PROTECTIONISM AND EFFICIENCY IN MANUFACTURING

A Case Study of Pakistan

SYED NAWAB HAIDER NAQVI
AND A. R. KEMAL

International Center for Economic Growth
Pakistan Institute of Development Economics

Protectionism and Efficiency in Manufacturing

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Preface

The International Center for Economic Growth is particularly pleased to publish *Protectionism and Efficiency in Manufacturing: A Case Study of Pakistan*, by Syed Nawab Haider Naqvi and A. R. Kemal. This book is the result of research carried out at the Pakistan Institute for Development Economics. ICEG has lent its support to make the book available to a wider audience within its joint research program with correspondent institutes.

This volume analyzes the effects of protection on the efficiency of large-scale manufacturing. In Pakistan, government policies have nurtured inefficient industries, including some that actually subtract value from the economy. Many of these policies have hurt Pakistani industries. This volume explores the effect of these policies on the Pakistani economy, and offers strategies for reform. The findings of this study are applicable to countries throughout the world, not just Pakistan. And we are confident that this study will make an important contribution to our understanding of protectionism and its influence on economic performance.

Nicolás Ardito-Barletta
General Director
International Center for Economic Growth

Panama City, Panama
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Authors' Preface

This study builds on our earlier work *The Structure of Protection in Pakistan: 1980–81*, a project assigned to the Pakistan Institute of Development Economics by the government of Pakistan and financed through a technical assistance credit provided by the World Bank. This earlier work, hereafter referred to as *The Structure*, was completed in 1983. It was submitted to the government of Pakistan as a preliminary report of our main findings.

Since then we have received very useful comments from the government as well as from international agencies. The present study takes into account all these comments. As a result, large parts of the earlier text have been rewritten, and several minor corrections have been made. The following revisions made in the earlier study and incorporated in this study are worth mentioning.

- The 1980–81 data on manufacturing value added were used as weights, instead of the 1975–76 data used in *The Structure* (these data have been obtained from the 1980–81 Census of Manufacturing Industries (CMI), which was not available when we wrote *The Structure*).

- The value added at world market prices, instead of the value added at domestic prices, is used as a weight to obtain average domestic resource costs (DRCs) for the manufacturing sector.

- New deflators are used, especially for export-oriented industries.

- In taking averages, industries that produce goods not generally traded and whose prices are essentially proxies have been excluded.

In this study the structure of protection in Pakistan has been analyzed in relation to the allocative inefficiency that it has induced in the large-scale manufacturing sector. A set of numbers, namely, the implicit effective protection rate (IEPR) and the domestic resource cost (DRC), have been estimated on the basis of an extensive survey of the manufacturing sector relating to 1980–81. The study also reports explicit effective protection rates (EEPR), but the IEPRs have been used because, in an overwhelming number of cases, tariffs do not determine the difference between the domestic prices and the cost and freight (c. & f.) import prices of comparable products.

The IEPRs used in this study enable the analyst to estimate the percentage difference between value added at domestic prices and value added at world prices by relating the combined effect of protective policies on the prices of final output and inputs to the value added by a specific processing activity. The DRCs measure the efficiency with which domestic input resources are transformed into output. The study draws on the information generated by a comprehensive survey of 750 firms, which, after the universe was stratified into industrial groups, were selected through random sampling. An equally comprehensive price comparison survey was also carried out to calculate the price differences needed for the estimation of the IEPRs.

In a study of this kind a large number of persons help. We are most indebted to Muhammad Rafiq, computer programmer, who painstakingly devised the program for estimating IEPRs and DRCs. We are deeply indebted to Professor Aurangzeb Alamgir Hashmi, literary editor of PIDE, whose work on an earlier draft of the study led to considerable improvement of the text. We are also extremely grateful to the editors at ICEG for doing an excellent job. We are also grateful to Stephen Guisinger, who took the trouble to read the entire manuscript and made several useful comments. We also take this opportunity to thank once again Alan Heston, Norma Tan, Zafar Mahmood, Talat Alauddin,

Iftikharullah Babur, and other members of the team for their assistance in the preparation of *The Structure*. The comments made on *The Structure* by Jagdish Bhagwati, Anne Krueger, Maxwell Corden, Bela Balassa, and many World Bank experts helped us greatly in preparing the present study. The entire load of typing was borne by Mahboob Iqbal. As usual, all the errors and omissions that may still remain are ours.

ONE

INTRODUCTION

To accelerate industrial development efficiently, it is essential to devise an appropriate set of government policies. The rules of the game must be revised to minimize the domestic resource cost (DRC) of earning (saving) foreign exchange so that the fastest-growing industries are those in which the country has a long-run comparative advantage. Once this is done, domestic resources will be allocated efficiently between import-substitution and export industries and among different types of industries, which will improve overall productivity in the manufacturing sector and ensure better distribution of income by maximizing employment generation. This is because efficient industries in a labor-surplus country like Pakistan would, by definition, be relatively labor intensive. Through the recognized links of industry with the agriculture and services sectors, such policies should also improve resource allocation throughout the economy.

Government policies in Pakistan since 1953 have had the effect of reorienting production and trade policies toward relatively less efficient industries. Tariffs, import restrictions, a variety of export promotion schemes, and readjustments of the exchange rate have been used to protect the nascent manufacturing activity in the country and to promote

exports.[1] True, some of the intended results of the government policies have been achieved. Many import-substitution industries have switched to export industry status.[2] Several studies have shown, however, that such incentives, whose level and direction have changed in an ad hoc fashion from time to time, have not formed a consistent set. By creating a series of product-market and factor-market distortions, which tend to lower social welfare, these incentives have failed to maximize employment generation and growth of the domestic manufacturing sector efficiently.[3]

Contrary to the intentions of the policy makers, the structure of protection has given birth to all kinds of freak cases: industries in which the value added is negative or close to zero; those that are inefficient and yet protected; and efficient ones that are negatively protected. There are, also, industries that are efficient and protected and those that are inefficient and negatively protected. (See Appendix C, Table C.1, for the five types of distortions identified in this study.) It is the "unreasonable" kind of industries, however, whose inefficiencies dominate the manufacturing sector in Pakistan. The study also shows that (1) many capital goods industries, which are the least inefficient, are negatively protected; (2) most of the industries located in Baluchistan are inefficient, although every province has its share of inefficient industries; and (3) in percentage terms, the heaviest concentration of inefficient industries is in large-scale manufacturing, which is followed by those in small-scale and medium-size industries.[4] The present study yields a few unconventional results, which in some cases modify traditional wisdom on the subject.

- Export industries are the most inefficient of the lot, and non-competing import industries rank next to them. This result is not entirely unexpected, because in a bid to increase the number of export industries substantial incentives have been given to all kinds of industries, including a large number of infant export industries.

- Reversing past trends, the level of protection no longer increases with the stage of processing. Indeed, the level of protection to the intermediate goods industries is much higher than to the finished goods industries. (This result contrasts sharply with the corresponding results reported for other developing countries.) It appears that in the search for new sources of revenue the government has been taxing imports of intermediate goods much more heavily than imports of final goods, which do not yield much revenue because they are already subject to prohibitive import duties.

- For 57.8 percent of the industries, domestic prices are lower than cost and freight (c. & f.) import prices plus tariffs. Cases in which quota restrictions are binding—that is, the domestic prices exceed the c. & f. import prices plus tariffs—are far fewer (34 percent) now than they were in the past.

- Import quotas and tariffs now exercise a relatively smaller influence on domestic producers' prices than in the past. Instead, protection is now mainly provided by export subsidies.

In the following chapters the story of protection in Pakistan, as it existed in 1980–81, is told in full. The study also makes a few key recommendations, some of which are stated below.

- The government must take decisive steps to correct the many distortions that create monopolistic and oligopolistic market structures and lead to allocative inefficiency and an underutilization of installed capacity in the manufacturing sector.[5] Obviously, a correction of such distortions will minimize the domestic resource cost of value added in the manufacturing sector. It will also maximize employment generation and improve income distribution.

- These objectives can be achieved by a thorough reform of the structure of protection in Pakistan. Such reform will also require a careful review of various existing protection methods—quota restrictions, tariffs, and domestic taxes-cum-subsidies—and their eventual replacement by tariffs or subsidies.

- Tariff reform is not simply a matter of making an across-the-board tariff reduction, because such a measure does not necessarily have a predictable effect on the intensity of existing distortions. Furthermore, any meaningful program of rationalizing the incentive structure should also include liberalization of the import policy and an elimination of export subsidies, besides tariff rationalization.

- The present study implies that, contrary to standard advice, the government may have to discriminate *against* inefficient export industries to establish a better balance between them and the import-substitution industries.

- To maximize public revenue, most of the quantitative restrictions will have to be replaced by tariffs and domestic taxes. It is definitely inefficient first to create importers' rents through the imposition of quota restrictions and then to siphon away those rents by imposing tariffs. It is much more efficient to raise revenue directly through the imposition of appropriate levels of tariffs or sales taxes.

- Export subsidies should be reduced, even withdrawn, wherever they form a very large proportion of the value added.

The results of the present study provide a solid scientific basis for rational and systematic thinking about making wide-ranging readjustments in the existing structure of protection. By focusing on the levels of the implicit effective protection rates (IEPRs) and the DRCs, the study highlights the complexity of the task ahead as well as the best way to approach it. It also indicates a reform of the structure of protection. Such a reform can be implemented only in a finite number of steps, as has been pointed out by Balassa and Associates (1982). This is because an abrupt change of course will induce a widespread industrial dislocation. It will also reduce government revenue.

The main results of the study are presented in chapters 3, 4, 5, and 6. Chapter 2 dwells briefly on the methodological issues involved in the computation of the IEPRs and the DRCs, and Chapter 7 presents estimates of industrial dislocation. Chapter 8 spells out the policy implications of the study and makes recommendations for rationalizing the present system of industrial incentives. Statistical appendixes present all the basic statistical information in a convenient form; and the questionnaire used to gather the input data is also reproduced.

Notes

1. The most comprehensive export promotion scheme was Pakistan's Export Bonus Scheme, which lasted from 1959 to 1972. For a detailed analysis of the scheme, see Naqvi 1963.

2. As shown in subsequent chapters, the entry of such industries into the export market has not always been achieved by removing the allocative inefficiency that obstructs the country's participation in the international division of labor in the production process. Nor has it come about by inducing greater X-efficiency, that is, through the adoption and use of the best-known technology.

3. See, for instance, Naqvi 1963, Kemal 1978, Lewis and Guisinger 1968, and Soligo and Stern 1965.

4. It should be carefully noted that all ninety industries analyzed in this study belong to the large-scale manufacturing sector. The distinction between large-, medium-, and small-scale industries does not correspond to the distinc-

tion made by the Federal Bureau of Statistics. The classification used in the present study is the following: small firms employ 10–50 persons; medium-sized firms employ 51–100 persons; and large-scale firms employ 101 persons or more. Thus our study altogether leaves out the small-scale industries proper—that is, where the firms employ up to 10 persons.

5. Kemal (1978) shows that the system of protection has created a highly oligopolistic market structure in Pakistan. He comes out with the startling conclusion that, in 1967–68, more than 50 percent of the value added in 66 large-scale manufacturing industries (in that year, of a total of 132 industries) was controlled by only one firm. It is safe to assume that the situation prevailing in 1980–81 was not much different.

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TWO

METHODOLOGICAL AND ESTIMATION ISSUES

The "structure of protection" is an amorphous term used to denote a set of policies that influence the value added, at domestic prices, by the manufacturing sector. In Pakistan this set has consisted of tariffs, quantitative restrictions, sales taxes, compensatory rebates, tax rebates, tax exemptions, concessionary export finance, income tax rebates on exports, and so on. In addition, the manufacturing sector has received implicit protection—that is, protection provided by various factors that tend to raise or lower domestic prices above or below the cost and freight (c. & f.) prices of imported goods. The present study seeks to assess the impact of the structure of protection on the pattern of domestic resource allocation.

NPRs, IEPRs, and DRCs

One way of adequately accounting for the effect of all the incentives or disincentives given to the domestic value added is to compute implicit effective protection rates (IEPRs), which are the percentage excess of the value added at domestic prices (that is, the value of

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output minus the cost of intermediate inputs) over the value added at world prices. This excess is caused by the structure of protection. IEPRs differ from the often used explicit effective protection rates (EEPRs) by taking account of the price difference between the c. & f. prices and the domestic prices of imported goods caused by market factors. Both these measures are distinguished from the nominal protection rates (NPRs), which measure the effect of various tariff and nontariff measures on a product.

While the IEPRs correctly predict the relative pull of the protectionist regime on domestic resources, they may not always accurately measure the degree of inefficiency due to protection in the domestic production process. Such allocative inefficiency arises when market prices do not faithfully and systematically reflect the opportunity cost, measured at world prices, of the domestic resources employed by the producers—that is, when the domestic rate of marginal transformation differs from the foreign rate of transformation, sometimes by a wide margin. The difference between the two rates of transformation is caused mainly by the protection structure, which induces an inefficient use of resources both directly and in some cases by creating monopolistic or oligopolistic market structures. Both these inefficiencies, or "distortions" as they are called in the economics literature, lead to high domestic prices and suboptimal output levels. It is therefore essential that the cost of domestic resources be measured at the shadow prices of labor and capital. This is done by computing the domestic resource costs (DRCs) for each processing activity.[1]

The distinguishing characteristic of the present study is that, as opposed to most earlier studies (see Soligo and Stern 1965), which rely on input-output tables, it is based on a sample survey. The size of the sample is fairly large: it consists of 750 firms, drawn randomly from ninety industries. The firms included in the sample contributed 25 percent to the total value added in the large-scale manufacturing sector in 1980–81. The survey method adopted in this study is superior in that it gives a far more disaggregated set of data than is given in input-output tables, which have been used exclusively by earlier studies. We also used the input-output tables (1975–76) but only to decompose nontraded inputs into primary inputs and traded inputs. In addition to the sample survey, a price comparison survey was conducted to help compute the price differences between the c. & f. and domestic prices of imported goods (such information is required for computing IEPRs but not for EEPRs). To estimate the DRCs, shadow prices of capital and labor were also computed (see appendix to this chapter for more details).

Definitions: Zs and Us

This study presents estimates of the IEPRs, EEPRs, and DRCs for each of the 750 firms included in the sample. The IEPRs and DRCs are most simply defined as follows:[2]

$$IEPR = \frac{VAD - VAW}{VAW} \text{ and } DRC = \frac{DR}{VAW}$$

where *VAD* equals value added at domestic prices; and *VAW* equals value added at world prices. *DR* equals value at shadow prices of domestic resources employed.

The IEPR formula given above corresponds to the so-called Z definition of the IEPR.[3] The Z measure needs to be carefully interpreted in the case of industries that are negatively protected, because an EPR less than –100 indicates the phenomenon of negative value added rather than of negative protection. Moreover, a negative EPR of more than 100 percent does not necessarily indicate higher negative value added. Therefore, the Z measure does not show a monotonic increase in the severity of protection.

IEPRs may also be estimated through the U definition, which reflects the degree of protection in a consistent way.[4] EPRs are negative only when an industry is penalized; and negative-value-added industries have an EPR exceeding 100. The U measure, however, does not always rank industries by the severity of protection.[5] Besides, it does not correspond to the conventional notion of the IEPR. It shows the percentage of the value added at domestic prices due to protection but not the percentage increase in the value added at world prices caused by protection. It may thus lead to erroneous conclusions about the effect of protection on the value added. Hence protection rates corresponding to both the Z and the U measures have been presented in this study.

Data Requirements

The estimation of IEPRs and DRCs requires computation of the values of output and inputs in terms of both domestic prices and world prices. Data on the primary factors of production—labor and capital—and their shadow prices are also required. The standard source of data on the value of output and inputs at domestic prices is the Census of Manufacturing Industries (CMI), which is conducted almost every year by the Federal Bureau of Statistics (FBS). We have used the CMI for 1980–81 in the present study to obtain average EPRs.[6]

The Sample Survey

A comprehensive survey of the large-scale manufacturing sector was planned to generate firm-level data on output and inputs for the year 1980–81 by type, size, and location of the 750 firms belonging to ninety industries in the large-scale manufacturing sector.[7] To select a representative sample, an almost complete list of firms was obtained from the Provincial Bureau of Statistics. There were problems, however, because lists for Sind and the Punjab classified firms by employment size, while for the North-West Frontier Province (NWFP) and Baluchistan no such breakdown was available. Even worse, the firms in the NWFP were not even classified by industry.

To generate data on a consistent and comprehensive basis, firms were selected from ninety industrial groups in the large-scale manufacturing sector according to the stratified random sampling method. All the firms in the four provinces were first classified into ninety industrial groups, which were further stratified by size and province.[8] The following selection procedure was adopted. In industries that contained no more than ten firms, all firms were included in the sample.

To ensure countrywide representation, at least one firm of each size—small, medium, and large—was selected from an industry in each province, except where a particular industry or a firm of a particular size in the industry did not exist in a province. In all cases in which the number of firms in an industry was large, 10 percent of the firms in each such industry were included in the sample. In such cases, however, at least ten firms were included.

To begin with, the sample size was 900 firms, to ensure a representative sample and to allow for the possibility, as indicated by pretesting results, that some of the listed firms might have closed down. The field supervisors were instructed that if some of the listed firms were found closed, an equal number of similar firms that did exist should be included in the sample. As a result of this wide-ranging exercise, data on output, inputs, capacity utilization, primary inputs, imports, exports, and other relevant variables were generated for 800 firms. Because the data for some firms were either incomplete or unreliable, only 750 firms were finally selected.

The Price Comparison Survey

The information generated by the sample survey was supplemented by a price comparison survey. That survey was required to compute tariff equivalents because binding quota restrictions and prohibitive tariffs would cause domestic prices to diverge substantially from the duty-

paid values of comparable imported goods (see Chapter 3). The list of imported goods drawn up for the survey covered almost all important import-competing inputs and outputs of various manufacturing industries of Pakistan. Since the manufactured commodities are in general heterogeneous, that is, differ in quality and specification, a particular brand of the good—for example, Gillette Blade for the blade-making industry—was taken for collecting information on the two sets of prices. For each brand of the product, the c. & f. prices were obtained from the customs house, and the corresponding domestic prices were obtained from the wholesale market in Karachi.

To compute IEPRs, data relating to sales taxes, tariffs, excise taxes, export taxes, export subsidies, and the domestic and world prices for 1,398 products were collected. Since the unit of measurement for comparable products differed among the firms, the actual number of products was 1,200. Tariff equivalents could be computed, however, for only 601 products on the basis of data on 209 products taken from the price comparison survey.[9] These products are potentially import competing but are generally not exported.

In addition to the information gathered through these two surveys, data were also obtained from the Central Board of Revenue (CBR) on tariffs, sales taxes, excise duties, tax rebates, tax exemptions, and the like. The data on compensatory rebates, export finances, and income tax rebates were obtained from the Ministry of Commerce.

Treating Nontraded Inputs

The valuation of nontraded inputs—transport and communications and a host of public and private services that do not enter into international trade—poses problems for computing IEPRs. This is because the supplies of nontraded inputs as opposed to those of traded inputs, cannot be assumed to be infinitely elastic.[10] The IEPRs for such industries tend to be positive. But the procedure of estimating the IEPRs destroys the inherent simplicity and computability of the effective protection formula.

There are different ways of keeping computational procedures reasonably simple. The Balassa method treats nontraded inputs as if they were traded inputs, by assuming that the supply of the former is also infinitely elastic. By contrast, the Corden method lumps the cost of nontraded inputs with value added on the assumption that protection raises the domestic producer's price of both types of goods. The Scott method also treats both types of goods on the same footing by assuming that the difference between the domestic and the world prices of nontraded inputs equals the implicit overvaluation of the exchange rate. This is equivalent

to assuming that nontraded inputs are indirectly protected at a rate equaling the average protection rate accorded the traded inputs.

The present study employs the "sophisticated" Corden method to compute the IEPRs. This method decomposes nontraded inputs into two components—traded inputs proper and primary inputs going into the production of nontraded inputs used in a specific processing activity. The primary inputs (that is, value-added) into nontraded inputs are lumped together with the primary inputs employed directly in the processing activity so that only the traded part is deducted from output to estimate the value added.

