THE DETERMINANTS OF IMPORT PROTECTION IN A DEVELOPING COUNTRY:
SPAIN IN THE 1960s

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

by

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* * * *

The Ohio State University
1983

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Edward J. Ray
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To Elaine and my sisters
and brothers and, especially,
to my parents.
ACKNOWLEDGEMENTS

I wish to acknowledge the members of my committee, Professors Ray, Thursby and Wolf, as well as Professor Richard Gunther from the Department of Political Science, for their stimulating criticisms.

I also wish to thank both Elaine and Cathy for their faith in my professional competence and for their constant support during this struggle. Finally, I want to thank my other close friends and family for their unquestioning caring and Barbara Mazzotta and Susan Swinehart for their ability to deal with my handwriting and for their patient and excellent typing.
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CHAPTER I: INTRODUCTION

The purpose of this research is to investigate the determinants of foreign trade barriers in Spain during the 1960s, by analyzing the political and economic factors that have shaped the disparities in rates of protection across different industries. Specifically, this research investigates the extent to which both political power and economic development goals might have affected the structure of protection. In the process, the impact of international institutions such as GATT, World Bank and IMF as well as that of the potential membership of Spain in the European Common Market is assessed.

A substantial amount of economic research has emerged in recent years on what has come to be known as the economic theory of politics. Within this body of research, considerable efforts have been centered on explaining the structure of protection in developed countries such as the U.S., Canada and Australia. One of the novelties of this dissertation is that its object of analysis is a developing country, with a "peculiar" political regime. As a result, the specific focus of the analysis is methodologically different from that in the rest of the literature. Hence, this research contains the first attempt to systematize the influence of firm size and of financial involvement of the economic elite on the structure of trade restrictions.

Further, this is also the first attempt to estimate the relationship between tariff and non-tariff restrictions in a developing country. Given the diversity and peculiar forms of quantitative
restrictions in Spain, this has required, in turn, the development of a set of indexes of non-tariff barriers in Spain that should prove useful for other topics of research.

This research has four main parts. Chapter II delineates the historical and institutional setting in which policymaking was carried out in Spain during the 1960s. Based upon this information and after reviewing the literature on the field of import protection policy, a model to explain the structure of trade barriers is developed. Chapter III tests this model as it concerns the structure of import duties in Spain. Chapter IV both estimates the relationship between import duties and non-tariff barriers and tests the model described in Chapter II as it concerns the pattern of quantitative restrictions in Spain. Chapter IV briefly summarizes the main results and suggests some possible future extensions of this work.
CHAPTER II: INSTITUTIONAL BACKGROUND AND HYPOTHESES FORMULATION

I. INTRODUCTION: HISTORICAL BACKGROUND

Common wisdom in Spain suggests that any attempt to explain economic policy-making in this country has to take into account the important role of a power elite that concentrates in its hands the control of sizable areas of the economy and which, through its political contacts is able to affect, to a considerable extent, the general economic policies of the administration. While this concentration of power seems to have been strengthened during Franco's period, its existence in its present form goes back to the first decades of this century and its remote origins date from the persistence of the dominant role of the aristocracy during the XIX century.

Although a thorough discussion of how this power elite came to be is beyond the scope of this research for which this power structure is a datum, a brief description is useful in order to explain its present status. But such description requires, in turn, a few observations about the development of capitalism in Spain and the interaction between aristocracy and bourgeoisie since the second part of the XIX century.

Spain's late industrialization effort prevented the birth of a strong bourgeoisie that, as it did in other European nations, could have suppressed the privileges of the aristocracy. As Moya Valganon (1972) points out, the absence of a national state and the fiscal mismanagement of the monarchy provided, on the other hand an opportunity for the
aristocracy to reconstruct its power in that period when capitalism was starting: by lending funds to the State in a particularistic form, the financial and land-owning aristocracy was able to keep its grip on the Crown and obtain from it the royal concession of monopolies. Simultaneously, marriages among members of the rising bourgeoisie led to the formation of an upper crust among this class. Finally, the ability of the aristocracy to perpetuate its mores as a paradigm of social behavior allowed it to integrate within its ranks (through marriages and the granting of nobiliary titles) the emerging political elites as well as the most important sectors of the upper bourgeoisie.

The process by which the traditional, estamental and aristocratic elite of power and the upper levels of the bourgeoisie came to form a single bloc was not exempt from difficulties. Yet, by the beginning of this century a pact between both was achieved. The effect of this agreement was far reaching. First, it perpetuated the existence of particularistic and personalistic modes of social and economic relations. Second, it ensured the permanence of the power structure. Third, it consecrated the concentration of power in a very small group of people.

The results were far reaching as well. By 1920, most of the large Spanish corporations were controlled, through their participation in the Boards of Directors, by a single group of 100 persons. According to data from that year, the "100 most important capitalists"
participated in the control of the largest firms in the different sectors of the economy. The long term capital of these firms represented 76% of the capital in oil firms, 57% in that of sugar factories, 83% in the banking system, 61% in coal production, 75% in shipbuilding, 79% in electricity production, 81% in railroads, 57% in shipping lines, 50% in construction and public works, 52% in mining, 92% in iron-works, etc.¹

The reorganization measures adopted by the Government for the banking system in 1921 set the conditions for the latter to progressively become the central instrument of control of industry by this financial aristocracy. Hence, Tamames (1962) points out, "the fundamental nucleus of economic power (in Spain) lies in the private banks".²

The persistence of this concentration of economic power during Franco's period is evidenced by a 1966 quantitative study (similar to that mentioned above for 1920) of the control of the largest Spanish firms by the top "100 Spanish families". Those families controlled firms whose long term capital represented 71% of that of all the large Spanish corporations. Specifically, they controlled 86% of those funds belonging to the private banks, 91% of shipbuilding, 80% of the sugar industry, 76% of the automobile industry, 96% of the electricity production industry, 80% of the motor manufacturing industry, 80% of chemical manufacturing, 96% of ironworks, etc.³
II. THE CONCENTRATION OF ECONOMIC POWER IN FRANCO'S SPAIN

Having established above the origin and evolution of the so-called financial aristocracy or financial oligarchy, it is useful to discuss more precisely the structure of power during Franco's period and the way the economic policies of his regime seem to have been affected by that power structure, and in turn, reinforced it.

Three main traits have been used to describe the characteristics of the Spanish power elite: 1. The connection between the banking system and the large firms. 2. The connection between aristocrats and financiers. 3. The connection between those financial elites and the political elites. 4 A complement of the above description is Tamames (1977) definition of the "financial oligarchy" as that social group (restricted in size and interconnected) which controls the financial and industrial capital exercising an hegemonic role within the bloc of the bourgeoisie. 5

Tamames' analysis of the workings of the banking system and of the boards of directors of private banks and other sectors of the economy indicates, that, within the fundamental nucleus of power represented by the private banks, there is a small central group of them, in which most power is concentrated: the "mixed banks". Their name derives from the fact that they perform both commercial and industrial operations. The economic concentration within those mixed banks is considerable since the most important of them are, in fact,
heads of bank groups. As a result, the 8 largest bank groups hold 70% of the total bank deposits, grant 60% of the total amount of loans of the banking system and own 10% of the stock of all the Spanish corporations. The concentration is more remarkable when it is realized that, although those 7 groups are independent, they have common members in their boards of directors as well as an extensive network of common members in the boards of directors of the most important corporations in both the private and the public sector.

The control of the different economic sectors by the banks is reinforced by the considerable reliance that Spanish firms have on banks as the main source of financing: the weakness of the stock market and the low level of self-financing places firms in a situation of dependency towards the banks which tend to discriminate in favor of those firms they control. Finally, an additional source of power derives from the fact that many small shareholders, who use the banks as safekeepers and accountants for their stocks, transfer to them their right to vote in the shareholders meetings of the firms.

While the control by banks of the Spanish firms encompasses different types of firms, their influence on the largest firms is especially significant: out of the 100 largest Spanish firms, 45 are directly connected with the large banking groups and 21 are connected with INI, the State holding company, which in turn is connected with those banks. 17 are connected with multinational corporations. Only 12 are "independent".6
The paragraphs above have described the extent of the control of the Spanish economy by a small group of individuals and banks connected among themselves, but they do not provide evidence of the exercise of their power in the public sphere. An analysis of some basic policies during Franco's rule will attempt to provide such evidence.

III. ECONOMIC POLICIES IN FRANCO'S SPAIN: THE ROLE OF THE POWER ELITE

It should be noted from the onset that, while the 1936-1939 Civil War was a very complex event that has been subject to multiple interpretations, it mostly was a class struggle. Franco's uprising is an attempt by the centralist and conservative upper classes to prevent the left-wing Popular Front from enacting a series of policies that undoubtedly would have altered the distribution of power within the country. Those groups were fundamental, as well, to the financing of the war efforts of the nationalist side. It is not surprising, therefore, that after Franco's victory, neither the leftward leaning social ideology of the Falange (the Spanish fascist party) nor the creation of a state industry (INI) substantially altered the political and economic power of the upper classes in Franco's period.

To the contrary, the elimination of political parties and trade unions tended to reinforce the power elite. Personalistic modes of contact remained as the main link between administration and citizens. As in the past, the upper classes were those who could keep
and benefit the most from this type of communication structure. And, as a result, many regulations of the Spanish economy seem to have tended to benefit and reinforce the economic power of the large firms controlled by that elite.

The following are the major categories of policy instruments that can be said to have increased the concentration of economic power as well as being the result of the pressures of the power elite:  

1. Administrative concessions

Since the 1939 (the year of Franco's victory) industrial laws were enacted, the establishment of firms required government authorization. This created a "numerus clausus" situation, whose most extreme example is the banking industry where in virtue of a "status quo" agreement, new banks could not be created. Most other sectors of the economy were subject up to 1963 to licensing requirements in such a way that, according to Tamames, "the creation of new firms of some size was only possible for the traditional and large financial groups capable of pressuring the administration or for a handful of new privileged entrepreneurs".  

While, as a result of the liberalization measures of the late fifties, a 1963 act declared the principle of industrial freedom, a 1967 law again restricted that principle by establishing minimum conditions (in terms of investment and output) for the creation and for the expansion of firms. The justification for these measures was the need
to increase production efficiency but their effect again was to favor the already established firms.

Other areas where administrative concession has tended to favor the large financial groups are the exploitation of public services (such as highways, gas, etc.) and of public monopolies.

2. Public enterprises

Public enterprises have often been used to support and benefit the interests of the power elite in three main forms:

a. Through the creation of large "mixed firms", whereby the State becomes a partner in a previously privately held firm. By doing so, the administration has often provided financial backing to and reduced the risks of failure of those firms ("a State firm seldom goes bankrupt"\textsuperscript{10}).

b. Through the "socialization of losses", by which the State has purchased large firms with decreasing profits or with low prospects for long run viability.

c. Through the "privatization of profits", whereby state firms have been sold to large private corporations once they became financially stable and profitable.

3. Instruments of foreign trade

Foreign trade barriers are likely to increase the monopoly power of the firms in those sectors protected by those barriers. Both tariffs
and quotas are said to be very restrictive in Spain in the most concentrated sectors or/and in those sectors where there are large firms.

This situation is not unique for Franco's period. Already in 1921, Gabriel Rodríguez commented on the 1891 Tariff by saying that "behind each of the tariff positions one can identify the name of the person or persons whose pressures allow them to get the protection they want". Tamames has indicated that a casual look at the tariff and non-tariff instruments of protection in the 1960s and 1970s suggests that the observation above is still valid and relatively high import restrictions exist in sectors where there are large firms.

An additional benefit for large firms derives from the way reimbursements of indirect business taxes on exported goods are calculated. Spanish indirect business taxes are turnover taxes, whereby the value of output is taxed every time it is transacted among firms. As a result, large, integrated firms pay a lower amount of indirect taxes than smaller firms that work only on a few phases of the production process. Still, the amount of the tax reimbursement is uniform for all firms and independent of the amount of taxes actually paid.

4. Price controls

Price controls have, in one form or another, existed for most of Franco's period. The greater economies of scale of the large firms make them the main beneficiaries of those controls. Besides, when
those controls severely affect the profits of the large firms the latter are believed to be able to successfully exert pressure on the Price Controlling Board to obtain increases in the price ceilings.

In summary, a casual review of some of the mechanisms used by the Administration to implement its economic policies reveals a tendency to adopt measures that are favorable to the large, monopolistic firms controlled by a power elite. In the final part of this section, I will argue that a more general set of policies, those that led to the liberalization of foreign trade and stabilization of the economy in 1959 and those that resulted in the implementation of the development plans were not only consistent with the interests of the large firms and the elite that controls them but also the only available alternative to preserve the existing power structure.

The first period of Franco's rule (1939-59) was characterized by the adoption of autarkic policies. While some of the ideological foundations of the regime called for a policy of self-sufficiency, it seems that the main determinants of that policy were the traditional deficits in the balance of payments and, especially, the international economic and political conditions (World War II and the blockade of Spain) that were present since the end of the Civil War. While those conditions ceased to exist at the beginning of the 1950s, the satisfactory performance of the economy during those years probably accounts for the maintenance of the autarkic policies for some time. However, by the middle and latter part of the 1950s, the economic
success came to a halt. The increases in incomes at the beginning of the decade had generated upward pressure in aggregate demand, later fueled by a sizable general increase in wages dictated by the Government. Those pressures accelerated the domestic rate of inflation as well as increased the demand for imports. Exports, on the other hand, were stationary: the inefficiencies in domestic production prevented the exportation of manufactured goods while the increase in trade among the Western European countries decreased the export opportunities of the traditional agricultural exports. By the end of the 1950s the balance of payments situation was very delicate, growth rates had decreased and Spain was near bankruptcy. The need to effect changes in the economic policy model were apparent.

Among the different policy options available, the one chosen was that of liberalizing domestic and foreign trade. While this policy clearly was the most efficient from an aggregate point of view, it was not easily accepted at the beginning. Members of the government-controlled trade unions establishment as well as some members of the academic community were opposed to it. On the other hand, it is important to note that it was the banks and the large industries that initially proposed it and defended it.¹² This should not come as a surprise. In fact, the stabilization measures of 1959 and the ensuing development plans of the 60s were but instruments of rationalization of the economy. By 1959 it was apparent that the possibilities of the autarkic model were exhausted. Continuation of import-substituting policies limited the expansion of the large firms and the deteriora-
tion of the rate of growth was politically dangerous (in terms of its social and public order consequences). On the other hand, the ration-
alization imposed by the new policies and the opening of the economy to the international markets allowed the integration of the Spanish econ-
ome in the European economy from whose boom Spanish banks and large firms could benefit. Hence, the economic policies since the end of the 1950s seem to appear as a response by the power elite to the pres-
ures of domestic conditions and the impact of the economic expansion of the other western European countries. Consistent with that view are the 1959 measures for internal liberalization, suppression of domestic restrictions in order to improve production efficiency and export performance, as well as the export promotion policies adopted in later years and the selection of the exporting sectors as a maximum priority of the development plans.

In brief, the concentration of power in a small elite and the control by that elite of the major banks and firms resulted, during Franco's regime, in a set of policies that tended to favor large firms. Basic decisions of economic policy did not, in general, harm the prevailing power structure; to the contrary they probably reinforced it. While the power of the elite historically precedes the arrival of Franco to power, the institutional characteristics of his regime accentuated that power. In Western democracies representation of economic interests at the political level is mainly achieved through the support of electoral candidates; the actions of the politi-
tical elite are somehow controlled by the electorate. In Franco's
Spain the means of pressure had the form of personalistic ties. This took place through the existence of family relationships, personal friendship and the bondage of a common social origin, as Gunther (1980) has pointed out. This not only placed the upper classes at a special advantage in terms of communication with the administration but prevented as well the rest of the citizens from having any countervailing power over those pressures.

