Chapter Title: The Extent of Factor Market Distortions

Chapter Author: Anne O. Krueger

7 The Extent of Factor Market Distortions

Although theory suggests the possibility that sufficient factor market imperfections might result in a "reversal" of exports and imports, the evidence from the country studies indicates that in none of them did this occur for HOS trade, except in cases of regional trading arrangements. This finding is itself significant, in that it suggests that one can be fairly confident that adopting a genuinely export-oriented trade strategy will not lead to perverse results and that there is no potential conflict between employment and real output objectives involved in the choice of a trade strategy.

That reversals did not take place, however, does not imply that factor market imperfections are nonexistent or insignificant. Theory does not show that reversals must occur or even that they are likely; it does suggest that, in the presence of distortions, observed proportions and product mixes will differ from what they would be in their absence.

Important questions therefore remain: How sizable are factor market distortions? How great is their influence upon factor proportions within industries? What is the effect of product and factor market distortions upon the output mix? And to what extent would the employment implications of alternative trade strategies differ quantitatively in the absence of those imperfections? Would the potential for additional employment through choice of trade strategy greatly increase in the absence of imperfections? Or, on the contrary, are they either sufficiently small in magnitude or unimportant enough so that their removal would hardly affect the orders of magnitude reported in chapters 5 and 6? What sorts of policies to implement the choice of trade strategy are likely to increase the demand for labor or to adversely affect it? Are they integral parts of the trade regime or unnecessary appendages?

The questions are inherently difficult to tackle empirically. No "perfect

market" has ever been observed. Information costs, frictions associated with the process of economic growth, transaction costs, and other phenomena are all reasons why complete uniformity of rates of return, wages, and prices will never be observed in all markets—nor should they be, in the presence of costs of adjustments. This implies that a first, and difficult, empirical task is to distinguish the components of observed differentials. More fundamentally, however, there are always market imperfections, and they differ only in scope and magnitude. A fundamental question is when those imperfections become sufficiently great so that they significantly affect the functioning of markets and the nature of responses to market signals.

Little is known about the probable orders of magnitude of factor market imperfections and their consequences. Given the complexity of the analysis, that is hardly surprising. We could not hope that the NBER project would result in definitive quantitative estimates as answers to these questions, in light of the paucity of data and prior analysis. Nonetheless, a number of pieces of evidence have emerged. It is the purpose of this chapter to evaluate the findings as to the orders of magnitude of distortions in the project countries.

Although the focus of the entire project was on employment creation, the fact that imperfections in both the labor and the capital markets can affect the relative profitability of alternative techniques implies that capital and labor market imperfections must both be examined in assessing distortions. In this chapter, therefore, the effects of both capital and labor market distortions are evaluated in terms of their effect upon relative costs of employing capital and labor. It remains to chapter 8 to evaluate the effects of those differentials and of product market distortions on labor coefficients.

Section 7.1 undertakes some necessary preliminary analysis, examining types of capital market distortions and their probable effects on costs of using capital and labor. Section 7.2 then provides evidence about the magnitude of factor cost distortions. Section 7.3 contains an estimate of the quantitative effects of these distortions on the wage/rental ratio. In section 7.4 these estimates are used to indicate the probable order of magnitude of the effect on the wage/rental ratio. It will remain for chapter 8 to consider the effect of these cost differences upon factor proportions, and their influence upon the implications of alternative trade strategies for employment.

7.1   Analysis of Capital Market Distortions

In addition to the possible effect of labor market distortions, discussed in chapter 2, on the relative costs of employing labor and capital, there are three avenues through which capital costs can be significantly

affected, thereby affecting the relative attractiveness of different tech-
niques and the relative costs of more and less capital-intensive industries.
First, the trade regime itself may be administered in ways that affect the
relative costs of capital equipment to different users. Second, there may
be credit rationing that can affect the relative costs of labor and capital to
different industries. Finally, the tax structure can affect the relative
profitability of labor-intensive and capital-intensive techniques. Each of
these three influences on the cost of capital is discussed in this section in
turn.

7.1.1 Trade Regime and Costs of Capital Equipment

A variety of mechanisms have been identified, especially under import
substitution regimes, through which the trade regimes may affect the cost
of employing capital relative to the cost of employing labor,[1] and also the
relative cost of capital to different activities.[2] Of these, the most visible is
generally the preferential exchange rate generally granted to capital-
equipment imports, especially under import substitution.

Many of the issues pertaining to capital market distortions can be
analyzed in the context of one of the simplest mechanisms that can lead to
a distortion: use of a different (and lower) effective exchange rate for
imports of machinery and equipment than for other imports. Very often
this arises in the context of currency overvaluation, when most imports
are subject to high tariff rates while capital goods imports enter at low
rates of duty or even duty-free. Consider first the case where all capital
goods are imported and have no domestically produced substitutes. If
capital goods imports are permitted at an overvalued exchange rate,
while imports of other types of goods are either prohibited or else subject
to a much higher effective price of foreign exchange, it is evident that
purchasers of imported capital equipment will pay a lower price for that
equipment than they would in the absence of the distortion.

Analysis of the effects of this policy, however, can be undertaken only
after a mechanism is specified for determining the overall volume of
imported capital equipment. To demonstrate this, it is sufficient to recog-
nize that if all who wished to do so at the prevailing (subsidized) price
were free to import capital equipment, the volume of imports of capital
goods and equipment would be greater than it would have been at a
nondistortionary price. The net effect would be a larger stock of capital
equipment than would otherwise have been the case: presumably,
domestic consumption would be smaller than it would have been in the
absence of the distortion, while investment would be greater.[3] In this
circumstance the effects of the distortion would be upon present relative
to future consumption levels: a market-determined outcome would wit-
ness more present, and less future, consumption. There would not,
however, be any distortion in domestic capital goods markets, in the

sense that all users of imported machinery and equipment would face the same (distorted) price.

However, few observers of import regimes in developing countries believe that the volume of imports of capital goods is above optimal levels. When the exchange rate is overvalued and imports of capital goods are permitted at a lower EER than other commodities, the more usual situation is that the demand for foreign exchange for this and other purposes exceeds the supply. As a consequence, the authorities generally employ some sort of rationing mechanism to determine who is permitted to import how much at the implicitly subsidized rate. It is the rationing mechanism combined with the implicit subsidy received by those entitled to import that determines the precise nature of the distortion and its effects on capital costs as perceived by individual entrepreneurs.

A number of rationing mechanisms have been used, and their effects on capital costs differ. Among the prominent ones are: (1) designating "priority" industries and sectors eligible to import at the favored exchange rate; (2) determining which investment projects are to be permitted, subject to an overall budget constraint for imported capital goods; and (3) scaling down applications for licenses to import capital goods.

Where "priority" industries and sectors are permitted relatively free access to imports of capital goods, the cost of capital services to firms in those sectors is less than it is to firms in other sectors of the economy. Excluded firms confront higher capital costs than they would in the absence of distortion.

The way the second mechanism would work hinges crucially on how investment projects are screened for approval. On one hand, if individual businessmen perceive that the probability of approval of their applications for imports of capital goods is independent of the capital intensity of their projects, the net effect on resource allocation will be similar to that of the first mechanism: those projects approved and permitted to import capital goods will be more capital intensive than if a market-clearing price were to be charged (although, by hypothesis, the market-clearing price would presumably be above that which would prevail in the absence of exchange rate overvaluation, since total foreign exchange earnings would be less than with a higher, less overvalued, real EER). On the other hand, if applicants believe that the probability of approval of their applications hinges upon the capital intensity of the project, the outcome may differ. In the extreme case, if the authorities shadow price capital and labor correctly to ensure full employment and equate marginal rates of substitution of capital for labor in all lines, then the outcome with project evaluation should not differ from that of an efficient auction market for the available supply of foreign exchange, except that all recipients of licenses to import capital equipment implicitly receive sub-

sidies equal to the value of their licenses, and the total volume of imports would, of course, be smaller than at full equilibrium.[4]

To be sure, this "perfect shadow pricing" mechanism is unlikely to be experienced in practice, but considering it points up the polar extreme from the first case and the fact that there are two distinct effects of exchange rate overvaluation upon capital costs and differentials in them. On one hand, because foreign exchange earnings are smaller, one would generally expect that imports of capital goods would be fewer and that the cost of capital perceived by the average firm would be higher than with greater foreign exchange availability. On the other hand, because licensing mechanisms for imports are necessarily imperfect, there is likely to be misallocation of the *given* capital stock. With "perfect shadow pricing," marginal rates of substitution would be equated across all activities, and importers of capital equipment would receive the equivalent of lump-sum subsidies, which would not affect their behavior. At the other extreme, the entire value of the implicit subsidies can be absorbed in the utilization of above-optimal capital intensity in the production process (or in producing very capital-intensive goods).