Estimating Fixed Assets and Depreciation

To compute net IEPRs, the depreciation cost needs to be deducted from gross value added.[11] Unfortunately, depreciation data in Pakistan are somewhat suspect. Although questions pertaining to an appropriate rate of depreciation were asked in the survey, the response was generally poor. To estimate depreciation correctly, we needed accurate estimates of the rate of depreciation and of capital stock. For this purpose the present study distinguishes six types of assets—factory buildings, residential buildings, land, capital equipment, transport equipment, and furniture. In conducting the survey, questions were asked of each firm included in the sample about the acquisition cost, current cost, and book value of its assets. Most of the firms provided data on only one of these variables, and some firms did not provide capital stock data at all. To estimate capital stock correctly, the acquisition cost for each firm was computed and evaluated at 1980–81 prices.

For firms that did not provide information on the acquisition cost of capital, it was assumed that acquisition cost plus current investment equaled the book value of capital assets plus accumulated depreciation. In cases where accumulated depreciation was not reported but depreciation and the book value were reported, the acquisition cost was estimated by computing adjustment factors on the basis of accounting depreciation and the year of acquisition of assets. Some firms did provide information on the current value of assets, and such information was retained as such if the valuation of assets on the basis of the acquisition cost was not available. For firms that did not supply any data on assets, it was assumed that the value of their assets was twice the value of their total sales in 1980–81.

Once acquisition costs were determined, assets were depreciated at the economic rates of depreciation and revalued at the 1981 prices.[12] Depreciation of capital equipment and other assets, excluding land, was estimated by spreading over the remaining useful life of the asset the

estimated costs of capital at the time of the survey. It was assumed that depreciation was slower in the earlier years than in the later years. An obsolescence factor equal to 2 percent of capital stock was also used in this study to adjust the value of depreciation to reflect the change in the productivity of capital over time. For land no depreciation was assumed. To determine the tradable component of depreciation, it was assumed that transport equipment is fully tradable, residential and nonresidential buildings are 40 percent tradable, and land and furniture are completely nontradable.

Estimating Value Added at World Prices

If all products were homogeneous, the unit c. & f. values and the quantities of output and inputs would have been sufficient to estimate value added at world market prices. As a rule, however, manufacturing output is heterogeneous. Therefore, value added at world prices has been estimated on the basis of assumptions regarding the difference between the domestic prices and the world prices. When quota restrictions are not binding and tariffs not redundant, the difference between the domestic and the world prices can be explained by the rates of tariffs on inputs or output. When quota restrictions are binding, however, tariffs underestimate the price difference. If the tariffs are redundant, the difference in the prices will be overstated by the tariff.

It may be noted that the value added at world prices is estimated corresponding to the following alternative assumptions about the difference between domestic prices and world prices.

- The estimates of protection, which correspond to the assumption that the difference in the domestic prices is equal to the tariff plus sales tax, are denoted as EEPRs.

- The IEPRs whose estimates have been used in this study are obtained on the basis of the following procedure. If an industry is an import-substituting activity, then to compute values at world prices the values at domestic prices are deflated by the proportion by which the domestic price (adjusted for a 10 percent markup for traders) exceeds the c. & f. price of the imported goods. If the industry is export oriented, export subsidies (export taxes) are assumed to measure the difference between the domestic prices and the world prices.[13]

- The inputs directly imported are deflated by the explicit nominal protection rate (NPR_E) for both the implicit and the

explicit EPRs. For the purposes of the study, however, only the IEPRs need to be considered. This is because tariffs are redundant in all but 7.8 percent of the ninety industries (see Chapter 3).

Estimating Shadow Prices of Capital and Labor

To estimate the DRCs, suitable assumptions need to be made about the shadow prices of capital and labor. In the present study the shadow price of (the rate of return on) capital is assumed to be, alternatively, 10 percent and 20 percent. Data on labor employment and wages, obtained through the firm survey, have been classified into skilled and unskilled categories. It is assumed that the shadow wage rates of skilled workers equal the market wage rates. For unskilled workers the shadow wage is assumed to be equal to the wage of an unskilled worker in activities not subject to wage regulations.

Many studies, mostly having a partial-equilibrium orientation, give widely different estimates of the shadow prices of capital and labor. (See, for example, Squire, Little, and Durdag, referred to as SLD 1979; Weiss 1979; and Gotsch and Brown 1980.) The estimates of shadow prices of capital range from 2 percent to 14.25 percent.[14] The estimates of shadow wage rate also differ in magnitude. According to SLD (1979), the shadow wage rate equals the market rate. In view of these differing opinions, we have settled, as a compromise, for the estimates just indicated.[15]

Problems of Multiproduct Firms

About one-half of the firms included in the survey are single-product firms, the rest multiproduct firms. For the purposes of aggregating firms into industries, the single-product firms pose no difficulty. The problem of assigning multiproduct firms to specific industries, however, has to be tackled. These multiproduct firms are of two kinds.

- Some firms produce different products belonging to the same industry. (For example, in the rice-milling industry, the multiproduct firms produce broken and whole rice, but both products belong to the rice-husking industry.)

- Some firms produce different products belonging to different industries.

In the first case the assignment problem is easy to solve: these firms are treated as if they were single-product firms. In the second case a somewhat ad hoc procedure has been used to assign firms on the basis of their dominant product. Fortunately, the number of firms in the second category is very small.

Appendix: Estimates of the Shadow Prices of Capital and Labor

To estimate DRCs for each unit of the value added at world prices, the value of the inputs is evaluated in each activity by using their shadow prices. The estimation of shadow prices is tricky because specific estimates are highly sensitive to the method of estimation employed as well as the quality and type of data used.

A number of studies have been carried out to estimate the shadow prices of capital and labor. The most widely used method has been the one suggested by Little and Mirrlees (1974), who take into consideration the output forgone and the social value of incremental consumption to estimate the shadow wage rate. The estimates of the shadow price of capital are obtained by using the productivity of capital and the rate of change in the marginal utility of consumption over time. The cost-of-funds approach, suggested by Harberger (1968), is also frequently used to estimate the shadow price of capital. (A more systematic estimation procedure is to obtain the shadow price of labor and capital from the dual of a properly specified linear programming problem.)

Shadow prices of capital. The most widely used method to estimate the shadow price of capital is the Squire, Little, Durdag (SLD) method.[16] Because of the sensitivity of the estimates of shadow prices of capital to the method of estimation, different studies report widely different shadow prices of capital in Pakistan. While SLD (1979) estimate the shadow price of capital as only 2 percent, Guisinger (1979) reports more plausible estimates of 8 percent and 14.25 percent. The SLD estimates are so low because the productivity-of-capital estimates employed by them relate only to public enterprises and for just one year, 1976–77, which was a bad year for these enterprises. The estimates of productivity used by SLD (1979) were also not quite correct and suffered from a downward bias.

In view of the extreme sensitivity of the shadow prices of capital to the method used and the data employed, not much can be gained by reestimating these prices for this study. Since most of the studies, especially that done by Guisinger (1979), suggest the shadow rate of capital to be about 10 percent, this figure has been adopted in the present study

as the shadow rate of return to compute the DRCs. Only for purposes of comparison, alternative estimates on the basis of a 20 percent shadow price of capital (discount rate) have also been generated.

Shadow wage rate. Gotsch and Brown (1980) estimate the shadow wages to be one-half of the market wages in the mid-1970s. SLD (1979) conclude that the shadow wage rates were not very different from the market wages in Pakistan and the difference between the market wage rate and the output forgone could be accounted for by the cost of migration. To resolve conceptual and estimation differences, it is useful to analyze the trends in the wage rates for unskilled workers, which should broadly indicate the major supply and demand forces operating in the labor market. According to estimates of the Pakistan Institute of Development Economics (PIDE), between 1970–71 and 1978–79 real wages in agriculture rose by 46 percent, which suggests a 4.9 percent annual rise in wage payments over this period as against a 2.4 percent annual rise in the labor force, or a 2.5 percent annual gain in the workers' real income. The daily wage rate rose to Rs 20 by mid-1981, however, suggesting that real wages grew at a rate of about 5 percent in the 1975–76 to 1980–81 period. For these reasons it is assumed in the present study that shadow wages are equal to the wages paid to an unskilled worker in construction, that is, Rs 25 per day. It is further assumed that the construction worker is employed for 300 days in a year.

Notes

1. As shown by Balassa and Schydlowsky (1970), the EPRs and DRCs do not rank industries identically. As pointed out in Chapter 3, however, in Pakistan the two measures, though not identical, are fairly strongly correlated. For a detailed discussion of the relative merits of the two measures, see A. Krueger 1972.

2. This formulation holds for estimating EEPRs as well. According to the standard formula: $EPR_j = (1 + t_j - \sum_i t_i a_{ij})/(1 - \sum_i t_i a_{ij})$

where t_j and t_i are tariff rates on output and inputs and a_{ij} denotes the ith input in the output of the jth activity at world prices. In all cases where tariffs are not binding, the IEPRs are calculated by replacing t_j and t_i by the percentage differential between the domestic and the import prices.

3. If $Z>0$, the industry is protected. If $Z<0$, the cases of $-100<Z<0$ and $Z<-100$ need to be distinguished. If $-100<Z<0$, the industry is negatively protected. If $Z<-100$, however, value added at world market prices is zero or negative, implying an extremely high rate of protection.

4. $$Z = \frac{VAD - VAW}{VAW} \qquad U = \frac{VAD - VAW}{VAD}$$

For a detailed discussion of the Z and U measures, see Soligo and Stern 1965 and Lewis and Guisinger 1968. Note also that the U measure can be easily transformed into the Z measure, using the following transformation:

$$Z = \frac{U}{1 - U} \text{ and } U = \frac{Z}{1 + Z}$$

where the value added at world market prices indicates the rupee equivalent of the net foreign exchange saved through import substitution or earned through exports.

5. Suppose industries A and B have the same magnitude of negative value added at world prices, but A has a higher positive value added at domestic prices than B. The U measure would then rank industry A as less protected than industry B.

6. At the time of preparation of *The Structure*, the CMI data were available only for 1975–76, and even these data suffered from various problems, including misreporting.

7. The survey information was collected by requiring firms to fill out a comprehensive questionnaire (reproduced as Appendix A), which sought the following information about each of the 750 firms included in the sample: status and life of the firm; capacity utilization; causes of underutilization of capacity; payment of taxes; structure and inventories of output and inputs; labor and compensation to labor by skills; fixed assets in the form of factory buildings, residential buildings, capital equipment, transport equipment, furniture, and land; working capital; volume of exports; destination of exports; subsidies to exports; and so on. Thus the survey has generated a vast amount of information, only part of which could be used in the present study.

8. Note that the definition of small, medium, and large industries used in this study differs from the standard usage. See Chapter 1, note 4.

9. It was possible to extend price comparisons to 601 products because of similarity of the products included in the sample.

10. Industries producing nontraded inputs are protected indirectly each time protection raises the value added in an industry that is intensive in the use of nontraded inputs. For technical details about the various methods of including nontraded inputs in the estimates of effective protection, see Balassa 1982; Corden 1966.

11. Gross EPRs have been estimated on the basis of gross value added at domestic market and world prices, and net EPRs have been estimated after adjusting values added for depreciation. It may be noted, however, that the term "net IEPR" does not correspond to the standard usage in the literature, where the net effective protection rate is computed by making suitable adjustment for changes in the exchange rate. No such adjustments have been made in the present study.

12. Depreciation for capital equipment and other assets, excluding land, has been computed using the following formula:

$$\frac{A_t}{(1+r)P^{(1-P)L}}$$

where

D = depreciation

Y = year of establishment

P = Proportion of useful life remaining = $\frac{1-[(1981-Y)/L]}{L}$

A_t = value of assets in the year t, $A_t \cdot P\ (1.6 - P)$

r = obsolescence factor at 2 percent per annum

L = life of project

13. This corresponds to the assumption that the producer does not discriminate between the domestic and the world prices. If the producer does discriminate, the estimates reported in the study would understate IEPRs and DRCs. Considering that most Pakistani export industries have a large number of firms, the assumption made in the text is quite realistic.

14. As correctly pointed out by Guisinger 1979, however, the shadow price of capital of 2 percent is not all reliable. (See appendix to this chapter for review of the various estimates of shadow prices in Pakistan.)

15. A systematic method of deriving shadow prices of labor, capital, and foreign exchange is to solve the dual of the primal (resource allocation) linear programming problem. But we have not taken this course.

16. See, for example, Squire, Little, and Durdag 1979; Guisinger 1979; Weiss 1979; and Gotsch and Brown 1980.

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THREE

THE STRUCTURE OF PROTECTION

Several policy instruments, among them taxes (subsidies) on trade and domestic activity, directly and indirectly impinge on the quantity of value added in the manufacturing sector. To some extent the diversity of the policy instruments and the large overlap between them are both justified and desirable. This is because instruments of trade policy—such as tariffs and quotas—cannot be used in isolation from other domestic policies to realize the objectives that protection or promotion is meant to achieve.[1] Furthermore, the government can (although normally it does not) consciously use more than one policy instrument in an offsetting fashion. To make the intended impact on the allocation of domestic resources, for example, tariffs can be levied to siphon off quota-induced scarcity rents accruing to importers; and excise taxes and production subsidies can usefully offset the expansionary or contractionary effects of tariffs or quotas on import-substitution industries. But, in general, the existence of so many policy instruments makes it virtually impossible to determine the combined effect of these instruments on the allocation of domestic resources just by looking at a given policy package, which is merely a statement of the intentions of the policy makers.

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TABLE 1 Policy Instruments and Their Coverage

Type of policy instrument	Range (percentage)	Percentage of industries covered by the incentive
Quantitative restrictions		100
Tariffs	5–300	87
Sales taxes	1–21	79
Excise taxes	4–33	7
Export subsidies	2–71	60[a]
Export taxes	20–45	8

a. Even though export-oriented industries constitute about 40 percent of all industries, the higher proportion of industries receiving an export industry treatment is due to the fact that one or more products produced by the nonexport industries qualify for export subsidies.

The Set of Policy Instruments

The present study shows that the structure of protection in Pakistan is composed of a multiplicity of policy instruments ranging from import and export taxes and subsidies to domestic taxes and subsidies. It is clear from Table 1 that there is a substantial overlap of policy instruments in their incidence on different industries, with small amounts of quantitative restrictions added to each combination of policy instruments. Moreover, each policy instrument has considerable range within which it applies to specific industries. This range is particularly great in the case of tariffs, extending from 5 percent to 300 percent.

The Nominal Protection Rate

The nominal protection rate (NPR), explicit or implicit, is the protection accorded by a specific combination of policy instruments to the output of the protected activity.[2] It is interesting to study the relative weights of quantitative restrictions and tariffs—the two important elements of the nominal protection structure—in terms of their effect on domestic producers' prices. This can be done by comparing the rates of explicit nominal protection and implicit nominal protection, referred to hereafter as NPR_E and NPR_I respectively. When NPR_I exceeds NPR_E, quota restrictions are the binding constraint: the domestic prices are higher than the landed cost of comparable imported products, making tariffs redundant with respect to their potential effect on resource allocation. Tariffs continue, however, to perform the revenue-raising function. When NPR_E exceeds NPR_I, tariffs (plus sales taxes) are prohibitively high, so that no imports take place. If NPR_E equals NPR_I, tariffs are the binding constraint.

TABLE 2 Implicit and Explicit Nominal Protection Rates

Nominal protection	Nature of the impact of protection on domestic producer's price	Percentage of industries affected
NPR_I above NPR_E	Domestic prices are higher than c. & f. import prices plus tariffs (and sales tax where applicable)	34.4
NPR_I below NPR_E	Domestic prices are lower than c. & f. import prices plus tariffs (and sales tax where applicable)	57.8
NPR_I equal to NPR_E	Domestic prices equal c. & f. import prices plus tariffs (and sales tax where applicable)	7.8

SOURCE: Appendix B, Table B.1.

NPR_I is greater than NPR_E, in one-third of the industries (Table 2). When this condition is satisfied, the quota restriction is the primary determinant of the domestic producer's price, which is higher than the price implied by tariffs.[3] In all such cases tariffs do not exercise any independent influence on the domestic producer's price but only perform a revenue-raising function. Depending on the size of the difference between domestic prices and cost and freight (c. & f.) import prices, tariff rates need to be adjusted in such cases to maximize public revenues. This was the normal case in Pakistan during the 1960s and early 1970s.

The situation appears to have changed radically since then, however. Somewhat unexpectedly, by far the largest number of cases—58 percent—are now characterized by prohibitive tariffs, which are higher than the difference between domestic prices and c. & f. import prices of comparable products, or brands of products, to be more accurate. This implies that because of domestic competition or monopolistic profit maximization by domestic producers, domestic prices, measured by the NPR_I, are lower than the sum of the c. & f. import prices, tariffs, and sales taxes.[4] This happens when an industry is either export oriented or both import substituting and export oriented. In such cases the producer's price is determined by export subsidies, which include customs rebates, excise tax rebates, sales tax rebates, compensatory rebates, and concessions in export finances.

The last case, covering only 8 percent of the industries, is one in which the NPR_I is equal to the NPR_E—that is, the two measures are perfectly correlated—so that the domestic prices are equal to the sum of the c. & f. import prices and tariffs. Here tariffs are effective, that is, they

TABLE 3 Spearman's Rank Correlation Coefficient for NPR_E, NPR_I, IEPR, and DRC

Type of correlation	Correlation coefficient[a]
NPR_E and NPR_I	0.52
NPR_E and IEPR	0.43
NPR_I and IEPR	0.77
NPR_I and DRC	0.54
IEPR and DRC	0.72

a. All coefficients are significant at the 1 or 5 percent level.

TABLE 4 Ranking of Industries by NPR_I, NPR_E, IEPR, and DRC

Industry	NPR_E	NPR_I	IEPR	DRC
Wood furniture	18.5	10	4	4
Cigarettes	2	9	49	69
Knitting mills	3.5	46.5	45	15
Wearing apparel	3.5	46.5	52.5	70
Spinning and weaving of silk and artsilk	5	43	69.5	55
Matches	1	1	2	2
Cosmetics	6	2	18	10
Ice cream	85.5	3	10	32
Spinning of cotton	42	62	5	5
Tobacco stemming	58	42	1	1
Sewing machines	32	4	6	6
Watches and clocks	26.5	5	20	20
Processing of fruits and vegetables	13.5	14	3	3

SOURCE: Appendix B, Table B.3.

determine the domestic producer's price; quantitative restrictions play no economic role at all.

IEPRs and NPRs

The Spearman's rank correlation coefficient between NPRs and IEPRs reveals that these measures are significantly correlated (Table 3).

Of the five relationships, the most relevant ones for the purposes of the present study are those between NPR_I and IEPR and between IEPR and DRC. The corresponding rank correlation coefficients are 0.77 and 0.72 respectively, showing that the ranking of industries by the two measures is significantly related. (A detailed ranking of industries by these measures is given in Table B.3 of Appendix B.)

Table 4 shows the rankings of five most protected or least efficient industries. It is clear from the table that while the ranks of industries are

TABLE 5 Average NPR_I and IEPR by Stage of Processing: 1963–64 and 1980–81

	NPR_I[a]		IEPR	
Type of goods	1963–64	1980–81	1963–64	1980–81
Finished goods	103	64	883	26
Intermediate goods	47	45	88	235
Capital goods and construction inputs	31	91	155	69
		(58)[b]		(10)

a. While most of the finished goods and construction inputs are subject to domestic taxes, intermediate goods and capital goods in general are not subject to excise and sales taxes. If an adjustment is made for domestic indirect taxes, the ranking according to the NPR_I may be reversed.
b. Figures in parentheses are for capital goods only.
SOURCE: Figures for 1963–64 are from Lewis and Guisinger 1971, Table 10; figures for 1980–81 are from Table 11 of Chapter 5 of the present study.

not very dissimilar according to the NPR_I and NPR_E, they do differ when the IEPRs or the DRCs, instead of the NPRs, are used for ranking purposes. The IEPRs and the DRCs yield broadly similar rankings. The table highlights the influence of market forces on the protection structure. Interesting cases are those of the matches and tobacco stemming industries. The NPR_I and NPR_E rank the former industry as the most protected; the IEPR and the DRC measures rank the latter as the most protected.

It is interesting to see how the situation has changed in this respect over time. A comparison of the results of the present study with those of an earlier study shows that the rank correlation coefficient for the NPR_I and the IEPR has increased from 0.59 in 1963–64 to 0.77 in 1980–81, the year for which the present study was done. The increase in the rank correlation coefficient is symptomatic, though not unambiguously indicative, of a fundamental change in the structure of protection: the difference between the input and output protection has sharply decreased over time. This fact is clearly brought out in Table 5.