IV. THE REGULATION OF FOREIGN TRADE IN SPAIN

A. The change in the economic policy model

As indicated before, Spanish economic policy was based since the end of the Civil War in 1939 on the idea of autarky and direct government control of the economy. The political characteristics of the system (authoritarian regime, nationalism, influence of the Nazi-Fascist mode of production) as well as the international economic situation (protectionism resulting from the 1929 crash and World War II) and political conditions (isolationism and the blockade of Spain) made any other type of economic policy rather unviable.

Under this model, imports were rigidly controlled under the form of either state trading or bilateral trade (i.e., with discriminating quotas, by country and commodity); multiple exchange rates were established for the foreign exchange market; domestic markets were subject to wage and price controls and a firm's establishment, expansion or change of location required government authorization.
Changes in international economic and political conditions together with the impossibility of further growth along autarkic principles led to changes in the relative power of the "political families" supporting the regime. As a result, starting in 1957, a new economic policy model started to emerge. The new growth model emphasized the progressive liberalization of both the domestic markets and foreign transactions and the substitution of direct government control by more subtle instruments such as export, credit and investment incentives to private firms. Of special interest were the changes in the regulation of imports (Decreto-Ley de Ordenacion Economica of 1959) and the enactment of a new Tariff Law in 1960.

B. **Trade Regimes in Spain**

Four alternative regimes of foreign trade were established in 1959 to regulate the importation of goods into Spain. Two of them were inherited from the autarkic period (State trade and trade under individual license). The other two were newly created. The difference between the four regimes lies in the degree of direct government control and the degree of discretion of the administration in the granting of import licenses. Specifically, goods to be imported were subject to one of the following four regimes:

a. Regimes for trade by private individuals or firms.

1. "Free" or liberalized trade: Import licenses were to be granted automatically. There were no limits on the amounts that could be imported and there were practically no restrictions on the country
of origin of the commodity. The only restriction was that goods be imported from countries that granted convertibility to Spanish means of payments. Only a few countries in the world did not eventually fall in this category.

2. "Globalized" trade: Import licenses were to be granted to those whose requests fulfilled certain conditions established by the administration by a decree or ruling. If those conditions were fulfilled, the import licenses would be granted for the full amount or distributed among importers if the total value of licenses accepted exceeded the value of the quota. The only restrictions on the place of origin of the commodity were those indicated above for the case of liberalized trade.

3. Trade under individual license: Import licenses were to be granted only at the discretion of the administration. This regime would be applied to commodities from countries that did not grant convertibility to Spanish means of payments as well as to those commodities (regardless of their country of origin) that were not under the regimes of state trading or liberalized or globalized trade.

b. Regimes for trade by the State administration.

4. State trading: Import licenses were not to be granted to private parties. The country of origin and the volume of imports would be decided discretionarily by the administration or by the corresponding state-controlled agencies or delegated firms.

It should be noted that the label "free" for liberalized trade might be misleading. Regardless of the regime under which commod-
ities were imported, most foreign goods were subject to import
tariffs. In the case of liberalized trade, the tariff was the only
(with the usual caveats for the border adjustment taxes and qualita-
tive restrictions such as technical specifications, quality and health
controls, etc.) trade barrier to which those commodities were subject.
In the other cases, the tariff was an additional barrier to the quan-
titative restrictions.

The relative importance of each of these four regimes and its
evolution since 1960 can be observed in the following figures:

<table>
<thead>
<tr>
<th></th>
<th>Liberalized trade</th>
<th>Globalized trade</th>
<th>Trade under Individual license</th>
<th>State trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent distribution of number of import licenses granted(^\text{15})</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>38</td>
<td>24.2</td>
<td>20</td>
<td>17.8</td>
</tr>
<tr>
<td>1970</td>
<td>74.4</td>
<td>8</td>
<td>8.3</td>
<td>9.3</td>
</tr>
<tr>
<td>1975</td>
<td>73.5</td>
<td>7.9</td>
<td>7.3</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Per cent distribution of positions in the Tariff Schedule\(^\text{16}\)

<table>
<thead>
<tr>
<th></th>
<th>1970</th>
<th>1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent</td>
<td>84.4</td>
<td>73.5</td>
</tr>
<tr>
<td>in the Tariff</td>
<td>7.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Schedule</td>
<td>5.8</td>
<td>11.3</td>
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<td></td>
<td>2.6</td>
<td>11.3</td>
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The purpose of the 1959 regulations was to progressively transfer
commodities from the two previously existing regimes (individual
license and state trade) to the regime of liberalized trade. To
soften the effects of the transition, a system of global quotas that
did not discriminate among countries (i.e., the globalized trade re-
gime) was devised. The final objective was the elimination of this
regime as well, so that only the liberalized trade regime would remain
in existence. Therefore, and in accordance with the Spanish Government commitment to the OECD, a 1963 Order of the Ministry of Commerce fixed the minimum size of the global quotas and their minimum rate of growth: 1. Every year the value of each of the quotas was to be, at least, 3% of the value of domestic production of equivalent goods. 2. The value of the sum of all quotas was to increase at a minimum of 20% per year. 3. The value of each quota was to increase at a minimum of 10% per year. Exempted from this were the quotas whose value exceeds 20% of national production.

At this stage, three questions are relevant. First, under what criteria were commodities originally (and have been since then) assigned to the new trade regimes (i.e., liberalized and globalized trade)? Second, since import licenses for goods under a quota are not auctioned off, what criteria have been used for the distribution of each of the quotas under globalized trade? Third, what criteria have been used to determine the annual rates of growth of the quotas, above the minima established by 1963 Order?

The day before the 1959 Decree regulating the trade regimes was issued, the Government declared that "most of the goods that have been transferred to liberalized trade were raw materials and equipment parts in order to allow the Spanish industry to fully utilize its productive resources by ensuring them the supply of raw materials at international prices" (plus the tariff). It added that "those raw materials that are still not liberalized and, in general, the semi-
finished goods will be included in global quotas that will allow a better and cheaper supply."17

Apart from that statement, there is not much additional documented evidence on the arguments or motives used by the administration for the allocation of commodities among the four trade regimes except the regulation by individual license of the trade for commodities originating in countries with non-convertible currencies. Originally remaining under state trade were most agricultural products, many raw materials and goods whose manufacture and distribution had traditionally been in the hands of state-controlled enterprises (such as tobacco and petroleum products). It can safely be said that the motive for keeping the trade of raw materials and foodstuffs under state control was the attempt to ensure their supply to the domestic market without interruption and at political prices. Yet, by the end of the 1960s and the early 1970s many of the agricultural products that still remained under this regime enjoyed a "de facto" liberalization. Under trade with individual license remained some other agricultural goods and raw materials, in part for the same reasons mentioned above. Less clear is the reason why some products were included in the globalized trade regime while others were "liberalized". An, if anything else, implicit motive might have been the fear, given the lack of knowledge about price elasticities of imports, that the tariff would not be sufficient to restrict the level of imports to the desired volume. This tends to be confirmed by the fact that one of the criteria apparently
used to switch a commodity from globalized to liberalized trade has been the non-fulfillment of the quota in previous years. One would think, therefore, that under the globalized trade, products might have been included whose price elasticity of import demand was expected to be relatively low.

With respect to the specific allocation of each quota among importers, no legislative or executive bill was issued to explicitly establish the criteria to be followed. However, the Ministry of Commerce developed a set of guidelines to determine the relative priority of import license requests for goods under a global quota. According to those guidelines since a quota generally includes more than one tariff position (i.e., it includes a group of related commodities) priority was to be given to the specific commodities within the quota group for which there was no national production and to those importers who had been in business longer. Also the allocation of the quota in a given year was supposed to keep some degree of proportionality with past volumes of imports by those importers.

Finally, there is no documented evidence on the criteria used by the Dirección General de Comercio Exterior (since 1974, Dirección General de Política Arancelaria e Importación) in determining the year-to-year increases in the quotas above the yearly minima established by the 1963 Order.
C. The Tariff

The trade liberalization measures required a substantial overhaul of tariff rates since the old Tariff Schedule of 1922 had become outmoded and tariffs were not used, prior to 1960, as an instrument of economic policy.

A new Tariff Law was issued and its Schedule enacted in 1960. Most commodities (regardless of the trade regime in which they were included) were subject to a tariff. Since at the time the Tariff Schedule was being prepared, the trade regime to which each commodity would be assigned was not known, it is unlikely that the original tariff rates were set such as to compensate for lower tariff rates with more restrictive non-tariff barriers. The weighted average tariff rate was 12.8% in 1960. This average decreased over time to 7.3% in 1970 (and 5.4% in 1975). But more relevant than the average are the deviations from it for numerous products (automobiles, for instance, had a tariff rate of 68%, later reduced to 51%).

For the purpose of this research, three questions have special relevance: 1) In which institutional setting were the tariff rates determined?, 2) What criteria did tariff-makers use to establish tariff rates for each commodity, thus deciding their differences across industries?, and 3) How were the changes in tariff rates implemented during the 1960s decided and approved? The answer to these questions will hopefully shed light on the possible role of pressure groups in tariff policy.
In 1957, a Tariff Revision Board was established. The basic criterion that this Board reportedly used to determine the tariff rate for each commodity was to equalize the foreign price including the tariff to the domestic price before the tariff. Specifically, the foreign price to be used for the determination of the tariff rates was the factory foreign price and, if that was not known, the CIF foreign price. If those prices were unavailable, tariff rates in other European countries were used as a reference rate, specially those in Italy under the assumption that this country's economic structure was similar to that of Spain.

Very revealing as well is the composition of the Tariff Revision Board and that of the committees of the Tariff Board that replaced it and which was established to study and recommend further changes in tariff rates. The Tariff Revision Board was divided into 21 committees, one for each section of the Tariff Schedule. Each committee had representatives of the producing, trading and consuming sectors as well as administration officials and experts and representatives of the government-controlled trade unions.

The institutional process established for changes in tariff rates was very similar to that of the former Tariff Revision Board. Both the administration and any private party could submit a request for a change in tariff rates. The corresponding committee (as before, one
for each section of the Tariff Schedule and with a composition similar to that of the committees in the Tariff Revision Board) would study the request and its justification and would submit its recommendation to the Dirección General de Comercio Exterior. This office, in turn, would submit its proposal to the Tariff Board (composed of members of different ministries, Chambers of Commerce, the trade unions and the National Association of Economists).

In the period 1960-1970, almost 500 changes in tariff rates were enacted. A few of these changes were across-the-board temporary decreases and were implemented by the government as anti-inflationary measures. On some other occasions the government made those decreases permanent. But most of the changes were enacted on specific tariff positions, thus increasing the possibility of interest groups affecting tariff rates.

Often, the legal tariff rates, i.e., those established in the Tariff Schedule or in its revisions, were not applied. The government, within the range of its development policy, established numerous reductions and exemptions: among them were purchases of equipment goods not produced in Spain, purchases by firms located in growth poles or belonging to "Industries of Preferred Interest" or to "Industries under the regime of Concerted Action", etc.

Several comments can be elicited from the above descriptions. First, the very composition of the Tariff Board and its committees recognized the existence of opposed interests and indirectly legiti-
mized the exercise of pressure by each of the affected parties. Second, the composition indicates as well the prevalence of firms' interests over the interest of consumers: The consumers' representatives in the tariff committee did not represent consumers' associations (they did not exist at that time, in any case) nor individuals elected by citizens at large. They were either appointed by the Chambers of Commerce and Industry or were representatives of other industries that used (consumed) the product subject to study as an intermediate input. The possibility of agreements and bargaining between the producing and consuming firms to support high tariffs on inputs, as long as the tariff on output remained high, is evident. Third, the fact that the Council of Ministers routinely accepted the recommendations of the Tariff Board increased the possibility of success of business' views. Not only was no one electorally responsible, but also there was no public discussion of the arguments. Finally, the frequency of changes, the decentralization of the Tariff Board, and the enactment of reductions and exemptions (often decided by different ministries) based upon very different justifications, resulted in a lack of coordination in tariff policy that enhanced the possibility of action by pressure groups.

D. The border adjustment tax (ICGI)

All imports were subject as well to a border adjustment tax. Its main (and, in principle, only) purpose was to make foreign goods pay
the same amount of indirect taxes (excluding the luxury tax, which is paid at the retail stage) to which domestic goods were subject.

The tax was originally established in 1960 under the name of Tarifa Fiscal but, as a result of a general reform in the Spanish system of domestic taxes, it was replaced in 1964 by a similar tax, the ICGI, whose rates were substantially higher. Since 1968 the weighted average ICGI rate has exceeded that of the Tariff, and many Spanish economists claim that this tax on imports overestimates the actual indirect tax burden of domestic production. Vinas et al. (1979) have estimated for 1970 that on average the ICGI has overestimated the Spanish indirect taxes by more than 200%.\(^{18}\) What this means is that almost 70% of the ICGI is a "purely protective" tax, i.e., plays the same role as a tariff. One is inclined to believe that the origin of such overestimation laid in the pressure of concerned industries that wanted to be compensated from the lowering of tariffs by getting an increase in the protection received through other means.

V. RELEVANT ASPECTS OF THE ECONOMIC THEORY OF POLITICS FOR THE SPANISH CASE

Section III has emphasized the importance attributed in Spain to the political and economic power structure as a specific feature of the Spanish political life, and its role in the determination of import policy is deemed to be important. Yet, even if this role is important, one should not assume policies have necessarily been adopted
in exclusive accordance with the interests of that power elite. The influence of other political factors is likely to be important as well. The recent literature of the economic theory of politics provides useful grounds for the identification of those factors. According to this theory, the preferential treatment that some groups receive relative to others depends on the capability of the different interest groups to pressure for policies that are favorable to them. The level of pressure, in turn, depends on the net economic benefits expected from the lobbying action while the transformation by the Government of that pressure into policy measures depends on the net economic and political benefits that the Administration expects to obtain through the enactment of those policies.

The kind of factors that may affect those benefits and costs is varied and different authors have chosen alternative variables to proxy for them. I will restrict myself here to some brief comments on those issues and variables that seem to be most relevant to the Spanish case.