One particular form of allocating import rights has fairly readily identifiable effects on capital costs. That is, in their efforts to be "fair," the authorities establish criteria for import license allocation. Those criteria are often based on such phenomena as shares of existing capacity or shares of output that provide a formula for license allocation. Such formulas, when announced, differentially affect capital costs, since building new capacity or other actions in effect become part of the cost of obtaining import licenses.[5]

The third mechanism, scaling down applications for licenses to import capital goods, is in many regards a cross between the first two methods. However, the effects on costs depend upon how many firms, industries, and sectors are eligible to apply for importing machinery and equipment, and also upon applicants' expectations about the mechanism by which scaling down will be accomplished. If licenses are issued for value amounts of imported machinery and equipment, incentives will differ from those provided when licenses are issued for imports of specified types of machinery and equipment. In the former case, receipt of a license to import a specified value of capital goods imposes a budget constraint upon the recipient so that he may, if the license value represents less than the quantity desired at the prevailing exchange rate, choose labor-using and capital-saving techniques. If, on the other hand, the license is awarded for the importation of a specified type of automated loom or other capital-intensive equipment, the incentive to economize on use of imported capital goods is vastly different.

Under any of the three mechanisms, the effects of the implicit capital

subsidy must be analyzed in two parts: (1) the effect of the rationing mechanism upon choice of technique in the sectors eligible for it, and (2) the effect on sectors that are utilizing less capital-intensive techniques than they would use under optimal resource allocation (given the existing pattern of output).

In Argentina and the project countries in which there seemed to be implicit or explicit subsidization of capital goods imports by means of an overvalued exchange rate—Chile, Pakistan, Thailand to a moderate extent, Tunisia, and Uruguay—the recipient sector seems to have been the large-scale urban industrial sector, which was also the sector encouraged by tariffs and trade barriers to produce import substitution goods.[6] The losing sectors of the economy appear to have been the informal, or small-scale, urban sector and the agricultural-rural sectors. The orders of magnitude of the implicit subsidy to imported capital equipment are discussed in section 7.2.

So far the discussion has been couched in terms of import substitution regimes in economies where all capital goods must be imported. In fact, construction is usually a home good,[7] and, in addition, in countries where import substitution has been adopted policy for a period of years, some types of capital goods are domestically produced. In those circumstances there is a secondary set of effects emanating from the trade regime: on one hand, implicit subsidization of capital goods imports encourages, as before, techniques of greater-than-optimal capital intensity among the recipients of import licenses; on the other hand, the authorities frequently prohibit the import of goods competing with domestic production.

This latter may offset in part the implicit subsidy to capital goods if import-license recipients are required to buy some parts of their plant and equipment from domestic suppliers. Since, by hypothesis of protection, domestic equipment is generally priced above world-market levels and accorded protection by the trade regime (in greater amount than the implicit negative protection associated with the overvalued exchange rate), the net effect on incentives to substitute capital for labor can be fairly complex. Whether the increased cost of domestically produced equipment exceeds or falls short of the reduced cost of the imported equipment will determine the net effect on the cost of investment goods. In this latter connection, there are significant questions about the degree of substitutability between imported and domestic capital equipment.[8] There are also questions about which kinds of investment are most affected, since the range of capital goods produced may be limited.[9]

For individuals and firms unable to obtain import licenses, the effect of protecting domestic capital goods producers probably tends, on net, to raise the relative cost of employing capital.[10] Whether the group denied import licenses coincides with the informal and rural sectors of the

economy is not certain: it may also include firms within the organized sector.

In conclusion, implicit subsidization of imports of capital equipment can have different effects on the cost of using capital for those receiving import permits, depending on the allocation mechanism, the extent to which domestic capital goods industries are protected, the range of such goods, and the fraction of the investment package that domestic goods constitute. Implicit subsidization of import of capital goods for one group normally entails relatively high capital costs for those individuals and sectors of the economy denied access to imported capital goods. Import substitution regimes have in general tended through this mechanism to favor firms in the large-scale, organized sector of the economy. It may be that the implicit subsidy tends to offset the higher costs of production of those goods entailed by their comparative disadvantage. Nonetheless, it can constitute an implicit subsidy both for capital-using industries and for choice of capital-intensive techniques.

7.1.2   Credit Rationing and Domestic Capital Market Imperfections

In attempting to pinpoint markets in LDCs whose imperfect functioning may be empirically important in affecting resource allocation and growth, many observers have focused upon financial, credit, and equity markets.[11] An oversimplified characterization would entail the following ingredients: a fragmented or virtually nonexistent equity market so that most private firms are family enterprises; government restrictions upon the banking system, and in particular upon permissible interest rates, so that excess demand for loans prevails and financial institutions somehow ration credit among their customers; and the absence of a market for long-term borrowing and lending.

The combination of inadequate or nonexistent equity markets and nonavailability of long-term loans would, by itself, entail significant costs. For, even if the banking system were otherwise functioning smoothly with positive real rates of interest and loans available to all who applied,[12] entrepreneurs might be reluctant to resort to short-term borrowing for financing long-term investments. Conversely, if potential borrowers were constrained in their equity positions by the size of family assets, banks might well be reluctant to lend large amounts in the short term. Insofar as this combination of circumstances implies that each enterprise will expand at a rate dictated largely by its own available funds, in turn generated by its own resources, each firm has its own supply curve for capital and different costs of capital.

Governments in developing countries have responded to these phenomena in financial markets in a variety of ways: in some cases monetary reforms have been undertaken to liberalize the credit markets and induce financial institutions to provide equity capital and long-term loans. In

other cases governments have used the absence of these markets as a rationale for introducing "selective credit allocation," under which government-owned or government-regulated institutions allocate credit, both short-term and long-term, according to various criteria.[13] In these circumstances the interest rate charged on loans is well below market-clearing levels and below what bank and other financial institutions would charge if unregulated. Often, rates are even considerably below the rate of inflation.

When this form of intervention is employed, the consequent credit rationing can have a significant effect upon individual firms' costs, depending on the ways loanable funds are allocated.

Two issues must be considered. First, there are a number of mechanisms within the domestic credit markets that can significantly affect the cost of capital among individual industries and firms. Second, governments have used credit-allocation mechanisms to channel resources into directions they deemed desirable. Those directions have often been closely associated with the choice of trade strategy, and the interaction of trade strategy and the domestic credit market in affecting the cost of using capital relative to labor may be substantial.

Turning first to domestic factors, the mechanisms for allocating credit, often with an implicit subsidy element at negative real interest rates, can have a significant and differential effect on capital/labor costs in different industries. This is especially the case in countries where government-owned or government-controlled institutions are the chief lenders. In countries where the preponderance of investment consists of imported capital goods, there is, or can be, considerable scope for choosing between credit mechanisms and import licensing mechanisms as a means of attempting to control the direction of investment. Because of this, the analysis of credit rationing and its effects on capital costs is very similar to the analysis of import licensing and its effects.

In particular, if credit applications are evaluated and decided upon without regard to the choice of techniques involved in a particular investment project, firms will view the prevailing interest rate as their cost of borrowing. If, on the other hand, all investors are entitled to some financing at subsidized rates but must obtain some financing at realistic curb rates, the effects may be quite different. In South Korea, for example, it appears that almost all enterprises are eligible to obtain a fixed fraction of their financing, at implicitly subsidized interest rates, well below the expected rate of inflation. They then resort to the curb market for the remaining portion of their financing, paying positive real rates of interest 5–15 percent above the rate of inflation. To the extent that the financing formula is known and invariant with respect to the size of the potential investment project, the "true" interest rate confronting would-be investors is a combination consisting of the fraction carried by

subsidized interest loans times the borrowing rate and the remainder times the curb rate.

If, on the other hand, projects are divisible and precise expansion plans need not be submitted or carried out, the curb rate may truly be the marginal cost of borrowing. For in that circumstance much of the implicit subsidy entailed in receipt of a loan at below market-clearing rates is precisely that: choice of a more labor-intensive technique results in saving on borrowing at the curb rate of interest.

Figure 7.1 illustrates the various possibilities. In case I, the official borrowing rate is r_o, and all firms are eligible for two-thirds of their loan applications at that rate. Meanwhile, the curb rate of interset is r_c, and one-third of all borrowing is financed at curb rates. In that instance the actual lending rate firms face is r_a, equal to two-thirds times r_o and one-third times r_c. If firms all have access to the subsidized credit and know the proportions in which they will receive it, they will base their investment decisions on r_a. To the extent that all do so, no distortion results in the allocation of capital across potential borrowers, providing all are eligible to receive the same fraction at a subsidized rate.

In case II, r_o and r_c are as in case I, but the authorities finance some loan applications and not others. Thus there may be two classes of firms. Those with an investment schedule such as MEC_1 are ineligible for, or denied, subsidized loans. They therefore resort to curb financing entirely, borrowing ol_1 at interest rate r_c. Firms in the second group, represented by MEC_2, receive full financing of their projects at subsidized interest rates, in amount ol_2. In this case the distortion is obvious: there are opportunities for investment at rates of return above r_o that are not undertaken by firms in the first category, while the rate of return on investment is r_o for firms in the second category.