It is clear that both the NPR_Is and the IEPRs have declined sharply for finished goods. While the nominal protection on intermediate goods declined marginally, EPRs increased rather sharply. (This matter is discussed in more detail in Chapter 5.)

Although the ranking by the NPR_Is and the IEPRs is on the average significantly similar, the industry-wide ranking is sufficiently different to make it impossible to predict the IEPRs from the NPR_Is. Table 6 shows clearly that predictions based on the NPR_Is are falsified by those indicated by the IEPRs in every possible way.[5]

The first two cases in Table 6, which account for 47 percent of the total number of manufacturing industries, are those in which the protection accorded the value added far exceeds that given to output. In 44 percent of the industries, however, the former falls short of the latter. The most striking cases of divergence, accounting for 18 percent of the industries,

TABLE 6 Relation between NPR_Is and IEPRs

Type of variation	Number of industries	As a percentage of all industries
Positive NPR_I becomes extremely high IEPR	13	14
Positive NPR_I becomes higher positive IEPR	30	33
Positive NPR_I becomes lower positive IEPR	23	26
Positive NPR_I becomes negative IEPR	16	18
Negative or zero NPR_I becomes positive IEPR	1	1
Negative or zero NPR_I becomes negative IEPR	6	7
Zero NPR_I remains zero IEPR	1	1

SOURCE: Derived from Appendix B, Table B.2.

TABLE 7 NPR_I and IEPR

Measure	NPR_I	IEPR
Range[a]	–46 to 356	–89 to 3,251
Average[b]	60	66
Coefficient of variation	93	127

NOTE: The average level of effective protection is obtained by using values added at world prices as weights.
a. This does not include industries with negative value added. Their inclusion would make the range even wider.
b. Averages are reported for eighty-two industries. Rice milling, wheat milling, bakery products, wood furniture, printing and publishing, and ice cream have been excluded because these are essentially nontradable products. In rice milling, although rice is traded, paddy is not. Similarly, wheat is traded, but wheat flour is not. Since the value-added component in these activities is not large, a very small error would distort the average. Watches and railroads have also been excluded, because weights are not available.
SOURCE: Based on Appendix B, Table B.2.

are those in which positive protection to output turns into negative protection to value added.

Table 7 presents information on the relative behavior of the NPR_Is and the IEPRs. The average NPR_I is not very different from the average IEPR. The range and the coefficient of variation confirm the well-known result that IEPRs tend to vary much more than NPR_Is. The large variation of the IEPRs shows clearly that the protection given to output and input has not followed a systematic or logical pattern. Furthermore, the interindustry differences in output and input protection and the share of value added in gross output also appear to be quite substantial.[6]

Notes

1. In a general-equilibrium framework, policies influencing one sector inevitably cast a shadow on all the sectors of the economy. Hence it is always a combination of trade restrictions and domestic tax-cum-subsidy policies that promotes a harmonious development of all the sectors of the economy. For a

theoretical discussion of these issues, see Bhagwati 1968, Johnson 1965, and Naqvi 1969.

2. For a definition of explicit and implicit measures of nominal protection, see Chapter 2.

3. It may be noted that of the policy instruments indicated in Table 1, NPR_E includes only tariff and sales taxes while NPR_I is calculated by taking into account the tariff equivalent of quotas in the case of import-substitution industries and of export subsidies in the case of export-oriented industries. Excise taxes, which are levied on domestic production in a countervailing fashion, are included in both NPR_I and NPR_E. The expression "tariffs and quotas" used in the text is, therefore, a convenient abbreviation of a more complicated policy package.

4. In a relatively small number of cases, this state of affairs is explained by the importers' incurring losses or earning profits at a rate less than 10 percent, which is the rate used in this study to calculate the difference between the domestic and the world market prices, because of the preexisting excess supply of imports. This may also reflect the underinvoicing of imports and the effects of smuggling.

5. While the NPR_E is the true "representative" of government intentions, the NPR_I shows more accurately than the NPR_E the actual, not intended, difference between the world prices and the domestic prices of import substitutes.

6. Remember that the height of effective rates depends on the relative levels of protection to final output and inputs, and on the share of the value added in the gross output.

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FOUR

THE STRUCTURE OF PROTECTION AND ALLOCATIVE INEFFICIENCY—I

The main results of this study center on the estimates of the implicit effective protection rate (IEPR) and the domestic resource cost (DRC). The former measures the relative pull exercised by the structure of protection on the allocation of domestic resources; the latter is an indicator of the degree of efficiency with which domestic resources are employed, on the margin, to save or earn one unit of foreign exchange through import substitution or export expansion. In other words, the DRC measures the excess domestic cost of saving (earning) foreign exchange.

The IEPR and the Degree of Protection

Table 8 shows that the average protection accorded the manufacturing sector in 1980–81 was a relatively modest 66 percent. This indicates that the average intensity of protection has declined over time.

A number of factors may have contributed to the decline in the average size of effective protection. First, over the years the heavy protection

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TABLE 8 Average Degree of Protection (IEPR)

	Percent	Number of industries
Negative or negligible value added	–2,731	9
High IEPRs	243	27
Moderate IEPRs (10–80 percent)	37	24
Negative and low IEPRs (below 10 percent)	–7	22
Overall average and total	66	82

NOTE: A given set of EPRs corresponds to the going official exchange rate. Because tariffs or subsidies and import controls are being implemented to sustain the exchange rate, it can be argued that the protection rate has been overstated. Since 1982 there has been a significant depreciation of the Pakistan rupee. We could not incorporate the effect of the change in depreciation since 1981, however, as it did not lead to a corresponding reduction in tariffs across the board. Since tariff changes have been sector-specific, they may have led to changes in the input coefficients.

Averages are reported for eighty-two industries. Rice milling, wheat milling, bakery products, wood furniture, printing and publishing, and ice cream have been excluded because these are essentially nontradable products. In rice milling, although rice is traded, paddy is not. Similarly, wheat is traded, but wheat flour is not. Since the value-added component in these activities is not large, a very small error would distort the average. Watches and railroads have also been excluded, because weigts are not available.

SOURCE: Based on Appendix B, Table B.2.

accorded the final output in the early stages of industrialization has gradually been replaced by higher input protection (Table 5). Second, the import quota restrictions are much less severe now than they were in the 1960s, and the entry of new firms has been made relatively free.[1]

As usual, however, the bright average picture hides many a dark spot. The darkest is the presence of nine extremely inefficient industries. Six of these industries are those in which the value added is negative. In many cases this result is produced by the arithmetic of effective protection rates: the value added by the industry is much too small in relation to the subsidies given to it. Apart from these cases, another twenty-seven industries also suffer from extremely high protection, and twenty-four industries are only moderately protected. Then there is the odd case of the twenty-two industries that are penalized, instead of being helped, by the protection structure; a case of negative protection.[2]

DRCs and the Level of Inefficiency

Another way of evaluating the structure of protection is to get an estimate of the extent to which it makes it (privately) profitable for the domestic marginal rate of transformation to stay higher than the foreign rate of transformation. The production process in this case entails the DRC. When the DRC is normalized at unity, one rupee's worth of

TABLE 9 Average Levels of Inefficiency or Efficiency

Degree of allocative inefficiency or efficiency	DRC	Number of industries
Extremely inefficient	*	9
Inefficient (DRC above 1.0)	2.12	60
Efficient (DRC equal to or below 1.0)	0.33	13
Overall average and total	3.31	82

NOTE: The asterisk indicates negative value added by industries at world prices.

Averages are reported for eighty-two industries. Rice milling, wheat milling, bakery products, wood furniture, printing and publishing, and ice cream have been excluded because these are essentially nontradable products. In rice milling, although rice is traded, paddy is not. Similarly, wheat is traded, but wheat flour is not. Since the value-added component in these activities is not large, a very small error would distort the average. Watches and railroads have also been excluded, because weights are not available.

SOURCE: Based on Appendix B, Table B.2.

domestic resources transforming into one rupee's worth of foreign resource becomes the cut-off point.[3] A DRC higher or lower than unity indicates an inefficient or efficient industry. Table 9 shows that, on average, it takes more than three times as much to produce the final output domestically as to produce it abroad. In other words, the production of import substitutes within the country uses up three times as much in inputs as production abroad. Of a total of eighty-two industries, seventy-three have DRCs below the average value, and nine industries, in which the value added is negative or negligible, have extremely large DRCs. Only thirteen industries are really efficient in the use of domestic resources.

IEPRs and DRCs

It should be noted that while the DRCs and the IEPRs are indicators of the level of efficiency and of the protection implicit in a given structure of protection, respectively, the distinction between the two should not be drawn sharply. There is a definite relationship between the two concepts: the level of efficiency and protection are not independent of each other.[4] Yet it is useful for analytical purposes to compare the two measures. Table 10 brings out the peculiarities and oddities of the protection structure in Pakistan with striking clarity.

The table shows that, apart from the odd group characterized by negative value added, twenty-six least-efficient industries are also the most protected ones (row 2), while three efficient industries are moderately protected (row 6). On the other extreme are nine industries that are highly efficient but negatively protected (row 7). At the same time thirteen inefficient industries are hurt by negative protection (row 4). Only one efficient industry is accorded high protection (row 5). This is also

TABLE 10 Degree of Protection and Level of Inefficiency in the Manufacturing Sector

Classification of industries by degree of protection and level of efficiency	IEPR	DRC	Number of industries
1. Industries with negative or negligible value added	*	*	9
2. Inefficient industries and high IEPRs	202	5.62	26
3. Inefficient Industries and moderate IEPRs	36	2.53	21
4. Inefficient industries and low or negative IEPRs	–8	2.52	13
5. Efficient industries and high IEPRs	94	0.50	1
6. Efficient industries and moderate IEPRs	15	0.45	3
7. Efficient industries and low or negative IEPRs	–6	0.32	9
Average IEPR and DRC	66	3.31	82

NOTE: The asterisk indicates negative or negligible valued added.
SOURCE: Based on Appendix B, Table B.2.

inappropriate because efficient industries should not be subsidized. It should be clear that Pakistan's protection structure has helped those industries most that deserved such help the least.

Another interesting and somewhat unusual result is the closeness of the IEPR and the DRC estimates. The rank correlation coefficient for the IEPRs and the DRCs is 0.72 and is significant at the 1 percent level. Normally, one would expect a lower coefficient—that is, a more divergent ranking of industries by these measures. The present study assumes very little factor-market distortion, particularly for capital. This is a reasonable assumption because, in sharp contrast to the 1960s, the average nominal rate of interest has risen sharply in the past several years. Ranking these measures for specific industries, however, is sufficiently different to warrant the use of both the concepts for evaluating the characteristics of the protectionist regime.[5]

Notes

1. For a detailed description of the import-licensing system in the early 1960s, see Naqvi 1963, 1966.

2. It is important to distinguish clearly between industries with negative value added and negatively protected industries. An arithmetical example should make the distinction clear. Assume that in a free-trade situation the price of a good is Rs 100 while the cost of inputs is Rs 120. Now, if a tariff of, say, 100 percent is imposed on the final output and of 10 percent on inputs, the value added at domestic prices will be a positive Rs 60 as opposed to the negative value added of Rs 20 at the world price. This is an extreme form of protection because it subtracts from, instead of adding to, the gross domestic product (GDP) and imposes a net burden on the balance of payments. In sharp contrast,

negative protection simply represents a situation in which inputs are protected more than the final ouptut. Assuming the input share to be 40 percent and the tariff on inputs set at 30 percent, any tariff rate on the final output less than 12 percent will result in negative effective protection. See Corden 1971.

3. The foreign exchange saved or earned has been computed on the assumption that the exchange rate prevailing in 1980–81 was not very different from the equilibrium rate (adjusted for subsidies and tariffs and the tariff equivalent of import controls).

4. It has been shown that DRC = 1 + the weighted average of the IEPR. See Balassa and Schydlowsky 1968. In terms of the definition used in Chapter 2, this relation can be rewritten as IEPR = DR/VAW + 1, where DR is the value of domestic resources employed in the activity at shadow prices, and VAW is the value added world prices. This relationship breaks down in the presence of factor-market distortions.

5. It may be noted that many authors, Balassa and Associates 1971 in particular, use only the EEPRs (or IEPRs) but not the DRCs.

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FIVE

THE STRUCTURE OF PROTECTION AND ALLOCATIVE INEFFICIENCY—II

This chapter highlights the allocative effects of protection by analyzing its effects on the size, location, stage of processing, and market orientation of the manufacturing sector in terms of the average levels of the implicit effective protection rates (IEPRs) and the domestic resource costs (DRCs) and their range.

IEPRs and DRCs by Size, Location, Stage of Processing, and Market Orientation

To get an insight into the effect of protection on manufacturing activities, estimates of the IEPRs and the DRCs are presented in Table 11 by size, location, stage of processing, and the market orientation of industries. The range of variation of both these measures is also given for a better understanding of the situation on the ground. The table reveals several interesting features of the structure of protection in Pakistan.

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TABLE 11 Level of Protection and Degree of Inefficiency by Size, Location, Stage of Processing, and Market Orientation

	Implicit effective protection rates (IEPRs) (percent)		Domestic resource costs (DRCs)		No. of industries
	Average	Range	Average	Range	
Total	66	–89 to NVA	3.31	0.35 to ∞	82
Size					
Small	38	–94 to NVA	2.75	0.15 to ∞	67
Medium	86	–84 to NVA	3.78	0.13 to ∞	50
Large	51	–90 to NVA	5.22	0.18 to ∞	61
Location[a]					
Punjab	74	–94 to NVA	4.28	0.10 to ∞	72
Sind	100	–95 to NVA	3.42	0.22 to ∞	63
North-West Frontier Province	197	–99 to NVA	2.12	0.13 to ∞	31
Baluchistan	–781	–68 to NVA	7.42	0.16 to ∞	17
Stage of processing					
Finished goods	26	–89 to NVA	2.34	0.28 to ∞	38
Intermediate goods	235	–40 to NVA	3.95	0.46 to ∞	23
Capital goods	10	–3 to 318	4.33	1.05 to 7.76	17
Construction inputs	55	–77 to NVA	2.20	0.35 to ∞	4
Market orientation					
Export-oriented	199	–76 to NVA	3.42	0.35 to ∞	34
Export-oriented and import-competing	40	–47 to NVA	2.23	0.35 to ∞	30
Import-competing	47	–83 to NVA	2.56	0.28 to ∞	60
Import-noncompeting	21	–89 to NVA	2.82	0.64 to ∞	19

NOTE: NVA = negative value added at world prices.
a. Averages for provinces exceed the average because the vegetable ghee industry has been excluded.The industry has negative protection, and its inclusion distorts the averages. The averages for provinces have been taken by using country weights since those for each industry were not available for every province.
SOURCE: Based on Appendix C, Tables C.1 to C.5.

First, the averages of the IEPRs and the DRCs are moderate. But these moderate averages conceal large interindustry differences in the intensity of protection and the level of efficiency (row 1). The joint incidence of input and output protection has resulted in a wide spectrum of effective rates. As a result, industries range from the negatively protected to those marked by negative value added. The interindustry variation of efficiency is equally large: based on the DRCs, the industries range from the highly efficient to the infinitely inefficient.

Second, the medium-size industries received protection greater than the overall average, while the small and large industries enjoyed

protection less than the average. Moreover, while the average DRCs for small industries are lower than the overall average of the DRCs, those for the large- and medium-scale industries are higher than the overall average. The range of interindustry variation is large, however, for all sizes of industries and in all provinces.

Third, the highest effective protection rates are received by industries in Baluchistan, while the average level for the Punjab is relatively low (74 percent). In terms of the DRCs, the most inefficient units are located in Baluchistan.

Fourth, the table reveals the unconventional result that the level of effective protection does not increase uniformly as the stage of processing rises from inputs to the final output stage.[1] Indeed, the protection accorded intermediate goods is much higher than that given to finished goods. The degree of protection does increase, however, as the stage of processing moves up from construction inputs to intermediate goods. Insofar as capital goods are used as inputs into finished goods, the positive relationship between the level of protection and the stage of processing also holds there. Inasmuch as capital goods are treated as final output, however, this relationship is reversed—say, that between construction inputs and capital goods, which are negatively protected. It is also clear that, measured by their DRCs, the capital goods industries are on the average the least inefficient while the construction input industries are the most inefficient. Furthermore, the interindustry variation is uniformly high at all stages of processing.

Fifth, there is the somewhat unexpected result that, on the average, export-oriented industries are the most protected and the most inefficient ones. This oddity can be explained by the fact that, in many cases, the transition from import-competing industry to export industry took place in Pakistan mainly because of heavy export subsidies. Interindustry variation is large, however, with respect to both the IEPRs and the DRCs, which shows that highly efficient and negatively protected export industries coexist with infinitely inefficient industries and those industries in which the value added is negative.[2] But the industries that are both export-oriented and import-competing are slightly less protected than the import-competing industries.

The Cost of Protection

The cost of protection may be defined as (1) the wasteful use of domestic resources in the activity of earning or saving foreign exchange or (2) the difference between the share of the manufacturing sector in gross domestic product (GDP) at world market prices. The first definition corresponds to the notion of economic waste that a protectionist regime

entails; the second definition focuses on the implicit transfer of domestic resources from the rest of the economy to the large-scale manufacturing sector because of protection. Both methods are employed here to compute the cost of protection.[3]

The first estimate of the economic waste relates to the three types of inefficient industries identified in this study—industries with negative or negligible value added, inefficient and protected industries, and inefficient and negatively protected industries. On the basis of this definition, the protection cost amounted to a staggering figure of 20.8 billion rupees at 1980–81 prices. (Note that, in the large-scale manufacturing sector, the value added at domestic prices that year was only 29.8 billion rupees.) This cost was 9.9 percent of the GDP in 1980–81. This can be regarded as the total cost of protection borne by the entire economy, including the manufacturing sector.

The cost of protection may be estimated alternatively as the difference of a sector's contribution to the gross national product at the world and market prices. This essentially measures intersectoral resource transfers. According to this definition, the cost of protection amounted to 5.7 percent of the GDP in 1980–81.

It is interesting to compare these estimates of the cost of protection—the 9.9 percent of the GDP according to the first definition but only 5.7 percent of the GDP according to the second definition. This vast difference in the size of economic cost can be easily explained. The two estimates are actually complementary, indicating that of the total cost of protection the cost equaling 5.7 percent of the GDP is met by resource transfers from the rest of the economy to the manufacturing sector; while 4.2 percent of the GDP is the cost that the manufacturing sector bears all by itself, "distributing" it over both inefficient and efficient manufacturing units.[4]

Notes

1. This result is unconventional in the sense that earlier studies for both Pakistan and other developing countries show that the intensity of protection is positively correlated with the rise in the stage of processing (see Balassa 1971). Recall from Chapter 3 that, as compared with their levels in 1963–64, both the NPR_Is and the IEPRs on intermediate goods have risen while those on finished goods have fallen sharply. These opposite movements have disrupted the normal cascading of the NPR_Is and the IEPRs with the stage of processing.

2. Cotton spinning and leather products are the two export industries that suffer from negative value added. High protection to these two industries stems from export duties on their inputs rather than very high export subsidies on output.

3. Professor Balassa in private correspondence with Professor Naqvi has pointed out that the total cost to the economy refers only to the first definition.

The second estimate shows only the extent to which the cost of protection has been met by resource transfers from the rest of the economy to the manufacturing sector.

4. The government has been pursuing a policy of guaranteeing a minimum agreed return on equity in cement, fertilizer, edible oils, and petroleum refining. Whenever the return was less, the government subsidized the industry, while excess returns, if any, were squeezed through the levy of surcharges.

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SIX

PROTECTION-RELATED MARKET DISTORTIONS

In the present chapter we analyze five principal types of product-market distortions to which the structure of protection has given birth. These distortions are then analyzed for each industry in terms of the predominant type of incentive, location, size, stage of processing, and market orientation. In the literature on effective protection, this analytical scheme is unique for the richness of its detail.

IEPRs, DRCs, and Different Types of Distortion

Table 12 presents a bird's-eye view of the effects of protection on value added in manufacturing activity. Looking at the overall average rate of protection alone, the track record does not seem to be too bad, especially when it is remembered that Pakistan's manufacturing sector has grown under the protective wings of the government since 1953. The average IEPR in 1981 was 66 percent; the average DRC was 3.31.[1] The range of variation around the average is very large, however.