By arguing that tariff rates in MDCs were not substantially reduced in international tariff negotiations on goods in which LDCs have a comparative advantage, Helleiner (1977) has highlighted the importance of international factors in the shaping of domestic trade policy. The relevance of this question for the Spanish import policy is worth analyzing. The June 1959 liberalization measures were considered a prerequisite for the access of Spain into the OCDE as well
as for an aid package from the IMF, a mission of which had visited the country in January of that year. Also, a World Bank mission visited Spain in 1963 at the request of the Spanish government and submitted recommendations about changes in economic policy. Finally, a reduction in tariff rates was a sine-qua-non condition for the membership of Spain in the GATT. To what degree did those organizations exert pressure for changes in the structure of protection? Although some qualifications might be necessary and, despite the absence of sufficient documentary evidence on some aspects, it seems that those organizations did not play a significant role in the design of the structure of import restrictions across industries. It is true that all those institutions were interested in the liberalization of Spanish foreign trade. But their recommendations were expressed in very general terms in most instances and did not refer to specific sectors. Also, some of the guidelines did nothing but confirm the soundness, from an economic efficiency point of view, of policies already being carried out by the Spanish administration at the time. The IMF and OCDE reports insisted on the need to liberalize import restrictions and the World Bank report, prepared when the Government had already eliminated a considerable number of restrictions in both the domestic and import markets, recommended the continuation of further liberalization steps, mostly in the investment goods sector. But there is no evidence of recommendations or pressures to provide to or to eliminate protection from individual sectors. Further, the conditions for the access to the OCDE were softened for Spain. While mem-
bership in that organization required that 90% of private trade be free from quantitative restrictions and that 75% of the private trade in each of the three groups in which all commodities were classified (foodstuffs; raw materials; manufactures) be also free of those restrictions, Spain was allowed to limit its initial liberalization to only 50% of all private trade without any requirement on the distribution of the liberalization measures among the three categories mentioned above. The number of tariff positions negotiated upon the access of Spain to the GATT was not very large but, more important than that, only 151 tariff positions had their rates actually reduced; in volume of trade these positions represented only 4.4% of the total value of Spanish imports and they concerned commodities that either were not produced in Spain or that were protected by quantitative restrictions or by high tariff rates. Similarly, of the 102 tariff rates that were lowered during the Kennedy Round, only 13 resulted in rates that were lower than those actually applied.

While most authors have, in general, given most attention to business firms as the main actors behind the pressures for tariff policy changes, some of them such as Fieleke (1974), Caves (1976) and Anderson (1979) have addressed the issue of the influence of labor, either in its trade union role as an interest group or as a factor that conditions the willingness of the Government to grant protection to industries with high unemployment or with low wages in an attempt to improve the standard of living of blue collar workers. It is difficult to evaluate this question in the case of Spain. Trade unions
were illegal in Spain and the representation of labor in the political process was largely nominal. Therefore, as Gunther (1980) points out, the direct participation of labor in policy-making was almost non-existent. Still, this does not mean that labor was not taken into account in policy decisions. In fact, Franco's regime was committed to a full employment policy and while workers' strikes were illegal, layoffs required government authorization in most instances. On the other hand, the preservation of social peace could not be achieved through the use of force only. The enactment of the above policies as well as the establishment of a rather comprehensive system of Social Security and other benefits undoubtedly had in mind that goal of social peace. Furthermore, as Gunther (1980) further indicates there are specific instances in which the Government adopted economic policies (such as increases in public spending) in direct response to current or expected labor unrest.

Still there is not any evidence in administration publications, speeches, etc. of either any conscious use of tariff policy in response to hypothetical labor pressures or of any attempt to justify protection as an instrument to improve workers' conditions. Even so, the commitment to full employment offers valid grounds to the hypothesis that those sectors where the labor input is relatively important might have been more protected than the other economic sectors.

The relationship between economic growth and import protection is a subject of controversy in the literature. Anderson (1980) has suggested that tariff rates are negatively related to the rate of
growth of an economic sector on Peltzman's (1976) grounds that governments tend to be politically biased towards declining industries. Caves (1976), on the other hand, has hypothesized that if the country is involved in an industrialization program, it will tend to protect those industries with the highest growth potential. Again there is a lack of documented evidence on this issue with regards to Spain. There is an abundant literature on the question of the selectivity of the tariff, with most authors suggesting the lack of sufficient selectivity by economic criteria. A high ranking official in the Ministry of Commerce insisted in 1972 on the need to protect those sectors with the largest possibility of expansion. This suggestion leads one to believe that, at least until that time, there had not been an attempt to protect that type of sectors. But, on the other hand, given the emphasis on economic growth during the decade of the 60s one might expect some kind of positive relationship between tariff rates and an economic sector's contribution to economic growth.

Ray (1981) has suggested the existence of a negative relationship between tariff rates and the degree of comparative advantage on the profit maximizing assumption that the incentives to lobby for protection will be lower the smaller is the difference between domestic and foreign prices, mainly determined by the relative factor endowments. Caves (1976) has posited a similar relationship by arguing that the existence of nationalistic preferences might lead to the use of tariffs to compensate for differences in productivity. The prediction of both authors is consistent with the stated goals of the Spanish
Tariff Revision Board. As mentioned before, the fundamental guideline that this Board was supposed to follow when it started functioning in 1957 was the equalization of domestic and foreign prices. Under the assumption that the difference between those prices depends on the degree of comparative advantage, one would therefore expect to find lower levels of protection for those commodities that use intensively those factors that are relatively abundant in Spain, namely labor and some natural resources. However, with respect to labor intensity, a characteristic of Spanish industrial policy might lower the significance of the relationship. The Spanish administration has pursued a policy of low interest rates in order to stimulate investment while, for socio-political reasons, wages have been kept above the value of their marginal productivity. As a result capital is likely to have been used more intensively and labor less intensively than would have been the case in the absence of government intervention in input markets. This distortion will conceivably decrease the expected degree of significance in the relationship between comparative advantage and tariff rates.

Most authors have predicted a positive relationship between concentration of sellers in an industry and tariff rates on the assumption that concentration reduces the free-rider problem and that as a result of concentration, monopoly profits usable for lobbying activities are likely to accrue. This hypothesis is also consistent with Tamames (1977) observations about the degree of monopolization in the Spanish economy and the lobbying activities in monopolistic industries.
on questions of economic policy. However, while this hypothesis seems highly relevant in the Spanish context, its statistical significance might be limited by the likely correlation between the degree of concentration in an industry and the presence in that industry of one or more of the largest Spanish firms, which is a hypothesis already discussed in the first part of this chapter.

Caves (1976) has suggested that, for the case of Canada, the pattern of tariffs could reflect a tendency to protect industries in Toronto and Quebec, the two regions where political nationalism is stronger, in an attempt to balance the power among those regions. Spain is also a country with strong nationalist, often separatist attitudes, particularly in Catalonia and the Basque Country. The question of whether the presence of this nationalism has affected tariff policy is, again, difficult to resolve, but one is inclined to give a negative answer. Ideologically, the Franco regime was biased against any kind of national sentiments in the two regions mentioned above. In fact, the "disgregation of Spain", resulting from the granting of home rule to Catalonia and the Basque country by the Republic was one of the arguments used by Franco to justify his pronunciamiento. Further, those two regions fought strongly against Franco during the Civil War. These facts might lead one to think that the regime would enact economic policies to the detriment of those regions. But, since separatist sentiments did not disappear after Franco's victory, it could also be hypothesized that Franco attempted not to antagonize Catalans and Basques excessively. This second view is supported by the fact that
those two regions together with Madrid have been the most important industrial centers (and in many aspects the only ones) of the country and Franco needed the cooperation of the middle bourgeoisie (the main defenders of separatism in those two regions) for the reconstruction and industrialization of Spain.

VI. PRIMARY HYPOTHESIS TO BE TESTED

As a result of the discussion in the previous sections I propose to test initially the following hypotheses:

A. The level of protection is higher in those industries that are more concentrated

*Assumptions upon which this hypothesis is based: In highly concentrated industries, the free-rider risk is decreased. Their larger firms are likely to have access to monopoly profits that can be used to influence the administration. Besides, firms in concentrated industries are likely to be willing to accept the burden of lobbying even if the smaller firms do not contribute financially to that effort.

*Testing variable: The standard way to measure industry concentration is to use the share of the 4 largest firms in the output of the industry. However, Spanish statistical sources do not provide this type of information at a sufficient level of disaggregation.
Still, for a considerable number of industries, Spanish statistics contain the distribution of establishments into five intervals of size. A Gini coefficient can be obtained from the available data as follows:

\[
    G = 1 - \frac{\sum_{i=1}^{n-1} L_i}{\sum_{i=1}^{n-1} E_i}
\]

where \(L_i\) = accumulated percentage of employment up to interval \(i\) and \(E_i\) = accumulated percentage of establishments up to interval \(i\). The larger is \(G\), the Gini coefficient of concentration, the higher is the degree of sellers' concentration. The value of \(G\) is between 0 and 1.

*Prediction: The larger is coefficient \(G\), the higher will be the level of protection.

B. The level of protection is higher in those industries that contain one or more of the largest Spanish firms.

*Assumptions upon which this hypothesis is based: Large firms are controlled by a power elite with strong influence on the administration. The foundation of this influence has historical origins based on the traditional influence of the aristocracy and the persistence of personalistic modes of relations. Large firms tend to be controlled by that power elite. Further, large firms, are likely to
enjoy monopoly profits that can be used to hire executives that have strong personal ties with the Administration.

*Testing variable: Three alternative indexes on the participation of Spanish largest firms in each industry. The data base for them is the financial information on the largest 500 firms in the Spanish economy published by the Ministry of Industry. The first of those indexes, $P_1$, measures the share of the value of output in each economic sector produced by the largest Spanish firms that belong to that sector. The second, $P_2$, indicates the rate of numerical participation of those firms in each economic sector. The third, $P_3$, shows the average output of the largest firms weighted by the size of the economic sector. The higher is any of these indexes, the more important is the presence of large firms in each given economic sector.

*Prediction: The larger is $P_1$ (or $P_2$, $P_3$), the higher will be the level of protection.

C. The level of protection is higher in those industries that have personal ties with the "financial oligarchy"

*Assumptions upon which this hypothesis is based: The particularistic modes of communication with the administration give a special advantage to those industries which are especially controlled by members of the economic and social elite in Spain. Members of that power elite are likely to be influential with members of the administration.

*Testing variable: Two groups of four indexes of the participation in Spanish corporations of the most powerful Spanish families.
The data base for both is Las 100 'familias' espanolas, a report written by a group of economists from data published in the yearbook of Spanish corporations. The first group of indexes refers to the absolute level of control of each economic sector by those families. The first index, \( F_1 \), indicates the number of members of the 100 most powerful families that belong to boards of directors of firms, within each economic sector; the second index, \( F_2 \), indicates the number of these members that are chairmen of the board of directors in those sectors; the third index, \( F_3 \), indicates the number of firms, in each economic sector, in which at least one member of those families belongs to the board of directors; the fourth index, \( F_4 \), measures the value of equity in all the firms, within each economic sector, where at least one member of those families belongs to the board of directors. The second group of indexes refers to the relative level of control of each economic sector of those families. They were obtained by dividing the previous indexes by a measure of the size of the industry and reflected the degree of participation of the 100 most powerful families across industries.

*Prediction: The larger is \( F_1 \) (or any of the other indexes), the higher will be the level of protection.*
D. The level of protection is higher in those industries where profit margins are lower.

*Assumptions upon which this hypothesis is based: Profit margins are a proxy for the rate of return to the capital factor. The reduction in domestic production resulting from an increase in imports affects especially the returns on those industry-specific inputs whose factor share in total cost is small. Under the plausible assumption that capital is more industry specific than labor, one would expect capital to seek protection very actively in those industries in which its share in output is small. Furthermore, low profit margins tend to result in low rates of return on invested capital. Low rates of return indicate a lack of healthiness in the industry and a higher likelihood of being hurt by foreign competition. Hence, sectors with low rates of return are among the ones that can most convincingly obtain protection through lobbying.

*Testing variable: The share of non-wage value-added in output, PROK17. The data base to obtain this variable is the Spanish Input/Output Tables.

*Prediction: The lower is PROK17, the higher will be the rate of protection.
E. The level of protection is higher in those industries whose labor intensity is lower.

*Assumptions upon which this hypothesis is based: Profit margins are a proxy for the rate of return on investment. The rate of return of investment, in turn, is an indicator of both the health of an industry of industry and its ability to successfully compete with imports. Low rates of return in an industry suggest a lack of comparative advantage in the production of the commodities of that industry. As Ray (1981a, 1981b) has shown sectors that have a comparative disadvantage have stronger incentives to incur the costs associated with lobbying for protection. Furthermore, Peltzman (1976) has suggested that government regulations tend to be biased toward the industries that are less healthy. Hence, sectors with low rates of return are more likely to obtain protection.

*Testing variable: There are several variables that can be used to proxy for differences in productivity and in comparative advantage. Caves (1976) has used the ratio between value added per worker at home and abroad as a proxy for differences in productivity. A similar measure, the input intensity ratio, has been used by Ray (1981). The advantage of this variable is the easy access to the data necessary to compute such a variable. Therefore, the variable that will be used in this research to proxy for comparative advantage is the labor intensity measured the ratio between wage income and value of output. The data
base for this variable is the Spanish Input/Output Tables.

*Prediction: The larger the share of wages in total output the lower will be the level of protection.

*Interpretation problems: The above prediction is based on the assumption of perfect competition in input markets. Yet, as mentioned before, the price of labor relative to capital has been kept artificially high in Spain leading, on those grounds, to a lower use of labor than otherwise. Further, the commitment of the Franco regime to full employment could, conceivably lead to protection of the most labor intensive industries. Both factors might weaken the significance of the prediction.

F. The level of protection is higher in those industries where the natural resource intensity of output is higher

*Assumptions upon which this hypothesis is based: Spain during the 1960s engaged in a process of industrialization designed to increase the rate of growth of the country. For a country that during the 1950s was mostly agricultural, an industrialization scheme with promises of long-run success had to be based on the development of un-sophisticated and simple manufacturing that did not require a high degree of technical or labor skills. Those goods, at the bottom of the scale of industrial sophistication, tend to be commodities that use
natural resources (i.e., inputs produced by the agriculture, cattle, fishing and mining sectors) intensively in their production processes. On economic development grounds, one would expect the administration to be interested in the protection of these sectors.

*Testing variable:* The share of purchases from the primary sectors (i.e., agricultural, cattle, fishing and mining sectors) in total output. The data based for this variable is the Spanish Input/Output Tables.

*Prediction:* The higher the share of purchases from the primary sectors in total output, the higher will be the level of protection.

*Interpretation problems:* The prediction of this hypothesis is consistent with the view of the administration quoted in Section IV.8 above that "semifinished goods" would be included in global quotas. (Even though the administration statement is couched in terms of "a better and cheaper supply", the point of reference is the previous trade regime of individual licenses.) Yet, two factors might weaken the statistical significance of the expected relationship. First, Spain is relatively abundant in some natural resources (especially agricultural, cattle and fishing). Products that use those commodities as inputs are likely to enjoy a comparative advantage making protection less necessary. Further, protection of those industries would make their output expensive by international standards creating price distortions that would prevent the growth of sectors that in turn use those commodities as their inputs. The effect of
these factors might be, as indicated, to observe a relationship between the indicated variables which is not as strong as expected.

G. The level of protection will be higher in those industries that purchase inputs whose domestic production is protected.

Assumptions upon which this hypothesis is based: The higher are the tariffs on inputs, the larger are the economic incentives to lobby and to pressure to obtain protection and the stronger are the "equity" arguments that firms can make to the administration to convince it to grant protection in order to compensate for the harm caused by the tariffs on their inputs. Even though it has been claimed by Gamir (1975) that Spanish tariff rates were not purposefully set according to effective protection criteria until 1973, one would expect those considerations to have been important in setting the pattern of tariffs.

Testing method: Variable to be used: Tariff rate on imported inputs, ATRIN7.

Prediction: The higher is ATRIN7, the higher will be the level of protection.

