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THE PROCESS OF
INDUSTRIAL DEVELOPMENT AND
ALTERNATIVE DEVELOPMENT STRATEGIES

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INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

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PETER B. KENEN, Director
International Finance Section

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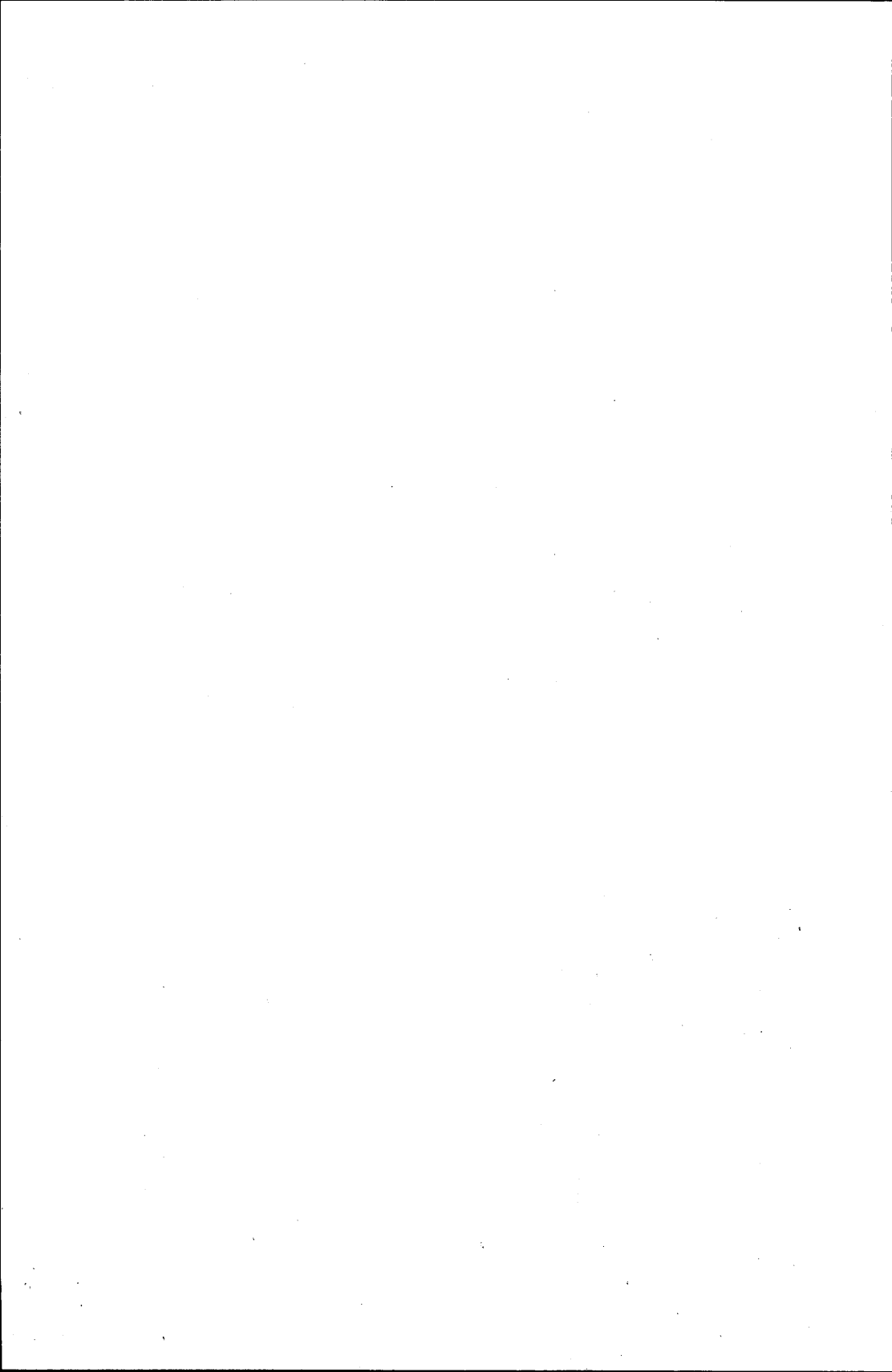
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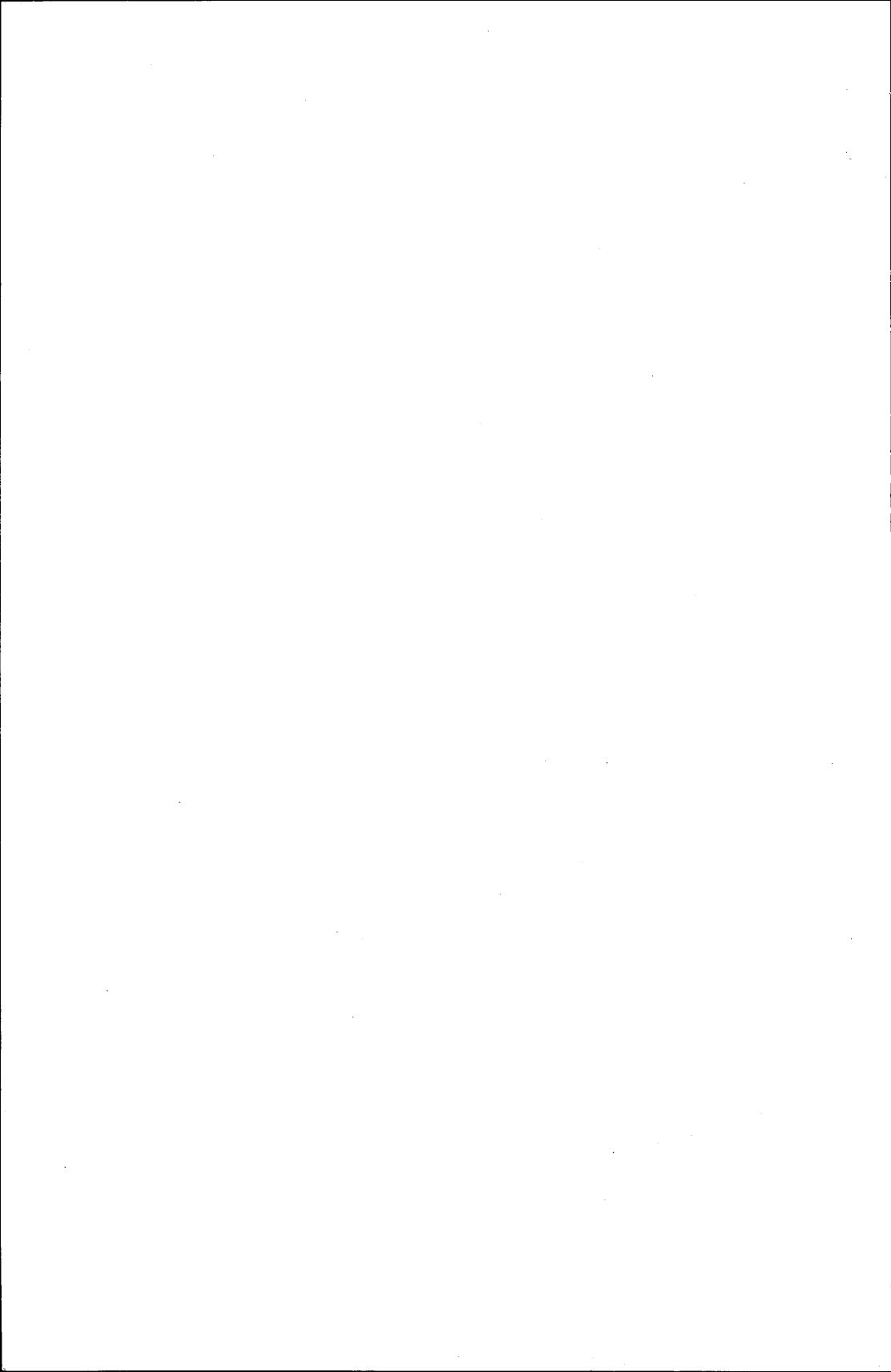
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PREFACE

The invitation to present the Frank D. Graham Memorial Lecture at Princeton University provided me with the welcome opportunity to review and to summarize my ideas on the process of industrial development and on alternative development strategies. This essay retains the format of the lecture, and it eschews footnote references. A list of my publications, from which the empirical evidence cited in the essay is derived, is contained in the Appendix.