Table 12 shows that the group of inefficient and protected industries (first two rows) contains fifty-eight of eighty-two industries.[2] Of the

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TABLE 12 Average IEPRs and DRCs by Type of Protection-induced Distortion

Industry category	IEPR U	IEPR Z	DRC	No. of industries
Industries with negative or negligible value added at world prices	104	–2,731	*	9
Inefficient and protected industries	44	78	3.64	49
Inefficient and negatively protected industries	–43	–30	2.40	11
Efficient and protected industries	24	31	0.41	4
Efficient and negatively protected industries	–75	–43	0.32	9

NOTE: This table corresponds to Table 10 (which has two more rows in it). The asterisk indicates negative or negligible value added.
SOURCE: Based on Appendix C, Table C.1.

remaining twenty-four industries four (fourth row) receive "rent" at the expense of the Treasury, nine (fifth row) are penalized for being efficient, and eleven are inefficient but negatively protected (third row).

Policy Instruments and Types of Distortion by Size, Location, Stage of Processing, and Market Orientation

In the rest of this chapter we take a closer look, with the help of Table 13, at the anatomy of the protection-induced distortion in the product market. In this section all the results obtained from the horizontal reading of the table are brought together.[3]

Types of policy instruments. The presence of quantitative restrictions is felt most in twenty-six inefficient industries: industries with negative or negligible value added, those that are inefficient and protected, and those that are inefficient and negatively protected.[4] This is the case where domestic product prices are higher than the duty-paid cost and freight (c. & f.) import prices of comparable products. In an even greater number of cases (forty-nine), however, prohibitive tariffs exist, so that the domestic price of these products is lower than the c. & f. import price plus tariffs (and sales taxes wherever applicable). Of these forty-nine industries, forty are characterized as inefficient industries. In these cases export subsidy is the dominant policy instrument. By contrast, the effect of tariffs on the domestic producer's price is more apparent than real. It is real in the case of only seven industries, of which five belong to the most inefficient group of industries identified above. In all other cases the tariff is redundant in that it does not exercise an independent allocative effect.

Table 13 Structure of Protection (IEPRs and DRCs) and Type of Distortion by Size, Location, Stage of Processing, and Market Orientation

	Industries with negative or negligible value added at world market prices		Inefficient and protected industries		Inefficient and negatively protected industries		Efficient and protected industries		Efficient and negatively protected industries		All industries	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Total	9	11	49	60	11	13	4	5	9	11	82	100
Predominant incentive												
Quantitative restrictions	3	12	19	73	2	8	1	4	1	4	26	100
Tariffs	1	14	4	57	0	0	0	0	2	29	7	100
Neither tariffs nor quantitative restrictions are binding	5	10	26	53	9	18	3	6	6	12	49	100
Size[a,b]												
Small	13	19	27	40	9	13	10	15	8	12	67	100
Medium	8	16	17	34	5	10	5	10	15	30	50	100
Large	6	10	36	60	7	12	5	8	6	10	60	100
Location[b]												
Punjab	10	14	33	46	9	13	8	11	12	17	72	100
Sind	10	16	30	48	6	10	8	13	9	14	63	100
North-West Frontier Province	5	16	13	42	6	19	3	10	4	13	31	100
Baluchistan	6	35	5	29	3	18	1	6	2	12	17	100

continued on next page

Table 13 *continued*

	Industries with negative or negligible value added at world market prices		Inefficient and protected industries		Inefficient and negatively protected industries		Efficient and protected industries		Efficient and negatively protected industries		All industries	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Stage of processing												
Finished goods	4	11	23	58	5	13	2	5	4	11	38	100
Intermediate goods	4	17	12	52	3	13	1	4	3	13	23	100
Capital goods	1	5	11	66	2	12	1	6	2	12	17	100
Inputs into construction	0	0	3	75	1	25	0	0	0	0	4	100
Market orientation[b,c]												
Export-oriented	4	12	17	50	7	21	1	3	5	15	34	100
Export-oriented and import-competing	3	10	18	60	4	13	1	3	4	13	30	100
Import-competing	5	8	43	72	4	7	2	3	6	10	60	100
Import-noncompeting	2	11	10	53	4	21	1	5	2	11	19	100

a. Firms employing 10 to 50 persons are classified as small; firms employing 51–100 persons are classified as medium; and firms employing 101 or more persons are classified as large.

b. The number of industries in various categories do not add up to 82 because the categories are not mutually exclusive.

c. Export-oriented industries are those that export at least 10 percent of their output; and import-competing industries import at least 10 percent of the total domestic availability of the product. The export-oriented and import-competing industries group is the "intersection" of import-competing and export-oriented industries. Thus the industries classified by market orientation do not add up to the total number of industries. Import-noncompeting industries are those whose imports or exports are less than 10 percent of the total output.

SOURCE: Based on Appendix C, Tables C.1–C.5.

It may be noted that this state of affairs is different from that in Pakistan during the 1960s, when quota restrictions were binding in the majority of cases (see Naqvi 1963, Pal 1964, Thomas 1966). As many import-competing industries acquired export industry status, the export subsidy took over as the principal policy instrument. By contrast, tariffs have consistently played a revenue-raising function since 1953, when the protectionist regime was first introduced in the foreign trade sector.

The size of industries. The information presented here shows, first, that the maximum number of industries of all sizes are concentrated in the three types of distortion identified in the first three columns of Table 13. These three types of distortions plague 82 percent of all large-scale industries, 72 percent of all small-scale industries, and 60 percent of all medium-size industries. It is intriguing to note, however, that within the negative-value-added group small-scale industries predominate.[5] Second, the two categories of efficient industries contain 40 percent of all medium-size industries, 27 percent of all small-scale industries, and 18 percent of all large-scale industries. The evidence suggests that the link between the size of industries and the level of protection and inefficiency is at best tenuous.

Location of industries. The evidence presented here shows clearly that, first, the three most inefficient types of industries are spread over all four provinces of Pakistan. Second, as a percentage of the total number of industries located in each of the four provinces, 82 percent of Baluchistan's industries, 73 percent of the Punjab's, 74 percent of Sind's, and 77 percent of those of the North-West Frontier Province (NWFP) are of the three most inefficient types. Third, 23 percent of industries in the NWFP, 28 percent in the Punjab, 27 percent in Sind, and 18 percent in Baluchistan are efficient industries. In Baluchistan and the NWFP, inefficiency may have claimed a heavy toll on industries, mostly because of a lack of infrastructure and shortage of skilled labor, coupled with a higher degree of protection. In sharp contrast, the Punjab and Sind have access to infrastructure facilities, and the degree of protection that the industries enjoy in these provinces is also relatively less than elsewhere.

Stage of processing. In terms of the number of industries, the first three categories of inefficient industries are most heavily loaded with finished goods, followed by intermediate goods, capital goods, and construction inputs.[6] This is understandable because, in the 1960s, quota restrictions weighed most heavily on finished (consumer) goods industries. It is therefore interesting to see that in 1980–81 the largest number of industries in the group of "efficient and negatively protected industries" were those that produce finished goods.

Market orientation. Here the import-competing industries are most heavily concentrated in the inefficient group. Export-oriented industries and industries that are both export-oriented and import-competing are not far behind the import-competing group in this respect. The reasons for this state of affairs have already been stated and need not be repeated here.

Market Distortions and Types of Industries

Read vertically, Table 13 yields extremely valuable information about the nature and dimension of the five major types of product-market distortions reported in this study.

Industries with negative or negligible value added at world prices. The first two columns of the table give relevant information about the industries with negative or negligible value added, which constitute 11 percent of all manufacturing industries in Pakistan. First, quantitative restrictions are responsible for three such industries, which are mostly of the import-competing type, and prohibitive tariffs affect six of them. Tariffs accord no additional protection to such industries; instead, quota restrictions and export subsidies are the main protectors in this category.

Second, the highest incidence of such industries is in small-scale followed by medium- and large-scale industries. This type of distortion comes in all sizes.

Third, most of these industries are located in the Punjab and Sind, although every province has its share of them. This result is somewhat unexpected, considering the better infrastructure facilities in the Punjab. The second column shows, however, that, as a percentage of all industries in each of the four provinces, the highest proportion of the industries that suffer from negative value added is in Baluchistan.

Fourth, the highest concentration of such industries is in finished goods and intermediate goods. This should be expected because these industries were born and raised to maturity under the umbrella of protection in the early 1950s.

Fifth, 55 percent of these industries are import-competing, 44 percent export-oriented, and 33 percent both export-oriented and import-competing. It may appear strange that any export industries should belong to this category, but this result is consistent with the earlier finding that export industries are among the most inefficient and protected (see Chapter 5).

It appears that all the industries in this category suffer not only from allocative inefficiency, which we have investigated in this book, but also from X-inefficiency. The causes of X- inefficiency are mainly the excessive fragmentation of the production process—for example, cotton

weaving, cotton spinning—the primitive nature of the technology used in the production process, and the lack of infrastructure facilities in the backward regions of the country, such as Baluchistan. This problem of lack of proper technology should be particularly acute in such industries as sewing machines. These factors lead to a smaller value added at both domestic and world prices, which, coupled with high rates of protection, leads to a skyrocketing of the IEPR. Other causes of this type of extreme inefficiency may be that the domestic processing activity in Pakistan is resource wasting by international standards; the transportation cost of spare parts here may be higher than that of assembled products, and the installed capacity is not fully used.

Inefficient and protected industries. A very high level of protection accorded the import-substitution industries and the large subsidies given to export industries enable domestic producers to operate such activities profitably. There are about forty-nine industries in this group. The average protection rate for this class of industries is 78 percent, implying that 44 percent of the value added at domestic prices is due to protection. The average DRC is 3.64; that is to say, the domestic processing cost is almost three and one-half times the world processing cost.

Table 13 throws some more light on the nature of this type of distortion. First, as expected, industries in the protected and inefficient group have been promoted by quantitative restrictions and export subsidies. Second, 13 percent of the industries in this group are large scale, where import substitution has been most intense and where some inefficient industries switched over from import substitution to the export category. Here the small and the medium industries share the honors equally.

Third, these industries are mostly located in the Punjab and Sind, where all the initial import-substitution industries are concentrated. It appears that despite better infrastructure facilities, things have not changed there much with the passage of time. Fourth, the largest number of industries in this category produce finished goods, followed by intermediate-goods and capital-goods industries. In percentage terms, the order is reversed. Fifth, almost all the industries in this group are import-substitution industries: of the industries in this group twelve face little competition from imports.

Inefficient and negatively protected industries. There are eleven industries in this group. For them the average IEPR is –30 percent, and the average DRC is 2.40. Table 13 shows that, first, most of these industries, in percentage terms, belong to the export-oriented group. This also explains why, in 67 percent of the cases, these industries are protected by subsidies rather than by tariffs or quota restrictions. Yet the subsidies are not large enough to render IEPRs positive. Second, most

of these industries belong to large production units, even though some are small-scale as well. Third, most of these industries are located in Sind and the Punjab. Fourthly, the industries in this group are almost equally divided among the first three stages of processing.

Efficient and protected industries. These are industries that use domestic resources in an efficient way and yet are protected. The protection structure raises their profitability even further, which may cause more resources to flow into such industries. But that is not necessarily an efficient situation. Only four industries of the eighty-two are in this group. The producers in this category receive a "rent" from the Treasury. These industries produce at an internationally competitive cost: their DRCs are below unity.

There are many interesting points about this near-empty set of industries. First, in three out of four cases neither tariffs nor quantitative restrictions are the binding constraint; the remaining one industry is subject to binding quota restrictions. Second, a large proportion of industries are in the small-scale category and are located in the Punjab and Sind. Third, two industries belong to the finished goods, and one industry each to the intermediate and capital goods, group. Fourthly, these industries are equally distributed over import-substitution and export industries and compete significantly with imports; this also explains the moderate rate of their IEPRs.

Efficient and negatively protected industries. Although the nine industries included in this group are efficient, they receive a stepmotherly treatment. The penalty on these industries averages 43 percent, but they are highly efficient—the DRC for them is only 0.32. The situation is worse for industries that are also subject to export taxes, which increase the size of the penalty. The fact that these industries still survive indicates their ability to absorb the penalty imposed on them through sheer efficiency. Table 13 shows that quantitative restrictions are binding in only one of the nine industries in this category; in the majority of cases, domestic prices are lower than implied by tariffs or quotas. These industries receive substantial export subsidies; yet these are not high enough to offset the tax imposed on them through higher input prices.These industries are mostly located in the Punjab and Sind; are concentrated mostly in the medium-size group; produce all three types of goods; and cater both to the export and to the domestic markets.

Notes

1. The average IEPR, according to the Corden method, was 271 percent in 1963–64. See Lewis and Guisinger 1971. While the two estimates may not be

strictly comparable in all respects, the general message of a decline in the average level of protection is unambiguously clear. As shown in Chapter 5, the decline in the IEPRs has come about as a result of a rise in input protection as opposed to output protection, which has declined sharply.

2. There are nine industries where value added at world prices is either negative or negligible. These industries have survived mainly because of high import duties and severe quota restrictions or because of subsidies on exports and lower input prices. The subsidy for the cotton spinning and leather tanning industries has been given in the form of export duties on raw cotton and raw skins, which has kept input prices very low.

3. One may wonder how these inefficient industries could survive with negative protection, but the explanation of this apparent paradox is simple. Value added at domestic prices is positive, and these industries earn positive profits also, though at a lower rate.

4. Quota restrictions are binding for twenty-six industries.

5. That is, small-scale industries defined as those employing ten to fifty persons. The reason may be that subsidies given to this class of industries form a very large proportion of total value added.

6. If counted in terms of percentages, however, the order of merit would be construction inputs, intermediate goods, finished goods, and capital goods.

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SEVEN

THE DISLOCATION EFFECT OF TARIFF AND NONTARIFF ADJUSTMENTS

The present study clearly shows that an overwhelming proportion of industries are inefficient and highly protected (subsidized), a situation that entails considerable economic waste. The aim of tariff reform, therefore, should be to lower the implicit effective protection rates (IEPRs) and the domestic resource costs (DRCs) so as to reorganize Pakistan's manufacturing sector on an efficient and competitive basis. This would require, among other things, making downward adjustments in tariff rates and easing quantitative restrictions. Very large reductions in tariff rates cannot be made instantaneously, however. This is because, as pointed out by Balassa (1980), "Apart from opposition from vested interests, which may jeopardize the success of a compensated devaluation if it is accompanied by substantial tariff reductions, the possibilities of industrial dislocation favor the adoption of a gradual approach."

It should be accepted that a major reorganization of the structure of protection cannot be brought about without tears. As a result of reform action, the incorrigible industrial units will have to be phased out, while

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TABLE 14 Location Effect by Industrial Groups Corresponding to the Target IEPRs

Classification and type of affected industries	Target EPR = 100%		Target EPR = 125%		Target EPR = 150%	
	Number of firms affected	Percentage of total firms in each category	Number of firms affected	Percentage of total firms in each category	Number of firms affected	Percentage of total firms in each category
By stage of processing						
Finished goods industries	147	38.6	133	34.9	127	33.3
Intermediate goods industries	189	51.9	81	45.0	80	44.4
Construction materials industries	31	54.4	26	45.6	24	42.1
Capital goods industries	20	19.4	19	18.4	16	15.5
By market orientation						
Export-oriented industries	106	36.2	96	32.8	93	31.7
Export-oriented and import-competing industries	65	29.0	57	25.5	56	46.3
Import-competing industries	166	37.6	148	39.6	140	31.8
Import-noncompeting industries	79	39.9	71	35.9	69	34.8

SOURCE: Based on Appendix B, Table B.4 and Appendix C, Tables C.4, C.5.

a major shakeup will be necessary to force the inefficient units to learn to live with foreign competition by adopting cost-minimizing production and managerial techniques. Yet, to make them effective, it is necessary that reforms be introduced in carefully graduated steps. It need not be emphasized that, while every effort should be made to minimize interindustry and intraindustry distortions, the choice of policy options is severely constrained by the existing industrial structure. The benefits of reform must be set against the cost of implementing these measures, including their incidental dislocation effect on the industrial structure. For this reason it is essential to know the magnitude of dislocation that a sharp reduction in the IEPRs will induce.

Appendix B, Table B.4, gives details of affected industries corresponding to three target IEPRs: 100 percent, 125 percent, and 150 percent. It shows that all the firms in nine industries will be closed down if the target rate is set at 150 percent, in eleven industries if the target rate is 125 percent, and in thirteen industries if the target rate is set at 100 percent. On the average, the affected firms as a percentage of all the

firms in the sample (750) are 37 percent, 33 percent, and 32 percent, corresponding to 100 percent, 125 percent, and 150 percent target rates of the IEPRs respectively.

Table 14, which is based on Appendix B, Table B.4, illustrates the dislocation effect by the type of affected industries, which are also classified by the stage of processing and market orientation. It is clear that (1) finished goods, intermediate goods, and construction materials will suffer considerably at all three target IEPRs; and (2) export- oriented and import-competing groups together will be the hardest hit. The table also shows that the capital-goods industries will be the least affected by the dislocation effect.

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EIGHT

CONCLUDING REMARKS

The present study has led to the following major findings, some of which modify the results of earlier studies on the subject.

1. The average rate of protection enjoyed by Pakistan's manufacturing sector in 1980–81 and the level of inefficiency that it suffered were moderate: the average implicit effective protection rate (IEPR) was 66 percent; the average domestic resource cost (DRC) was 3.43. These are not high when it is remembered that manufacturing activity in Pakistan since 1953 has lived off high protection and large fiscal subsidies. They constitute a substantial decline from 1963–64, when the average IEPR was 271 percent. But much of this improvement has been arithmetical: it is mainly due to the opposite movement of protection extended to consumer goods on the one hand and to intermediate goods on the other. While the IEPR for the former declined sharply from 883 percent in 1963–64 to 26 percent in 1980–81, that for the latter rose steeply from 88 percent to 235 percent between the same years.

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The relative incidence of implicit nominal protection rates (NPR_Is) has followed a similar trend.

2. The range of variation of the IEPRs around the average is very large and much more than that of NPR_Is. Much worse, included within the range are nine industries characterized by negative value added and forty-nine industries that have been both protected and inefficient. Moreover, eleven industries are inefficient and negatively protected, and nine more are efficient and negatively protected.

3. Because of these distortions, which have promoted and sustained allocative inefficiency, the cost of protection has been quite heavy: 9.9 percent of gross domestic product. Because of the fall in the average IEPR, however, the protection cost, amounting to 5.7 percent of GDP, is being financed through resource transfer from the other sectors, while the remaining cost is borne by the manufacturing sector itself.

4. An important aspect of the structure of protection is the change that has taken place over time in the relative weights of its constituents. Even though quota restrictions, which tend to raise domestic prices above the duty-paid cost and freight (c. & f.) prices of imports, are still widespread, their scope and intensity have declined considerably. This is because an increasingly large number of import-substitution industries have crossed over into the export industry group. Instead, in a majority of cases, prohibitive tariffs have lowered the domestic price below the c. & f. import prices plus tariffs (and sales taxes where applicable). This reduction in domestic prices may have come about as a result of domestic competition or monopolistic profit maximization by domestic producers. In these cases export subsidies are an effective policy instrument. In sharp contrast, tariffs exercise very little influence on the producer's price.

5. The secular shift from quota restrictions and tariffs to export subsidies has led to a corresponding shift in the locus of distortion. While import-substitution industries are also in the inefficient group, the highest incidence of protection and inefficiency is among the export industries. The reason for this unexpected result is that the transition from the import-substitution industry to the export industry status has taken place under the umbrella of tariff-cum-subsidy policies.

6. The level of protection and the degree of inefficiency are significantly correlated: in general, the least efficient industries are the ones that are most favored by the protection structure. Moreover, high protection and inefficiency come in all sizes, so that a shift from large-scale to small-scale industries will not necessarily minimize the DRC because the small industries, even those that are highly labor intensive, such as sporting goods, are also highly inefficient.

7. Another important finding of the study is that protection does not increase with the stage of processing: while the IEPR for finished goods is only 26 percent, that for intermediate goods is 235 percent. Capital-goods industries, which are the least inefficient of the lot, are negatively protected on the order of 10 percent.

8. All provinces have their share of inefficient industries, but as a percentage of the total number of industries in each province, Baluchistan is home to the most inefficient industries.

9. The dislocation effects of rationalizing the existing structure of tariffs and subsidies are large. As one would expect, the incidence of such adverse effects is heaviest in industries that are the most heavily protected.