The third case is one in which firms receive loans in amounts ol_o but are then free to vary the amount they borrow in the curb market at rate of interest or_1. As drawn, curb market lending would be lo_1. In that instance the rectangular area r_1abr_o represents a pure lump-sum subsidy to the borrowers. If all borrowers receive such a subsidy and nonetheless borrow additional sums in the curb market, they all face the same marginal cost of capital on that account. Only if some borrowers do not find it profitable to resort to curb-market financing will capital costs differ between users.

In most countries, elements of all three cases undoubtedly arise. In South Korea the amount financed at official rates is sufficiently large (see section 7.2.8) that it seems probable that some borrowers are excluded from eligibility (as in case II) and that others regard the true cost of borrowing as in case I. In Thailand and Pakistan the large-scale enterprises were the main borrowers at official interest rates, so that case II seems to be a better characterization of the capital market effects of
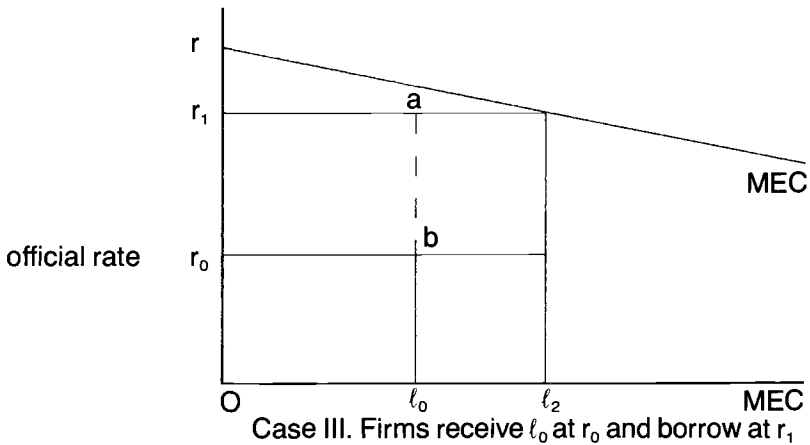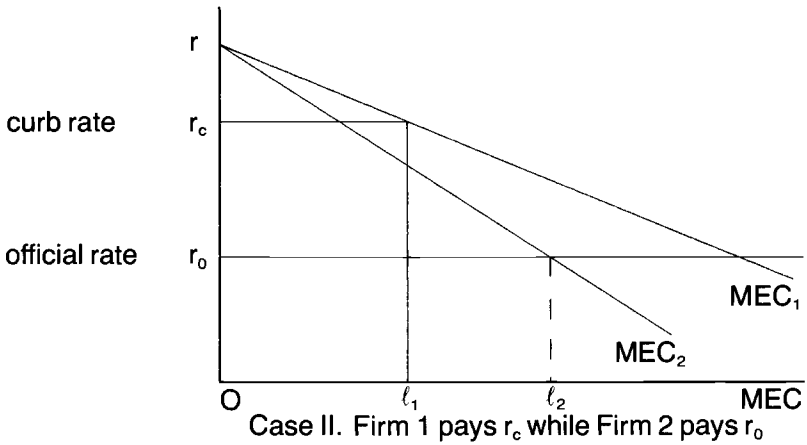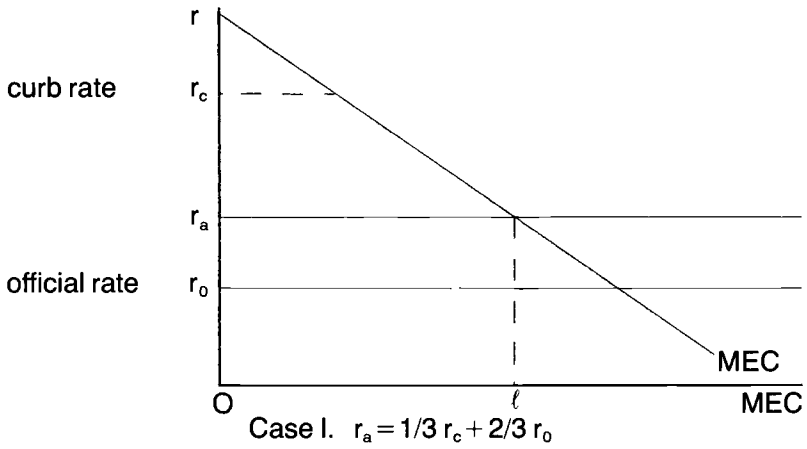
Case I. $r_a = 1/3\, r_c + 2/3\, r_0$

Case II. Firm 1 pays r_c while Firm 2 pays r_0

Case III. Firms receive ℓ_0 at r_0 and borrow at r_1

Fig. 7.1

credit rationing. In Brazil the fraction of investment financed by low-interest loans was sufficiently small (see section 7.2.2) that case III may be the best approximation.

There remains the question how any or all of the three credit rationing mechanisms interact with the choice of trade strategy. One obvious mechanism is when the designated priority industries eligible for subsidized credit are associated with choice of trade strategy. This has often been the case. In import substitution countries, the planning authorities have frequently drawn up lists of industries they wished to encourage, and available credit has been channeled to those industries. Even in export promotion countries, special financing facilities are often available to exporters. This mechanism was certainly an important feature of the South Korean export promotion strategy, and it is one Hong pinpoints as having led to resource misallocation and overly capital-intensive techniques within the Korean economy. In addition, the availability of low-cost capital services could, at least in principle, enable some relatively capital-intensive industries to export despite the absence of comparative advantage. The empirical importance of these elements is evaluated in section 7.2.

7.1.3   Taxes and Their Incentive Effect on Capital Costs

By and large, analysis of the effect of tax incentives on factor proportions is straightforward. The most frequently encountered set of taxes was upon labor: social security taxes and other measures substantially increased the costs of hiring labor. The evidence on this is reviewed below, and little needs to be said here except that, to the extent that taxes on labor are imposed on one sector of the economy only, the wage confronting that sector is higher than elsewhere, and incentives for use of techniques with greater capital intensity than would otherwise be the case will prevail for that sector.[14] In general this appears to have been true for many of the project countries.

Several other types of taxes (or tax exemptions to encourage certain activities) can also influence choice of techniques. Perhaps the most notable for the project countries concerns tax holidays granted to firms in designated (generally "priority") industries. Because tax holidays are granted to nonlabor returns only, these measures, which are generally intended to encourage the development of particular industries without regard to the choice of techniques within them, nonetheless increase incentives for use of capital-intensive techniques.[15]

By contrast, sales tax exemptions of the type used extensively by Brazil do not appear to have significant effects on factor proportions. Although the Brazilian tax structure discriminated in favor of sales in the foreign market, there appears to have been little bias introduced by it into the choice of techniques by individual firms.

7.2   Magnitude of Factor Cost Distortions

In this section the orders of magnitude of factor market distortions in the project countries are reviewed in light of the analysis of labor markets in chapter 2 and of capital costs in section 7.1.[16] As will be seen, the nature and extent of distortions differed considerably among the project countries. Hong Kong is not covered, since all the evidence indicates that the labor and capital markets are comparatively distortion-free.

7.2.1   Argentina

Argentina seems to have had all the types of differential capital costs discussed above and also to have had a number of factors raising the cost of employing labor.

The trade regime itself affected the cost of employing capital equipment, in that the exchange rate was overvalued and in that investors able to obtain licenses to import capital goods received an implicit subsidy of about 40 percent. Simultaneously, Argentina's import substitution had proceeded far enough so that, by the late 1960s, there was a substantial domestic industry producing capital goods. According to Nogues's estimates (1980), about 68 percent of investment in tradable capital goods was supplied from domestic sources. The domestic producers were protected with nominal rates of protection of 97 percent for machinery and 109 percent for transport equipment. Nogues was unable to estimate the differential allocation of licenses to import capital goods across industries, but he conjectured that public enterprises and firms in import substitution sectors currently being encouraged by industrial promotion laws received preferential access to licenses. On average, he estimated that the trade regime increased the price of capital goods about 8 percent above what it would be at free trade.

Domestic policies also influenced the cost of employing capital goods. Argentina encouraged the development of new import substitution industries by industrial promotion laws. Industries, enterprises, and regions benefiting from these laws were eligible for tax and tariff exemption and for credit at preferential interest rates. Tax holidays and deferrals (the latter being very valuable in a high-inflation country) were accorded to them. Nogues estimated that in the early 1970s eligible investors received a subsidy of about 40 percent of their capital costs through the fiscal mechanisms. Simultaneously, the subsidy of element implicit in negative real rates of interest was probably about 66 percent for a ten-year loan. Although only 14 percent of manufacturing investment was financed through these loans, the distribution among manufacturing sectors implied significant differences in costs of capital. On average, financial subsidies probably reduced capital costs in manufacturing by about 9 percent.

Government intervention in Argentine labor markets has also been an important influence on the relative costs of labor and capital. During the period Nogues covered, the government established a minimum wage for unskilled labor. These wages were probably binding for much of the large-scale manufacturing sector. In addition, charges for old-age retirement plans, a family allowance fund, and other legislated labor benefits undoubtedly contained a sizable element of tax. Nogues estimated that, on average, these taxes added about 15 percent to labor costs (above the effects of minimum wage legislation). The differential in labor costs between firms observing all government regulations and those evading all of them could have been as much as 40 percent.