H. The level of protection is higher in those industries that have large valued added.

Assumptions upon which this hypothesis is based: Large sectors tend to have more establishments and firms and political pressure and lobbying are often more effective when supported by a large number of
establishments. Large industries can often convincingly claim in their dealings with the administration that the prosperity of the country's economy depends on the survival of those industries that are larger because of their ability to create employment both directly and individually. Yet, following Pincus (1975) it is assumed that the importance of size is subject to decreasing returns, i.e., even though large industries are likely to have higher import duties, the returns from size become smaller as the size of the industry increases.

*Testing variables: The free trade value of net value added (FREVA7) and its square (SQUVA7).

*Prediction: The higher is FREVA7 and the lower is SQUVA7, the higher is the level of protection.

VII. ADDITIONAL QUESTIONS TO BE TESTED

The tests proposed in the previous section concern issues for which there is both a supporting institutional framework and a theoretical foundation that allow us to provide for plausible hypotheses. There are, however, other issues for which either economic and political theory do not provide an unambiguous answer or the institutional evidence is not sufficient to suggest whether the issue is significant or not in the Spanish case or what is the direction of the relationship. Still, some of those questions seem rather pertinent. The purpose of analyzing these issues empirically is to determine whether their statistical relevance is sufficiently significant. This, in turn, might
allow us to infer the meaning of the observed relationships as well as some behavioral postulates. The issues to be addressed are the following:

A. The influence of non-tariff barriers

Although import liberalization has been mostly reflected by the progressive elimination of non-tariff barriers, they still represented during the 60s a serious trade restriction in many economic sectors. Whether non-tariff barriers have been used as a complement or as a substitute for tariff barriers is not clear. Tamames (1977) has suggested that sectors with large firms have enjoyed both quota restrictions and high tariffs. But, on the other hand, tariff reductions have often taken place primarily in those sectors that were protected by other import restrictions. A case in point are goods subject to State trading, whose tariffs are very low. In order to settle the issue, the relationship between tariff rates and an index, to be developed, of non-tariff barriers incidence will be both analyzed and estimated in Chapter IV.

From the myriad of non-tariff barriers that exist in any economy, three have been chosen for this study, since they are known to be among the strongest means by which the Spanish administration consciously limits, on a quantitative basis, the level of imports. Those three barriers are the three “regimes of foreign trade” mentioned in Section IV above and to which all commodities (besides those in "lib-
eralized trade regime", i.e., trade free of quantitative restrictions) are assigned in Spain: global quotas, state trading and trade subject to individual license.

For the index I propose to create to measure the incidence of those non-tariff barriers, the following information is required: 1. The list of all commodities subject to any of those three trade regimes. 2. Tables of correspondence between the Input/Output classification of industries from which the average tariff rates actually paid can be obtained and the Tariff Schedule Classification (which is the form in which the information about non-tariff barriers for each commodity is available). 3. An indicator of the relative importance of each non-tariff barrier within each economic sector. 4. A weighting scheme to reflect the degree of restrictiveness of each tariff barrier.

Information for the first requirement is available from different legal sources. Yet, the available tables of correspondence are not quite adequate to fulfill the second requirement and have to be improved.

Indicators of the relative importance of the three quantitative barriers within each economic sector are not available. By its very nature, the selection of a quantifiable indicator of this kind is subjective. A primary candidate, commonly used in other fields of research in international trade, would be the level of imports of all commodities subject, within each economic sector, to each trade re-
gime. On that basis, a trade regime would be more important within a sector, the larger the share of imports in that sector subject to that trade regime. However, in the context of this research, that indicator would be clearly biased, since the more restrictive a non-quantitative barrier is, the smaller, ceteris paribus, will tend to be the level of imports that enter into the country. An alternative indicator, which is free of this bias, is the number of tariff positions within each economic sector that are subject to each given non-tariff barrier. Clearly, this indicator may not accurately reflect the importance of a regime within a sector. For example, one can think of two economic sectors, each of them containing, let's say, 10 tariff positions. Suppose that 4 tariff positions in the first economic sector are subject to a non-tariff barrier while six positions are subject to that same non-tariff barrier in the second economic sector. Would it be legitimate to say that the non-tariff barrier is more important in the second sector than in the first? The answer will be positive if the size of each tariff position within each economic sector is the same. Yet, although there is no way to ascertain the likelihood of this possibility, one would expect that this must have been one, at least, of the criteria used when deciding how to classify commodities into tariff positions and subpositions.

There is a further reason to expect that indicator to be sufficiently appropriate. One of the means by which the Spanish administration has responded to pressure from industrial sectors to grant protection has been through the creation of new tariff positions or
subpositions to which either higher tariff rates or quantitative restrictions are imposed. Hence, ceteris paribus, i.e., holding the size of an economic sector constant, the larger the number of tariff positions or subpositions subject to a trade regime, the larger is likely to be the importance of that regime in that sector. Based on those arguments, the importance of each trade regime is proxied in this research by the number of tariff positions and subpositions subject to each of those regimes.

A weighting scheme to measure the degree of restrictiveness of each non-tariff barrier is not available either. Hence, several weighting schemes have been devised in order to satisfy the fourth requirement stated above concerning the construction of an "index of incidence of non-tariff barriers". All of these schemes are based on the reasonable criterion of assigning larger weights to those trade regimes that are more restrictive. Yet, the exact numerical value of the weights presents problems since any choice concerning them is arbitrary by definition. This arbitrariness derives from the serious difficulty of quantifying the answer to these two questions: How can the degree of restrictiveness be measured? How can differences in restrictiveness be compared? There are no definite answers to either of those questions and the assignment of weights has to rely on some subjective judgements. It seems plausible to assume that State trading is more restrictive or at least as restrictive as trade subject to individual license and both in turn are more restrictive than global
quotas. Commodities under State trading can only be imported by official institutions or by organizations delegated by them and only after the administration is able to determine that domestic production is insufficient (presumably, at the prevailing price). Trade under individual license is subject to the discretionary decision of the administration in each individual case that depends, among other things on the administration's evaluation of the conditions of domestic supply and on the trade and clearing account balance of the country of origin of the commodity. Quota trade, on the other hand, does not impose any restriction on the origin of the commodity and the administration cannot limit imports unless the quota is fulfilled. Further, since 1963 the size of the quotas is increased every year according to the rules mentioned in Section IV above.

On the basis of these arguments, a first weighting scheme to be used for each tariff position or subposition is the following: State Trade, 3; Trade under individual license, 3; global quota trade, 1; liberalized trade, 0. Given a certain degree of uncertainty about whether state trade is more restrictive than trade under individual license or not, other weighting schemes are discussed in Chapter IV.

With the data above, the following steps will be used to derive the incidence indexes of non-tariff barriers (their specific formulas are introduced in Chapter IV): 1. Multiply the number of tariff positions and subpositions subject, within each economic sector, to each trade regime by the restrictiveness weight of the trade regime. 2. Add the results obtained in step 1 for each trade regime. 3. Divide the
results obtained in step 2 by the total number of tariff positions and subpositions in that economic sector. The number obtained in this manner, whose value will range between zero and the maximum weight, is a qualitative index of the level of protection granted to that sector through the presence of quantitative barriers. The larger is the value of the index, the more restricted by non-tariff barriers is the importation of commodities in that economic sector.

If this index is statistically significant in its regression on tariff barriers, one can infer that tariff and non-tariff barriers are related in the policy mix. A positive sign would indicate, as Ray (1981) has suggested, that the same groups that had the political clout to obtain tariff protection were able, as well, to generate pressure for non-tariff barriers. A negative sign would indicate that tariff barriers were a substitute for non-tariff barriers, i.e., that the administration considered that either measure was sufficient by itself to provide adequate protection to the domestic industry.

B. The question of economic development priorities and Tariff policy.

Although the basic structure of the import policy inaugurated in 1959 was established prior to the development plans, import liberalization and development plans were the result of the same fundamental goal, that of "modernizing" the Spanish economy, and were carried out by, essentially, the same team of administrators. Therefore, one
might suspect the existence of some relationship between both programs, i.e., that tariff policy decisions might have been affected by economic development concerns that would be revealed by the pattern of protection across industries. In fact, hypothesis P attempts to address those concerns. Yet, to establish other connections with some certainty is a difficult task due to the lack of sufficient specificity of the Development Plans (whose goals seemed to be to develop everything) and to the absence of any public discussion of a definite role for tariff policy in the development plans. Given that state of affairs, one might be tempted to conclude that tariff policy was not much connected with the development plans. The conflicting character of this question suggests the need for some elaboration.

That the development plans were supposed to be selective, thus to provide unequal protection is illustrated by the reflections of Alberto Ullastres, Spanish Minister of Commerce and one of the key persons in economic policy-making in the late 50s and early 60s when he wrote that, with the development plan "it will be necessary to break the stationary equilibrium by using selective policies that will stimulate the growth of some sectors more than others...it is not efficient to treat all sectors in the same way or to give equal fiscal or credit advantages or tariff protection to all sectors...The essence of the development policies lies in their discriminatory character". 21

Still, neither Ullastres nor the development plans were very specific in pointing out which sectors should receive the aforementioned priority. The development plans encompassed most sectors of the
economy and none was singled out as deserving special treatment or
given a special role with the exception of the "exporting sectors" and
some "basic sectors". In this respect, Ullastres says that priority
sectors should be "some basic sector for which it is not deemed con-
venient to have deficits (sic) in a sizable amount and those sectors
[that are], actually or potentially, most internationally competitive".
While the second part of the last sentence seems to be a clear refer-
ence to the exporting sectors, the first part is more ambiguous. Yet,
it is likely that he was referring to those industries already dis-
cussed in hypothesis F above. On the other hand, for growth selectivity
to be operational, an economic criterion often mentioned in the liter-
ature of the late 1950s was that of economic linkages: sectors to be
developed, it was said, were those with the ability to use inputs pro-
duced by other sectors or/and to create the conditions for the growth
in the demand by other sectors.

In order to investigate the possible relationship between econom-
ic growth potential (via linkages) and tariff rates, a linkages index
needs to be constructed. A standard method to compute linkages in the
economic development literature is through the computation of the
Leontief inverse of an input-output matrix.

Two less sophisticated and less costly, but also valid indexes to
measure both forward and backward linkages will be created and used in
this research. The measure of forward linkages, \( NUOUT7 \), is the number
of sectors that purchase inputs from a given sector. The larger the
spread of the contribution of that sector to other sectors, the larger
is the number of forward linkages or the dependence of the economy from that sector. On economic development grounds, one would expect the levels of protection to be higher in those sectors. One should be aware, however, that this relationship might be less significant than one would expect on those grounds due to the counterinfluence of political pressure of the buying sectors. These sectors are always hurt by the presence of tariffs on their inputs; yet the smaller the number of them, i.e., the more concentrated the number of buyers, the easier it will be to eliminate free rider problems. As an index of buyer concentration, this research uses the share of total sales of a sector to all other non-final goods sectors that purchase at least 5% of that sector's output, BUYC17. Since BUYC17 and NUOUT7 both embody two effects that simultaneously run in opposite directions one might fear that the statistical significance of either of these variables in the determination of tariff rates might be less than expected.

The measure of backward linkages, NUINP7, is the number of sectors that sell inputs to a given sector. The larger is the spread of the pull of resources that these sectors make from the rest of the economy, the larger is the number of backward linkages. On economic development grounds one would expect the administration to be willing to grant protection to these sectors. The statistical significance of this relationship might be less pronounced than expected because input suppliers have an interest in the height of the tariff on the goods incorporating the product, since an output tariff can increase the price of domestic inputs unless the supply of foreign inputs is perfectly inelastic (Pincus, 1975).
C. The question of import penetration

Another issue that deserves attention is the analysis of whether tariffs are likely to be higher or lower in sectors where import penetration is higher, i.e., sectors where the share of imports in total output is larger.

Ray (1980) as well as Fieleke (1974 and 1975) have suggested that tariff rates will be higher in those sectors most menaced by foreign competition since those are the sectors that most convincingly can obtain protection through lobbying. On these grounds, they have hypothesized a positive relationship between import penetration and tariff rates. Yet, the certainty of the sign of this relationship is not obvious, since import penetration and tariff rates are simultaneously determined. In other words, import penetration might affect tariff rates, but tariff rates do affect import penetration as well: the higher is the tariff rate, the lower will be the degree of import penetration. In summary, then, an unambiguous hypothesis concerning the sign of the relationship between tariff rates and import penetration cannot be stated. Yet, the usefulness of investigating what the relationship is, at a point in time, still remains.

D. The question of the pattern of tariffs in Spain versus that in the Common Market

One of the criteria used by the Spanish Tariff Revision Board when deciding the new tariff rates established by the 1960 Tariff Law was to enact protective rates that were not very different from those
in other European countries. More important than this, one of the objectives of the Spanish administrations since the early 1960s was to obtain membership in the Common Market. Although this objective has not materialized even yet, the formation of the Common Market was reported to have been a main factor in the adoption of the 1959-60 measures to liberalize the economy. Further, many decisions concerning import policies taken by different Spanish administrations since then have often been justified on the grounds that "they would provide bargaining power in the negotiations" for the eventual entry of Spain into the EEC or that they would "prepare the economy for the discipline and competition which that entry would impose."

The desire to keep "some bargaining power" in the EEC negotiations might explain why the "legal" tariff rates have remained on the books. Yet, if the administration was consciously trying to adjust the economy to the eventual membership in the EEC, one would expect its pattern of actually applied import duties to increasingly resemble that of the European community, on the grounds that the prevailing tariff structure in Spain would be replaced by that of the EEC.

Specifically, one might expect the Spanish administration to have especially reduced the level of protection in those industries that were relatively more protected than others in relation with the pattern of the common exterior tariff of the EEC.

On the other hand, however, those industrial sectors likely to be harmed by the entry into the EEC are likely to have pushed for the
continuation of the disparity between tariff rates on the argument, often read in Spanish newspapers, that "we are not ready yet."

An examination of the relationship between the Spanish Tariff rates and those in the Common Market, will help elucidate the net result of these two opposed forces.

VIII. **THE DEPENDENT VARIABLE**

The dependent variable used in the empirical analysis in Chapter III is ANTAR7, the import weighted nominal average import duty actually paid in 1970, on imports of goods equivalent to those of each Spanish economic sector. The duty includes both the actual tariff rate and the border adjustment tax, actually paid. It takes into account, for every sector, all the different exemptions and reductions granted either across the board or specifically to each economic sector. Those duty rates have been computed from data contained in the Spanish Input/Output Tables of 1970. Another dependent variable used in some sections of Chapter III is a "comprehensive index of protection" whose computation is discussed in Chapter III and, occasionally, the average legal tariff rates for each economic sector. In Chapter IV the dependent variables are the indexes of incidence of non-tariff barriers whose concept was introduced in Section VII.A above.
IX. SOURCES OF DATA

The main source of data for the empirical analysis will be the Input-Output Tables of Spain for 1970. They were chosen as the pivotal source of information because they contain the most comprehensive and internally coherent set of data among the Spanish statistical sources. From the start, twenty four of the 136 sectors of the Table will be excluded from the analysis since they refer to either non-tradeable goods or services or to services not subject to protection. Data for the presence of big business will be mostly obtained from Las mayores empresas industriales de España, published by the Spanish Ministry of Industry for 1972. Data on industry concentration, employment, and number of firms per industry will be obtained from the Estadística Industrial de España, published by the National Institute of Statistics for 1966. Financial data on the control of Spanish corporations will be obtained from "Las 100 'familias' espanolas", a 1966 report published by Cuadernos de Ruedo Iberico, Paris. Common Market Tariff rates will be obtained from the 1965 EEC Input Output Tables. Data on tariff barriers and legal tariff rates for 1970 will be obtained from Regimen del Comercio Exterior, published by the Chamber of Commerce of Barcelona and from Aranceles, a publication of Banco de Bilbao.