The Direction of Reforms

While other factors may have been at work, it is clear that the widespread allocative inefficiency in the manufacturing sector has mainly been the handiwork of protectionist policies, which have seriously compromised the manufacturing sector's potential for growth and employment generation. The present study shows that the way to correct these inefficiencies is to lower the IEPRs and the DRCs to reasonable levels. What policies should be employed to achieve such a result? This question needs to be answered clearly.

Ends and means. While the aim of the government should be to lower the IEPRs, this can be done only by modifying the explicit nominal protection rates NPR_Es through a readjustment of the main policy instruments—tariffs, quota restrictions, export subsidies, domestic taxes, and the like.[1] But there is as yet no sure-fire method whereby a one-to-one relation can be established between the NPR_Es and the IEPRs, even though the two measures are significantly (but not strongly) correlated

(see Chapter 3). This is because the allocative effects of market factors, reflected in the NPR_Is and IEPRs, are not always predictable. Since market forces exercise a decisive effect on domestic prices—that is, they raise domestic prices if quota restrictions are binding and lower them if tariffs are prohibitive—the allocative effects of simple reform measures equalizing nominal protection rates will not necessarily lead to an equalization of the IEPRs among industries.[2] This is because industries that are inefficient in the use of unprotected (or relatively less protected) inputs will receive higher IEPRs than those using protected (or relatively more protected) inputs. A possible approach to the problem is to relate the NPR_Is and the IEPRs, as Balassa suggested, proceeding "on a commodity-by-commodity basis from higher to lower stages of processing."[3]

It follows that any meaningful reform of the structure of protection must, by the chemistry of the IEPRs, involve an orchestration of the elements of the structure so that any changes in it have a predictable effect on the allocation of domestic resources through an appropriate modification of the IEPRs and the DRCs. Yet any implementable policy package must be simple. What should then be done? Even though a one-to-one relation between these two vital variables cannot be established in any simple way, a few guidelines can be used to predict IEPRs from NPR_Es. First, wherever domestic prices are lower than duty-paid c. & f. import prices—which is the case for 57.8 percent of industries—a reduction in export subsidies will decrease the IEPRs. The relations may not be one-to-one, but the direction of change will be the same for both measures. Second, an increase in direct taxes on inputs lowers the IEPRs; an increase in similar taxes on output raises them. Thus one way to reduce the IEPRs is to increase excise or sales taxes on inputs. Third, excise taxes on the domestic production of import substitutes also tend to lower the IEPRs.

The system of industrial protection (incentives) in Pakistan must be readjusted according to the well-known principles of optimal government intervention.[4] First, as noted above, it will be essential to reestablish a taxonomic equation between policy instruments and targets—if possible, on a one-to-one basis.[5] In this connection, as a general principle, there must take place a one-way shift from quantitative restrictions to tariffs, and then the overall incidence of the tariffs must be reduced. We should also stipulate, in appropriate cases, a shift from tariffs to domestic taxes or subsidies. For instance, whenever tariffs are imposed for revenue or balance-of-payments reasons, it may be necessary to impose countervailing excise taxes, if the expansion of the domestic production of imported goods is not sought. Such a policy also has the merit of reducing the IEPRs. Second, the choice of policy instruments must be dictated by the source of distortion. When the distortion is domestic, a suitable tax-cum-subsidy policy will be the most effective remedy. If, however, the distor-

tion is in the foreign trade sector, import or export taxes will be more appropriate. For instance, if the foreign demand for the country's exports is less than infinitely elastic, an export tax will help to exploit its monopoly power in the international markets.[6]

Reform measures. Within this general framework the following guidelines are suggested for initiating a viable reform of the structure of protection to minimize protection-induced distortions in the product market.

1. Quantitative restrictions, which cover the entire spectrum of imports but are ineffective over a wide area, should be gradually replaced by import duties, especially in those cases in which the objective of the government policy is to raise revenue. In cases where quota restrictions are binding—that is, when the domestic price is higher than the duty-paid c. & f. import price—the reform will take the form of raising the average rates of tariffs to the rates implicit in quotas (that is, the tariff equivalents). This will give additional revenue to the government. Note, however, that such a changeover from quota restrictions to tariffs, even though desirable, need not by itself reduce distortions in the product market.

2. In all cases where government policy is to encourage the domestic production of imported goods by imposing a ban on imports, all domestic subsidies given to the domestic industries should be withdrawn because prohibitive import restrictions provide a captive market to the protected industries, which should ensure sufficient profits to the domestic producers.[7] Indeed, if such profits become excessive, the government will have to impose excise taxes to avoid a misdirection of resources. The abolition of domestic subsidies will also reduce the IEPRs implicit in the existing quota restrictions while minimizing the cost of subsidy.

3. In all cases in which the objective of government policy is to discourage consumption of certain goods, import restrictions or tariffs on imported goods should be accompanied by imposition of indirect taxes on import- competing industries. Once again the IEPRs will be reduced while more revenue is generated.

4. All disabilities affecting capital goods industries should be removed because here, on average, the country's comparative disadvantage appears to be least.

5. In addition to these general reforms, the structure of protection should be reoriented to remove the many specific industrial distortions highlighted in this study. There is room for a relocation of industries among the provinces. The sources of inefficiency in the North-West Frontier Province (NWFP) and Baluchistan, which may be due to infrastructure disabilities as well, should be studied carefully.

6. As regards the five types of distortions enumerated in the previous chapters, the cases of those industries that make a negative contribution to the value added at world price and also of those industries that are highly inefficient and heavily protected should be subjected to a detailed review. What is needed here is a number of steps to cure allocative inefficiency in the manufacturing sector. Domestic subsidies to accelerated technological change should be among the policies adopted. In many cases, however, the withdrawal of excessive subsidies to various inefficient export-oriented industries should be sufficient to make the producers compete efficiently.

7. Since labor-intensive technology is beneficial for growth and employment creation, the existing policy of protecting the entire processing activity is suboptimal because it subsidizes capital and labor at the same rate, thus canceling out any intended preferential treatment of labor vis-à-vis capital. The optimal policy in such cases is to levy excise taxes on output; rebates should be given on the use of labor and for the provision of on-the-job training. Furthermore, the process of learning should be directly subsidized per rupee of the research and development expenditure. These recommendations are in accordance with the general principle that reformist government intervention should be directed at the source of distortion (see Naqvi 1969).

8. With a view to removing disabilities of those industries that enjoy a long-run comparative advantage, government should especially review those cases in which industries are highly efficient but negatively protected. Moreover, the subsidy (protection) given to efficient industries should be withdrawn. Such industries can compete profitably in the international market. Any subsidy (protection) given to them simply grants them unearned rent at the expense of the Treasury and also promotes allocative inefficiency by encouraging a suboptimal transfer of real resources.

Concluding observations. The policy package noted above has two special elements that need to be emphasized: (1) noninclusion of an unambiguous proposal for encouraging export industries at the expense of import-substitution industries; and (2) a greater emphasis on domestic taxes and subsidies in place of trade restrictions. These elements are justified by the peculiar nature of the structure of protection and of the protection-induced distortions in Pakistan. An unambiguous proposal for an even greater export bias than already exists will be counterproductive because in a large number of cases export industries have not made as great a contribution to economic growth as would have been possible otherwise. Export expansion is beneficial only if it is based on a greater X-efficiency of export industries that makes them competitive in the international market without subsidization by the government. Obviously, this has not occurred in Pakistan in many cases. This is not to say that it cannot happen in the future, although there is no simple way of achieving this result. In particular, any increase in export subsidies over the average level prevailing in 1980–81 will be definitively counterproductive.

The limitations, however, of a policy of lowering tariffs to promote allocative efficiency should also be noted: In Pakistan the tariff has never been an effective policy instrument—it has seldom been a determinant of producers' prices. It has been made redundant either because it is lower than the differential between domestic prices and c. & f. import prices or because it is so high as to be prohibitive. In the former case the quota restriction is the binding constraint; in the latter case export subsidies are binding. Furthermore, the potential effect of tariffs on domestic consumption and production can be more effectively realized through an appropriate combination of domestic taxes and subsidies. For instance, if the objective of government policy is to encourage domestic production, it is better achieved by domestic subsidy, which encourages production but avoids the incidental consumption-restricting effects of tariffs. Similarly, if the purpose is to restrict consumption without entailing any adverse production effects, a domestic consumption tax is superior to a tariff, which also has an incidental production-increasing effect. Of course, tariffs on imports combined with a tax on domestic production at an equal rate have the same effect on domestic consumption as a consumer tax.

Notes

1. On the disruptive effects of inappropriate policies in the context of industrial development, see Balassa 1980.

2. This observation applies even more to the widely advocated remedy of reducing tariff rates to bring down the IEPR. As observed in number 4, in Pakistan tariffs do not exercise a decisive influence on the IEPRs and on the

producers' prices. Any reduction in tariffs may merely inflate the importers' rents at the expense of the Treasury.

3. Balassa (1982) quotes the Korean experience with so-called product trees, which are based on the use of particular raw materials.

4. See Naqvi 1969 for a detailed discussion of these principles.

5. It must be clearly understood that the availability of policy instruments is decisive in the choice of the objectives that can reasonably be achieved. See Tinbergen 1959.

6. The corresponding condition for imports is that when the foreign supply of imports is less than infinitely elastic, suitable import tariffs to exploit the country's monopolistic power will be optimal. This condition is seldom satisfied, however, in any developing country. See Naqvi 1969.

7. Subsidies to exports, in the form of compensatory rebates, were withdrawn in June 1986.

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APPENDIXES

Appendix A

QUESTIONNAIRE FOR EFFECTIVE PROTECTION STUDY

(JULY 1980 TO JUNE 1981)

GENERAL INFORMATION

Interviewer : _____

Supervisor : _____

Name & Address of the Firm: _____

_____

Name(s) of the person(s) assisting with the questionnaire and their telephone No. (s)

_____

_____

A. PERCEPTION OF INDUSTRY PROBLEMS/INCENTIVES

1. Year of establishment : _____

2. What are the major problems faced by your Firm :

3. Can you provide any relevant information about the industry to which your firm belongs.

4. Has the tax holiday been granted to you. _____
   If yes, please specify the number of years for which the tax holiday has been granted.

   _____

5. What do you think of the tax holidays as an incentive? Do you need any other supporting incentives which are not being provided to you at present?

RECORD I

Province ☐ 1 District ☐☐ 2–3 Incentive District ☐ 4

Industry ☐☐ 5–6 Firm ☐☐ 7–8 Year of Establishment. ☐☐ 9–10

B. NATURE OF THE FIRM

1. Is your firm :

a)	a public enterprise	= 1	☐	11
b)	a Pakistani private enterprise	= 2		
c)	a foreign enterprise	= 3		
d)	a joint venture enterprise	= 4		

2. If joint venture, can your firm be classified as :

a)	technical cooperation	☐	12
b)	trading company	☐	13
c)	subsidiary	☐	14
d)	equity participation	☐	15

3. If your firm is a joint venture with equity participation, then please specify the local share in total paid-up capital. (in percentage) ☐☐ 16–17

C. CAPACITY UTILIZATION

4. Please specify the capacity on three shift basis.

(000 Rs)

	Name of the Product	Product Codes	Unit of Measurement	Measurement Codes	SANCTIONED CAPACITY		INSTALLED CAPACITY	
					Quantity	Value	Quantity	Value
a)		18–20		21–22	23–28	29–34	35–40	41–46
b)		47–49		50–51	52–57	58–63	64–69	70–75
c)		76–78		79–80	81–86	87–92	93–98	99–104

5. What has, on average been number of shifts worked during the year? ☐☐☐ 105–107

6. Have there been any unusual stoppages in your factory slowing down the level of output? Yes = 1, No = 0. ☐ 108

7. What would have been the number of shifts had there been any unusual stoppage? ☐☐☐ 109–111

8. Are the number of shifts, reported above sufficient to yield desired output? If yes = 1 No = 0 ☐ 112

9. If the number of shifts is not sufficient to yield desired output, then please specify the number of most profitable shifts which would yield the desired output. ☐☐☐ 113–115

10. If you feel that capital is underutilised, please specify the reason(s) for underutilisation.

a) Unavailability of Indigenous inputs: Yes = 1, No. = 0 ☐ 116

b) Un-availability of imported inputs ☐ 117

c) Unavailability of spare parts ☐ 118

d) Recession in the world market ☐ 119

e) Recession in the domestic market ☐ 120

f) Lack of supervisory staff ☐ 121

g) Shortage of skilled labour ☐ 122

h) Shortage of unskilled labour ☐ 123

i) Strikes/Lock-outs ☐ 124

j) Power failure ☐ 125

k) Any other ☐ 126

11. If there are more than one factor responsible for underutilisation, please rank (in the first column, the most important factor)

☐☐☐☐☐☐☐☐☐☐☐

127–137

D. TAXES ON OUTPUT AND INCOME

(000 Rs)

	Name of Taxes	Assessed	Actually Paid
a)	Sales Taxes	138–143	144–149
b)	Excise Taxes	150–155	156–161
c)	Income & Corporate Taxes	162–167	168–173
d)	Other Taxes	174–179	180–185

RECORD II

NATURE OF OUTPUTS AND INPUTS

Province [ ] 1 District [ ] 2–3 Incentive District [ ] 4 Industry [ ] 5–6 Firm [ ] 7–8 Year of Establishment [ ] 9–10 Number of Products [ ] 11–12

OUTPUTS (000 Rs)

S. No.	Type of the Product	Product Codes	Unit of Measurement	Measurement Codes	Production during Year		INVENTORIES				Is the price regulated? Yes = 1, No = 0
					Quantity	Value	at the beginning of the year		at the end of the year		
							Quantity	Value	Quantity	Value	
1.		13–15		16–17	18–23	24–29	30–35	36–41	42–47	48–53	54
2.		55–57		58–59	60–65	66–71	72–77	78–83	84–89	90–95	96
3.		97–99		100–101	102–107	108–113	114–119	120–125	126–131	132–137	138
4.		139–141		142–143	144–149	150–155	156–161	162–167	168–173	174–179	180
5.		181–183		184–185	186–191	192–197	198–203	204–209	210–215	216–221	222
6.		223–225		226–227	228–233	234–239	240–245	246–251	252–257	258–263	264
7.		265–267		268–269	270–275	276–281	282–287	288–293	294–299	300–305	306
8.		307–309		310–311	312–317	318–323	324–329	330–335	336–341	342–347	348
9.		349–351		352–353	354–359	360–365	366–371	372–377	378–383	384–389	390

RECORD III

TYPES OF INPUTS - I

Province ☐ (1) District ☐☐ (2–3) Incentive District ☐ (4) Industry ☐☐ (5–6) Firm ☐☐ (7–8) Year of Establishment ☐☐ (9–10) No. of Inputs ☐☐ (11–12)

A. INDIGENOUS MATERIAL INPUTS

(000 Rs)

S. No.	Name of the Inputs	Code of the inputs	Unit of Measurement	Measurement Codes	INDIGENOUS INPUTS Quantity	INDIGENOUS INPUTS Value	INVENTORIES at the beginning of the year Quantity	INVENTORIES at the beginning of the year Value	INVENTORIES at the end of the year Quantity	INVENTORIES at the end of the year Value
1.		13–15		16–17	18–23	24–29	30–35	36–41	42–47	48–53
2.		103–105		106–107	108–113	114–119	120–125	126–131	132–137	138–143
3.		193–195		196–197	198–203	204–209	210–215	216–221	222–227	228–233
4.		283–285		286–287	288–293	294–299	300–305	306–311	312–317	318–323
5.		373–375		376–377	378–383	384–389	390–395	396–401	402–407	408–413
6.		463–465		466–467	468–473	474–479	480–485	486–491	492–497	498–503
7.		553–555		556–557	558–563	564–569	570–575	576–581	582–587	588–593
8.		643–645		646–647	648–653	654–659	660–665	666–671	672–677	678–683
9.		733–735		736–737	738–743	744–749	750–755	756–761	762–767	768–773
10.		823–825		826–827	828–833	834–839	840–845	846–851	852–857	858–863

TYPES OF INPUTS - II

B. IMPORTED MATERIAL INPUTS

(000 Rs)

S. No.	IMPORTED INPUTS				INVENTORIES OF IMPORTED INPUTS				Is the price regulated? Yes = 1, No = 0
	Directly imported		Purchased from Local Market		at the beginning of the year		at the end of the year		
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
1.	54–59	60–65	66–71	72–77	78–83	84–89	90–95	96–101	102
2.	144–149	150–155	156–161	162–167	168–173	174–179	180–185	186–191	192
3.	234–239	240–245	246–251	252–257	258–263	264–269	270–275	276–281	181
4.	324–329	330–335	336–341	342–347	348–353	354–359	360–365	366–371	372
5.	414–419	420–425	426–431	432–437	438–443	444–449	450–455	456–461	462
6.	504–509	510–515	516–521	522–527	528–533	534–539	540–545	546–551	552
7.	594–599	600–605	606–611	612–617	618–623	624–629	630–635	636–641	642
8.	684–689	690–695	696–701	702–707	708–713	714–719	720–725	726–731	732
9.	774–779	780–785	786–791	792–797	798–803	804–809	810–815	816–821	822
10.	864–869	870–875	876–881	882–887	888–893	894–899	900–905	906–911	912

RECORD IV

COST OF PURCHASED FUELS, POWER, WATER AND OTHER SERVICES

Province [ ] 1 District [ ][ ] 2–3 Incentive District [ ] 4 Industry [ ][ ] 5–6 Firm [ ][ ] 7–8

Year of Establishment [ ][ ] 9–10

(000 Rs)

Name of the inputs	Input Codes	Unit of measurement	Measurement codes	Cost of Inputs	
				Quantity	Value
Fuels:					
Firewood	11–13		14–15	16–21	22–27
Coal	28–30		31–32	33–38	39–44
Coke	45–47		48–49	50–55	56–61
Charcoal	62–64		65–66	67–72	73–78
Kerosene Oil	79–81		82–83	84–89	90–95
Petrol	96–98		99–100	101–106	107–112
Furnace Oil	113–115		116–117	118–123	124–129
Diesel Oil	130–132		133–134	135–140	141–146
Natural Gas	147–149		150–151	152–157	158–163
Others	164–166		167–168	169–174	175–180

OTHER COSTS

Name of the Inputs	Input Codes		Cost of Inputs;	
Electricity		181–183		184–189
Water		190–192		193–198
Transportation		199–201		202–207
Handling Costs		208–210		211–216
Repairs & Maintenance		217–219		220–225
Advertising Costs		226–228		229–234
Other selling expenses		235–237		238–243
Marketing Research Cost		244–246		247–252
Banking Charges		253–255		256–261
Royalties		262–264		265–270
Telephone, Telegraph Postal and Telex charges		271–273		274–279
Legal Charges		280–282		283–288
Auditor's Fee		289–291		292–297
Others		298–300		301–306
TOTAL				

RECORD V

PRIMARY INPUTS

Province [ ] 1 District [ ][ ] 2–3 Incentive District [ ] 4 Industry [ ][ ] 5–6 Firm [ ][ ] 7–8 Year of Establishment [ ][ ] 9–10

(000 Rs)

	Non-Production Workers				Production Workers	
	Total	Professional Staff	Clerical Staff	Others	Skilled	Unskilled
Number of persons	11–14	15–18	19–22	23–26	27–30	31–34
No. of days factory worked	35–37	38–40	41–43	44–46	47–49	50–52
Hours Worked per week	53–54	55–56	57–58	59–60	61–62	63–64
Employment Cost						
Salaries	65–70	71–76	77–82	83–88	89–94	95–100
Bonus	101–106	107–112	113–118	119–124	125–130	131–136
Honorarium	137–142	143–148	149–154	155–160	161–166	167–172
Conveyance	173–178	179–184	185–190	191–196	197–202	203–208
Housing	209–214	215–220	221–226	227–232	233–238	239–244
Food Subsidy	245–250	251–256	257–262	263–268	269–274	275–280

Employment Cost (continued)

Medical	281–286	287–292	293–298	299–304	305–310	311–316
Education Cess	317–322	323–328	329–334	335–340	341–346	347–352
Provident Fund	353–358	359–364	365–370	371–376	377–382	383–388
Gratuity	389–394	395–400	401–406	407–412	413–418	419–424
Group Insurance	425–430	431–436	437–442	443–448	449–454	455–460
Benevolent Fund	461–466	467–472	473–478	479–484	485–490	491–496