7.2.2   Brazil

As was seen in table 3.3, Brazil's structure of effective protection discriminated in favor of capital goods during the import substitution period in the late 1950s. While the average effective rate of protection was 242 percent for consumer goods, it was 65 pecent for intermediate goods and 53 percent for capital goods. Since the exchange rate was considerably overvalued at that time, this probably led to a substantially greater incentive to use capital-intensive techniques than would have been optimal, especially since virtually all capital goods were imported during that period.

During the 1960s, the tariff reform substantially unified effective rates of protection, as is reflected in table 3.3. Thus, during the import substitution period, the structure of protection and the tendency to exempt capital goods imports from the restrictions surrounding other commodities probably resulted in a lower-than-optimal price of capital goods for those favored enough to be able to import. With the switch to an export promotion strategy, the discrimination in favor of capital afforded by the exchange rate largely disappeared, but it was partially replaced by the availability of implicitly subsidized credit.[17]

There were virtually no financial institutions providing access to medium- or long-term credit until 1964. At that time, the Banco Nacional de Desenvolvimento Econômico (BNDE) began lending for medium and long periods at fairly low rates of interest, usually under 5 percent in real terms. This compared with a real rate of return on capital during the period of about 12 percent annually. For 1965 to 1974, Carvalho and Haddad calculated that the implicit subsidy entailed in BNDE loans ranged from 10 to 50 percent of the value of the loan, with an average of about 20 percent depending on the time period of the loan and the repayment schedule. BNDE covered an average of about 60 to 70 percent of the cost of capital goods in projects they financed, the rest being financed through credit at market rates of interest. The implicit subsidy was thus about 12 percent of the cost of capital goods acquired under

BNDE loans. For recipients of such loans, therefore, the subsidy element was sizable. However, for most manufacturing sectors of the economy, the share of total investment financed by BNDE loans was relatively small: except for metal products, where 55 percent of investment was financed by BNDE loans, shares were less than 15 percent.

Although this suggests that the total value of the subsidy implicit in the BNDE loans was probably about 3–4 percent for the manufacturing sector as a whole, it is apparent that the ways credit was rationed led to different prices of capital to different users, and even to different capital costs of different projects for individual firms. Thus the discriminatory effects of credit rationing may have been marked.

It is perhaps noteworthy that the sectors financing the largest fraction of their investment from BNDE funds over the period 1967–69—metal products (55 percent), transport equipment (14 percent), and machinery and electrical equipment (12 percent)—were also among the sectors whose exports bulked large in the export drive of the late 1960s. In 1970, output of the metallurgy sector constituted 20 percent of manufactured exports, machinery and electrical equipment 14 percent, and transport equipment 4 percent. To what extent BNDE channeled its loanable funds toward export sectors or activities in support of the export promotion strategy is not known. What is clear is that the loans constituted a sizable subsidy to the recipients, and that their effects were clearly discriminatory within and between sectors.

There are also numerous phenomena in Brazil that affect labor costs. For example, provisions and restrictions concerning employee working conditions and compensation on night shifts have made multiple-shift operations more costly than they would otherwise be. There are also regulations affecting firms' ability to lay off or discharge workers. However, Carvalho and Haddad chose to focus upon two sets of government regulations in the labor market that are, in their judgment, potentially the largest source of labor market distortion.

First, they examined the effect of minimum wage regulations, which, if effective, would have had the largest influence upon employment of unskilled labor. In fact, examination of the data suggests that, over the late 1960s and early 1970s at any event, inflation was sufficiently rapid so that increases in the legal minimum wage were not effective: the real minimum wage was approximately constant over the period, while average real wages rose about 20 percent. Moreover, a very large fraction of workers earned considerably more than the minimum wage: in 1972, 44 percent of all workers earned more than 3.7 times the minimum wage, contrasted with only 14 percent in 1968. Although minimum wage legislation may have raised the cost of hiring unskilled workers in the mid-1960s, its effect had diminished sharply by the early 1970s.

However, a second form of distortion raising labor costs increased in importance during the 1960s and the 1970s: social security taxes. To be sure, if all firms are subject to the same rate of social security tax, then, in an otherwise perfectly functioning labor market, employee compensation would be relatively unaffected, with smaller take-home pay and higher fringe benefits (including, of course, the right to social security). Welfare losses would arise only to the extent that employees preferred greater pay in the present and less provision for retirement, or that the government was inefficient either in tax collection or in investment of the proceeds as contrasted with private firms offering pension rights. In fact, however, two circumstances served in Brazil to increase distortions: on one hand, not all firms were subject to the same legal rate of tax; on the other hand, there is a presumption that small-scale firms and activities in the informal sector (including self-employment) did not pay the tax.

The average rate of social security tax, as a proportion of wages, was 7.9 percent in 1945 and rose thereafter to a rate of 43.9 percent in 1971. It may have risen still further at later dates. In contrast to legal rates, the actual average paid for all manufacturing activities in 1970 was 27 percent, with some two-digit industries paying an effective rate of 22.8 percent and others paying as much as 29.7 percent.

The existence of the social security tax raised the cost of hiring labor to firms covered by it relative to the cost of labor to uncovered activities and also discriminated between manufacturing sectors on the basis of the rate of tax paid.

7.2.3 Chile

Corbo and Meller focused upon the effect of distortions introduced by the trade regime on the relative price of investment goods in Chile in the late 1960s. At that time, of course, the regime was oriented toward import substitution. However, there were no significant quantitative restrictions upon the import of investment goods, so that an estimate of the price distortion can be obtained by evaluating the degree to which the exchange rate was overvalued and to which the structure of protection favored import of capital equipment.

Using the estimated equilibrium exchange rate derived by Taylor and Bacha (1973), which was 30 percent above the official rate, and the ratio of the average effective exchange rate to that for capital goods (1.0543), Corbo and Meller estimated that with uniform pricing of all tradables the relative price of imported capital equipment would have been about 37 percent higher than it in fact was. Since importation was permitted without strict licensing, this estimate can be taken as indicative of the underpricing of (nonconstruction) investment goods attributable to the import substitution trade regime.

Corbo and Meller did not examine the effects, if any, of credit rationing, the tax structure, or labor market imperfections on the relative cost of using labor and capital.

7.2.4   Colombia

Thoumi's focus was on the early 1970s, by which time there was a crawling-peg exchange-rate system and overvaluation of the currency, if any, seems to have been fairly minimal. As was seen in table 3.3, the effective protection rate for imports of capital goods, 80 percent, was well above the 33 percent rate for consumer goods and the 15 percent rate for intermediate goods in 1969. It thus appears that, during the period on which Thoumi focused, Colombia's moderately export-oriented trade regime did not contain a significant identifiable distortion in the pricing of capital goods imports.[18]

Likewise, although there was strong minimum wage legislation and were fairly strict regulations on conditions under which workers could be laid off or terminated in the 1960s, by the 1970s the effect of the minimum wage legislation was much less, and other regulations had a considerably smaller effect on the labor market than was the case earlier. For Colombia, however, data on the characteristics of the labor force were not available with which to attempt to assess the remaining effects of these provisions.[19]

Thus, like Brazil, Colombia apparently had fairly strong incentives to use capital-intensive production methods in the 1960s, but these distortions were substantially reduced with the switch toward an export orientation in the 1970s.

7.2.5   Indonesia

There can be little doubt that, during the period of heavy emphasis on import substitution in the late 1950s and early 1960s, extreme overvaluation of the currency provided a strong incentive for using imported capital goods for those fortunate enough to obtain import licenses. With the reform of the trade regime in the late 1960s, however, this incentive was largely removed, both because the exchange rate was more realistically valued and because quantitative restrictions upon imports were largely removed. However, the structure of effective protection in Indonesia continued to provide a degree of discrimination in favor of imported capital equipment and against other imports. Pitt's estimates of ERPs for 1971 indicate that they were as low as 5.3 percent for nonelectrical machinery, 16.3 percent for electrical machinery, and 3.5 percent for railroad equipment. This compared with an average rate of 65 percent for all importables, and rates as high as 217 percent for radio, television, and communications equipment and 204 percent for motorcycles and bicycles. By the mid-1970s, outside the period covered by Pitt's work, credit subsidies, duty exemptions, and tax holidays for new investment further increased the attractiveness of capital-using techniques and industries.

Creation of new (productive) employment opportunities is an urgent policy problem in Indonesia because of the relatively rapid growth of the labor force. Until recently there have been few impediments to the functioning of the labor market. Minimum wage legislation was not enacted until 1975. Over the period covered by Pitt, he states that the available evidence indicates that "wage determination occurs in an undistorted labor market." (Pitt 1981, p. 193).