Since the coverage and level of aggregation of these sources is smaller than that of the 1970 Input-Output tables some of the 112 ori-
nginal sectors will have to be aggregated or eliminated in some parts of the empirical research. A listing of the original 112 sectors is included in Appendix B.
NOTES TO CHAPTER II

1. Roldan et al. (1973), pp. 358 ff.
6. Ibid., p. 203.
8. Tamames (1977), Ch. 3.
9. Ibid., p. 76.
10. Ibid., p. 84.
CHAPTER III: THE DETERMINANTS OF IMPORT DUTIES IN SPAIN

I. THE FOUR SPANISH IMPORT REGIMES AND THEIR AVERAGE DUTIES

1. Introduction: Some Observations on the Relationship between Trade regime and import duties

In a previous paper (Bataller 1981), I found a negative relationship between import duties and different measures (in the form of both indexes and dummy variables) of restrictiveness of quantitative restrictions apparently suggesting that those sectors most restricted by non-tariff barriers tend to have significantly lower import duties than sectors with less restrictive quantitative barriers. This negative relationship disappeared, however, as I show in Chapter IV when sectors subject, either partially or totally, to State trade were excluded from the analysis. Further, when sectors with commodities under individual license were partially or totally excluded from the analysis as well, the relationship between import duties and the same non-tariff barriers indices became positive and significant in a substantial number of cases. Finally, when both groups of sectors were jointly excluded, a new index measuring the share of global quotas in each sector appeared positively and strongly correlated with import duties.

What those results seem to suggest is the following:

1. The two most restrictive trade regimes (State trading and trade under individual license) have in general lower duties than the other regimes. This would explain why the total or partial exclusion of
sectors containing commodities under those regimes turns the relationship between import duties and quantitative restrictions from negatively significant in all cases to positively significant in most cases.

2. Commodities under global quotas tend to have higher duty rates than commodities under free trade. This would explain why import duties and quantitative restrictions indexes are positively related in many instances when commodities under State trade and under individual license are totally or partially excluded from the bivariate regressions; that is, it explains why that relationship is positive and frequently significant when the sectors under analysis contain only or mostly commodities under liberalized or under global quotas trade. Finally, this would similarly explain why, when considering the last two types of sectors, in a regression on import duties of a new index that measures only the importance of global quotas across sectors, the relationship is always positive and very significant.

3. Commodities under state trade tend to have lower import quotas than commodities under individual license, but the difference is not as systematic as that between state trade and the other trade regimes. This would partially explain why the exclusion of sectors with commodities under individual license does not result, in general, in a change in significance levels as pronounced as that produced by the removal of sectors with commodities under state trade.
2. The computation of average duties corresponding to each trade regime in Spain

In order to confirm the statistical inferences indicated on a more intuitive basis, this section develops three alternative ways of obtaining an aggregate measure of import duties for each of the four regimes that regulate the importation of commodities in Spain. A requirement for the derivation of those three measures is the determination of the trade regime to which every commodity within each economic sector is subject. The determination is not always straightforward since a commodity is often subject to more than one trade regime. For that reason, two alternative forms of pairing commodities with trade regimes have been used and, hence, two sets of import duty rates have been constructed: one for Type-1 measure and the other for Type-2 measure of the number of commodities under each type of trade regime. The difference between both measures lies in the way a commodity is assigned to a trade regime when the commodity is simultaneously subject to two trade regimes. In Type-1 measure, a half of the commodity is assigned to each trade regime. In Type-2, the 50%-50% scheme, becomes 75%-25%, i.e., 75% of the commodity is assigned to the regime listed in the first place and 25% to the regime listed in the second place. Each tariff subposition has been counted as one commodity.

For the computation of the indexes reported below, the following information was gathered:
a. Import duty revenues, CIF value of imports, and value of domestic output in each of the 112 economic sectors in the sample: Obtained from data in the Spanish Input-Output Tables of 1970

b. Trade regime corresponding to each tariff position or subposition in the Spanish Tariff schedule: Obtained from Regimen de Comercio Exterior, which reported that information as of December 31, 1970.

c. A correspondences table between the 112 economic sectors of the Spanish Input/Output Tables listed in Appendix B to Chapter II and the classification of commodities in the Tariff Schedule: The main source of reference was the correspondence tables included as an Appendix in the Spanish Input-Output Tables of 1970. Yet since several errors were found in those correspondence tables, other sources as well as educated guesses by this author were used in order to establish the correspondences applied in this research.

A. Import-weighted average duty rates

The purpose of the import weight is to take into account the relative importance of each sector within the total volume of import trade. Thus, the formula used to derive the average percentage import duty corresponding to each trade regime is:
\[
\text{PREM}_{ik} = \frac{\sum_{j=1}^{112} (\text{SHREM}_{ijk})(\text{TARIF7}_{j} / \text{IMPORT7}_{j})}{\sum_{j=1}^{112} (\text{SHREM}_{ijk})(\text{IMPORT7}_{j})} = \frac{\sum_{j=1}^{112} (\text{SHREM}_{ijk})(\text{TARIF7}_{j})}{\sum_{j=1}^{112} (\text{SHREM}_{ijk})(\text{IMPORT7}_{j})}
\]

(1)

where:

\text{PREM}_{ik} = \text{import-weighted import duty rate corresponding, on average, to all commodities, computed with measure k (k=1,2) under trade regime i (i= liberalized trade, trade under global quotas, trade under individual license, state trade).}

\text{SHREM}_{ijk} = \text{(REGIM7}_{ijk})/(\text{TARP07}_{ijk})

\text{REGIM7}_{ijk} = \text{number of commodities, according to measure k, under trade regime i in sector j (j=1, 112).}

\text{TARP07}_{j} = \text{number of commodities in sector j.}

\text{TARIF7}_{j} = \text{import duty revenues in sector j.}

\text{IMPORT7}_{j} = \text{CIF value of imports in sector j.}

Therefore, \((\text{TARIF7}_{j} / \text{IMPORT7}_{j})\) is the average duty for sector j and \text{SHREM}_{ijk} measures the share in sector j of commodities under trade regime i. Hence, \((\text{SHREM}_{ijk})(\text{TARIF7}_{j} / \text{IMPORT7}_{j})\) is the share in sector j of the duty that can be attributed to the commodities under trade regime.
i, and \((SHREM7_{ijk})(TARIF7_j)\) is that share weighted by imports. Further, 
\((SHREM7_{ijk})(IMPOR7_j)\) is the share in sector \(j\) of commodities under trade regime \(i\) weighted by imports.

Consequently, the numerator in expression (1) measures the total level of import duty revenues attributed to commodities under trade regime \(i\), while the denominator measures the total level of imports attributed to them. Therefore, expression (1) is the ratio of import revenues over imports, both weighted by the share of commodities under trade regime \(i\) in the total number of commodities. Expression (1) can be interpreted also as the average duty weighted by imports.

The method just outlined seems a very plausible way of deriving the average import duty corresponding to each trade regime. However, it should be noted that this method (whose essential features are used in formulas (2) and (3) below, as well) could give rise to a source of aggregation bias of unknown direction. The method implicitly assumes that all commodities within a given sector are equally important, i.e., that the share of imports and import revenues is the same for each commodity of that sector. There is no reason to believe that this is always the case or, even, the most common one. But, in general, there is a tendency for relatively similar commodities (such as those included within a given sector) to have similar import duties. Further, given the level of aggregation of the data, no other method seems feasible.

The average duties obtained from formula (1) are listed in section (1) of Table I.
B. Output-weighted average duty rates

A major drawback of import-weighted import duties for commodities under trade regimes of different restrictiveness is the likelihood of underweighting the tariff rates of sectors with commodities under specially restrictive non-tariff barriers. In effect, if a trade regime is considerably restrictive, the level of imports of commodities under this regime will tend to be lower than otherwise and that, in turn, will affect the aggregate level of imports in the corresponding sector. Specifically, the low values of import duties for commodities under individual license and state trade (the two most restrictive trade regimes) obtained using method 1 could be the result of that import bias.

In order to suppress that bias, an alternative method was devised whereby the weight was the value of the domestic output in each sector. By using this method one should suspect that, if any bias exists, it would be in the opposite direction, since, ceteris paribus, the ratio of domestic output to imports will be larger the more restricted imports are and, therefore, the more protected the domestic industry is.

The formula to derive the output weighted average import duties is the following:

\[
VREM_{mk} = \frac{\sum_{j=1}^{112} (SHREM_{ijk} \cdot (TARIF_{ij}/IMPOR7) \cdot (VPRFY_{ij}))}{\sum_{j=1}^{112} (SHREM_{ijk} \cdot (VPRFY_{ij}))}
\]

(2)

where:
\( VREM_{ik} \) = output-weighted average import rate duty corresponding, on average, to all commodities, computed with measure \( k \) (\( k=1,2 \)) under trade regime \( i \).

\( VPRFY_{j} \) = value of domestic output (at factory prices) in sector \( j \).

The numerator in expression (2) measures the share of import duties attributed to commodities under trade regime \( i \) weighted by the value of domestic output while the denominator shows the sum of the shares of commodities under trade regime \( i \) weighted by domestic output. The difference with expression (1) is that the import weight in the later has been replaced by the \( VPRFY_{j} \) weight in expression (2).

The average duty rates obtained for each trade regime with formula (2) are in section (2) of Table I.

C. Unweighted average duty rates

Using the value of output as the weighting index, implicitly assumes that \( VPRFY_{j} \) is a proxy for what the level of imports would be in each sector in the absence of quantitative restrictions. Hence, it assumes as well that, in that case, the ratio of domestic output to imports would be the same across industries. Since this assumption might be unwarranted, a third method of deriving average import duties for each trade regime has been devised by not using any weighting factor.

The formula used to derive the unweighted average import duties as follows:
\[
\sum_{j=1}^{112} (\text{SHREM7}_{ijk})(\text{TARIF7}_j/\text{IMPOR7}_j)(\text{IMPOR7}_j)
\]

\[\text{NREM7}_{ik} = \frac{\sum_{j=1}^{112} (\text{SHREM7}_{ijk})}{\sum_{j=1}^{112} (\text{SHREM7}_{ijk})} \quad (3)\]

where:

\[\text{NREM7}_{ik}\] = unweighted average import rate duty corresponding, on average, to all commodities, computed with measure \(k\) \((k=1,2)\) under trade regime \(i\).

The numerator in expression (3) indicates the share of the import duty rates attributed to commodities under trade regime \(i\) while the denominator measures the sum of the shares for all sectors of the commodities under that trade regime. Hence, the ratio is the unweighted duty for commodities under trade regime \(i\).

The average import duties obtained by using this formula are in section (3) of Table 1.

3. Discussion of the results

The import duties in Table 1 suggest the following comments:

a. Regardless of the weighting scheme, the highest average import duties correspond to commodities under global quotas followed, in decreasing order, by those under liberalized trade, individual license and state trade.

b. Regardless of the weighting scheme, duties on State trade commodities are fairly low, between three and four times lower than those
under liberalized trade and around five times lower than those under global quotas.

c. Regardless of the weighting scheme, duties on free trade commodities are considerably and consistently lower than those under global quotas. The gap between them is most notable when duty rates are unweighted or weighted by imports since in those cases duties for global quotas are around 50% above those for liberalized trade commodities. When weighted by output, the former are still around 22% higher than those for the later.

d. The one regime that is clearly sensitive to the weighting scheme is that of individual license. Although the rates for commodities under this regime are always above the rates for commodities under State trade and below the rates for those under liberalized trade, the extent by which the later two differ with the first one varies very substantially with the weight used. Duties for liberalized trade are more than 2.5 times as high as those for individual license trade when the rates are weighted by imports; the gap closes to 1.25 times and to 1.12 times when the rates are unweighted or weighted by output. This seems to indicate that sectors where the import of some or all of their commodities require individual license tend to have relatively lower levels of imports than the other sectors. Whether this is mostly the result of the restrictiveness of that trade regime can not be ascertained, however, because the absolute level of imports might depend on other factors (economic, political) as well as on the aggregation of the sectors (for instance, those sectors might have low levels of imports because
<table>
<thead>
<tr>
<th>Trade regime to which the commodities are subject</th>
<th>Import-weighted average import duties</th>
<th>Output-weighted average import duties</th>
<th>Unweighted average import duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberalized trade</td>
<td>17.654% 17.700%</td>
<td>20.398% 20.483%</td>
<td>18.283% 18.594%</td>
</tr>
<tr>
<td>Global quotas</td>
<td>24.974% 26.348%</td>
<td>24.845% 25.131%</td>
<td>28.755% 28.179%</td>
</tr>
<tr>
<td>Individual license</td>
<td>6.536% 6.757%</td>
<td>18.165% 18.034%</td>
<td>14.094% 14.534%</td>
</tr>
<tr>
<td>State Trade</td>
<td>5.227% 4.761%</td>
<td>6.429% 4.879%</td>
<td>6.327% 5.669%</td>
</tr>
</tbody>
</table>

I thank Catherine A. Baird, now at the Federal Home Loan Bank of San Francisco, for her help in devising the computer program used to calculate the rates of this table.
they are relatively small sectors). Still, one gets some supporting
evidence of the restrictiveness of that regime by observing that the
output-weighted duty rates are a good bit larger than the ones weighted
by imports.

4. Conclusions

The average import rates obtained in this paper tend to conform to
the statistical results developed in Chapter IV. On average, import
duties are higher on commodities under global quotas and liberalized
trade than on commodities in the other two more restrictive regimes, in-
dicating that import duties and quantitative restrictions might be
thought of as acting as substitutes in these two broad subgroups (global
quotas and liberalized trade versus state trade and individual license).
Within the first subgroup, however, import duties and quantitative re-
strictions act as complements, as indicated by the fact that tariff
rates are higher for commodities under global quotas than for those
under liberalized trade.

II. THE PATTERNS OF IMPORT DUTIES IN SPAIN AND IN THE COMMON MARKET

1. Institutional Background and Hypothesis Formulation

As indicated in Chapter II, the 1959 Spanish Stabilization Plan,
the new 1960 Tariff Law and the successive reductions of non-tariff bar-
riers that were enacted since the early 60s responded to the decision by
the Spanish administration to abandon the autarkyc practices of the previous period. The administration teams that took charge of economic policy-making in Spain starting in 1957 decided that the key to the development of Spain passed through her integration in the world economy and her participation in international agreements and institutions. As reported in Appendix A to Chapter II, there is no evidence that either the IMF, the OEEC or the World Bank pressured Spain in her decisions on which sectors were to have their tariffs and/or non-tariff barriers lowered, despite the involvement of these institutions in the advising, setting and financing of the economic policies implemented in the early 1960s in Spain.

A further objective of the Spanish government that soon became public was attaining membership in the Common Market. Despite the hopes of the officials of the different economic administrations of Franco's regime since the early 1960s, membership in the Common Market was never obtained during Franco's life reportedly due to the ideological incompatibility between the democratic institutions of the member countries of the European Community and the Spanish political system. Even so, a preferential Trade Agreement was signed in June 1970 between Spain and the CEE. And, in fact, the Spanish administration kept on admonishing businessmen on the need to modernize their plants and techniques in view of an eventual entry in the Common Market.