TOTAL

CAPITAL STOCK

I. Fixed Capital (000 Rs)

Type of Assets	Acquisition Cost of Capital	Book value of assets	Current value of assets	Gross Investment during the year	DEPRECIATION Actual/Normal	DEPRECIATION Accounting during the year	DEPRECIATION Accumulated
Factory Buildings	497–502	503–508	509–514	515–520	521–526	527–532	533–538
Residential Buildings	539–544	545–550	551–556	557–562	563–568	569–574	575–580
Land	581–586	587–592	593–598	599–604	605–610	611–616	617–622
Capital Equipment	623–628	629–634	635–640	641–646	647–652	653–658	659–664
Transport Equipment	665–670	671–676	677–680	683–688	689–694	695–700	701–706
Furniture & Fixture	707–712	713–718	719–724	725–730	731–736	737–742	743–748

II. Working Capital
(Please specify the amount of money kept for transaction purposes)

749–754

CREDIT AVAILABILITY

(000 Rs)

Purpose of Loan	Amount applied for	Amount approved	Amount still outstanding	Interest Rate	Interest paid during the year
III. Short term Loans					
Exports	755–760	761–766	767–772	773–774	775–780
Others	781–786	787–792	793–798	799–800	801–806
IV. Financing of the Capital					
Equity Capital	807–812				
V. Borrowed Money: (Long term Loans)					
a) Government	813–818	819–824	825–830	831–832	833–838
b) Commercial Banks	839–844	845–850	851–856	857–858	859–864
c) Development Banks	865–870	871–876	877–882	883–884	885–890

SALE PROCEEDS AND EXPORT ORIENTATION

RECORD VI

Province [ ] 1 District [ ][ ] 2–3 Incentive District [ ] 4 Industry [ ][ ] 5–6

Firm [ ][ ] 7–8 Year of Establishment [ ][ ] 9–10

A. SALE PROCEEDS

1. Total Sales [ ][ ][ ][ ][ ][ ] 11–16
2. Please specify export proceeds [ ][ ][ ][ ][ ][ ] 17–22

B. THOSE WHO DO NOT EXPORT

1. Please point out the main factors keeping you from exporting your product

   a) Insufficient incentives [ ] 23
   b) Problems encountered in the claim of rebates [ ] 24
   c) Unfavourable world prices [ ] 25
   d) Insufficient production [ ] 26
   e) Problems associated with obtaining export licences [ ] 27
   f) Lack of information about export market(s) [ ] 28
   g) Lack of finances [ ] 29
   h) Any other, please specify [ ] 30

2. If there are more than one factors, please rank in order of importance

   [ ][ ][ ][ ][ ][ ][ ][ ] 31–38

3. If you did not export, please give the approximate f.o.b. price if comparable quality were exported. Also specify the country of exports on the basis of which estimates were made

   [ ][ ][ ][ ][ ][ ] 39–44

4. If because of high tariffs or quota restrictions there are no imports, then please estimate the value of exports at c.i.f. price if comparable goods were imported

   [ ][ ][ ][ ][ ][ ] 45–50

5. Is the product imported under Free List or Tied List?
   Free List = 1, Tied List = 2 [ ] 51
6. Can the product be imported under an industrial license,
   Yes = 1, No = 0 [ ] 52
7. Can the product be imported under a commercial license,
   Yes = 1, No = 0 [ ] 53
8. What is the rate of tariffs on imports [ ][ ] 54–55
9. What is the rate of sales tax on imports [ ][ ] 56–57

C. FOR THOSE WHO EXPORT

1. Do you export directly, through export traders or through export houses? Direct = 0, export traders = 1, export houses = 2 ☐ 58

2. What of the following affected your decision when you started exporting products? If yes = 1, No = 0

   a) Favourable export prices ☐ 59

   b) Export Incentives:

      1. Tax rebates ☐ 60
      2. Tax Exemptions ☐ 61
      3. Export bonus scheme ☐ 62
      4. Export Performance Licensing ☐ 63
      5. Pay As You Earn Scheme ☐ 64
      6. Compensatory Rebates ☐ 65
      7. Export Credit ☐ 66
      8. Devaluation of Pakistani rupee ☐ 67
      9. Any other, please specify ☐ 68

3. What led you to look for the export markets. Please specify:

   a) Did you find it difficult to sell all of your output in the domestic market. Yes = 1, otherwise = 0 ☐ 69

   b) Export Market was more profitable ☐ 70

   c) Did your firm has export obligations because of the government commercial policy e.g. due to Export Performance Licensing Yes = 1, otherwise = 0 ☐ 71

   d) Availability of Collaborators' assistance in marketing i.e. Pakistani/Foreigner. Yes = 1, otherwise = 0 ☐ 72

   e) Any other, please specify ☐ 73

4. Has the trend of your firm's exports been increasing/decreasing during the recent years? Please specify the factors responsible for the change in exports.
Increase = 1, Decrease = 0

1. Standardisation of rebates ☐ 74
2. Compensatory rebates ☐ 75
3. Export Credit ☐ 76
4. Increase in improved marketing ☐ 77
5. Increase in productivity ☐ 78
6. Increase in investment ☐ 79
7. Better utilisation of capacity ☐ 80

5. If there are more than one factors, please rank in order of importance.

☐☐☐☐☐☐☐ 81–87

DETAILS OF EXPORT BEHAVIOUR

(000 Rs)

S. No.	Name of export product	Product Codes	Unit of Measurement	Measurement Unit Codes	Total Sales		EXPORTS TO				TOTAL	
					Quantity	Value	E.C.M. U.S.A. Japan	Centralised Countries	Middle East Countries	All Other Countries	Quantity	Value
		76–78		79–80	81–86	87–92	93–98	99–104	105–110	111–116	117–122	123–128

TYPES OF EXPORT SUBSIDIES

(000 Rs)

Tax Rebates	Tax Exemptions	Compensatory Rebates	Others	Are there any other cash or non-cash subsidies which you receive. If yes, please tell us the approximate value.
129–134	135–140	141–146	147–152	153–158

Please give your assessment of the firm's response to the questionnaire.

		High	Less	Poor
1.	Responsiveness	☐	☐	☐
2.	Co-operative	☐	☐	☐
3.	Reliability	☐	☐	☐

APPENDIX B

B.1 Implicit and Explicit Nominal Protection Rates

B.2 Nominal and Effective Protection Rates and the DRC

B.3 Ranking of Industries by NPR_Is, NPR_Es, IEPRs, and DRCs

B.4 Dislocation Effect of Target IEPRs on Industries

TABLE B.1 Implicit and Explicit Nominal Protection Rates (percent)

Industry code no.	Industry	NPR_I[a]	$NPRE$[b]
	Where NPR_I exceeds NPR_E		
01	Dairy products	128	95
08	Refined sugar	71	40
09	Tea blending	62	47
11	Ice cream	244	0
18	Weaving and spinning of wool	69	54
20	Tarpaulin and canvas	96	87
23	Narrow fabrics	201	196
27	Textile accessories	214	144
33	Paper, board, and articles	102	97
34	Wood furniture	186	164
36	Drugs and pharmaceuticals	11	0
37	Cosmetics	300	205
44	Acids, alkalies, compressed gases	88	61
47	Petroleum products	53	30
48	Tires and tubes	111	103
51	Plastic footwear	136	128
55	Cement and cement products	116	93
57	Iron and steel foundries and rerolling	116	73
58	Office equipment	54	50
66	Safes and vaults	212	188
73	Telephone and telex equipment	100	97
75	Sewing machines	240	134
76	Electric bulbs and tubes	125	116
82	Motor vehicles	140	95
85	Surgical instruments	31	5
86	Watches and clocks	227	143
90	Sports equipment	106	104
92	Arms manufacturing	50	0
93	Repair and maintenance (ship)	2	0
	Where NPR_I is less than NPR_E		+
02	Processing and canning of fruits and vegetables	160	190
03	Fish and seafood	30	160

continued on next page

TABLE B.1 *continued*

Industry code no.	Industry	NPRi[a]	NPRE[b]
04	Hydrogenated and vegetable oil	–11	64
05	Rice milling	–46	0
06	Wheat milling	–41	54
07	Bakery products	–41	192
12	Beverages	87	143
13	Cigarettes	194	300
15	Cotton ginning	–24	44
16	Spinning of cotton[c]	40	104
17	Weaving of cotton	29	149
19	Silk and artsilk	72	240
21	Jute textiles	88	91
22	Dyeing and bleaching	32	149
24	Made-up textile goods	115	190
25	Knitting mills	68	260
26	Carpets	38	200
28	Wearing apparel	68	260
29	Leather tanning	38	145
31	Leather footwear	52	136
32	Wood, cork, and articles	50	216
35	Printing and publishing	–9	0
39	Paints and varnishes	102	107
41	Pesticides	1	10
43	Industrial chemicals	51	101
45	Soaps and detergents	2	192
49	Rubber footwear	147	156
52	Other manufactures of plastic	132	142
53	Earthenware, pottery, and chinaware	135	138
54	Glass, glass products, and bangles	105	122
56	Other nonmetallic materials and bricks	50	54
59	Alloys and other nonferrous metal	65	73
60	Structural metal products	58	130
61	Heating and cooking equipment	164	166
62	Utensils and cutlery	170	183

continued on next page

TABLE B.1 *continued*

Industry code no.	Industry	NPR_I[a]	$NPRE$[b]
63	Wires, bolts, and nuts	106	122
64	Drums, trunks, tin can, and tinware	114	124
65	Plumbing equipment and hand tools	48	95
67	Agricultural machinery	14	41
68	Textile machinery	32	84
69	Metalworking machinery	30	64
70	Other nonelectrical machinery	12	51
71	Industrial electrical machinery	13	53
72	Electrical apparatus and supplies	50	72
74	Electric fans	66	203
77	Electrical transmission	66	98
78	Batteries	86	109
79	Shipbuilding	25	30
80	Railroad equipment	20	30
84	Cycles and parts	20	94
87	Weights, scales, and measuring equipment	100	104
88	Photographic goods	135	136
89	Optical goods	13	50
	Where NPR_I equals NPR_E		
10	Animal feeds	0	0
14	Tobacco stemming	75	75
40	Fertilizers	0	0
46	Matches	356	356
50	Other manufactures of rubber	106	106
81	Rickshaw and body building	20	20
83	Motor vehicle parts	164	164
91	Radio and television	94	94

a. Implicit nominal protection rate.
b. Explicit nominal protection rate.
c. NPR_I for spinning of cotton exceeds that for weaving of cotton because the former contains firms that also produce synthetic textiles.
SOURCE: Present study estimates.

TABLE B.2 Nominal and Effective Protection Rates and the DRC

Industry code no.	Industry	NPR$_i$[a]	IEPR[b] (Z)	DRC[c]
01	Dairy products	128	156	2.28
02	Processing and canning of fruits and vegetables	160	–343	[d]
03	Fish and seafood	30	–2	0.77
04	Hydrogenated and vegetable oil	–11	–43	0.28
05	Rice milling	–46	–76	1.38
06	Wheat milling	–41	–60	1.97
07	Bakery products	–41	–89	0.82
08	Refined sugar	71	40	2.33
09	Tea blending	62	93	1.78
10	Animal feeds	0	0	0.69
11	Ice cream	244	962	5.09
12	Beverages	87	–1	3.55
13	Cigarettes	194	38	1.32
14	Tobacco stemming	75	–202	[d]
15	Cotton ginning	–24	–9	2.92
16	Spinning of cotton	40	–431	[d]
17	Weaving of cotton	29	157	7.02
18	Weaving and spinning of wool	69	68	6.69
19	Weaving and spinning of silk and artsilk	72	–3	1.88
20	Tarpaulin and canvas	96	–18	1.68
21	Jute textiles	88	161	1.50
22	Dyeing and bleaching	32	–8	1.54
23	Narrow fabrics	201	478	7.09
24	Made-up textile goods	115	510	3.70
25	Knitting mills	68	51	10.91
26	Carpets (cotton and wool)	38	3	0.48
27	Textile accessories	214	1,874	22.92
28	Wearing apparel	68	33	1.29
29	Leather tanning	38	21,355	1346.8
31	Leather footwear	52	52	1.28
32	Wood, cork, and articles	50	24	1.70

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TABLE B.2 *continued*

Industry code no.	Industry	NPR[a]	IEPR[b] (Z)	DRC[c]
33	Paper, board, and articles	102	492	6.75
34	Wood furniture	186	–369	[d]
35	Printing and publishing	–9	–43	3.58
36	Drugs and pharmaceuticals	11	18	1.80
37	Cosmetics	300	362	21.60
39	Paints and varnishes	102	23	2.73
40	Fertilizers	0	32	2.37
41	Pesticides	1	–40	6.13
43	Industrial chemicals	51	77	2.78
44	Acids, alkalies, compressed gases	88	98	6.43
45	Soaps and detergents	2	–47	0.64
46	Matches	356	–314	[d]
47	Petroleum products	53	–6	0.46
48	Tires and tubes	111	159	1.72
49	Rubber footwear	147	53	3.99
50	Other manufactures of rubber	106	99	2.34
51	Plastic footwear	136	168	3.44
52	Other manufactures of plastic	132	147	16.19
53	Earthenware, pottery, and chinaware	135	262	7.20
54	Glass, glass products, and bangles	105	67	3.71
55	Cement and cement products	116	–3	1.13
56	Other nonmetallic materials and bricks	50	83	3.49
57	Iron and steel foundries and rerolling	116	318	7.76
58	Office equipment	54	94	1.28
59	Alloys and other nonferrous metal	65	23	0.82

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TABLE B.2 *continued*

Industry code no.	Industry	NPR[a]	IEPR[b] (Z)	DRC[c]
60	Structural metal products	58	39	1.05
61	Heating and cooking equipment	164	214	2.38
62	Utensils and cutlery	170	3,251	18.28
63	Wires, bolts, and nuts	106	130	2.86
64	Drums, trunks, tin can, and tinware	114	608	148.85
65	Plumbing equipment and hand tools	48	35	1.91
66	Safes and vaults	212	792	7.97
67	Agricultural machinery	14	–20	1.26
68	Textile machinery	32	15	1.77
69	Metalworking machinery	30	14	2.81
70	Other nonelectrical machinery	12	–16	0.35
71	Industrial electrical machinery	13	–18	3.46
72	Electrical apparatus and supplies	50	16	1.66
73	Telephone and telex equipment	100	153	6.88
74	Electric fans	66	98	0.50
75	Sewing machines	240	–766	[d]
76	Electric bulbs and tubes	125	37	3.86
77	Electrical transmission	66	–13	1.58
78	Batteries	86	33	1.56
79	Ship building	25	9	6.21
80	Railroad equipment	20	[e]	[d]
81	Rickshaw and body building	20	–83	0.87
82	Motor vehicles	140	49	5.42
83	Motor vehicle parts	164	228	16.22
84	Cycles and parts	20	28	1.71
85	Surgical instruments	31	13	0.37
86	Watches and clocks	227	301	7.50

continued on next page

TABLE B.2 *continued*

Industry code no.	Industry	NPR$_i$[a]	IEPR[b] (Z)	DRC[c]
87	Weights, scales, and measuring equipment	100	–47	0.93
88	Photographic goods	135	175	10.04
89	Optical goods	13	–25	0.41
90	Sports equipment	106	392	10.90
91	Radio and television	94	132	5.80
92	Arms manufacturing	50	13	10.99
93	Repairs and maintenance (ship)	2	–77	2.88

a. Implicit nominal protection rate.
b. Implicit effective protection rate.
c. Domestic resource cost.
d. Negative value added at world prices.
e. Negative value added at both domestic and world prices.
SOURCE: Present study estimates.

TABLE B.3 Ranking of Industries by NPR_Is, NPR_Es, IEPRs, and DRCs

Industry code no.	Industry	NPR_I[a]	NPR_E[a]	IEPR[a]	DRC[b]
01	Dairy products	21	51	29	52
02	Processing and canning of fruits and vegetables	14	13.5	3	3
03	Fish and sea food	68.5	20	68	80
04	Hydrogenated and vegetable oil	85	63.5	82.5	89
05	Rice milling	89	86.5	86	68
06	Wheat milling	87.5	67	85	53
07	Bakery products	87.5	11.5	89	78.5
08	Refined sugar	44	76	47	51
09	Tea blending	51	73	38	57
10	Animal feeds	82.5	86.5	66	81
11	Ice cream	3	86.5	10	32
12	Beverages	40	26.5	67	38
13	Cigarettes	9	2	49	69
14	Tobacco stemming	42	59	1	1
15	Cotton ginning	86	74	73	42
16	Spinning of cotton	62	43	5	5
17	Weaving of cotton	70	22.5	28	23
18	Weaving and spinning of wool	45	67	41	26
19	Weaving and spinning of silk and artsilk	43	5	69.5	55
20	Tarpaulin and canvas	36	57	76.5	62
21	Jute textiles	38.5	55	26	67
22	Dyeing and bleaching	65.5	22.5	72	66
23	Narrow fabrics	8	10	16	22
24	Made-up textile goods	25	13.5	14	36
25	Knitting mills	46.5	3.5	45	15
26	Carpets (cotton and wool)	63.5	9	65	84
27	Textile accessories	6	25	9	9
28	Wearing apparel	46.5	3.5	52.5	70
29	Leather tanning	63.5	24	7	7
31	Leather footwear	55	30.5	44	71.5
32	Wood, cork, and articles	58.5	6	56	61

continued on next page

TABLE B.3 *continued*

Industry code no.	Industry	NPR_I[a]	NPR_E[a]	IEPR[a]	DRC[b]
33	Paper, board, and articles	32.5	48.5	15	25
34	Wood furniture	10	18.5	4	4
35	Printing and publishing	84	86.5	82.5	37
36	Drugs and pharmaceuticals	78	86.5	59	56
37	Cosmetics	2	7	18	10
39	Paints and varnishes	32.5	40	57.5	47
40	Fertilizers	82.5	86.5	54	49
41	Pesticides	81	81	81	29
43	Industrial chemicals	56	46	40	46
44	Acids, alkalies, compressed gases	38.5	65	35.5	27
45	Soaps and detergents	79.5	11.5	80	82
46	Matches	1	1	2	2
47	Petroleum products	54	77.5	71	85
48	Tires and tubes	27	45	27	59
49	Rubber footwear	15	30	43	33
50	Other manufactures of rubber	29	41	34	50
51	Plastic footwear	17	34	25	41
52	Other manufactures of plastic	20	28	31	13
53	Earthenware, pottery, and chinaware	18.5	29	21	21
54	Glass, glass products, and bangles	31	36.5	42	35
55	Cement and cement products	23.5	56	69.5	74
56	Other nonmetallic materials and bricks	58.5	67	39	39
57	Iron and steel foundries and rerolling	23.5	60	19	19
58	Office Equipment	53	71.5	37	71.5

continued on next page

TABLE B.3 *continued*

Industry code no.	Industry	NPR_I[a]	NPR_E[a]	IEPR[a]	DRC[b]
59	Alloys and other nonferrous metal	50	60	57.5	78.5
60	Structural metal products	52	33	48	75
61	Heating and cooking equipment	12.5	17	23	48
62	Utensils and cutlery	11	16	8	11
63	Wires, bolts, and nuts	29	36.5	33	44
64	Drums, trunks, tin can, and tinware	26	35	13	8
65	Plumbing equipment and hand tools	61	51	51	54
66	Safes and vaults	7	15	12	18
67	Agricultural machinery	74	75	78	73
68	Textile machinery	65.5	58	61	58
69	Metalworking machinery	68.5	63.5	62	45
70	Other nonelectrical machinery	77	70	75	88
71	Industrial electrical machinery	75.5	69	76.5	40
72	Electrical apparatus and supplies	58.5	62	60	63
73	Telephone and telex equipment	34.5	48.5	30	24
74	Electric fans	49	8	35.5	83
75	Sewing machines	4	32	6	6
76	Electric bulbs and tubes	22	38	50	34
77	Electrical transmission	48	47	74	64
78	Batteries	41	39	52.5	65
79	Shipbuilding	71	77.5	64	28
80	Railroad equipment	c	c	c	c
81	Rickshaw and body building	72.5	79.5	88	77
82	Motor vehicles	16	51	46	31
83	Motor vehicle parts	12.5	18.5	22	12

continued on next page

TABLE B.3 *continued*

Industry code no.	Industry	NPR_I[a]	NPR_E[a]	IEPR[a]	DRC[b]
84	Cycles and parts	72.5	53.5	55	60
85	Surgical instruments	67	82	62.5	87
86	Watches and clocks	5	26.5	20	20
87	Weights, scales, and measuring equipment	34.5	43	84	76
88	Photographic goods	18.5	30.5	24	17
89	Optical goods	75.5	71.5	79	86
90	Sports equipment	29	43.5	17	16
91	Radio and television	37	53.5	32	30
92	Arms manufacturing	58.5	86.5	62.5	14
93	Repairs and maintenance (ship)	79.5	86.5	87	43

a. The most protected industry, that is, with the highest NPR_I and NPR_E, and IEPR, is accorded the highest rank.
b. The most inefficient industry is accorded the highest rank.
c. Negative value added at both domestic and world prices
SOURCE: Present study estimates.