7.2.6 Ivory Coast

The Ivorian trade regime was generally outward-oriented and the exchange rate was fairly realistic during the period covered by Monson's data. The Ivorian case provides an interesting illustration of the ways the trade regime and other instruments of policy can be linked. A major instrument for encouraging economic activity, especially in the modern sector of the Ivorian economy, was the institution of a special legal status, priority firms, for activities so designated by the government. Firms with priority status were eligible for a number of special privileges that made the use of capital-intensive techniques cheaper than it would otherwise have been.

Significant interaction with the trade regime occurred in that (1) firms engaging in activities the government wished to encourage (exporting output from the modern sector, import substitution in consumer goods) were granted priority status, thereby using the domestic policy instrument to encourage favored trade activities; and (2) firms receiving priority status were generally granted greater protection by the trade regime than firms with common-law status. Thus, 78 percent of domestic value added in HOS exportable industries was produced by firms with priority status; 79 percent was the corresponding figure for import-competing HOS goods. The average rate of effective protection received by firms producing exportables with priority status was 58 percent, compared with only 9 percent received by common-law firms. Similarly, the average effective protection rate for priority import substitution firms was 105 percent, while common-law firms received an average of 62 percent.[20]

In addition to receiving greater protection, priority firms were generally subject to lower tax rates and also lower costs of borrowing. These circumstances were reflected in differences in costs for various categories of activities as reflected in the following ratios given by Monson:[21]

	Taxes to Gross Profits	Interest Payments to Debt
HOS exportables	.059	.049
HOS protected importables	.197	.067
All modern activities	.305	.038
Priority firms	.179	.038
All manufacturing firms	.307	.033

The real interest rate was not negative: inflation in the Ivory Coast averaged only about 3 percent annually in the 1960s and early 1970s. HOS-protected importables therefore paid an average real rate of interest of close to 4 percent, while the average manufacturing firm paid a real rate of interest of close to zero on borrowed funds. It appears that, for the Ivory Coast at least, differences in tax rates were probably quantitatively more important than differences in interest rates in determining after-tax profits.

One other aspect of the interaction between the trade regime and priority-firm privileges is of interest. That is, priority-firm status was used as an inducement to foreign investors. To some extent, greater capital intensity of foreign firms may be attributable, in the Ivorian situation, to the fact that their incentives to use capital-intensive techniques were greater than were the incentives offered to domestic firms.

The labor market also has a number of distinctive features that render an analysis of the degree of distortion particularly difficult. The Ivory Coast has higher real wages than neighboring countries, and it permits immigration from them. Simultaneously, many managerial and professional jobs are held by non-Africans, so that the wage structure at both the upper and lower ends of the wage and salary distribution is affected by supply conditions.

Monson identified the principal labor market distortion as arising from the system of minimum wages—separately established for different categories of workers—combined with the imposition of social insurance taxes equaling about 40 percent of base wages. For most categories of workers except the unskilled, actual wages were above the set minimum levels by a sufficient margin so that there is a strong presumption that the legislation was ineffective. For unskilled workers, however, the minimum wage plus social insurance charges on it exceeded the average wage (not subject to social insurance charges) in the informal sector by about 23 percent in the early 1970s. Since Ivorian workers in the unskilled categories had higher average wages than the migrant Africans in the same category, there is a presumption that, on one hand, the minimum wage legislation may have discouraged employment of African migrants and, on the other hand, that employers may have been able to hire those workers without paying social insurance charges. The average wage paid for unskilled migrant Africans was 8.7 thousand FCFA per month in 1971, compared with a minimum wage (not including the social insurance) of 10.1–11.5 thousand FCFA per month.

7.2.7   Pakistan

Guisinger's analysis of the effect of government policies upon capital costs pertains to the early to mid-1960s, a period during which policy was still heavily oriented toward import substitution. The Pakistani experi-

ence represents another example of interaction between the trade regime and domestic policies. On one hand, licenses to import capital goods carried a large scarcity premium and were allocated by the government to "priority" industries. These latter were generally large-scale manufacturing firms that generally were using more capital-intensive techniques than smaller firms within the same industries. Thus the scarcity premium emanating from an overvalued exchange rate was used as an instrument of policy to induce economic activity in desired lines. On the other hand, desiderata emanating from the trade status of various industries clearly influenced which industries and sectors were to receive priority designation. On average, it appears that firms engaged in import substitution activities were more likely to be accorded priority status than were their export-producing counterparts.

For the fiscal year 1959–60, Guisinger estimates that the equilibrium exchange rate was probably about Rs. 7.6 per dollar compared with an official rate of Rs 4.76. This amounted to about a 38 percent reduction in the cost of imported capital equipment as contrasted with a uniform rate. As can be seen from table 3.3, this discrimination through exchange-rate overvaluation was not significantly enhanced by low effective tariffs: in general, the effective tariffs on imported capital goods were relatively high, although exemptions and tariff reductions were once again accorded to priority firms, since each individual package was somewhat different from the others.

In addition to licensing of capital goods imports at an overvalued exchange rate, Pakistan had both tax measures and credit policies that further accentuated the degree to which users were faced with artificially low costs of capital equipment. Guisinger calculated the implicit value of these measures in 1959–60 to those fortunate enough to receive subsidized credit and tax privileges, on the simplifying assumption that interest payments were not subject to profits tax.[22] In Pakistan, firms able to secure loans were able to borrow at 5.74 percent. This contrasts with Guisinger's estimate that a realistic rate would have been about 15 percent. In the absence of any currency overvaluation, annual interest costs at 15 percent to finance an imported machine costing $21 abroad would have been Rs. 24. With a loan at 5.74 percent, this cost would have been reduced to Rs. 9.16. If, in addition, the importer could obtain the machine at the overvalued exchange rate, his carrying cost would decline to Rs. 5.7. Thus, overvaluation of the currency directly reduced user cost by 38 percent; artificially low interest charges alone would have reduced user costs by about 53 percent; the combination of overvaluation of the currency and low interest rates reduced user costs by 66 percent.

In addition, Guisinger calculated the value of accelerated depreciation provisions applied to taxes of favored firms in Pakistan. This measure was in large part a substitute for a tax holiday, frequently granted to starting

firms. This is because accelerated depreciation provisions are worth nothing during the period of a tax holiday, and a tax holiday is worth less the higher the rate of permitted accelerated depreciation. Even so, had the exchange rate not been overvalued and had a realistic rate of interest been charged on borrowing, accelerated depreciation—permitting equipment to be written off over three years rather than over its economic life of sixteen years—would have reduced annual user cost by 45 percent. In the presence of credit rationing and overvaluation of the exchange rate, however, the incremental reduction in user cost was about 20 percent. Adding a tax holiday yielded a further small reduction in user cost. Taken all together, the subsidized exchange rate for capital goods imports, the availability of subsidized credit, provisions for tax holidays, and accelerated depreciation reduced annual user cost of imported capital equipment in Pakistan in 1959–60 by about 75 percent. Stated the other way around, eliminating these provisions would have increased the cost of capital virtually 300 percent. While these calculations represent orders of magnitude only, they are nonetheless indicative of the extent to which trade policies and domestic market interventions can interact to create large differentials between socially desirable policies and private incentives.

Guisinger proceeded to use estimates of the degree of currency overvaluation, interest rates, and tax schedules to estimate a time series of the ratio of the equilibrium rental rate on capital to the actual rate, where the equilibrium rate was defined as that which would have existed in the absence of those measures. According to his estimates, the ratio of the equilibrium rental to the market rental of capital stood at 3.62 in 1959–60 and rose as high as 4.34 in 1966–67. Thereafter it fell somewhat but still remained at 3.68 in 1971–72. With the Pakistani devaluation of 1972, the ratio dropped sharply to 1.27, where it remained until the end of his time series in 1974–75.

In Pakistan, large-scale firms generally had access to import licenses, credit at implicitly subsidized interest rates, and tax advantages. Small-scale firms were much more often forced to resort to the market, paying curb-market rates for their loans and buying domestic capital equipment or bonus vouchers to be able to import their equipment. Thus it appears that large-scale firms had an incentive to be substantially more capital-using than small-scale firms.

In contrast to the capital market until the 1970s, the Pakistani labor market appears to have been fairly distortion-free. Although a large informal sector coexisted side by side with large-scale industry and government employment, the available data, though fragmentary, do not suggest that workers with comparable characteristics had different earnings in the two sectors. Trade unions do not appear to have constituted a significant factor in wage determination, and real wages in the urban

sector seem to have been influenced largely by shifts in supply (emanating partly from rising real wages in agriculture) and demand (reflecting in part the changing skill composition of the labor force), at least until the early 1970s.

In the early 1970s this situation may have begun to change, as the government began imposing minimum wage regulation and raising its own pay scales substantially. In 1971 and early 1972, for example, annual bonuses were made compulsory, and other fringe benefits (including profit sharing, life insurance, and medical benefits) were also mandated.

Thus, for the period covered by Guisinger's analysis of labor coefficients in various trade categories, Pakistan, like Indonesia (and South Korea), can probably best be regarded as having had fairly distortion-free labor markets. Whether the same conclusion would be valid at present is rather doubtful.