Since the membership in that institution would mean a replacement of the prevailing Spanish tariff rates by the Exterior Common Tariff of the Common Market, one would expect the Tariff Revision Board and the
Ministry of Commerce to increasingly take into account the Common Market tariff rates when deciding changes in the Spanish tariff schedule. This would in fact seem to be an appropriate way for the Spanish administration to prepare the different sectors of the economy for the competition that would ensue the lowering of Spanish tariff barriers to the Common Market members. Furthermore, if this adjustment of Spanish import duties took place, it would be on the duties actually applied, as opposed to the legal tariffs, whose rates, generally higher, were kept "in the books" as a bargaining tool for the negotiating table with the EEC.

2. Methodology and sources of data

Optimally, it might have been desirable to test the hypothesis stated above in the context of the regression equations estimated in section VI of this Chapter to estimate the determinants of Spanish import duties. This would have allowed us to analyze the interaction between the EEC Common Exterior Tariff and the other variables included in those regression equations.

Regretfully, two important factors prevented us from doing that. The first factor concerned the disparity in the level of aggregation of the available data for the import duties in Spain and the EEC.

The most disaggregated manner in which data on the EEC Common Exterior Tariff rates were available was at the level of 57 sectors. This
information was obtained from the 1965 EEC Input-Output tables. As expected, attempts to develop reliable correspondence tables between those 57 sectors and the 112 relevant sectors of the Spanish economy by assigning the former to the latter were unsuccessful. Furthermore, even though the aggregation criteria upon which the Spanish Input-Output tables are based is, in principle, similar to that of the EEC Tables, several disparities in those criteria forced the aggregation of sectors in both tables into a smaller number so as to make them comparable.

The reduction in the size of the sample that was thus involved suggested it would be inappropriate to try to include the Common Market tariffs in the regression equations of Section VI below since this would have substantially reduced the number of degrees of freedom and the ability of that equation to pick up systematic differences within Spanish economic sectors.

The second factor concerned the adequacy of the test to be performed. It was thought that, even if the problem of data aggregation had not existed, the simple correlation analysis between Spanish and Common Market tariff rates might not have been as appropriate as a rank correlation analysis. It was believed that if an adjustment between tariff rates was sought by the Spanish administration, its purpose would not be so much to match tariff rates or to duplicate the quantitative intensity of the levels of protection as to adjust the relative degree of protection of the different Spanish economic sectors. From this viewpoint, the differences in magnitude in tariff rates of Spain and the
EEC would be less relevant than differences in ranking of sectors in those two areas concerning their tariff levels.

As a result of those considerations, the testing of the relationship between Spanish and Common Market duties was carried out in the form of rank correlation analysis.

Two rank correlation tests were performed. The first test involved the comparison between the Spanish import duties in 1970 and those in the Common Market in 1965. There were several reasons for choosing data corresponding to those years: First, 1970 was the reference year for most of the other data used in this research. Second, by 1970 the idea of Spain achieving membership in the Common Market had become a major goal of the Spanish administration. Third, in the event of an accommodation between Spanish and Common Market import duties, a certain lag was likely to exist in the adjustments made by the Spanish administration.

On the other hand, if it were found empirically that some degree of correspondence existed between both patterns of protection, an additional question to investigate would be the analysis of the path of adjustment of the Spanish import duties structure to that of the Common Market. Specifically, one would expect that the similarity with the pattern of protection in the Common Market would be more pronounced in 1970 than in the early 60s, when the immediate integration in the Common Market was perceived as less likely. Hence, a second test involved the comparison between Spanish import duties in 1962 and those in the Common Market in 1965. The selection of 1962 for Spain was quite straightforward: by this time, the new Tariff Law had been in effect
for two years only and some major tariff rate changes had not been implemented yet. Furthermore, membership in the Common Market had not yet become a well defined objective of the Spanish administration. Finally, the Spanish Input-Output Tables for 1962 contained information from which to derive the actually applied import duties, in a manner that, after some manipulations, allowed us to compare this information with that for the Common Market in 1965. The use of 1965 for the EEC which seem less justifiable in principle. After all, what relevance would tariff rates that were not yet applied in the Common Market have for the Spain of 1962? If comparable data had existed for tariff rates for the Community for late 1950s, it might have been desirable to compare those with the Spanish import duties for 1962. Yet, those data are not available (among other things because the EEC did not officially exist until 1960) and the earliest data on import weighted duties for the whole Community are those for 1965. Furthermore, even though tariff rates in the EEC changed somewhat during the period, their changes were not as substantial as those in Spain.

The rank correlation coefficients were computed according to Spearman's formula:

\[ r' = 1 - \frac{6 \sum_{i=1}^{n} d_i^2}{n (n^2-1)} \]

where \( d_i \) is the difference in the import duties ranking of the same economic sector, i, in Spain and the EEC and \( n \) is the number of observations or economic sectors.
Since that coefficient was expected to be positive, its statistical significance was evaluated by a one-tailed test of the following statistic:

\[ t = r' \sqrt{\frac{n - 2}{1 - r'^2}} \]

which is distributed as Student's t with \( n - 2 \) degrees of freedom.¹

The main difficulty, already suggested, concerning the use of the three different sets of data from which the correlation coefficients were computed was that each of the three sets contained a different number of economic sectors (The complete Spanish Input-Output Tables for 1962 and 1970 contain 86 and 136 sectors, respectively, while the European Community Tables for 1965 contain 56 sectors), and those sectors were not always easily comparable since their aggregation criteria differed. Hence, a table of correspondence was developed first between the 1965 EEC and the 1962 Spanish Tables and, later, between the 1965 EEC and the 1970 Spanish Tables. In most instances, it was possible to establish an exact correspondence between sectors; in other cases, it was necessary to make value judgments on how to assign a given sector in one of the tables to two or more sectors in the other table. This allowed us to have a relatively large number of comparable observations for each of three sets of data. After eliminating the service sectors, the sample consists of 44 sectors including all primary and manufacturing activities. The list of the 44 sectors and their corresponding import duties is in Appendix C. Appendix D lists the correspondence between the economic sectors in each of the three Input-Output tables.
Two sets of rank correlation coefficients were computed to analyze the relationship between the 1962 and 1970 Spanish duty rates and the EEC Common Exterior Tariffs. The first included all 44 economic sectors. The second excluded three sectors, the special characteristics of which in the Spanish economy were believed to distort the power of the rank correlation coefficients since all three were industries specially protected by non-tariff barriers: the sectors excluded were tobacco and sugar (both of which have low tariff rates but they are under State trade) and naval construction (which has an average-type of tariff rate but is subject to a very restrictive system of trade under individual license).

3. **Empirical Results and their evaluation**

The rank correlation coefficient between the 1970 Spanish and the 1965 EEC import duties when all 44 sectors were included is \( r' = 0.4920 \) with \( t = 3.662 \). For a one-tailed test, the coefficient is significant at the 99.995% confidence level. The value of this rank correlation coefficient increased to \( r' = 0.7283 \) with \( t = 6.5516 \) when the three aforementioned sectors were excluded. For the corresponding significance test, the coefficient was significant also at the 99.995% confidence level.

As was expected, the rank correlation coefficient once the three spurious sectors are removed, indicates a stronger degree of correspondence between the Spanish and EEC import duties. The relatively large rank correlation coefficients and the high degree of statistical significance suggests that the Spanish administration indeed adjusted, more
than moderately, its import duties to those of the Common Market. Yet, the fact that the value of the rank correlations is not too close to 1 tends to indicate that either the Spanish administration was not very confident of an immediate entry into the Common Market or that the intentions of the administration were partly neutralized by the pressure of interest groups representing those groups that would be relatively unprotected by the entry of Spain in the EEC.

The rank correlation coefficient between the 1962 Spanish import duties and the 1965 EEC tariffs was $r^* = 0.5092$ with $t = 2.8343$ when all sectors were considered and $r^* = 0.6643$ with $t = 5.5501$ when only 41 sectors were included. Both coefficients were statistically significant at the 99.995% confidence level. Those values suggest a considerable degree of association also between the 1962 Spanish and the 1965 EEC rates of import duties. Yet, the interpretation of this latter result requires further elaboration. If it is true, as discussed, that the ranking of the 1965 EEC tariff rates is an appropriate proxy for the tariff rates in the Common Market prior to 1962, the strong similarity between the rank correlation coefficients corresponding to the Spanish Import duties of 1962 and of 1970, respectively, seems to suggest that the net adjustment of the Spanish import duties to those of the Common Market was minimal between 1962 and 1970. This, in turn, suggests that the adjustment either took place before 1962 or, if it took place afterwards, other tariff changes during the 1962-1970 period reduced the degree of adjustment to that prior to 1962. It should be noted that the fact that the pattern of input duties in Spain in 1962 was not too much unlike
that of the Common Market is not surprising. As indicated in Chapter II, one of the criteria used by the Tariff Revision Board in setting up the height of the tariff rates in the new 1960 Tariff Schedule was the level of tariffs in other countries with which Spain traded. By the late 1950s, most of Spanish trade took place with the OEEC countries and specially those that in 1960 constituted the Common Market.

4. Conclusions

Rank correlation analysis between Spanish and the EEC import duties indicates the existence of a considerable degree of correspondence between the patterns of protection between Spain and those European countries. Nevertheless, this similarity may be due less to a conscious or successful design to prepare the Spanish economy for its membership in the Common Market than to a relatively earlier purpose of establishing a pattern of protection for the Spanish economy that was not substantially dissimilar from that of her major trading partners.
III. THE RELATIONSHIP BETWEEN IMPORT DUTIES AND INDUSTRIAL CONCENTRATION IN SPAIN

1. Introduction and hypothesis formulation

A standard hypothesis in the economic theory of politics is that the greater the degree of concentration in a given industry, the larger tends to be its power and its ability to obtain a favorable treatment in the set of policies enacted by a government. In what concerns Spain, this issue is accepted among many Spanish scholars not just as a hypothesis but as something akin to an axiom.

As indicated in Chapter II the import policy implication of that hypothesis is that the most concentrated industries are likely to be more protected from imports than are other industries. Whether, in fact, this is true or not in Spain is not immediately obvious since the issue has not been treated empirically in a systematic manner. The references to this question in the Spanish literature are quite casual except in Tamames (1977), but even in this case, the empirical support consists in listing a series of tariff positions parallel to a list of the corresponding firm(s) that "control" the industry that produces the commodity.

The purpose of this section is to determine whether there is a systematic tendency to protect concentrated industries or whether the connection between concentration and import protection exists in only some, even if relevant, cases, such as those reported by Tamames.
2. Methodology and sources of data

The most common measure of concentration used in the literature is the ratio between the output of the 4 largest firms in an industry and the total output in that industry. Regrettfully, this type of information is not available in Spain. The only type of Spanish statistics relevant for the research in this section are reported in Estadística Industrial de España, an official publication of the Spanish Ministry of Industry, in the form of a five-interval frequency distribution of establishments (not firms) by the size of their labor force. This type of information allows for the computation of a Gini coefficient of establishment concentration. Under the plausible assumptions that the number of establishments is closely and positively related to the number of firms and that the labor force is closely and positively related to the output of a firm, this Gini coefficient can be considered a good proxy for an index of industrial concentration.

The Gini coefficient for each economic sector, $G_j$, can be obtained by using the following formula:

$$G_j = 1 - \frac{\sum_{i=1}^{n-1} L_{ij}}{\sum_{i=1}^{n-1} E_{ij}}$$

where $L_{ij}$ is the accumulated percentage of employment in sector $j$ up to interval $i$ and $E_{ij}$ is the accumulated percentage of establishments in that sector up to that same interval. The value of $G_j$ oscillates be-
tween zero and unity. The larger is $G_j$, the larger is the degree of concentration of an economic sector.

One of the Research Departments of the Ministry of Industry, the Servicio de Productividad Industrial, occasionally publishes the value of this Gini coefficient in *Economía Industrial*, another of its official publications. Their estimates for the value of this coefficient for 72 economic sectors of the Spanish economy in 1965 have been used as a basis for this research. Four of these 72 sectors were excluded for the empirical analysis: one of them (textile industry: water) was excluded for classification reasons, due to the difficulty of determining the exact correspondence between this sector and positions in the Tariff Schedule. The other three (production of ice; production and distribution of gas; production and distribution of electricity) were excluded because they were non-tradable/non-traded goods or services. The list of the remaining 68 sectors and their corresponding indexes of industrial concentration is included in Appendix E. This Appendix also contains the rank of those sectors according to their index of industrial concentration.

It should be noted from the outset that the data from *Estadística Industrial de España* from which the Gini coefficients were computed have the reputation of being rather unreliable for several reasons, the most important of which are that their information is obtained from samples, the representativeness of which is unknown, and that the accuracy of the reported data is subject to serious doubts. A further limiting factor is that not all the Spanish industries are covered in those statistics.
In order to test the relationship between industry concentration and import protection, import duties corresponding to each of the sectors for which the Gini coefficient was available, are needed.

Data concerning Spanish tariff rates can be obtained from different sources. Yet, none of the available classifications of tariff rates, either by commodities or by economic sectors, is directly comparable with the information provided by the *Estadística Industrial de España*. The source from which import duty rates were obtained for most of the other parts of this research, the Spanish Input Output Tables, was inappropriate for this part of the research because its data were available at a more general level of aggregation than those for the Gini index. Attempts to obtain a concordance between both sets of data indicated that the assumptions needed to obtain a consistent set of comparable sectors would be too heroic. To overcome this problem it was decided to use an alternative source of data, the information in which was much more disaggregated. *Aranceles 1971* lists the legal tariff rates corresponding to each of the tariff positions and subpositions of the Spanish Tariff Schedule as of December 1970. A table of correspondence was developed between the 68 industrial sectors for which the Gini coefficient was available and the 1908 tariff positions and the 3117 tariff subpositions from the Tariff Schedule which corresponded to these sectors. In order to develop this table, this author relied on various, sometimes unconnected, sources of classification of economic sectors, but the need to make educated guesses on how or where to assign a tariff position or subposition to a given sector appeared frequently. Appendix
F lists the table of correspondences thus developed. A simple average of the legal tariff rates of the tariff subpositions corresponding to each tariff position was computed in order to obtain the unweighted tariff rates corresponding to each tariff position. The tariff rates corresponding to all tariff positions in each of the 68 sectors were averaged, in turn, so as to derive the unweighted legal tariff rate for each of those economic sectors. In other words, the tariff rate for each of the 68 economic sectors was defined as:

\[ t_j = \frac{\sum t_{ij}}{n_{ij}} \]

where

\[ t_{ij} = \frac{\sum t_{kij}}{n_{ki}} \]

and where \( t_{kij} \) is the tariff subposition \( k \) corresponding to tariff position \( i \) which is assigned to sector \( j \); \( t_{ij} \) is the tariff position \( i \) assigned to sector \( j \); \( n_{ki} \) is the number of tariff subpositions in tariff position \( i \) and \( n_{ij} \) is the number of tariff positions in economic sector \( j \). Appendix F contains the value of those tariff rates for each economic sector as well as the ranking of these sectors according to the decreasing value of those tariff rates.

With those data, the testing of the relationship between the Gini coefficient of industrial concentration and legal tariffs rates was performed through rank analysis techniques. The reasons for selecting these testing techniques were similar to those indicated in Section II above. First, the incompatibility of data bases prevented us from
incorporating the observations of the Gini coefficient in the import duties equations in Section VI of this Chapter. Second, even if that had been possible, the relative uncertainty about the numerical precision of the data on industrial concentration suggest that the rank correlation techniques are likely to be more fruitful than simple correlation analysis.