TABLE B.4 Dislocation Effect of Target IEPRs on Industries

Industry code no.	Industry	Target IEPR = 100%		Target IEPR = 125%		Target IEPR = 150%	
		No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected
01	Dairy products	4	67	4	67	3	50
02	Processing and canning of fruits and vegetables	5	71	5	71	5	71
03	Fish and seafood	3	33	3	33	3	33
04	Hydrogenated and vegetable oil	2	11	2	11	2	11
05	Rice milling	2	11	2	11	2	11
06	Wheat milling	4	24	4	24	4	24
07	Bakery products	2	40	2	40	2	40
08	Refined sugar	1	9	1	9	1	9
09	Tea blending	5	71	4	57	4	57
10	Animal feeds	3	50	3	50	3	50
11	Ice cream	1	100	1	100	1	100
12	Beverages	3	30	3	30	3	30
13	Cigarettes	4	57	2	29	1	14
14	Tobacco stemming	2	100	1	50	1	50
15	Cotton ginning	5	31	4	25	4	25
16	Spinning of cotton	18	82	18	92	18	92
17	Weaving of cotton	4	31	3	23	3	23
18	Weaving and spinning of wool	3	25	3	25	3	25
19	Weaving and spinning of silk and artsilk	5	16	4	13	4	13

continued on next page

TABLE B.4 *continued*

Industry code no.	Industry	Target IEPR = 100%		Target IEPR = 125%		Target IEPR = 150%	
		No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected
20	Tarpaulin and canvas	0	0	0	0	0	0
21	Jute textiles	5	71	4	57	3	43
22	Dyeing and bleaching	1	6	1	6	1	6
23	Narrow fabrics	7	100	7	100	7	100
24	Made-up textile goods	1	20	1	20	1	20
25	Knitting mills	6	33	6	33	5	28
26	Carpets (cotton and wool)	1	11	1	11	1	11
27	Textile accessories	8	89	8	89	8	89
28	Wearing apparel	0	0	0	0	0	0
29	Leather tanning	7	41	7	41	7	41
31	Leather footwear	7	88	7	88	7	88
32	Wood, cork, and articles	0	0	0	0	0	0
33	Paper, board, and articles	4	40	2	20	2	20
34	Wood furniture	11	100	11	100	11	100
35	Printing and publishing	2	13	1	6	1	6
36	Drugs and pharmaceuticals	2	18	1	9	1	9
37	Cosmetics	1	100	1	100	1	100
39	Paints and varnishes	1	9	0	0	0	0
40	Fertilizers	1	25	1	25	1	25
41	Pesticides	1	33	1	33	1	33

TABLE B.4 *continued*

Industry code no.	Industry	Target IEPR = 100%		Target IEPR = 125%		Target IEPR = 150%	
		No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected
43	Industrial chemicals	2	67	2	67	2	67
44	Acids, alkalies, compressed gases	1	17	0	0	0	0
45	Soaps and detergents	1	13	1	13	1	13
46	Matches	8	73	8	73	8	73
47	Petroleum products	2	50	2	50	2	50
48	Tires and tubes	3	100	3	100	2	67
49	Rubber footwear	3	50	2	33	2	33
50	Other manufactures of rubber	5	71	4	57	4	57
51	Plastic footwear	1	25	1	25	1	25
52	Other manufactures of plastic	3	43	3	43	3	43
53	Earthenware, pottery, and chinaware	10	100	9	90	8	80
54	Glass, glass products, and bangles	6	55	5	45	5	45
55	Cement and cement products	9	56	8	50	8	50
56	Other nonmetallic materials and bricks	5	38	3	23	3	23
57	Iron and steel foundries and rerolling	15	79	13	68	11	58
58	Office equipment	1	33	0	0	0	0

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TABLE B.4 *continued*

Industry code no.	Industry	Target IEPR = 100%		Target IEPR = 125%		Target IEPR = 150%	
		No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected
59	Alloys and other nonferrous metal	0	0	0	0	0	0
60	Structural metal products	2	22	2	22	2	22
61	Heating and cooking equipment	1	100	1	100	1	100
62	Utensils and cutlery	14	82	14	82	14	82
63	Wires, bolts, and nuts	3	30	2	20	2	20
64	Drums, trunks, tin can, and tinware	5	71	5	71	5	71
65	Plumbing equipment and hand tools	3	60	3	60	3	60
66	Safes and vaults	1	100	1	100	1	100
67	Agricultural machinery	1	6	1	6	1	6
68	Textiles machinery	2	29	2	29	2	29
69	Metalworking machinery	0	0	0	0	0	0
70	Other nonelectrical machinery	0	0	0	0	0	0
71	Industrial electrical machinery	0	0	0	0	0	0
72	Electrical apparatus and supplies	1	33	1	33	1	33
73	Telephone and telex equipment	1	50	1	50	1	50
74	Electric fans	1	11	1	11	1	11
75	Sewing machines	6	100	6	100	6	100

TABLE B.4 *continued*

Industry code no.	Industry	Target IEPR = 100%		Target IEPR = 125%		Target IEPR = 150%	
		No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected	No. of firms affected	Percentage of firms affected
76	Electric bulbs and tubes	1	20	1	20	1	20
77	Electrical transmission	0	0	0	0	0	0
78	Batteries	3	38	3	38	3	38
79	Shipbuilding	0	0	0	0	0	0
80	Railroad equipment	1	100	1	100	0	0
81	Rickshaw and body building	0	0	0	0	0	0
82	Motor vehicles	1	33	1	33	0	0
83	Motor vehicle parts	5	83	5	83	5	83
84	Cycles and parts	2	25	2	25	1	13
85	Surgical instruments	0	0	0	0	0	0
86	Watches and clocks	1	100	1	100	1	100
87	Weights, scales, and measuring equipment	0	0	0	0	0	0
88	Photographic goods	2	100	2	100	2	100
89	Optical goods	1	50	1	50	1	50
90	Sports equipment	2	67	2	67	2	67
91	Radio and television	2	33	2	33	2	33
92	Arms manufacturing	0	0	0	0	0	0
93	Repairs and maintenance (ship)	1	14	1	14	1	14
	Total	280	37	255	33	244	32

SOURCE: Present study estimates.

APPENDIX C

C.1 Effective Protection Rates and Domestic Resource Costs by Type of Industry and Distortions

C.2 Effective Protection Rates and Domestic Resource Costs by Type of Industry, Distortions, and Employment Size

C.3 Effective Protection Rates and Domestic Resource Costs by Type of Industry, Distortions, and Provinces

C.4 Industries Classified by Stage of Processing and Type of Distortions

C.5 Industries Classified by Market Orientation and Distortion

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TABLE C.1 Effective Protection Rates and Domestic Resource Costs by Type of Industry and Distortions

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
	Industries with negative or negligible value added										
02	Processing and canning of fruits and vegetables	–343	–360	–447	–480	141	138	128	126	[a]	[a]
14	Tobacco stemming	–202	–202	–164	–164	197	197	257	257	[a]	[a]
16	Spinning of cotton	–431	–526	–4,705	–5,332	130	123	102	102	[a]	[a]
27	Textile accessories	1,874	1,543	970	569	95	84	91	85	22.92	35.63
29	Leather and leather goods	2,135	2,093	–191	–204	100	95	209	195	298.6	1,346.8
34	Wood furniture	–369	–478	–482	–637	137	126	126	119	[a]	[a]
46	Matches	–314	–230	–373	–357	147	144	136	139	[a]	[a]
62	Utensils, cutlery	3,251	680	37,996	2,360	97	87	100	96	18.28	22.00
75	Sewing machines	–766	–799	–1,175	–1,290	115	114	109	108	[a]	[a]
80	Railroad equipment	[b]	–32	[b]	–30	[b]	–47	[b]	–47	[a]	[a]
	Inefficient and protected industries										
01	Dairy products	156	154	176	172	61	61	64	63	2.28	3.36
08	Refined sugar	40	44	–14	–17	29	31	–16	–21	2.33	3.41
09	Tea blending	93	90	357	293	48	47	78	74	1.78	2.23
11	Ice cream	962	653	–37	–32	91	87	–59	–48	5.09	8.11
13	Cigarettes	38	37	42	43	28	27	30	30	1.32	1.39
17	Weaving of cotton	157	149	–421	–556	61	60	131	122	7.02	9.87

TABLE C.1 *continued*

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
18	Weaving and spinning of wool	68	70	–174	–182	40	41	236	221	6.69	7.95
21	Jute textiles	161	159	86	86	62	61	46	46	1.50	1.90
23	Narrow fabrics	478	375	–1,915	2,145	83	79	106	96	7.09	8.28
24	Made-up textile goods	510	495	–320	–327	84	83	145	144	3.70	4.07
25	Knitting mills	51	50	4,450	2,623	34	33	98	96	10.91	11.27
28	Wearing apparel	33	33	–1,777	–2,611	25	25	105	104	1.29	1.50
31	Leather footwear	52	57	18	24	34	36	15	19	1.28	1.62
32	Wood, cork, and articles	24	28	146	141	20	22	59	58	1.70	2.20
33	Paper, board, and articles	492	465	–313	–3,047	83	82	105	103	6.75	8.02
36	Drugs and pharmaceuticals	18	28	18	28	15	22	15	22	1.80	2.25
37	Cosmetics	362	348	–275	83	78	78	157	155	21.60	24.18
39	Paints and varnishes	23	31	29	36	19	23	22	27	2.73	4.28
40	Fertilizers	32	36	130	127	24	26	57	56	2.37	3.63
43	Industrial chemicals	77	77	376	368	43	43	79	79	2.78	3.19
44	Industrial gases	98	98	175	169	50	50	64	63	6.43	8.02
48	Tires and tubes	159	159	–1,231	–1,338	61	61	109	108	1.72	1.88
49	Rubber footwear	53	54	–345	–367	34	35	141	137	3.99	5.06
50	Other manufactures of rubber	99	99	117	117	50	50	54	54	2.34	2.64
51	Plastic footwear	168	166	12	16	63	62	11	14	3.44	4.13

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TABLE C.1 *continued*

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
52	Other manufactures of plastic	147	142	905	627	60	59	90	86	16.19	20.44
53	Earthenware, pottery, chinaware	262	228	1,335	545	72	69	93	85	7.20	11.15
54	Glass, glass products, bangles	67	71	114	125	38	41	53	56	3.71	4.53
56	Other nonmetallic materials and bricks	83	86	136	132	46	46	58	57	3.49	4.06
57	Iron and steel foundries and rerolling	318	304	–528	–574	76	75	123	121	7.76	8.79
58	Office equipment	94	94	95	95	49	49	49	49	1.28	1.34
60	Structural metal products	39	41	189	184	28	29	65	65	1.05	1.11
61	Heating and cooking equipment	214	213	290	289	68	68	74	74	2.38	2.41
62	Utensils, cutlery	3,251	680	37,996	2,360	97	87	100	96	18.28	22.00
63	Wires, bolts, and nuts	130	127	366	326	56	56	79	77	2.86	3.91
64	Drums, trunks, tin can, and tinware	608	247	–118	–151	86	71	666	296	148.85	217.91
65	Plumbing equipment and hand tools	35	28	673	281	26	22	87	74	1.91	2.58
66	Safes and vaults	792	764	1,312	1,147	89	88	92	92	7.97	8.46
68	Textile machinery	15	16	224	216	13	11	69	68	1.77	2.54
69	Metalworking machinery	14	16	2,652	1,899	13	14	96	95	2.81	3.40
72	Electrical apparatus and supplies	16	17	161	158	14	15	62	61	1.66	2.41
73	Telephone and telex equipment	153	251	–408	–424	60	60	132	131	6.88	8.37

TABLE C.1 *continued*

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
76	Electric bulbs and tubes	37	43	196	180	27	30	66	64	3.86	4.92
78	Batteries	33	35	23	29	25	26	19	23	1.56	1.96
79	Shipbuilding	9	7	–446	–607	8	6	129	120	6.21	8.08
82	Motor vehicles	49	51	–5	–3	33	34	–6	–3	5.42	6.45
83	Motor vehicle parts	228	156	–637	1,455	70	61	119	94	16.22	19.61
84	Cycles and parts	28	30	–153	–156	22	23	–289	–279	1.71	2.22
86	Watches and clocks	301	283	301	283	75	75	78	74	7.50	8.55
88	Photographic goods	175	144	39	1	64	41	28	1	10.40	17.25
90	Sports equipment	392	322	209	192	80	76	68	65	10.90	14.25
91	Radio and television	132	130	–82	–81	57	56	–453	–420	5.80	7.89
92	Arms manufacturing	13	22	–829	–3,650	11	18	114	103	10.99	17.34
	Inefficient and negatively protected industries										
05	Rice milling	–76	–72	–181	–208	–314	–254	223	192	1.38	2.21
06	Wheat milling	–60	–53	–241	–303	–149	–115	170	149	1.97	2.85
12	Beverages	–1	7	26	–10	–1	6	21	–11	3.55	4.88
15	Cotton ginning	–9	4	–118	–129	–9	4	661	447	2.92	4.26
19	Silk and artsilk	–3	5	285	255	–4	6	96	92	1.88	1.88
20	Tarpaulin and canvas	–18	–18	11	11	–22	–22	10	10	1.68	1.69

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TABLE C.1 *continued*

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
22	Dyeing and bleaching	–8	–1	514	384	–9	–1	83	79	1.54	2.02
35	Printing and publishing	–43	–34	343	226	–76	–51	77	69	3.58	5.22
41	Pesticides	–40	–7	–1,468	400	–66	–8	107	80	6.13	7.62
55	Cement and cement products	–3	9	–11	10	–3	8	–12	9	1.13	1.46
67	Agricultural machinery	–20	–13	556	514	–25	–14	85	83	1.26	1.77
71	Industrial electrical machinery	–18	–16	–55	–54	–21	–19	–124	–115	3.46	4.14
77	Electrical transmission	–13	–11	280	266	–15	–12	74	73	1.58	1.92
93	Repairs and maintenance (ship)	–77	–22	–68	–3	–337	–305	–215	4	2.88	4.15
	Efficient and protected industries										
26	Carpets and rugs	3	4	444	368	3	4	82	79	0.48	0.50
59	Alloys and other nonferrous metal	23	27	106	106	19	21	52	52	0.82	1.08
74	Electric fans	98	94	943	898	66	51	49	90	0.50	0.51
85	Surgical instruments	13	16	13	14	12	14	12	12	0.37	0.44
	Efficient and negatively protected industries										
03	Fish and seafood	–2	–1	15	16	–2	–1	13	14	0.77	0.93
04	Hydrogenated and vegetable oil	–43	–41	96	98	–76	–69	49	49	0.28	0.35
07	Bakery products	–89	–84	–112	–118	–781	–525	911	647	0.82	1.01

TABLE C.1 *continued*

Industry code no.	Industry	Effective protection rates: Implicit Net	Effective protection rates: Implicit Gross	Effective protection rates: Explicit Net	Effective protection rates: Explicit Gross	Share of protection in value added at domestic prices: Implicit Net	Share of protection in value added at domestic prices: Implicit Gross	Share of protection in value added at domestic prices: Explicit Net	Share of protection in value added at domestic prices: Explicit Gross	Domestic resource costs: Variant 1	Domestic resource costs: Variant 2
10	Animal feeds	0	1	–24	–23	0	2	–30	–29	0.69	0.80
45	Soaps and detergents	–37	–35	–108	–105	–58	–56	1,423	2,177	0.64	0.91
47	Petroleum products	–6	–5	337	332	–6	–6	77	77	0.46	0.53
70	Other nonelectrical machinery	–16	–16	54	55	–19	–19	35	35	0.35	0.42
81	Rickshaw and body building	–83	–73	–84	–75	–474	–272	–528	–306	0.87	1.03
87	Weights, scales, and measuring equipment	–47	–44	–43	–40	–88	–79	–74	–66	0.93	1.24
89	Optical goods	–25	–24	–1,108	–1,212	–33	–32	110	109	0.41	0.45

a. Negative value added at world prices.
b. Negative value added at both domestic and world market prices.
SOURCE: Present study estimates.

TABLE C.2 Effective Protection Rates and Domestic Resource Costs by Type of Industry, Distortions, and Employment Size

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
	Industries with negative or negligible value added								
02	Processing and canning of fruits and vegetables	–343	–710	–113		[a]	[a]	[a]	
14	Tobacco stemming	–202	–202	–202		[a]	[a]	[a]	
16	Spinning of cotton	–431			–431	[a]			[a]
27	Textile accessories	1,874	–1,023	802		22.92	[a]	2.35	
29	Leather tanning	21,355	112	14	–243	298.40	3.54	[a]	0.43
34	Wood furniture	–369	–764	–248		[a]	[a]	[a]	
46	Matches	–314	2,648	–282	–477	[a]	147.63	[a]	[a]
62	Utensils, cutlery	3,251	–947	199	13,646	18.28	[a]	1.84	10.68
75	Sewing machines	–766	–314		–3,912	[a]	[a]		[a]
80	Railroad equipment	[b]	[b]			[a]	[a]		[a]
	Inefficient and protected industries								
01	Dairy products	156	[b]	186	51	2.28	[a]	0.45	8.47
08	Refined sugar	40			40	2.33			2.33
09	Tea blending	93	[b]	–204	80	1.78	[a]	[a]	2.33
11	Ice cream	962			962	5.09			5.09
13	Beverages	38	[b]		39	1.32	[a]		1.29
17	Weaving of cotton	157	–9	–5	164	7.02	7.28	0.59	7.24
18	Weaving and spinning of wool	68	–14	2	81	6.69	1.05	2.45	7.61

TABLE C.2 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
19	Spinning and weaving of silk and artsilk	238	–370	–1,439	109	5.76	[a]	[a]	3.20
21	Jute textiles	161			161	1.50			1.50
23	Narrow fabrics	478	344	578	519	7.09	1.96	10.89	8.64
24	Made-up textile goods	510	–4	–31	0.2440	3.70	2.42	1.12	12.36
25	Knitting mills	1,148	1,046	188	–646	90.21	12.25	1.33	[a]
28	Wearing apparel	33		46	17	1.29		1.25	1.34
31	Leather footwear	52	688	–31	212	1.28	9.50	0.75	0.83
32	Wood, cork, and articles	24	–94	–40		1.70	0.74	1.83	
33	Paper, board, and articles	492	–4	94	874	6.75	0.59	1.66	11.58
36	Drugs and pharmaceuticals	18	–73		20	1.80	4.48		1.72
37	Cosmetics	362		93	1284	21.62		4.09	91.27
39	Paints and varnishes	23	52	129	6	2.73	0.57	88.45	1.47
40	Fertilizer	32			32	2.37			2.37
43	Industrial chemicals	77		–339	66	2.78		[a]	2.57
44	Acids, alkalies, compressed gases	98	–13	48	103	6.43	1.70	1.20	6.73
48	Tires and tubes	159	351	520	137	1.72	2.49	9.62	1.25
49	Rubber footwear	53	25		53	3.99	5.04		3.96

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TABLE C.2 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
50	Other manufactures of rubber	99	–262	92	95	2.34	[a]	2.15	2.03
51	Plastic footwear	168	168			3.44	3.44		
52	Other manufactures of plastic	147	–256		142	16.19	[a]		15.69
53	Earthenware, pottery, chinaware	262	4060		134	7.20	35.69		6.00
54	Glass, glass products, bangles	67	–107	123	62	3.71	[a]	24.99	3.22
56	Other nonmetallic materials and bricks	83	63	126		3.49	3.33	3.84	
57	Iron and steel foundries and rerolling	318	–180	641	135	7.76	[a]	5.10	4.93
58	Office equipment	94	80		108	1.28	0.27		2.31
60	Structural metal products	39	53	–32	22	1.05	1.41	1.07	0.18
61	Heating and cooking equipment	214	214			2.38	2.38		
62	Utensils, cutlery	3,251	–947	199	13,646	18.28	[a]	1.84	10.68
63	Wire, bolts, and nuts	130	130			2.86	2.86		
64	Drums, trunks, tin can, and tinware	608	–128	235	1,289	148.85	[a]	2.40	637.59
65	Plumbing equipment and hand tools	35	35			1.91	1.91		
66	Safes and vaults	792	792			7.97	7.97		
68	Textile machinery	15	79		–9	1.77	4.16		0.90
69	Metalworking machinery	14	36		2	2.81	4.05		2.06