1 Introduction

The use of the expression "industrial development" rather than "industrialization" in the title of this essay is meant to convey the idea that the development of manufacturing industries is part and parcel of overall economic development. At its earlier stages, industrial development is contingent on demand and savings generated in the primary sector; subsequently, intersectoral flows assume importance, and protection and other incentives to manufacturing will affect the profitability of primary activities.

The use of the expression "process" in the title is meant to emphasize the element of continuity in industrial development, as well as the idea that countries may proceed through similar stages in the course of their industrialization. While the concept of "stages" has fallen into disuse, and even disrepute, it is a convenient way to characterize the pattern of industrial development that takes place in countries before they become full-fledged industrial nations.

The expression "process" is not meant to convey the idea that, once begun, industrial development will continue uninterrupted. There are, in fact, *accidents de parcours* that may halt or reverse the process. Such accidents may be due to external causes; for example, the theft of a few specimens of the Hevea plant from Brazil at the start of the century led to the production of rubber in South East Asia and cut short the export boom in Brazil, thereby reducing demand for industrial products there.

But, more often than not, the *accidents de parcours* are due to inappropriate policies. More generally, the results obtained will depend on the policies applied. This will be the case particularly after the completion of the first stage of import substitution. The reference to "alternative development strategies" in the title reflects the importance I attach to the choice of policies for industrial and economic development.

This is not to deny the role in the process of industrial development of objective factors such as country size, natural-resource endowment, location, preferential ties, foreign investment, foreign aid, education, and political and social conditions. At the same time, the importance of these factors should not be exaggerated.

The size of the country will influence the scope for exploiting economies of scale and the extent of domestic competition, and hence the degree to which inward-oriented industrial development may proceed without incurring excessive costs. But a large country may unduly

postpone policy reform, while a small country will be under greater pressure to carry out reforms. In this connection, reference may be made to the positive correlation observed between the size of domestic markets and the height of tariffs in the present-day industrial countries when they were in the early stages of industrial development. While the United States and Russia had the highest rates of protection at the time of their early industrial development, the small countries of the Benelux and Scandinavia were traditionally free-traders.

The correlation between country size and protection is far from perfect in the developing countries of today, indicating the importance of policy choices. Thus, Brazil, the developing country with the largest domestic market, turned toward promoting manufactured exports in the mid-sixties, as continued import substitution encountered market limitations and led to a slowdown of industrial and economic growth. By contrast, a large developing country, India, continued its inward-oriented policies during the period preceding the oil crisis, as did a medium-sized country, Chile, and a small country, Uruguay.

Also, contrary to the oft-expressed view that seeks to explain the adoption of an outward-oriented development strategy by Far Eastern developing countries in terms of market size, these countries are hardly small in relation to other developing countries. Thus, Korea can be considered a large developing country, having a population nearly one-half larger than Argentina; Taiwan has a population more than one-half larger than Chile; and Hong Kong has a population more than one-half larger than Uruguay, with Singapore not far behind.

A country's endowment of natural resources will benefit its industrial development by providing domestic markets and investible funds for manufacturing industries, as well as materials for further transformation. For several reasons, however, it is a mixed blessing: the availability of primary exports may lead to the postponement of domestic policy change; high wages in natural-resource industries raise wages and hence production costs in manufacturing industries; and natural-resource exports give rise to an unfavorable exchange rate for industrial activities. While the Kuwait syndrome represents a rather special case, oil earnings have adversely affected the international competitiveness of manufacturing industries in Venezuela and, more recently, Mexico.

The success of Denmark and Norway in transforming their export structure has been attributed to their favorable geographical location,

with nearby markets for their manufactured goods in Western Europe. However, Japan did well in the export of manufactured goods notwithstanding its distant location. Subsequently, so did Korea and Taiwan, which had more success in exporting to the United States than to the nearby Japanese market.

Location will be relevant for regional economic integration. But regional integration can lead to the establishment of a high-cost area, as happened in Central America. At any rate, integration efforts have met with little success in developing countries; countries as different as Brazil and the Ivory Coast regard the large markets of the industrial countries as more promising than regional markets. And Korea and Taiwan have reached high growth rates of exports and GNP without having access to regional markets.