7.2.8 South Korea

Labor unions are not powerful in South Korea, and the government has not imposed any minimum wage or other regulations that significantly affected the determination of working conditions and remuneration during the course of the export-oriented strategy. To be sure, real wages rose dramatically, but this appears to have been the outcome of market forces with capital accumulation and rapidly rising demand for labor in the urban sector. Any distortions in the relative costs of using labor and capital lay in the capital market.

With her export orientation of the 1960s and 1970s, South Korea's exchange rate was fairly realistic, and there was little implicit subsidization of the use of capital goods through that route. However, a variety of policies designed to encourage exports had the side effect of rendering the purchase of imported capital goods relatively cheap for Korean exporters. Exporters were always permitted to import capital equipment duty-free for the production of exports. Over 70 percent of investment in machinery and equipment consisted of imported capital goods. The average rate of duties actually collected on imported machinery and equipment was generally about 5 percent, reflecting the predominance of exporters among investors and their tariff exemptions. Insofar as firms in a particular country are competing with firms overseas for international markets, it is arguable whether duties on capital equipment would or would not constitute a form of negative effective protection to the export industry. However, what is clear is that, compared with firms producing goods for the domestic market, exporters eligible for duty-free import of capital goods will have relatively lower cost of imported capital goods.[23] It should be noted that all foreign investment projects in South Korea were also eligible for duty-free import of capital goods after 1960.

Throughout the period of the export-oriented trade strategy (starting

in 1960), exporters were always entitled to a higher depreciation allow-
ance on their tax returns than were other firms. The magnitude of the
increased allowance, and also its coverage, increased greatly in the 1970s.

Another major instrument used by the government to encourage ex-
ports was the allocation of credit, at below-market interest rates, to
exporters. Hong estimates that the real rate of interest paid by those
receiving credit allocations was 8 percent in 1962–66, 3 percent in 1967–
71, and −6 percent in 1972–75.[24]

The majority of these credits were allocated to manufacturing firms
producing for export. Hong estimates that the subsidy element implicit in
these loans rose sharply after 1970, going from about 8 percent of net
capital stock in 1969 to about 35 percent by 1975. In addition, the Bank of
Korea allocated rights to domestic firms to borrow abroad. Since the
international interest rate was below the domestic rate of inflation, a
significant subsidy element was involved in those loans as well.[25] Hong
estimates that the implicit subsidy entailed in foreign borrowing was
about 6 percent of net capital stock in 1970 and rose to 11 percent in 1975.

Most of these implicit subsidies went to the manufacturing sector.
Hong calculated the real rate of return to capital (including subsidy) for
different sectors of the economy and found that for manufacturing it rose
from about 12 percent in 1954–61 to 17 percent in the early 1960s, 26
percent in the late 1960s, and 27 percent in the early 1970s. This con-
trasted with a real economywide rate of return in all nonprimary sectors
combined of about 15 percent for the period 1967–75. He concluded that
"this striking increase implies that the use of large amounts of domestic
and foreign borrowed capital at low interest rates has yielded extremely
high rates of return on equity investment in Korean industries" (Hong
1981, p. 374).

Some puzzles remain with regard to the Korean case. The real wage
rose rapidly during the period when low-interest loans were apparently
an inducement to use capital-intensive techniques. Since there was rela-
tively full employment, this implies that some other sector or sectors of
the economy were facing higher capital costs than they otherwise would
have incurred. But Hong's analysis does not extend into the question of
which sectors were relatively capital-short. If there were such sectors, the
argument must be made that under optimal capital pricing the real wage
would have risen even faster than it in fact did during the early 1970s.
That it already rose very rapidly lends some credence to the view that low
capital costs may have constituted more a lump-sum subsidy, as discussed
in section 7.1.2, than an incentive at the margin.

The point remains that, in the Korean case, and presumably in other
instances where exchange rate overvaluation and import licensing cannot
be used to confer protection upon industries the government wishes to
encourage, domestic credit policies and credit rationing can have many of

the same effects. To the extent that those means are used to encourage exporting industries, they are likely to reduce the costs for the exporting firms of employing capital-intensive techniques.

7.2.9 Thailand

Recall that the Thai economy's trade orientation was mildly toward import substitution in the early 1970s, although the exchange rate appears to have been set at a fairly realistic level. There were a number of domestic policies that influenced the cost of capital and rates of return to different firms, and these policies were undoubtedly directed toward firms in import substitution industries in lines deemed most desirable by the government. To that extent, domestic policies were utilized in support of the trade regime, although administrative decisions on these measures were taken largely ad hoc.

Within the trade regime itself, the fact that the exchange rate was fairly realistic removed any distortion arising from that source. However, duties on imported capital equipment were substantially lower than duties on other types of imports, and so on that account there was some discrimination in favor of the use of imported capital equipment. Akrasanee was unable to provide quantitative estimates of the magnitude of the differential in duties actually paid. However, he judged that, though some distortion was entailed, it was probably quantitatively rather small when contrasted to that in other countries.

Tax exemptions, and especially tax holidays for firms the government wished to encourage, appear to have been the largest single factor influencing the cost of capital in Thailand. Some industries, such as textiles, chemicals, iron and steel, and motor vehicles, were important recipients of these tax holidays in the early 1970s. The same firms that were eligible for duty-free import of capital goods were generally also entitled to the tax holiday privileges, again illustrating the link between domestic and trade policies.

Akrasanee did not provide any estimate of the quantitative importance of tax holidays or duty exemption. He did, however, note that credit rationing was not a significant factor in the Thai context. With relatively low rates of inflation, interest rates ranged from 10.5 percent for "big regular customers" to 14 percent for small-scale firms. He was unable to find any difference in bank treatment or loan terms according to industry or trade orientation.

No minimum wage legislation was introduced in Thailand until 1973, and there have been no other significant government interventions. Any labor market imperfections in the early 1970s therefore arose from the presence of unions or other private-sector phenomena.

Attempts to estimate earnings functions have been frustrated by the absence of data on the skill composition of the labor force in individual

industries. Indeed, the only piece of information available that might be related to skill composition (aside from industry itself) was the male/ female ratios among employees within each industry. Recognizing that the male/female variable might represent a proxy for skills, given the absence of any other variable, Akrasanee reported on work he and Chutikul had done in attempting to analyze wage determination in Thailand. They found considerable explanatory power in the male/female variable, and also in average firm size and unionization of the industry.

Because of data limitations, these results are suggestive only, and they indicate the need for further research. While the evidence suggests that unions and other factors may have had an influence on wage structure, that influence does not appear to be pronounced.

7.2.10   Tunisia

Tunisia's economy appears to have had as many factor market distortions as any other country covered in the project.[26] The cost of capital was affected by credit rationing, by other domestic measures, and by the trade regime. In general, capital goods imports were usually permitted, so that all who wished to import capital goods could do so at approximately the same price: there was no difference in price to different sectors.[27] The question then is: By how much was the exchange rate overvalued, and to what extent did the tariff differentiate between imports of capital goods and of other commodities? EERs for foods were estimated by Nabli to have been about 28 percent above those for industrial equipment, and consumer manufactures were subject to rates estimated to be about 18 percent higher. In addition, there were fewer quantitative restrictions on imports of capital equipment than there were for other categories.

Nabli estimated that the premium on import licenses for foods and manufactures of consumer goods was probably on the order of 25 percent. Combining these estimates with Blake's estimate, that currency overvaluation was on the order of 20–40 percent in 1969, Nabli concluded that 50 percent was probably the upper bound on the extent to which currency overvaluation and differential tariff (and licensing) treatment lowered the price of imported capital equipment. His own preferred estimate is that there was probably about a 30 percent implicit subsidy entailed in the price paid for imported capital equipment (Nabli 1981, pp. 467–68).

Interest rates in Tunisia were quite low, and Nabli estimates that the real interest rate paid by borrowers was never above 4 percent, compared with a "conservative" estimate that a realistic rate would have been at least 10 percent. Credit was therefore strictly rationed, and the details of the lending pattern clearly affected resource allocation and choice of capital intensity. Among the sectors that apparently had relatively favor-

able access to cheap loans in Tunisia, Nabli identified public-sector firms as the most favored recipients. Within the private sector, there was apparently considerable variability in access to credit, depending on "personal relations, nonmarket phenomena, and government policy" (Nabli 1981, p. 468). Nabli "conjectured" that large firms, on average, probably had somewhat better chances of obtaining loans than smaller firms.

Data on worker characteristics and earnings were better for Tunisia than for any other country covered by the project. Even here there were significant omissions, since no data on education, age, or experience variables were available. However, a breakdown was available of the labor force by industry, by skill category (skilled, unskilled, etc.), and by type of sector in which employed. Hoping that the skill categories would sufficiently reflect the "human capital" component of earnings, Nabli used regression analysis to assess the influence of other factors—size of employer, monopolistic versus nonmonopolistic sector, private versus public—on wages in Tunisia.