TABLE C.2 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
72	Electrical apparatus and supplies	16	38	569	–32	1.66	2.06	4.77	1.39
73	Telephone and telex equipment	153			153	6.88		[a]	6.88
76	Electric bulbs and tubes	37	266	–82	27	3.86	2.03	1.32	4.58
78	Batteries	33	–6		35	1.56	2.76		1.51
79	Shipbuilding	9			9	6.21		[a]	6.21
82	Motor vehicles	49	–65	–98	144	5.42	1.36	0.13	8.84
83	Motor vehicle parts	228	204	362		16.22	18.02	6.35	
84	Cycles and parts	28	50	–64	32	1.71	1.72	3.73	1.60
86	Watches and clocks	301	301			7.50	7.50		
88	Photographic goods	175	175			10.04	10.04		
90	Sports equipment	392	[b]	–384	156	10.90	[a]	[a]	2.07
91	Radio and television	132	14	–9	138	5.80	0.85	0.60	6.40
92	Arms manufacturing	13	–20		13	10.90	0.80		11.21
	Inefficient and negatively protected industries								
05	Rice milling	–76	–54	–84	–58	1.38	3.07	0.79	0.23
06	Wheat milling	–60	–60	–59		1.97	2.20	0.91	
12	Beverages	–1	–9	–29	14	3.55	0.38	0.34	5.56
15	Cotton ginning	–9	–37	2	14	2.92	0.97	4.87	3.21

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TABLE C.2 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
20	Tarpaulin and canvas	–18			–18	1.68			1.68
35	Printing and publishing	–43	[b]	–4	–41	3.58	[a]	1.94	2.91
41	Pesticides	–40	7		[b]	6.13	1.27		6.13
55	Cement and cement products	–3	–1,953	[b]	–2	1.13	[a]	[a]	1.04
67	Agricultural machinery	–20	–28	–14	–30	1.26	0.48	1.76	1.04
71	Industrial electrical machinery	–18	–41	37	–18	3.46	0.66	0.99	3.58
77	Electrical transmission	–13	9	[b]	–17	1.58	0.59	[a]	1.73
93	Ship repairs	–77	–47	–58	–82	2.88	1.68	0.39	3.28
	Efficient and protected industries								
26	Carpets and rugs	3	2	37	–55	0.48	0.72	0.27	0.49
59	Alloys and other nonferrous metal	23	23			0.82	0.82		
74	Electric fans	98	38		97	0.50		1.20	0.46
85	Surgical instruments	13	3		16	0.37	0.36		0.38
	Efficient and negatively protected industries								
03	Fish and seafood	–2	–14	104	–48	0.77	0.78	1.43	0.38
04	Hydrogenated and vegetable oil	–43	14	–8	–53	0.28	0.15	0.65	0.25
07	Bakery products	–89	[b]	–115	–89	0.82	3.35	[a]	0.61
10	Animal feeds	0	291	–71		0.69	1.97	0.37	

TABLE C.2 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)				Domestic resource costs (rate of return on capital = 10%)			
		All industries	Small industries	Medium industries	Large industries	All industries	Small industries	Medium industries	Large industries
45	Soaps and detergents	–37	72	–36		0.64	0.83	0.46	
47	Petroleum products	–6	146	–29		0.46	1.40	0.32	
70	Other nonelectrical machinery	–16	–16			0.35	0.35		
81	Rickshaw and body building	–83	–23	–40	–90	0.87	3.31	0.66	0.75
87	Weights, scales, and measuring equipment	–47	–42	–47		0.93	4.51	0.63	
89	Optical goods	–25	8	–37		0.41	0.45	0.40	

NOTE: A blank cell indicates no firm in the category.
a. Negative value added at world prices.
b. Negative value added at both domestic and world prices.
SOURCE: Present study estimates.

TABLE C.3 Effective Protection Rates and Domestic Resource Costs by Type of Industry, Distortions, and Provinces

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
	Industries with negative or negligible value added										
02	Processing and canning of fruits and vegetables	–343	–54	86	–134	–301	[a]	0.61	2.06	[a]	[a]
14	Tobacco stemming	–202	–202				[a]	[a]			
16	Spinning of cotton	–431	–1,603	2,070	–280	[a]	[a]	[a]	44.5	[a]	[a]
27	Textile accessories	1,874	–5,430	1,623			22.92	[a]	19.37		
29	Leather tanning and leather goods	21,355	133	–302	77		29.86	1.60	[a]	3.91	
34	Wood furniture	–369	–768	–837	–233	–617	[a]	[a]	[a]	[a]	[a]
46	Matches	–314	–336	22,865	–138		[a]	[a]	44.29	[a]	
75	Sewing machines	–766	–314	–3,912			[a]	[a]	[a]		
80	Railroad equipment	[b]		[b]			[a]		[a]		
	Inefficient and protected industries										
01	Dairy products	156	160			[b]	2.28	2.12			[a]
08	Refined sugar	40	155	60	7		2.33	4.27	1.97	2.19	
09	Tea blending	93		93			1.78		1.78		
11	Ice cream	962	962				5.09	5.09			
13	Beverages	38	111	2	–10		1.32	0.10	2.02	1.27	
17	Weaving cotton	157	146	128	358		7.02	7.14	5.61	8.80	
18	Weaving and spinning of wool	68	–358	63	12	55	6.69	[a]	6.66	3.80	1.63

TABLE C.3 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
19	Spinning and weaving of silk and artsilk	238	215	329	–478		5.76	3.88	6.31	[a]	
21	Jute textiles	161	126	918		–98	1.50	0.37	19.32		5.49
22	Dyeing and bleaching	489	357	875			9.89	9.76	10.26		
23	Narrow fabrics	478	1,341	359			7.09	20.72	5.21		
68	Textile machinery	15	15				1.77	1.77			
69	Metalworking machinery	14	14				2.81	2.81			
72	Electrical apparatus	16	–32	569			1.66	1.40	4.77		
73	Telephone and telex equipment	153			153		6.88			6.88	
76	Electric bulbs and tubes	37		–15	94	83	3.86		8.70	1.34	6.58
78	Batteries	33	–44	36			1.56	3.18	1.50		
79	Shipbuilding	9		9			6.21		6.21		
82	Motor vehicles	49	–65	144	–98		5.42	1.36	8.83	0.13	
83	Motor vehicle parts	228	248	88			16.22	18.34	1.01		
84	Cycles and parts	28	12	[b]			1.71	1.65	23.73		
86	Watches and clocks	301	301				7.50	7.50			
90	Sports equipment	392	392				10.90	10.90			
91	Radio and television	132	10	138			5.80	0.81	6.04		
92	Arms manufacturing	13		13	–20		10.90		11.21	0.80	

continued on next page

TABLE C.3 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
	Inefficient and negatively protected industries										
05	Rice milling	–76	–40	–80	–54		1.38	3.46	1.51	0.73	
06	Wheat milling	–60	33	–76	–61	–67	1.97	1.30	8.54	0.76	2.07
12	Beverages	–1	34	–38	22	23	3.55	6.93	0.55	0.23	0.16
15	Cotton ginning	–9	34	–23			2.92	2.65	2.53		
19	Silk and artsilk	–3	–13	–26	–41		1.33	1.04	1.85	1.22	
20	Tarpaulin and canvas	–18	–18				1.68	1.68			
22	Dyeing and bleaching	–8	–11	–3			1.54	1.91	1.02		
35	Printing and publishing	–43	–16	–41	[b]	–24	3.58	5.35	2.86	[a]	0.59
41	Pesticides	–40	7		[b]		6.13	1.27		6.13	
55	Cement and cement products	–3	–27	23	–79	108	1.13	1.44	0.73	2.63	1.85
67	Agricultural machinery	–20	–23	–14	–57		1.26	0.58	1.17	0.93	
71	Industrial electrical machinery	–18	–17	–65			3.46	3.51	0.15		
77	Electrical transmission	–13	9	–18			1.58	0.59	1.81		
93	Ship repairs	–77	–61	–81			2.88	2.53	2.96		
24	Made-up textile goods	510	–19	635			3.70	3.32	3.80		
25	Knitting mills	1,148	–410	655			90.21	[a]	5.40		
26	Carpets	308	–1,072	276	523	518	36.71	[a]	2.03	2,471.13	11.52
28	Weaving apparel	3	–20	1	35	–13	0.48	1.70	0.53	0.75	16.78

TABLE C.3 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
31	Leather footwear	52	240	–18	–235	–260	1.28	1.43	0.63	[a]	[a]
32	Wood, cork, and articles	24	–94	40			1.70	0.74	1.83		
33	Paper, board, and articles	492	492				6.75	6.75			
36	Drugs and pharmaceuticals	18	–12	35	–85	–10	1.80	0.81	1.54	8.36	5.96
37	Cosmetics	362		362			21.62		21.62		
39	Paints and varnishes	23	88	5	77		2.73	9.26	1.04	0.98	
40	Fertilizer	32	32				2.37	2.37			
43	Industrial chemicals	77	77				2.78	2.78			
44	Acids, alkalies, compressed gases	98	–13	101			6.43	1.70	6.55		
48	Tires and tubes	159	159				1.72	1.72			
49	Rubber footwear	53	51	687			3.99	3.96	15.56		
50	Other manufactures of rubber	99	101	38	–160		2.34	2.80	0.82	[a]	
51	Plastic footwear	168	–8	–207			3.44	0.99	[a]		
52	Other manufactures of plastic	147	30	203			16.19	1.58	23.10		
53	Earthenware, pottery, chinaware	262	–3,155	–5,530	134		7.20	[a]	[a]	6.00	
54	Glass, glass products, bangles	67	586	10		364	3.71	4.79	3.36		9.49
56	Other nonmetallic materials and bricks	83	–4	91	37	142	3.49	1.16	3.14	5.81	9.52

continued on next page

TABLE C.3 *(continued)*

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
57	Iron and steel foundries and rerolling	318	–748	227	264		7.76	[a]	5.01	11.70	
58	Office equipment	94		94			1.28		1.28		
60	Structural metal products	39	2	54	–38		1.05	1.66	0.80	1.81	
61	Heating and cooking equipment	214	214				2.38	2.38			
62	Utensils, cutlery	3,251	47,331	185	1,986	–291	18.28	266.50	0.97	21.24	[a]
63	Wires, bolts, and nuts	130	121	14,602	–11		2.86	2.09	109.73	3.82	
64	Drums, trunks, tin can, and tinware	608	216	–1,135			148.85	3.39	[a]		
65	Plumbing equipment and hand tools	35	35				1.91	1.91			
66	Safes and vaults	792	792				7.97	7.97			
	Efficient and protected industries										
26	Carpets and rugs	3	–20	1	35	–13	0.48	1.70	0.83	0.75	16.78
59	Alloys and other nonferrous metal	23	23				0.82	0.82			
74	Electric fans	98	65	–324			0.50	0.20	[a]		
85	Surgical instruments	13	14	–7			0.37	0.36	0.92		

TABLE C.3 *continued*

Industry code no.	Industry	Effective protection rates (net implicit)					Domestic resource costs (rate of return on capital = 10%)				
		All Pakistan	Punjab	Sind	NWFP	Baluchistan	All Pakistan	Punjab	Sind	NWFP	Baluchistan
	Efficient and negatively protected industries										
03	Fish and seafood	–2		–2			0.77		0.77		
04	Hydrogenated and vegetable oil	–43	–69	–33	–99	–68	0.28	0.35	0.22	0.48	0.37
07	Bakery products	–89	–147	–95			0.82	[a]	0.34		
10	Animal feeds	0	–21	–768			0.69	0.51	[a]		
45	Soaps and detergents	–37	–17	[b]	–29	–54	0.64	0.39	3.00	0.32	1.09
47	Petroleum products	–6		–30	269	–123	0.46		0.37	1.39	[a]
70	Other nonelectrical machinery	–16	–37	7			0.35	0.40	0.30		
81	Rickshaw and body building	–83	–88	–40	–82		0.87	0.96	0.66	0.73	
87	Weights, scales, and measuring equipment	–47	–42	–47			0.93	4.51	0.63		
89	Optical goods	–25	8	–37			0.41	0.45	0.45		

NOTE: A blank cell indicates no firm in the category.
a. Negative value added at world prices.
b. Negative value added at both domestic and world market prices.
SOURCE: Present study estimates.

TABLE C.4 Industries Classified by Stage of Processing and Type of Distortions

	Finished goods	Intermediate goods	Construction inputs	Capital goods
Industries with negative value added	02 Processing and canning of fruits and vegetables 17 Weaving of cotton (including handlooms) 24 Made-up textile goods 28 Wearing apparel 34 Wood furniture 46 Matches 62 Utensils, cutlery 75 Sewing machines	14 Tobacco stemming 16 Spinning of cotton 27 Textile accessories 29 Leather tanning	(No such industry exists)	80 Railroad equipment
Inefficient and protected industries	01 Dairy products 08 Refined sugar 09 Tea blending 11 Ice cream 13 Cigarettes 18 Wearing and spinning of wool 19 Weaving and spinning of silk and artsilk 21 Jute textiles 23 Narrow fabrics 25 Knitting mills 26 Carpets (cotton and wool) 31 Leather footwear	22 Dyeing and bleaching 32 Wood, cork, and articles 33 Paper, board, and articles 39 Paints and varnishes 40 Fertilizers 43 Industrial chemicals 44 Acids, alkalies, compressed gases 48 Tires and tubes 52 Other manufactures of plastic 63 Wires, bolts, nuts 64 Drums, trunks, tin can, and tinware	56 Other nonmetallic materials and bricks 57 Iron and steel foundries and rerolling 60 Structural metal products	58 Office equipment 65 Plumbing equipment and hand tools 66 Safes and vaults 68 Textile machinery 69 Metalworking machinery 72 Electrical apparatus and supplies 73 Telephone and telex equipment 79 Shipbuilding 82 Motor vehicles 83 Motor vehicle parts 84 Cycles and parts

TABLE C.4 *continued*

	Finished goods	Intermediate goods	Construction inputs	Capital goods
	36 Drugs and pharmaceuticals 37 Cosmetics 49 Rubber footwear 50 Other manufactures of rubber 51 Plastic footwear 53 Earthenware, pottery, chinaware 54 Glass, glass products, bangles 61 Heating and cooking equipment 62 Utensils, cutlery 86 Watches and clocks 88 Photographic goods 90 Sports equipment 91 Radio and television	76 Electric bulbs and tubes 78 Batteries		
Inefficient and negatively protected industries	05 Rice milling 06 Wheat milling 12 Beverages 20 Tarpaulin and canvas 35 Printing and publishing	41 Pesticides 77 Electrical transmission	55 Cement and cement products	67 Agricultural machinery 71 Industrial electrical machinery 93 Repairs and maintenance (ship)

continued on next page

TABLE C.4 *continued*

	Finished goods	Intermediate goods	Construction inputs	Capital goods
Efficient and protected industries	74 Electric fans	59 Alloys and other nonferrous metal	(No such industry exists)	85 Surgical instruments
Efficient and negatively protected industries	03 Fish and seafood 04 Hydrogenated and vegetable oil 07 Bakery products 45 Soaps and detergents 89 Optical goods	10 Animal feeds 47 Petroleum products 76 Electric bulbs and tools	(No such industry exists)	70 Weights, scales, and measuring equipment

SOURCE: Present study estimates.

TABLE C.5 Industries Classified by Market Orientation and Distortions

	Export-oriented industries	Import-competing industries	Import-noncompeting industries	Export-oriented and import-competing industries
Industries with negative value added	02 Processing and canning of fruits and vegetables 24 Made-up textile goods 27 Textile accessories 28 Wearing apparel 29 Leather tanning	02 Processing and canning of fruits and vegetables 24 Made-up textile goods 27 Textile accessories 28 Wearing apparel 29 Leather tanning 34 Wood furniture 62 Utensils, cutlery 80 Railroad equipment	14 Tobacco stemming 46 Matches	02 Processing and canning of fruits and vegetables 24 Made-up textile goods 27 Textile accessories 28 Wearing apparel 29 Leather tanning
Inefficient and protected industries	18 Weaving and spinning of wool 19 Weaving and spinning of silk and artsilk 21 Jute textiles 22 Dyeing and bleaching 26 Carpets (cotton and wool) 39 Paints and varnishes 40 Fertilizers 56 Other nonmetallic materials and bricks	01 Dairy products 09 Tea blending 18 Weaving and spinning of wool 19 Weaving and spinning of silk and artsilk 21 Jute textiles 22 Dyeing and bleaching 23 Narrow fabrics 32 Wood, cork, and articles 33 Paper, board, and articles	08 Refined sugar 11 Ice cream 13 Cigarettes 25 Knitting mills 37 Cosmetics 49 Rubber footwear 53 Earthenware, pottery, chinaware 54 Glass, glass products, bangles 84 Cycles and parts	18 Weaving and spinning of wool 19 Weaving and spinning of silk and artsilk 21 Jute textiles 22 Dyeing and bleaching 36 Drugs and pharmaceuticals 39 Paints and varnishes 40 Fertilizers 56 Other nonmetallic materials and bricks

continued on next page

TABLE C.5 *continued*

Export-oriented industries	Import-competing industries	Import-noncompeting industries	Export-oriented and import-competing industries
68 Textile machinery	36 Drugs and pharmaceuticals	90 Sports equipment	68 Textile machinery
72 Electrical apparatus and supplies	39 Paints and varnishes	91 Radio and television	72 Electrical apparatus and supplies
73 Telephone and telex equipment	40 Fertilizers		73 Telephone and telex equipment
76 Electric bulbs and tubes	43 Industrial chemicals		76 Electric bulbs and tubes
78 Batteries	44 Acids, alkalies, compressed gases		78 Batteries
79 Shipbuilding	48 Tires and tubes		79 Shipbuilding
88 Photographic goods	50 Other manufactures of rubber		88 Photographic goods
	51 Plastic footwear		
	52 Other manufactures of plastic		
	56 Other nonmetallic materials and bricks		
	57 Iron and steel foundries and rerolling		
	58 Office equipment		
	60 Structural metal products		
	61 Heating and cooking equipment		
	62 Utensils, cutlery		
	63 Wires, bolts, nuts		

TABLE C.5 *continued*

	Export-oriented industries	Import-competing industries	Import-noncompeting industries	Export-oriented and import-competing industries
		64 Drums, trunks, tin can, and tinware 65 Plumbing equipment and hand tools 66 Safes and vaults 68 Textile machinery 69 Metalworking machinery 72 Electrical apparatus and supplies 73 Telephone and telex equipment 76 Electric bulbs and tubes 78 Batteries 79 Shipbuilding 82 Motor vehicles 83 Motor vehicle parts 86 Watches and clocks 88 Photographic goods 92 Arms manufacturing		
Inefficient and negatively protected industries	05 Rice milling 20 Tarpaulin and canvas	41 Pesticides 55 Cement and cement products	06 Wheat milling 12 Beverages	20 Tarpaulin and canvas 41 Pesticides

continued on next page

TABLE C.5 *continued*

	Export-oriented industries	Import-competing industries	Import-noncompeting industries	Export-oriented and import-competing industries
	41 Pesticides 71 Industrial electrical machinery 77 Electrical transmission	71 Industrial electrical machinery 77 Electrical transmission 93 Repairs and maintenance (ship)	15 Cotton ginning 35 Printing and publishing 67 Agricultural machinery	77 Electrical transmission
Efficient and protected industries	74 Electric fans	59 Alloys and other nonferrous metal 74 Electric fans	85 Surgical instruments	74 Electric fans
Efficient and negatively protected industries	03 Fish and seafood 47 Petroleum products 70 Other nonelectrical machinery 87 Weights, scales, and measuring equipment 89 Optical goods	04 Hydrogenated and vegetable oil 47 Petroleum products 70 Other nonelectrical machinery 81 Rickshaw and body building 87 Weights, scales, and measuring equipment 89 Optical goods	07 Bakery products 10 Animal feeds 45 Soaps and detergents	47 Petroleum products 70 Other nonelectrical machinery 87 Weights, scales, and measuring equipment 89 Optical goods

SOURCE: Present study estimates.

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