions, and enhance its capacity to choose and negotiate technology purchases from abroad, as well as creating substantial employment opportunities for skilled and semi-skilled labor. Furthermore, unlike process industries such as steel, fertilizers and other chemicals, machinery production does not require large, capital-intensive, vertically-integrated firms. Relatively small firms can secure the economies of scale necessary for efficient production through product specialization, tight production scheduling and careful control of inventories.

In most developing countries where machinery production is a sizable sector, its efficiency is currently hampered by a number of factors, including uncertainties in the supply of raw materials such as steel, inadequate training of operatives, too little sharing of the managerial



in the emergence of substantial domestic technological capacity.

The early stages of import substitution usually involve labor-intensive, non-durable consumer goods, the production of which is technically simple and also efficient even at low levels of output. To encourage import substitution in these products, many countries have afforded the highest levels of protection to consumer goods, giving successively lower levels to intermediate and capital goods and primary commodities. While the details vary, this broad pattern of protection is common to countries as diverse as Chile, Colombia, India, Indonesia and Pakistan.

Once early import substitution opportunities have been fully exploited, a continued reliance on protection imposes increasingly higher costs on the economy, because the production of goods associated with later stages—intermediate goods, capital goods and durable consumer goods—has relatively advanced technological requirements, is more demanding of skilled labor, and needs to be organized on a relatively large scale if it is to use resources efficiently. Limited domestic markets and a structure of incentives that discourages exports have condemned capital-intensive industries to inefficient levels of production in countries—Colombia, Ghana and Pakistan, for example—that have pursued import-substitution strategies for too long. Even in larger economies, such as Brazil (at least until 1965), India, Mexico and Turkey, the prolonged use of protective measures has contributed to the development of high-cost, inefficient domestic industries. Moreover, an important corollary of the protection afforded to manufacturing is its disincentive effect on agricultural production. Import-substitution policies have tended to limit agricultural growth, and hence domestic demand for manufactured goods, while simultaneously keeping industrial production dependent on internal purchasing power.

Experience suggests some guidance for the future. Low Income countries still in the early stages of industrialization can successfully deploy protective measures while skills are acquired and the necessary infrastructure is established. Such protection, however, should be of limited and clearly specified duration and, where possible, should rely more on tariffs than on quantitative restrictions. Adequate promotional incentives—subsidies and information—

could also be made available to new industries to encourage them subsequently to enter world markets. Japan and the Republic of Korea, for example, have demonstrated that very high levels of initial protection need not prevent an industry from becoming internationally competitive within 10 or 15 years, provided that all concerned are given clearly to understand that protection is to be temporary. In Low Income countries, low-skill, labor-intensive products are the most appropriate initial focus for industrialization efforts; technologically more sophisticated products may need to await the development of adequate supplies of skilled labor and technological capacity. At the same time, domestic demand for industrial products can be stimulated by maintaining incentives to agriculture at levels which secure the continued growth of agricultural incomes.

Where domestic markets are relatively small, the pursuit of import-substituting policies beyond the early stages of industrialization should be viewed with caution. Several countries—the Republic of China, Israel, the Republic of Korea and Singapore—have demonstrated that the continued development of industry can be secured by an alternative approach—namely, a switch to production for export. Apart from maintaining and even accelerating the rate of industrialization, the policy switch allowed these countries to avoid the costly mistakes associated with excessive import substitution and to reap a number of benefits. In particular, since manufactured exports tend at first to be more labor-intensive and less skill-intensive than import substitutes, these countries were able to economize on skills and capital and simultaneously to increase job opportunities for unskilled labor. Opportunities for acquiring technical and managerial skills were also expanded, and industry, no longer constrained by domestic demand, was able to take advantage of economies of scale and to increase capacity utilization. The resulting growth in their manufactured exports was phenomenal: between 1961 and 1976, for example, the manufactured exports of the Republic of China and the Republic of Korea increased at annual rates of about 25 and 50 percent respectively.