Here wage payments included a social insurance contribution, which constituted between 15 and 25 percent of compensation in the covered sectors. Two skill variables—the proportion of white-collar employees and the proportion of skilled and semiskilled workers—and a variable reflecting the proportion of female labor were used as explanatory variables, along with dummy variables reflecting structural characteristics of the industry. From the analysis, Nabli concluded that:

1. The skill composition of the labor force explains a significant part of interindustry wage differentials.
2. There is some evidence, though not very strong, that female labor is paid less than male labor, but it cannot be determined whether this is due to sex discrimination or male/female productivity and skill differences.
3. The labor market may be categorized in three ways.
   a. The nonmonopolistic private component, exhibiting the smallest degree of distortions in the labor market, with the largest share of interindustry wage differentials explained by skill differentials.
   b. The public sector, which exhibits a higher degree of wage variation that is not explainable by skills. The evidence is also that the public sector pays higher wages for unskilled labor.
   c. The monopolistic private component, which exhibits a highly variable wage structure that is not explainable by skill differentials and that pays very high average wage rates. [Nabli 1981, pp. 466–67]

Thus, subject to the qualifications concerning data adequacy and reliability, the evidence for Tunisia suggests that the wage structure, although partly reflecting differences in workers' skills, also was significantly in-

fluenced by other factors. Industrial structure and the practices of the public sector appear to have been the most significant influence upon wage payments to workers, with unskilled workers receiving about 20 percent more than their earnings in the rest of the economy.

7.2.11   Uruguay

Uruguay's system of domestic and trade controls was so complex that quantifying the effect of their influence upon incentives for choice of capital intensity is impossible. It seems clear that the exchange rate was substantially overvalued, though the rate of inflation was so high that the degree of overvaluation differed from month to month. The situation appears to be similar to that in Argentina. Tariffs were exceptionally high for virtually all categories of imports, implying that capital goods imports were not permitted when domestically produced substitutes were available. Even for nonelectrical and electrical machinery, Bension and Caumont estimate that ERPs were 55 and 591 percent respectively. These figures, combined with knowledge about the degree of currency overvaluation, suggest that the effective price of capital goods to any given user depended very specifically on the extent to which the types of equipment he wished to purchase were produced domestically, the tariff rate to which he would be subject, and the date at which he wished to invest. Thus, while the trade regime undoubtedly affected the cost of capital equipment, no single quantitative characterization of it is possible.

Given the difficulty of collecting estimates of effective rates of protection and labor coefficients in Uruguay, it was not possible to analyze sources of differences in wage payments. A major difficulty was that, in the year for which data on nominal payments were available, 1968, the rate of inflation was over 60 percent. Consequently, a substantial part of differences in wage payments might have reflected nothing other than differences in timing of dates for nominal wage adjustments throughout the year.

7.3   Total Effect on Wage/Rental Ratios

It is always difficult to generalize from the experience of a limited number of countries, and it is more difficult here because several authors were unable to quantify some or all of the influences impinging upon labor and capital costs. Nonetheless, in light of the importance of the subject and the paucity of evidence available, it is worth attempting a preliminary assessment of the findings. The influence of the trade regime, domestic factors influencing capital costs, and labor market phenomena

are considered in turn. Thereafter there is a preliminary assessment of their relative importance.

7.3.1 Trade Regime

Exchange rate overvaluation, coupled with the reluctance of policy-makers to tax imports of capital goods heavily, has been a significant factor in contributing to low capital costs under import substitution regimes. There are five countries where authors were able to estimate the order of magnitude involved under import substitution—Argentina, Brazil (in the 1950s), Chile, Pakistan, and Tunisia. In all cases the authors believed that currency overvaluation, combined with low rates of protection on imports of capital goods contrasted with tariffs on other commodities, led to significant undervaluation of imports of producer goods. In Chile and Tunisia, imports of capital goods appear to have been fairly freely permitted, whereas in Argentina and Pakistan licensing was an important component of the system. Interestingly enough, in all cases the authors' estimates of the order of magnitude of the subsidy from the trade regime implicit in the pricing of capital goods were in the range of 30–40 percent, by no means a negligible amount. It is likely that in Indonesia before 1965, and in Uruguay, orders of magnitude were no smaller, and they may have been larger. In the absence of controls over imports of capital goods through licensing procedures, the question remains of what sectors were discriminated against when importation of capital equipment was permitted at such overvalued exchange rates and low tariffs. It seems doubtful whether, in countries such as Chile and Tunisia, the ability to import capital goods at low prices was so frequently exercised that the volume of imported capital equipment exceeded what it would have been at a realistic exchange rate with uniform EERs for all transactions.

It seems reasonable to conclude, therefore, that overvalued exchange rates have, in many import substitution countries, provided greater-than-optimal incentives for importing capital goods. This result does not appear to have been an inevitable concomitant of the import substitution strategy. It came about because policymakers failed to impose sufficiently high duties on imports of capital equipment to offset the overvaluation of the currency. In that sense part of the low cost of capital equipment that has characterized import substitution regimes has not been an integral part of the strategy, but rather a by-product of the unwillingness or inability of the authorities to impose offsetting tariffs or other charges on importation of capital goods.

When it comes to export promotion, the picture is different. There the currency has been fairly realistically valued, so that little opportunity for undervaluation of capital goods has arisen. Rather, the experience has

tended to be that domestic incentives, such as low-interest loans, are accorded to exporting industries.

7.3.2   Domestic Capital Costs

In contrast to trade regimes, under which import substitution countries have lowered costs of imported capital equipment more than export promotion countries, credit rationing, or at least provision of some low-interest loans, has been a feature of almost all.[28]

One or more forms of subsidy to the use of capital or imported capital equipment were found in all cases analyzed. The implicit subsidy involved appears to have been substantial, exceeding the estimated magnitude of cost reduction associated with currency overvaluation in some cases. Even in South Korea, interest subsidies appear to have become a distortionary element of some magnitude, especially in the late 1970s, after the period covered by Hong.

Two additional conclusions emerge. First, in many instances sizable reductions in the cost of using capital equipment were made for firms carrying out objectives associated with the trade regime. Thus the Ivory Coast's "priority industry" status, which did provide for access to loans at preferential rates and tax exemptions, was a means whereby the authorities could induce production of the types of commodities they wished. Likewise, Brazil's BNDE loans seem to have been destined largely for some of the sectors associated with her export promotion drive. These and other examples provide yet another strong indication that one cannot divorce analysis of the trade regime and its effects from consideration of conditions in domestic markets.

Second, low-interest loans and currency overvaluation are in many ways substitutes insofar as they affect the cost of using imported capital equipment. In some cases, such as in Pakistan, they interact to provide very large reductions in cost. In principle, however, either an overvalued exchange rate or availability of credit at below-market borrowing rates can provide strong incentives for use of capital-intensive techniques.

7.3.3   Labor Market Distortions

A first, and perhaps most important, conclusion to be drawn from evaluation of the individual country results is how little is known about conditions in labor markets in LDCs. In part this is because the data requirements for satisfactory analysis of these phenomena are inherently heavy, and definitive data sets are hard to come by. Nonetheless it is clear that further research on determinants of wage structure is called for, and that the results would substantially enhance our understanding of a number of important phenomena in developing countries.

A second conclusion, necessarily considerably more impressionistic than the first, also emerges. That is that the extent and magnitude of labor

market distortions appears to be considerably smaller than might have been anticipated and that, in particular, mispricing of capital goods and capital services seems to be proportionately considerably larger than mispricing of labor and labor services.

The most frequently encountered intervention in labor markets that prevents competitive wage determination is the imposition of social insurance payments and other charges upon the employment of labor, which large firms in the formal sector are obliged to pay but those in the informal sector are able to avoid. That pattern appears to hold in Argentina, Brazil, Colombia, the Ivory Coast (in combination with minimum wage legislation), and perhaps Thailand. The same type of differential in unskilled wages arises in Tunisia between government enterprises and small-scale employers, in which the same factors play an important role.

At least until the early 1970s, the effect of these regulations appears to have been restricted to the formal sector and unskilled labor. If one is focusing upon the effect of alternative trade strategies upon employment, however, it is precisely the unskilled workers, and the ability of firms and industries using them intensively to compete on international markets, that must be the focus of analysis. It is perhaps noteworthy that both Brazil and Korea, during their periods of rapid export growth, had few interventions with wage determination and that, in the Brazilian case, those that existed appear to have diminished considerably in importance over the period. Likewise, the countries where there are sizable differences in labor coefficients according to trade categories—notably Indonesia, Pakistan, and Thailand to a lesser extent—are countries where there has not been, at least during the period covered by the analysis, any significant degree of intervention with wage determination for unskilled workers.

7.4   Conclusion: Total Size of Factor Cost Distortions

Again recalling that the estimates only indicate orders of magnitude and fail to convey the variability in costs across firms and industries, it is possible to attempt overall quantitative estimates. The evidence reviewed above can be assembled to provide estimates of the degree to which wage/rental ratios diverged from those that would have prevailed under well-functioning factor markets.