Preferential ties to industrial countries are said to provide advantages for exporting manufactured goods. A better formulation would be to speak of potential advantages, since the Philippines in the first half of the century and, more recently, the former French territories participating in the Lomé convention have not been successful in exploiting the opportunities provided by preferential access. In turn, contrary to popular misconceptions, Korea and Taiwan have not enjoyed preferential access to the U.S. market.

Foreign direct investment has been of much greater importance in Latin America than in the Far East. With the exception of Singapore, Far Eastern developing countries have tended to follow the Japanese pattern of relying on indigenous entrepreneurship. In any case, it is not only the volume but the sectoral allocation of foreign direct investment that matters. While investment in export industries will contribute to economic growth, foreign direct investment in industries operating behind high protection may entail a net loss of foreign exchange for the host country. This will be the case if the foreign-exchange cost of materials and machinery, augmented by the repatriation of profits, exceeds the c.i.f. import value of the product.

At the same time, the contribution of foreign aid to economic development will depend on the form it takes. The tying of aid tends to raise industrial costs, and food aid may hinder agricultural development. Furthermore, in the case of Korea and Taiwan, foreign aid should be set against the defense spending it was to a large degree destined to finance. In fact, since the late fifties in Taiwan and since the mid-sixties in Korea, defense spending has exceeded foreign aid by an increasing margin.

Education has been cited as a major factor contributing to the

economic success of the Far Eastern countries. But, measured by the Harbison-Myers index, Chile and Uruguay had high education levels in the sixties and nevertheless exhibited poor economic performance. In any case, the level of education is the result of investment in human capital, which is affected by government policies.

Political and social conditions may assist or hinder industrial development. There are successful and unsuccessful economic performers among both dictatorships and democracies. At the same time, references to social conditions often become ex-post rationalizations. Thus, while the growth successes of Korea and Taiwan have come to be attributed to the Confucian ethic, twenty years ago AID administrators ridiculed the notion that the commercial-minded Taiwanese would become successful producers and exporters of manufactured goods, and only fifteen years ago Korea was considered a hopeless case.

2 Early Stages of Industrial Development

The Generation of a Surplus in the Primary Sector

Industrial development generally begins in response to domestic demand generated in the primary sector, which also provides investible funds for manufacturing industries. Demand for industrial products and investible savings represent possible uses of the surplus generated in agriculture (understood in a larger sense to include crops, livestock, fisheries, and forestry) or in mining as primary output comes to exceed subsistence needs. More often than not, the surplus generated in the primary sector is associated with export expansion. The effects of primary exports on industrial development, in turn, depend to a considerable extent on input-output relationships and on the disposition of incomes generated in the export sector.

Infrastructure in the form of ports, railways, and roads often represents important inputs for primary exports, and their availability may contribute to the development of industrial activities. In turn, the disposition of incomes generated in the export sector is affected by ownership conditions. In the case of foreign ownership, a substantial part of the surplus may be repatriated, although taxing the earnings of foreign capital does add to domestic incomes. There are leakages in the form of investing and spending abroad and consuming imported luxuries in the case of domestic ownership, too, in a system of plantation-type agriculture and large-scale mining. And, as Douglas

North noted, plantation owners have little incentive to finance human investment in the form of general education.

By contrast, in cases where family-sized farms predominate, demand is generated for the necessities and the conveniences of life, as well as for education. This demand contributes to the development of domestic industry, which enjoys "natural" protection from imports in the form of transportation costs. It further contributes to the accumulation of human capital, which finds uses in manufacturing industries.

The process of industrial development may be accelerated if natural protection is complemented by tariff or quota protection. This last point leads me to the next step in the industrialization process: the first, or "easy," stage of import substitution.

The First Stage of Import Substitution

With the exception of Britain at the time of the Industrial Revolution and Hong Kong more recently, all present-day industrial and developing countries protected their incipient manufacturing industries producing for domestic markets. There were differences, however, as regards the rate and the form of protection. While the industrial countries of today relied on relatively low tariffs, a number of present-day developing countries applied high tariffs or quantitative restrictions that limited, or even excluded, competition from imports.