Experience demonstrates that a successful export drive depends crucially on easy access to duty-free imported inputs, through, for example, special export-processing zones or efficient systems of bonded warehouses and tax

and engineering experience accumulated in the sector, a lack of standardization in materials and parts, insufficient expenditure on research and development, weak marketing arrangements and instability in the demand for the sector's products, caused by fluctuations in economic growth and sudden changes in trade and industrial policy.

Government action can help to alleviate some of these problems. Programs for vocational training or to subsidize in-plant training can make labor more productive. Plants may be made more efficient through government-sponsored extension services in which experienced engineers and production personnel advise on the use of machines, layout and flow of work. The Republic of Korea is launching such a program. Production and exports could also gain from the establishment of a centralized engineering consultancy service for the conception, establishment and operation of turnkey plants, such as that operated by Engineers India, Limited. The state could take the lead in introducing national standards for materials, industrial fasteners and other parts. Fluctuations in the supply of raw materials and in demand for the sector's products could be reduced through planned phasing of investment in the industries supplying the sector and using its products, as well as through flexible and liberal import policies to allow unforeseen shortfalls in raw materials to be offset. Machinery exports would benefit from the provision of longer-term export credit and insurance facilities, better dissemination of international marketing information, and the institution of centralized quality control facilities. Machinery firms in developing countries undertake little research and development, though this is necessary to sustain productivity gains and spur innovations in design that best exploit the availability of indigenous resources. Governments could offer firms tax incentives for research and development expenditures, establish institutions to undertake contract research for industry, and reverse the current bias in the funding of research and development that favors basic research over development work. Finally, policies that assure high and stable rates of investment in the economy and facilitate the evolution of small- and medium-scale machinery firms will aid the development of the machinery sector and broaden the country's technological capacity.

## **Foreign Trade and Competition**

### **Trade Policies: Costs and Benefits**

Growth in the international exchange of goods and services has contributed significantly to the economic development of trading nations. The basic principle of foreign trade—that specialization and exchange increase the overall availability of commodities—allows all parties to benefit from international transactions. The extent to which countries have recognized and adhered to this principle has been a key factor in the success of their industrialization efforts. Countries that have used foreign trade opportunities to capitalize on natural advantages, such as their location and plentiful supplies of cheap labor, or on acquired advantages such as skills and technical capabilities, have developed more quickly and avoided cyclical foreign exchange crises more successfully than similarly endowed countries that have excluded foreign competition and protected domestic production beyond the initial creation of an industrial base.

Experience suggests that only a limited phase of protection is required in the early stages of industrialization. All of the currently industrializing countries, with the sole exception of Hong Kong, have protected domestic production to some extent. Frequently, however, protection has been introduced as a means of limiting imports in response to balance of payments crises, rather than as a conscious effort to encourage the rational development of industry. Among the unforeseen consequences of the ensuing reliance on quotas, indiscriminately imposed tariffs, and administrative control of foreign exchange are the misallocation of resources in favor of large-scale, capital-intensive production, reduced incentives to export, and the creation of vested interests in the protected industries. Initially, however, despite the inefficiency of the protective devices used in many countries, the encouragement of import-substituting industries has generally secured a rapid expansion in manufacturing output. In the 1950s and 1960s Mexican manufacturing, for example, grew at annual rates above 7 percent; Brazil, the Philippines and Turkey, among other countries, have also achieved considerable rates of growth in manufacturing through import substitution. The development of the manufacturing sector has in turn helped to create and spread industrial and entrepreneurial skills, and in some countries, such as Brazil and India, has resulted

rebates, and on the maintenance of export price incentives that are comparable to those accorded production for the domestic market. An existing industrial base is also a prerequisite, although countries such as the Republic of China, Israel, the Republic of Korea and Singapore began to compete successfully in the world market for manufactures when their industrial sectors were quite small. In the Republic of Korea, for example, industrial value added was only about US\$1 billion (at 1975 prices) in 1964, and yet this was the year in which the highly successful export drive took off. A significant number of Low Income countries already have industrial bases of comparable size and are therefore in a position to embark on their own export drive.