3. **Empirical results and their evaluation**

The coefficient of rank correlation between the Gini coefficient of industrial concentration and the legal tariff rates is $r = -0.080$, thus rejecting the hypothesis that there is a systematic and positive relationship between the height of the tariff and the degree of industrial concentration in the Spanish economy. The $t$-statistic corresponding to that correlation coefficient is $t = -0.6520$, indicating the coefficient is significantly different from zero only at a level of confidence of 75%. This suggests that the negative relationship manifested by the negative sign of the rank correlation coefficient is not statistically significant. In summary, the available data shows a lack of a statistical relationship between tariff rates and the index of industrial concentration. However, this does not necessarily imply that the latter is not related to the level of protection in an industry.

Indeed, it can be argued that the absence, observed above, of a general pattern of connection between tariff rates and industry concentration is the result of not taking into account the existence of non-tariff barriers. In other words, the absence of a relationship
between import duties and industrial concentration might have been caused by the inclusion in the same sample of commodities under substantially different regimes.

In order to test this hypothesis, it was necessary to devise a criterion to differentiate economic sectors by the trade regime of their imports. The criterion established was that of using a simple index of incidence of quantitative restrictions, and more specifically, that suggested in Chapter II. (Those indexes are more thoroughly discussed in Chapter IV. The index used here is structurally equivalent to the one called SPATT7 in that chapter.) Correspondingly, an index of incidence of non-tariff barriers corresponding to each of the 68 sectors contained in Appendix F was computed. Each of the 3117 tariff subpositions corresponding to those sectors was assigned a weight of 0, 1 or 3 depending on whether the commodity in that subposition was under liberalized trade, under quota trade or under either state trade or trade under individual license (See Section I of this chapter for a discussion of the rationale for those weights). Hence, the index of incidence of non-tariff barriers was computed through the use of this formula:

\[ i_j = \frac{\sum_{i=1}^{4} n_{ij} w_i}{n_j} \]

where \( n_j \) is the total number of tariff subpositions in economic sector \( j \), \( n_{ij} \) is the number of tariff subpositions in that sector subject to trade regime \( i \) (such that \( n_j = \sum_{i=1}^{4} n_{ij} \)) and \( w_i \) is the weight assigned to
that trade regime. \( w_i = 0, 1, 3 \) Therefore index \( i_j \) indicates how restricted sector \( j \) is by non-tariff barriers. And the indicator of this restrictiveness is the average number of positions subject to each trade regime weighted by a hypothesized measure of the relative harshness of that trade regime. Appendix E contains the value of this index for each of the 68 economic sectors as well as the ranking of those economic sectors according to the decreasing value of this variable.

With these data, several additional rank correlation coefficients were computed for specific subsamples of the sample of 68 sectors contained in Appendix E. The first sub-sample was that containing the 19 sectors whose index of incidence of non-tariff barriers exceeded 1.000. It should be recalled that, by the manner in which weights were assigned to the four trade regimes, sectors with an index exceeding that value were those sectors where the presence of the individual license and State trade regimes is likely to be most important. The list of those 19 sectors with their corresponding Gini coefficients and tariff rates is contained in Appendix G. The appendix also contains the ranking of those sectors according to both variables. The rank correlation coefficient between the index of industrial concentration and tariff rates for those sectors specially subject to trade under individual license and/or under State trading is \( r' = -0.3548 \). Its corresponding t-statistic is \( t = -1.5646 \). For a one-tailed test, this coefficient is significantly less than zero at the 90% confidence level. These results imply that, among sectors specially subject to those two most restrictive trade regimes, tariff rates are higher in less concentrated industries.
Second, we tested whether there was any relationship between the degree of industrial concentration and tariff rates within the subsample of sectors where the presence of the regimes of State trade and of trade under individual license was less pronounced. These are the sectors whose commodities are either under liberalized trade or subject mostly to global quotas, and represent the remaining 49 sectors in the total sample of 68 sectors listed in Appendix E. The list of those 49 sectors with their corresponding coefficients of industrial concentration and tariff rates is included in Appendix H. This appendix also contains the ranking of those sectors according to the decreasing values of those variables. The rank correlation coefficient between the index of industrial concentration and tariff rates for these 49 sectors is \( r' = -0.100 \) with \( t = 0.6570 \). For a one-tailed test, this coefficient is significant only at a 70% confidence level, thus rejecting the hypothesis that tariff rates are positively and significantly related to the degree of industrial concentration among sectors mostly under liberalized or global quota trade regimes. This test, however, might be flawed in the sense that tariff rates might not be a good proxy of the overall extent of protection afforded by economic sectors whose imports are especially subject to trade under global quotas. It could be argued that a measure of protection that would simultaneously account for the protective effect of tariff and non-tariff barriers would unmask the underlying positive relationship between industrial concentration and tariff rates.
In the absence of any available indicator to measure simultaneously the effect of both kinds of import barriers, a simple "comprehensive index of protection" was computed in order to test that hypothesis. This index of protection, $I_j$, is assumed to be equal to the sum of two components, a tariff component and a non-tariff component measured in tariff-equivalent units, and is defined as:

$$I_j = t_j + (t \cdot i_j)$$

where $t_j$ and $i_j$ are the unweighted legal tariff rate and the index of incidence of non-tariff barriers for economic sector $j$, respectively. The method for computing the values of both variables has been discussed in part 2 of this Section. Expression $(t \cdot i_j)$ is the tariff equivalent non-tariff barrier component of the index, where $t$, a proportionality parameter equal across sectors has been chosen to be the unweighted average of the tariff rates of the 49 sectors. The selection of this proportionality factor certainly is arbitrary but it is not totally ad hoc. Index $I_j$ does not attempt to measure exactly the degree of protection in each sector but its ultimate goal is to provide a ranking of industries according to their degree of protection, which somewhat takes into account the presence of quantitative restrictions. All 49 sectors in this sample have indexes of incidence of non-tariff barriers between 0 (the sector is totally under liberalized trade) and 1 (the sector is totally under global quotas). Values of the index of incidence of non-tariff barriers between 0 and 1 correspond to sectors only partly subject to non-tariff barriers and, most commonly, to quota trade. Since
for this sample, \( t = 18.03\% \), the non-tariff component of the "comprehensive index of protection" is, at most 18.03\%. This number probably underestimates the actual tariff equivalent of quotas, but there were not other apparently suitable alternative candidates for the proportionality factor. The values of the comprehensive index of protection thus computed for the 49 sectors is included in Appendix H which also contains a ranking of those sectors according to the decreasing value of this index. The rank correlation coefficient between the index of industrial concentration and the "comprehensive index of protection" is \(-0.0353\) with \( t = 0.2421\). For a one tailed test this coefficient is statistically significant only with a 55\% confidence level. In summary, the results obtained with the "comprehensive index of protection" are not substantially different from those obtained when only tariff rates were used as a proxy for the level of protection.

Since the somewhat arbitrary manner by which the "comprehensive index of protection" was derived might have biased the results, an additional test was performed by analyzing the relationship between the index of industrial concentration and the legal tariff rates among those sectors that were totally free of non-tariff barriers. The hypothesis to be tested was that for this group of sectors one should observe a distinctive and significantly positive relationship between industry concentration and tariff protection since there were not other import protection measures that could mask this relationship. Of the total sample of the 68 sectors included in Appendix E, 25 economic sectors were totally under liberalized trade. Their list, with their corre-
sponding industrial concentration indices and tariff rates as well as the ranking of those sectors according to the decreasing values of both variables is contained in Appendix I. The rank correlation coefficient between the index of industrial concentration and tariff rates for the 25 sectors free of quantitative restrictions is \( r' = 0.0134 \), with \( t = 0.0642 \). For a one-tailed test, the coefficient is not statistically significant even at a confidence level of 55%. Hence, the null hypothesis that industrial concentration and tariff rates are not systematically related can not be rejected.

4. Conclusions

The purpose of this section was to investigate the relationship between industrial concentration and import duties. Contrary to what seems to be a generalized belief among Spanish observers, the available data tend to reject the hypothesis that this relationship exists and is positive in its direction.

In effect, our empirical investigation suggest that the relationship between tariff rates and industrial concentration is not statistically significant:

a. for the economy as a whole, i.e., when the whole sample of 68 sectors is analyzed.

b. among the subsample of the 49 sectors that are either under liberalized trade or mostly under global quotas.

c. among the subsample of the 25 sectors that are under liberalized trade only.
IV. THE RELATIONSHIP BETWEEN IMPORT DUTIES AND 'FIRM BIGNESS' INCIDENCE IN SPAIN

1. Introduction and hypothesis formulation

As indicated in the previous section, the economic theory of trade barriers suggests the existence of a close and positive relationship between import protection and industry concentration. Even though this hypothesis has been successfully tested for other countries by different economists, the results reported in Section III above could not confirm it for the case of Spain. This could be due to lack of appropriateness or of accuracy of the data base as well as to the simple fact that, perhaps, policy behavior in Spain might not be affected by industry concentration, but by some similar variables.

In other words, concentration of firms within an economic sector might be less relevant, for example, than 'bigness', i.e., absolute size of firms. If this is true, it could be hypothesized that tariff rates are higher in those industries which have large firms, on the assumption that those firms have both the political clout and the ability to hire executives with strong ties with the Administration.

It seems reasonable to expect that the most concentrated sectors are more likely to include large firms than the less concentrated sectors. Yet, many highly concentrated sectors might contain firms which are large when compared with the other firms in the industry but not when compared with other firms in the Spanish economy. Similarly, an
industry might not be very concentrated and still include firms that are among the largest in Spain.

This section investigates the possible relationship between import duties and the presence of the largest Spanish firms within the different sectors of the Spanish economy.

2. Methodology and sources of data

The list of the largest firms in Spain and their output is available from *las 500 grandes empresas industriales españolas en 1972*, a publication of the Ministry of Industry of Spain. This publication also indicates the activity of each firm according to a 37 sector classification and includes, as well, the value of output of all firms in each of those 37 economic sectors.

Those data have allowed us to compute the following indexes of participation or control by the 500 largest Spanish firms across industrial sectors of the economy:

\[ p_{11} = \frac{Q_{11}}{Q_1} \]

\[ p_{12} = \frac{N_{L1}}{500} \]

\[ p_{13} = \frac{Q_{1i}/Q_1}{N_{L1}/500} \]

where \( Q_1 \) is the output of all firms in industry \( i \) \((i = 1, \ldots, 35)\); \( Q_{L1} \) is the output of all firms in that industry which are among the 500
largest Spanish firms; and $N_{L1}$ is the number of firms in that industry which are among the 500 largest Spanish firms.

Index $P_{11}$ measures the share of output produced by the largest Spanish firms in each economic sector. Index $P_{12}$ indicates the rate of numerical participation of those firms in each economic sector. Index $P_{13}$ shows the average output of the largest firms weighted by the size of the industry or, alternatively, it can be interpreted as indicating how the output of the average of the largest firms compares with the total output of the industry.

The industry classification provided by the publication *Las 500 grandes empresas industriales en 1972* is not directly comparable with other available classification of goods for which import duties are available. Since several important empirical sections and chapters of this research have used the classification of the Spanish Input/Output Tables for 1970, an early attempt was made to assign each of those 500 firms to each of the 112 tradeable, non-service sectors of the Input/Output Tables classification included in Appendix B. Yet, the attempt was found fruitless. The considerable level of disparity in the degrees of aggregation in both classification criteria made it very difficult to distribute the output of the 500 largest firms among, often, several of the sectors of the Input/Output Tables in which those firms participated.

Hence, the process of finding a concordance between import duties and indexes of participation of the 500 largest firms in the Spanish economy was reversed. The information on imports and import duties
revenues for the 112 sectors in the Input/Output Tables of 1970 was aggregated at the level of the 37 sectors in which industries were classified in Las 500 grandes empresas industriales en espanolas 1972. The task was rather straightforward in most instances, even though some educated guesswork was involved in several cases due to the lack of explanations in Las 500 grandes empresas industriales espanolas en 1972 about the specific content of each of the sectors in the industry classification which this publication uses.

Some modifications were made on the resulting data set. First, the data for the "Oils industry" were aggregated with those of the "Other foods industries" since some of the data for the former were included in the latter in Las 500 grandes empresas industriales espanolas en 1972. Second, the sector "Building construction" was removed from the data set since it involved a non-tradable good. Finally, the sector "Production and distribution of electric energy, gas and water" was also removed from the data set since its last two components are non-traded goods and its inclusion would have provided biased information concerning the rest of the data for the sector. Appendix L contains the table of correspondences between both classifications of industries for the 34 sectors that constitute the sample used in this part of the research.

The value of imports and import duties revenues from the Input-Output Tables of 1970, aggregated at the level of those 34 sectors, allowed us to compute the average actually paid import duty corresponding to each of these sectors. The aggregation of data obtained for the research in Chapter IV below also allowed us to compute for each of
the 34 sectors, an index of incidence of non-tariff barriers and a "comprehensive index of protection". These two measures, $i_j$ and $I_j$, respectively, have been defined in Section III in this Chapter. Appendix K contains the values of the first measure for each of the 34 sectors as well as the rankings of sectors according to this index. Data contained in Las 500 grandes empresas industriales espanolas en 1972 permitted to compute indexes $P_1$, $P_2$ and $P_3$, the values of which for each economic sector are contained in Appendix J. This appendix also contains the ranking of those 34 sectors according to the decreasing value of each of those measures.

Before concluding this part, a word of caution should be said concerning the reliability of the data used for the empirical analysis in the next part of this section. One of the problems already mentioned was the difficulty of ascertaining what was the specific content of each of the economic sectors in the classification of industries of Las 500 grandes empresas industriales espanolas en 1972. A case in point is the meaning of the sector "Other industries". In the absence of specific information it was decided to consider, in the context of this research, that "Other industries" were all other industrial sectors in the Input-Output classification that were not implicitly mentioned (even in a general manner) as belonging to any of the sectors in the Las 500 grandes empresas industriales espanola en 1972 classification. A second problem is the absence of data in that publication concerning the agriculture, cattle and fishing sectors. As a result, the four economic sectors in the Input-Output classification that correspond to those sectors were
not included in this part of the research. (These are the only four non-service tradeable sectors in this classification that are not covered in the empirical analysis below.) A third and more serious problem is the question of the accuracy of the data. The source for the data concerning the 500 largest firms is the Ministry of Industry. As pointed out in the previous section of this chapter, there is a general skepticism in Spain about the reliability of this source and the representativeness of the data it provides. A striking confirmation of this skepticism is apparent in the figures in Appendix J. Index $P_1$, by definition, can not exceed 100% Yet, there are sectors (6.1; 4.1; 1.1; 3.1) for which this index exceeds 100% implying that the output of the largest firms in those sectors exceeds the output of all firms in those very same sectors! In the context of this research the relevance of this problem is minimized by the fact that those data are not used directly but transformed into rankings.