At the same time, high protection discriminates against exports, through the explicit or implicit taxation of export activities. Explicit taxation may take the form of export taxes, while implicit taxation occurs as a result of the effects of protection on the exchange rate. The higher the rate of protection, the lower will be the exchange rate necessary to ensure equilibrium in the balance of payments, and the lower will be the amount of domestic currency exporters receive per unit of foreign exchange earned.

The adverse effects of high protection are exemplified by the case of Ghana, where import prohibitions encouraged inefficient, high-cost production in manufacturing industries; taxes on the main export crop, cocoa, discouraged its production; and other crops were adversely affected by the unfavorable exchange rate. Ghana's neighbor, the Ivory Coast, by contrast, followed a policy encouraging the development of both primary and manufacturing activities. As a result, it increased its share of cocoa exports, developed new primary exports, and expanded manufacturing industries.

Differences in the policies applied may largely explain why, be-

tween 1960 and 1978, per capita incomes fell from \$430 to \$390 in Ghana in terms of 1978 prices, compared with an increase from \$540 to \$840 in the Ivory Coast. This has occurred notwithstanding the facts that the two countries have similar natural-resource endowments and, at the time of independence, Ghana had the advantage of a higher educational level and an indigenous civil service.

Indeed, there is no need for high protection at the first stage of import substitution, entailing the replacement by domestic production of imports of nondurable consumer goods such as clothing, shoes, and household goods, and of their inputs, such as textile fabrics, leather, and wood. These commodities suit the conditions existing in developing countries when they begin the industrialization process: they are intensive in unskilled labor; the efficient scale of output is relatively low, and costs do not rise substantially at lower output levels; production does not involve the use of sophisticated technology; and a network of suppliers of parts, components, and accessories is not required for efficient operation.

The relative advantages of developing countries in these commodities explain the frequent references made to the "easy" stage of import substitution. At the same time, to the extent that the domestic production of these commodities generates external economies in the form of labor training, the development of entrepreneurship, and the spread of technology, there is an argument for moderate infant-industry protection or promotion.

3 Inward-Oriented Industrial Development Strategies

In the course of first-stage import substitution, domestic production will rise more rapidly than domestic consumption, since it not only provides for increases in consumption but also replaces imports. Once the process of import substitution has been completed, however, the growth rate of output will decline to that of consumption.

Maintaining high industrial growth rates, then, necessitates either moving to second-stage import substitution or turning to the exportation of manufactured goods. This choice represents alternative industrial development strategies that may be followed after the completion of the first stage of import substitution. I first consider second-stage import substitution, representing the application of an inward-looking industrial development strategy, and subsequently examine an outward-oriented strategy that does not discriminate against exports, with favorable effects on the exporting of manufactured goods.

The Choice of Second-Stage Import Substitution

In the postwar period, second-stage import substitution was undertaken in several Latin-American countries, in some South Asian countries, particularly India, and in the Central and Eastern European socialist countries. In Latin America, the choice of this strategy reflected the ideas of Raul Prebisch, in whose view adverse foreign-market conditions for primary exports and the lack of competitiveness in manufactured exports would not permit developing countries to attain high rates of economic growth by relying on export production. Rather, Prebisch suggested that these countries should expand manufacturing industries oriented toward domestic markets. This purpose was to be served by industrial protection, which was said to bring additional benefits through improvements in the terms of trade.

Similar ideas were expressed by Gunnar Myrdal. Myrdal influenced the policies followed by India; they were also affected by the example of the Soviet Union, which chose an autarkical pattern of industrial development. And the European socialist countries faithfully imitated the Soviet example, attempting to reproduce it in the framework of much smaller domestic markets that also lacked the natural-resource base of the Soviet Union.

Second-stage import substitution involves the replacement of imports of intermediate goods and producer and consumer durables by domestic production. These commodities have rather different characteristics from those replaced at the first stage.

Intermediate goods such as petrochemicals and steel tend to be highly capital-intensive. They are also subject to important economies of scale: efficient plant size is large compared with the domestic needs of most developing countries, and costs rise rapidly at lower output levels. Moreover, the margin of processing is relatively small, and organizational and technical inefficiencies may contribute to high costs.