Regional economic integration offers an alternative means of participating in the benefits of trade, but international experience with such efforts has been mixed. While member countries enjoy access to each other's domestic markets, they forgo the possibility of purchasing extra-regional commodities that may be cheaper than those available within the region. A potentially more significant field for regional cooperation is the phasing of large-scale investments so as to avoid excess capacity. The Association of South East Asian Nations, for example, has recently embarked on the construction of regional nitrogen fertilizer plants in Malaysia and Indonesia.

#### **Transition to an Outward-Looking Trade Regime**

The Republic of China, the Republic of Korea and Singapore switched to export promotion relatively early in the industrialization process. Many other countries, recognizing the limitations of prolonged reliance on import substitution, have also redressed, at least partially, a bias against exports. Their experience suggests that the transition to more outward-looking trade policies increases in difficulty with the duration and extent of import-substitution policies. Countries that are still in the preliminary phases of import substitution are well advised to initiate their policy transition before the emergence of politically vocal, and strongly entrenched, vested interests. Countries that have already entered the later stages of import substitution behind protective barriers face more severe problems in securing a smooth transition. But, at the same time, the recent experience of nations such as Brazil, Colombia and

Spain indicates that success is feasible and that the resulting benefits are substantial. In Brazil, for example, manufactured exports increased from about US\$300 million in 1967 to about US\$2 billion in 1974 (at 1975 prices) despite a prior history of almost exclusive reliance on import substitution.

The range of countries that have now moved toward a trade regime less biased against exports indicates that such a step can be contemplated in a wide variety of economic circumstances and policy environments: export success has been achieved in poor and rich countries, in small and large countries, and in countries well advanced in import substitution as well as those still in its initial stages. This range of experience, including a number of failures, constitutes an important empirical basis for the development of policy guidelines for countries yet to embark on the transition.

Although the basic ingredients of the policy package—devaluation, inducements for exports, and reduction of quantitative restrictions and of tariffs on imports—are reasonably well understood, their implementation poses many problems. Frequently, such a policy change has been initiated in the midst of a foreign exchange crisis; sometimes it has been a direct response to pressure from aid donors. Absence of a strong national commitment to export promotion has sometimes meant that export incentives have been unsatisfactory, and inadequately maintained. This, compounded by a lack of adequate external financial support over a difficult transitional period, appears to have hampered some devaluation efforts, such as those of Brazil in 1957 and India in 1966. In several countries engaged in trade policy reform, inflation-induced erosion of international competitiveness has constrained the expansion of exports. This, together with the improved access to, and consequent growth in, imports has often led authorities to reinstate quantitative restrictions and increase tariffs to defend a deteriorating trade balance. In some cases the policy reforms have been thwarted by a lack of adequate external financing to support the balance of payments during the transitional period before exports respond to the new trade incentives.

Although policy changes introduced in response to crises are apt to run into difficulties, the adjustment to a more outward-looking trade policy will perforce often have to be initiated in unfavorable circumstances—especially in coun-

tries that are already far along the import-substitution route and have highly distorted trade systems. Experience suggests that in such cases a gradual approach is most appropriate; giving initial emphasis to expanding exports rather than reforming the import regime, except to the extent that the latter directly inhibits exports. Strong incentives to expand and diversify exports are particularly important where a shortage of foreign exchange is restraining industrialization. Devaluation is usually essential for this purpose. In addition, exporters of manufactures must be assured of access to duty-free imported inputs and convinced of official commitment to export promotion. Export-processing zones have been important in the early expansion of exports in a number of countries. Resort to certain temporary expedients also merits consideration: for example, it may be useful to tie the distribution of import licenses and access to foreign exchange to export performance, even though the ultimate goal is the removal of import licensing and exchange controls. It is more important, however, to ensure that over the long term, production for export remains as profitable as production for the domestic market; for this purpose, the exchange rate may need to be adjusted frequently in order to offset differential rates of domestic and international inflation.