Table 7.1 provides the data, based on the preceding discussion. The numbers would have greater comparability if one could provide estimates of the variance of these cost-increasing and cost-reducing distortions, as well as their mean, but it is not possible to do so. The comparability across countries is therefore extremely limited. For example, Nogues estimated that the reduction in costs of capital owing to the trade regime in Argentina when all capital goods were imported was on the order of 40 per-

cent—remarkably close to the estimates from Chile, Pakistan, and Tunisia (as well as Brazil in her import substitution period). However, for Argentine firms there was an offset in that domestically produced capital goods cost more than imported ones would have at equilibrium. Thus the average 8 percent figure calculated by Nogues represents what the net effect would be on a manufacturing firm employing imported and domestic capital goods in the proportions used by the sector as a whole. In reality there were undoubtedly firms importing almost all their capital equipment, and others relying almost entirely on domestic capital goods. Whether Argentina's 8 percent *average* increase in capital cost owing to the trade regime represents more or less of a distortion given the presence of the import substitution industries producing domestic capital goods than the 38 percent reduction in Pakistan, where almost all capital goods were imported (and where, therefore, the reduction was probably relatively uniform and across the board), is an open question.

Before we examine the data in table 7.1, one other preliminary comment is in order. That is, it is clear in theory that the presence of a distortion affects the wage/rental ratio in all sectors of the economy. If, for example, one sector has a tax imposed upon the utilization of a particular factor of production, the return to that factor of production and all others will be affected, both in the tax-affected sector and in the rest of the economy. It is well known that there are conditions under which raising the price of, for example, labor to a particular sector can lower the real wage to workers in both sectors.[29] In the empirical estimates that follow, no account is taken of this phenomenon, and it is assumed that the wage/rental ratio in the sectors not subject to any distortions is unaffected by their presence elsewhere in the economy. In a sense, the estimates of the magnitude of distortions presented here are really an estimate of the differential in relative factor prices between sectors subject to distortions and sectors not subject to distortions.

There are conditions under which such an estimate might also reflect the absolute deviation in the wage/rental ratio in the affected sectors contrasted to what the ratio would be in equilibrium, but those conditions are rather stringent. Suppose, for example, that capital were perfectly mobile internationally, so that the country under consideration faced a given rental rate for the use of capital services. If, further, there were an Arthur-Lewis-like perfectly elastic supply of labor for the affected industries (either because there were a large supply of rural workers willing to migrate to the cities or because the affected sectors were a small enough fraction of the entire economy), then the estimates would also reflect the degree to which distortions altered the wage/rental ratio for the affected sectors away from their general equilibrium level. In the context of the countries under study, those assumptions are undoubtedly too stringent. The degree to which the general equilibrium wage/rental ratio was

affected by the distortions surely varied from country to country and over time.

Turning then to the data in table 7.1, it is apparent that labor market factors, the trade regime, credit rationing, and tax systems all contributed to raising the wage/rental ratio for firms subject to them. There is no single pattern of relative importance among these factors, however. Pakistan, which appears to have the highest degree of implicit subsidization to the use of capital-intensive techniques, has (or, more accurately, had) a relatively free labor market. Tunisia, by contrast, appears to have had factors leading to cost differentials of virtually all types, as did the Ivory Coast. Yet the rank order of the estimated magnitude of distortion seems to be independent of the number of different types of distortions identified. Thus Nogues was able to quantify labor market interventions of several types as well as trade regime and credit rationing influences upon capital costs. Yet his estimates for Argentina fall far below Nabli's estimates for Tunisia, where the same pattern of pervasive distortion seems to have existed.

What does seem clear, even from these impressionistic data, is that the exporting countries—Hong Kong, South Korea, Brazil, and to a lesser extent the Ivory Coast—had relatively lower levels of factor market distortions than did the import substitution countries, with the possible exception of Argentina. Even there, the Argentine data perhaps represent more of an average among highly subsidized and unsubsidized firms: Nogues estimated that, under certain assumptions, the wage/rental ratio in the modern sector might be as much as eight times that in the traditional sector.

A second conclusion probably not unrelated to the first is that currency overvaluation and favorable treatment of capital goods imports were potent sources of lowering the costs of capital utilization for firms eligible to import. For Argentina, Chile, Pakistan, and Tunisia, as well as Brazil in her import substitution days, this source of underpricing of capital goods was judged to be important.

Credit rationing at subsidized interest rates is estimated by Hong and Guisinger to have constituted a major source of underpricing of capital services. Finally, social insurance taxes have driven a wedge, again of about 20–30 percent, in the price of labor between firms and sectors subject to the taxes and other activities within the economy.

Each of these sources of pricing disparity between firms and sectors by itself could significantly have affected incentives, but together the effects may have been fairly powerful. All of them work in the same direction, to induce lower capital costs and higher labor costs than would be chosen at appropriate shadow prices.

Moreover, insofar as the factor proportions model of trade developed in chapter 4 explains comparative advantage, at least for HOS goods, one

Table 7.1   **Percentage Distortions in Labor and Capital Costs from Various Sources**

| Country | Period | Percentage Increase in Labor Costs | Percentage Reduction in Capital Costs Owing to | | | | Percentage Increase in Wage/Rental Ratio |
			Trade Regime	Credit Rationing	Other	Total	
Argentina	1973	15	8	9	n.a.	17	38
Brazil	1968	27	0	4	n.a.	4	31
Chile	1966–68	n.a.	37	n.a.	n.a.	n.a.	n.a.
Hong Kong	1973	0	0	0	0	0	0
Ivory Coast	1971	23	0	3[a]	12[a]	15	45
Pakistan	1961–64	0	38	53	10	76	316
South Korea	1969	0	0	8	2	10	11
Tunisia	1972	20	30	6	n.a.	36	87

Note: No quantitative estimates are available for Colombia, Indonesia, Thailand, or Uruguay.

[a]Estimates based on differentials given in Monson 1981, table 6.15 and are reproduced in section 7.2.6.

cannot help but question the extent to which distortions of the order of magnitude reported by the country authors may have "wiped out" whatever comparative advantage there may have been.

This, of course, raises a fundamental empirical question, about which there is little information to date. That is, How large are the differentials in "natural" wage/rental ratios that would be observed under an efficient allocation of world resources? If, in fact, Pakistan's optimal wage/rental ratio is one-fiftieth that of her major trading partners, then the circumstance that trade and domestic policies distorted that ratio by a factor of four need not have significantly adversely affected her potential pattern of commodity trade. If, on the other hand, the optimal wage/rental ratio in Pakistan were one-fifth that of her major trading partners, distortions of the order of magnitude estimated by Guisinger would have had a severe impact on the potential for gains from trade. Moreover, if there were "neighboring" countries in the chain of comparative advantage with fewer distortions in factor markets than Pakistan, one can again imagine that distortions within Pakistan could have adversely affected the scope for profitable (and economic) expansion of exports.

Of necessity, these questions must remain unanswered at this stage. One can estimate the extent to which distortions of the magnitude reported in the country studies might have affected factor proportions, and that is undertaken in chapter 8.

At this juncture two other observations are in order, although again qualifications must be made in view of the very limited data available. The first concerns the prevalence of "informal" markets and their relation to factor market imperfections, while the second focuses upon the link between wage distortions and the country authors' findings concerning the skill intensity of trade.

A frequent feature of developing countries' economies, as noted in chapter 2, is the presence of a sizable informal sector, which generally consists of small shopkeepers, service personnel, and even fabricating facilities that are generally de facto exempt from the social insurance taxes, sales taxes, and other regulations that govern economic activity among larger firms. Those small-scale activities are also generally less favored than large firms in access to low-interest loans and to import licenses, and factor proportions differ drastically between the two sectors of the economy within, as well as between, lines of economic activity. Evidence on the degree to which social insurance charges, and interventions in the capital and credit markets, can affect relative input costs certainly suggests that the sharp dichotomy between the behavior of the informal sector and that of the formal sector may itself be the outcome of distortions imposed by government policies. To the extent this is so, it would significantly affect analysis of developing countries and interpretation of observed factor price differentials.

The second conjecture—focusing upon skills—pertains to the frequency with which minimum wage legislation was observed but was deemed not to be effective, except perhaps for unskilled workers. In cases where minimum wage legislation is binding, there is likely to be a bias within the system toward hiring more highly skilled workers: if the wage must be paid anyway, and more-qualified workers are available, it will pay to substitute skill-using techniques for processes using unskilled labor. It may perhaps be coincidence, but the country findings regarding utilization of skilled labor seemed to yield much more pronounced differentials than did their results pertaining to unskilled labor. To the extent that wage determination for skilled workers was free of distortion, while that for unskilled workers was affected by minimum wage requirements, it is at least possible that the observed systematic differences between trade categories and skill intensity arose because of the clearer incentive signals confronting entrepreneurs in their choice of skill categories than in their intensity of utilization of unskilled labor. To the extent that wage differentials appropriately reflected the scarcity of skilled workers,[30] the comparative disadvantage of the project countries in skilled labor-intensive commodities might have been expected to show up more clearly than their comparative advantage in use of unskilled labor. While this must remain only a conjecture, it nonetheless suggests that minimum wage legislation may adversely affect employment of unskilled workers—precisely the group presumably being helped by it.