Producer durables, such as machinery, and consumer durables, such as automobiles and refrigerators, are also subject to economies of scale. But in these industries economies of scale relate not so much to plant size as to horizontal and vertical specialization, entailing reductions in product variety and the manufacture of parts, components, and accessories on an efficient scale in separate plants.

Reducing product variety will permit longer production runs that lower production costs through improvements in manufacturing efficiency along the "learning curve," savings in expenses incurred in

moving from one operation to another, and the use of special-purpose machinery. Horizontal specialization is, however, limited by the smallness of domestic markets in the developing countries.

Similar conclusions apply to vertical specialization, which leads to cost reductions through the subdivision of the production process among plants of efficient size. General Motors, for example, has ten thousand subcontractors, each producing a part or component. This extended division of the production process has permitted General Motors to produce at a substantially lower cost than its U.S. competitors. A number of years ago, Martin Shubik reached the conclusion that without antitrust legislation only General Motors would survive in the United States, and he predicted the disappearance of several small American car producers. Some producers have in fact disappeared since, and without federal support Chrysler would have met a similar fate.

At the same time, the production of parts, components, and accessories has to be done with precision for consumer durables, and especially for machinery. This, in turn, requires the availability of skilled and technical labor and, to a greater or lesser extent, the application of sophisticated technology.

Given the relative scarcity of physical and human capital in developing countries that have completed the first stage of import substitution, they are at a disadvantage in the manufacture of highly physical-capital-intensive intermediate goods and skill-intensive producer and consumer durables. By limiting the scope for the exploitation of economies of scale, the relatively small size of their national markets contributes to high domestic costs in these countries. At the same time, net foreign-exchange savings tend to be small because of the need to import materials and machinery.

The domestic resource cost (DRC) ratio relates the domestic resource cost of production, in terms of the labor, capital, and natural resources utilized, to net foreign-exchange savings (in the case of import substitution) or net foreign-exchange earnings (in the case of exports). In the absence of serious distortions in factor markets, the DRC ratio will be low for exported commodities. It is also relatively low for consumer nondurables and their inputs, in the production of which developing countries have a comparative advantage. For the reasons already noted, however, DRC ratios tend to be high in the manufacture of intermediate goods and producer and consumer durables. The establishment of these industries to serve narrow domestic markets is therefore predicated on high protection, and the rates of

protection may need to be raised as countries "travel up the staircase" represented by DRC ratios. This will occur as goods produced at earlier stages come to saturate domestic markets and countries embark on the production of commodities that less and less conform to their comparative advantage. High protection, in turn, discriminates against manufactured and primary exports and against primary activities in general.

Characteristics of Inward-Oriented Development Strategies

In the postwar period, several capitalist countries in Latin America and South Asia and the socialist countries of Central and Eastern Europe adopted inward-oriented industrial development strategies, entailing second-stage import substitution. Capitalist countries generally utilized a mixture of tariffs and import controls to protect their industries, while socialist countries relied on import prohibitions and industry-level planning. Notwithstanding these differences, the principal characteristics of the industrial development strategies adopted in the two groups of countries show considerable similarities.

To begin with, while the infant-industry argument calls for temporary protection until industries become internationally competitive, in both groups of countries protection was regarded as permanent. Also, in all the countries concerned, there was a tendency toward what a Latin-American economist aptly described as "import substitution at any cost."

Furthermore, in all the countries concerned, there were considerable variations in rates of explicit and implicit protection across industrial activities. This was the case, first of all, as continued import substitution involved undertaking activities with increasingly high domestic costs per unit of foreign exchange saved. In capitalist countries, the generally uncritical acceptance of demands for protection contributed to this result; in the absence of price comparisons, the protective effects of quantitative restrictions could not even be established. In socialist countries, the stated objective was to limit imports to commodities that could not be produced domestically or were not available in sufficient quantities, and no attempt was made to examine the implicit protection that pursuit of this objective entailed.

In both groups of countries, the neglect of intra-industry relationships further increased the dispersion of protection rates on value added in processing, or effective protection, with adverse effects on economic efficiency. In Argentina, high tariffs imposed on caustic