As exports rise, attention can be turned to import liberalization. Remaining quotas can then be eliminated and tariff structures rationalized with less fear of a foreign exchange crisis, although even here a gradual approach may be most appropriate. Israel, for example, began liberalization by reducing tariffs on imports that did not compete with domestic industries; the additional step of eliminating quotas and reducing tariffs on competing imports took another seven years.

Reforming a trade and exchange rate regime in the midst of a crisis runs the risk of a recession. Apart from the hardship caused by the loss of output and employment, the ensuing dissolution of efficient and promising manufacturing activities also retards industrialization. The avoidance of recession is difficult since, unless exports are highly responsive, or sufficient external financing is made available, deflationary measures—fiscal austerity, tight monetary control and high interest rates—are required. Avoiding the premature liberalization of imports, encouraging domestic savings, and ob-

taining support from additional foreign capital inflows can help to lower the risks of recession somewhat. Even so, the transition from a severely distorted trading environment to a more outward-looking trade regime will involve a politically difficult redistribution of income, away from some of the existing import-substituting activities toward the newly emerging export sectors. These difficulties underscore the importance of retaining control over the timing of the transition: beginning the policy switch from a position of strength, perhaps deriving from good harvests or improved terms of trade, and before the commitment to import substitution has become excessive, renders the transition both economically more feasible and politically more palatable.

#### **Industrial Licenses and Price Controls**

Even if a successful transition is made to a more open trade regime, the competitiveness of the foreign trade sector may be diminished if administrative controls—industrial licensing and price regulations—hinder the functioning of domestic markets. Such measures are usually introduced for specific purposes, but difficulties of implementation have frequently prevented them from attaining their immediate objectives, and have often imposed severe costs on other sectors of the economy. Industrial licensing schemes, for example, frequently fail to consider issues of plant location and size, the timing of investments, or the choice of technology, while they have rarely achieved their main objectives of regional balance and control of monopoly power. Industrial licensing in Brazil did not secure regional balance; the licensing system in Spain only achieved a limited regional dispersion of industry, and that at the cost of building plants that were too small to be efficient. Efforts at monopoly control through industrial licensing also have met with limited success, primarily because, as in India, the well informed, larger and better organized enterprises have been able to take advantage of the licensing system at the expense of their smaller competitors, thus stifling rather than promoting competition.

Price controls on industrial products have also had many unintended results and often have proven costly to the economy. The ubiquitous cost-plus pricing system, for example, provides little incentive for efficiency or cost minimization; moreover, because it limits the

profits available for reinvestment in production capacity, the system has often resulted in critical shortages of output. Pakistan, for example, has experienced chronic shortages of fertilizer partly as a result of this system. Further, since in many countries—including Egypt, India, Tanzania and Turkey—public sector firms are not normally permitted to go into liquidation, the losses resulting from price controls have necessitated substantial government subsidies.

Countries that have a long history of direct controls can rarely abandon them immediately; the transition is likely to be facilitated if, as in the foreign trade sector, it is initiated in favorable economic circumstances and the controls are dismantled progressively over a specified period. Prior announcements of the forthcoming administrative reforms could also be made to

minimize uncertainties and delays. The loosening of price controls and industrial licensing, and their replacement, where necessary, by appropriate fiscal incentives, may best be commenced in low-priority sectors and then extended to the more strategic sectors. The achievement of regional balance and the control of monopoly power can be sought through taxes and subsidies and the provision of infrastructure, rather than licensing systems. The alignment of domestic prices and real economic costs following price decontrol will usually improve the allocation of resources and make the reforms of foreign trade policy more effective. Since these transitions entail significant adjustment costs, countries may be well advised to limit their reliance on administrative controls during the earlier stages of industrialization.