With the data in Appendices J and K, the analysis of the relationship between 'firm bigness' across industries and the level of import duties was performed by the use rank correlation analysis. The reasons for this were two-fold. First, the necessary reduction of the sample to 34 observations, prevented the incorporation of these data into the import duties equations in Section VI below. But second, and more important, the lack of sufficient reliability about the quality of the data in absolute values suggested the convenience of using rank correlation analysis.
3. Empirical results and their evaluation

The first set of rank correlation coefficients that was computed involved the analysis of the relationship between import-weighted actually applied import duties and the three measures of 'firm bigness' for the whole sample of 34 sectors. The value of the correlation coefficient between those import duties and the share of output produced by the largest 500 Spanish firms in each economic sector (measured by index $P_1$) is $r = -0.0802$, thus rejecting the hypothesis that there is a systematic and positive relationship between both variables. The value of its $t$-statistic is $-0.4551$ indicating that their correlation coefficient is significantly different from zero only with a 65% level of confidence.

The computation of the value of the correlation coefficient between import duties and the proportion of the 500 largest firms within each economic sector (measured by index $P_2$) was subject to some statistical difficulties due to the relative large proportion of ties in the rankings of index $P_2$.

When there is a considerable number of ties in rankings the formula for the rank correlation coefficient defined in Section II of this chapter underestimates the value of that coefficient. Hence, when the proportion of ties is large a correction factor must be incorporated. This results in the following alternative formula for the rank correlation coefficient:

$$r' = \frac{\sum_{i=1}^{n} x_i^2 + \sum_{i=1}^{n} y_i^2 - \sum_{i=1}^{n} d_i^2}{2 \left( \frac{\sum_{i=1}^{n} x_i^2}{n} \right) \left( \frac{\sum_{i=1}^{n} y_i^2}{n} \right)}$$
where \[ \sum_{i=1}^{n} x_i^2 = \frac{n(n-1)}{12} - \sum_{j=1}^{m} T_{xj} \]

\[ \sum_{i=1}^{n} y_i^2 = \frac{n(n-1)}{12} - \sum_{j'=1}^{m'} T_{yj'} \]

and where \( x \) and \( y \) are the two variables for whose ranking the correlation coefficient is computed; \( n \) is the number of observations. \[ \sum_{j=1}^{m} T_{xj} \]

and \[ \sum_{j'=1}^{m'} T_{yj'} \] are each of the correction factors for variables \( x \) and \( y \), respectively, to take into account in the presence of ties in rankings of either \( x \) or \( y \), respectively, and \( j \) and \( j' \) are the number of times in which rankings of either \( x \) or \( y \), respectively, are tied.

The value of the correction factor for variable \( x \) is defined as:

\[ \sum_{j=1}^{m} T_{xj} = \sum_{j=1}^{m} \frac{t_j (t_j^2 - 1)}{12} \]

where \( t_j \) is the number of observations tied at a given rank. The value of the correction factor for variable \( y \) is defined likewise.

After using this alternative formula for the rank correlation coefficient to incorporate the presence of ties, the correlation coefficient between import duties and the rate of numerical participation of the 500 largest firms is \( r' = 0.409 \) suggesting a considerably stronger relationship between import and 'firm bigness' than when index \( P_1 \) was used. The value of the \( t \)-statistic is \( t = 2.5050 \) which indicates the correlation coefficient is significantly positive at the 99\% level. The
hypothesis that import duties and this index of 'firm bigness' are positively associated cannot thus be rejected.

Finally, the correlation coefficient between import duties and the share of output of the largest firms in each economic sector weighted by the size of the sector (measured by index P3) is $r' = -0.3025$, thus rejecting the hypothesis that both variables are positively related. Its corresponding $t$-statistic is $t = -1.7953$ indicating that the coefficient is significant at the 90% confidence level.

What the results above suggest is the following: First, the fact that the output of a given sector is mostly produced by those largest firms does not seem to have any effect on the level of import duty protection afforded by that sector. Second, however, those sectors where the 500 largest firm tend to be present in greater numbers tend to have higher import duties than economic sectors with few of the largest Spanish firms. Third, a negative and somewhat strong relationship, although weaker than in the previous case, exists between import duties and the degree of concentration of output of an economic sector in the hands of the largest firms: economic sectors where the average output of the largest firm is large compared with the total output of the industry tend to be protected by somewhat lower import duties than those sectors where the degree of concentration among the large firms is smaller.

Since the whole group of 34 sectors is subject to a variety of alternative or simultaneous trade regimes, it is conceivable that the presence of non-tariff barriers could mask or distort some of the rela-
tionships observed above. In order to account for this possibility several partitions were made in the sample. The first partition involved the separation of the 34 economic sector into two groups: one group of 8 sectors whose index of incidence of non-tariff barriers, \( i_j \), exceeded 1.000 indicating that their commodities were mostly subject to either state trade or trade under individual license and a group of 26 sectors whose index of incidence of non-tariff barriers, \( i_j \), was equal to or less than 1.000 indicating that their commodities were mostly under either liberalized or quota trade.

Economic sectors within each of both groups were ranked again according to the values of their \( P_1 \), \( P_2 \), and \( P_3 \) indexes and of their imported-weighted average import duties. The lists of both groups of sectors with their corresponding indexes of participation of the 500 largest firms and their import duties are contained in Appendix M, and in Appendixes N and O, respectively. These appendixes also contain the rankings of those sectors according to those variables. With these data rank correlation coefficients between the three measures of the presence of the 500 largest firms (\( P_1 \), \( P_2 \), and \( P_3 \)) and the import duties were computed for each of both groups of sectors. The presence, again, of a considerable number of ties in the ranking of the group of 26 sectors according to index \( P_2 \) suggested the need to use, for this case, the formula for the rank correlation coefficient corrected for ties. Table 2 below contains the value of all these rank correlation coefficients computed for the two subsamples. (Numbers in parentheses
indicate the value of their corresponding t- statistics):

Table 2

Rank correlation coefficients between average import-weighted actually applied import duties (1970) and different indexes of presence of the 500 largest Spanish firms (1972) in each economic sector: Commodities mostly under liberalized or global quotas trade vs. the others

<table>
<thead>
<tr>
<th>Index of participation of the 500 largest firms</th>
<th>Rank correlation for</th>
<th>Economic sectors with $i_j &gt; 1,000$</th>
<th>Economic sectors with $i_j \leq 1,000$</th>
</tr>
</thead>
<tbody>
<tr>
<td>P₁</td>
<td>-0.2202 (0.5529)</td>
<td>-0.2101 (1.0527)</td>
<td></td>
</tr>
<tr>
<td>P₂</td>
<td>+0.5178 (1.4826)*</td>
<td>+0.3266 (1.6928)**</td>
<td></td>
</tr>
<tr>
<td>P₃</td>
<td>-0.3393 (0.8835)</td>
<td>-0.2740 (1.3957)*</td>
<td></td>
</tr>
</tbody>
</table>

Notes: *: Significant at 90% level  
**: Significant at 95% level

The results in this table are not substantially different from those reported for the whole sample of 34 sectors. The sign of the correlation coefficients is in all instances the same as those previously reported. Again, the stronger degree of association is between import duties and index P₂. It is worth noting that the value of the corre-
loration coefficient corresponding to this index is somewhat higher for the group of commodities under State trade and trade under individual license and somewhat lower from the group of commodities under liberalized or under quota trade than for the whole sample; yet, the statistical significance of both coefficients is lower than in that case. Given the substantial similarity of results it seems legitimate to conclude that the observed relationships between import duties and different measures of the presence of the 500 largest Spanish firms in an economic sector are not significantly affected by the existence of absence of highly restrictive non-tariff barriers (i.e., State trade or individual license) in that sector.

A second partition of the sample of sectors involved the separation of the group of sectors mostly free of commodities under State trade or trade with individual license into two subgroups, one consisting of the 5 sectors totally free of non-tariff barriers and the other consisting of the 21 sectors partly subject to quota trade and partly to liberalized trade, and, in a much smaller degree, to state trade or trade under individual license. Sectors within each of these subgroups were ranked according to the value of their \( P_1 \), \( P_2 \), and \( P_3 \) indexes and their import weighted duties. The list of the sectors within each group as well as the value of their corresponding import duties and indexes of participation of the 500 largest Spanish firms and their rankings according to these variables is contained in Appendix P, and in Appendixes Q and R respectively. With those data rank correlation coefficients were computed, for both subgroups of sectors, between the three measures of the
presence of the 500 largest firms and their corresponding import duties. Table 3 below contains the value of those rank correlation coefficients (Numbers in parentheses indicate the value of their corresponding t-statistics).

Table 3

<table>
<thead>
<tr>
<th>Index of participation of the 500 largest firms</th>
<th>Rank correlation for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Economic sectors with $i_j = 0.000$</td>
</tr>
<tr>
<td>$P_1$</td>
<td>+0.1000 $(0.1740)$</td>
</tr>
<tr>
<td>$P_2$</td>
<td>+0.890 $(2.3094)^*$</td>
</tr>
<tr>
<td>$P_3$</td>
<td>-0.600 $(1.2990)^{**}$</td>
</tr>
</tbody>
</table>

Notes: *: Significant at 90% level  
**: Significant at 85% level

The results in the table are not essentially different from those reported in previous paragraphs especially in what concerns the rank
correlation coefficients that are statistically significant. Yet, it should be noted that the degree of association between import duties and indexes $P_2$ and $P_3$ within the group of sectors completely free of quantitative restrictions is substantially stronger than both those for the sample of all economic sectors and those for the sample of sectors under State trade and trade with individual license, as well as for the sectors partly subject to global quotas and to liberalized trade. The degree of association between those two indexes and import duties within this latter group, however, is much weaker than before. This in part could be due to the heterogeneity of the sectors contained in this group: in some cases, only a few of the commodities are subject to quota trade while the rest of the commodities are under liberalized trade; in some other cases, only a few of the commodities are subject to either trade under individual license or State trade, while the rest is subject to global quotas and to State trade, etc.

The partition of the complete sample of commodities into two mutually exclusive subsamples, one with the sectors mostly subject to State trade or to trade under individual license and the other with the sectors mostly under liberalized trade or quota trade has allowed us to determine whether there exist significant differences in the relationship between 'firm bigness' incidence and import duties protection in sectors under different trade regimes. The same objective has been achieved when the second subsample has been, in turn, partitioned into two mutually exclusive subgroups, one containing the economic sectors under liberalized trade (i.e., totally free of quantitative restrictions) and
the other containing the sectors that are mostly subject to global quotas. Yet, those procedures do not allow one to directly take into account the differences in the degree of protection afforded by the economic sectors whose imports are subject to non-tariff restrictions. In order to do that, if in a crude manner, "comprehensive indexes of protection", $I_j$, similar to those defined in the previous section of this chapter where computed for the commodities under liberalized trade or global quota trade. Those indexes were ranked for two groups of economic sectors: sectors mostly under liberalized trade or quota trade (those with $i_j \leq 1.000$); and sectors partly subject to liberalized trade and to quota trade (those with $0.000 \leq i_j \leq 1.000$). This second group thus includes all sectors in the first group except those economic sectors totally free of quantitative restrictions. The list of those sectors and of those rankings within these two groups are contained in Appendix O, and Appendix R, respectively.

With the data in those two Appendixes plus those in Appendixes N and Q, rank correlation coefficients were computed between the "comprehensive indexes of protection" and the three measures of "firm bigness incidence" for both groups of economic sectors. Table 4 below contains the value of those correlation coefficients (Numbers in parentheses indicate the value of their corresponding t-statistics).
Table 4

Rank correlation coefficients between "comprehensive indexes of protection" (1970) and different indexes of presence of the 500 largest Spanish firms in each economic sector (1972): Commodities under liberalized trade vs. those mostly under global quotas

<table>
<thead>
<tr>
<th>Index of participation of the 500 largest firms</th>
<th>Rank correlation for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Economic sectors with $i_j = 0.000$</td>
</tr>
<tr>
<td></td>
<td>Rank correlation</td>
</tr>
<tr>
<td></td>
<td>$P_1$</td>
</tr>
<tr>
<td></td>
<td>$-0.2705$</td>
</tr>
<tr>
<td></td>
<td>$(1.3765)^*$</td>
</tr>
<tr>
<td></td>
<td>$-0.2064$</td>
</tr>
<tr>
<td></td>
<td>$(0.9194)^{***}$</td>
</tr>
</tbody>
</table>

Notes: *: Significant at 90% level  
**: Significant at 85% level  
***: Significant at 90% level

As with previous subsamples of data and the previous measure of protection (average import duty), coefficients $P_1$ and $P_2$ exhibit negative and positive, respectively, degrees of association with the comprehensive index of protection. Contrary to previous results, $P_1$ is statistically significant, although the confidence level is not very high, in general, and $P_2$ is not statistically significant. Finally, $P_3$ is
positively and somewhat significantly associated with the "comprehensive index of protection" for the group of commodities that is subject mostly to liberalized trade or to quota trade. This is in considerable contrast with the results obtained when average import duties were used as the measure of protection: as Table 2 showed, the degree of association in this case was significantly negative. Furthermore, the degree of positive association remains but it becomes statistically non-significant when the sectors free of non-tariff restrictions are removed for the sample, as the value of the correlation coefficients in column 1 of Table 4 above indicates.

4. Conclusions

The objective of this section was to determine whether and how the presence of the largest firms in the Spanish economy affected the pattern of import duties. It was hypothesized that those sectors where the presence of those firms was most pronounced would tend to be protected by higher import duties than the other economic sectors. The hypothesis was based on both an appraisal of what is commonly believed to be true among Spanish observers and the arguments from the economy theory of politics that suggest that large firms are likely to be effective in their requests for economic help from the government.

The empirical results obtained using two different measures of protection and three different indexes of participation of firms in an industry are more statistically significant than those obtained in Section III in this Chapter concerning industrial concentration. Yet, they
present conflicting evidence, and the partition of the sample of observations in order to account for the differences in import trade regimes has not been able to successfully eliminate the lack of a certain homogeneity in the results.

Specifically, if has been found that the relative proportion of output of a sector produced by the largest Spanish firms \( (P_1) \) is not significantly and positively related with the level of import duties. In fact, the relationship was found to be negative, even though not statistically significant. The relationship between import duties and another measure of participation of the largest Spanish firms, the share of output of those firms weighted by the size of the sector \( (P_3) \) was found also to be negatively (and in this case, significantly) associated with import duties. However, a positive and strongly significant relationship was found between import duties and the number of largest Spanish firms in an economic sector \( (P_2) \).

What those results seem to suggest is that, quite likely, the presence of the largest firms in an economic sector, does increase the level of import duties. But the source of the political strength of those sectors derives not from the fact that the output of those firms is relatively large as a share of the output of the industry but from the fact that the sector contains several of those firms.
V. THE RELATIONSHIP BETWEEN IMPORT DUTIES AND 'MOST POWERFUL FAMILIES' INCIDENCE IN SPAIN

1. Introduction and hypothesis formulation

The two preceding sections in this chapter have attempted to identify the importance of two hypothesized sources of political power in Spain in what concerns the ability to determine the pattern of import duties in the country.

The results obtained in both sections suggest that, at least with the available data, neither establishment concentration (used as a proxy for sellers' concentration) nor the presence within a sector of some of the largest Spanish firms, can explain unequivocally and completely how those patterns of protection are determined.

It may be that the important factor in explaining the structure of protection is the extent of family wealth ownership. This hypothesis would be consistent with the observations made in Chapter II about the unequal distribution of wealth and its concentration among a relatively small group of people with strong family connections, a phenomenon that is common to many less developed countries. As indicated in Chapter II this group is often known as the Spanish oligarchy and is said to have the political ability to affect the conduct of economic policy. The important question in the context of this research is whether the political power of that financial oligarchy has manifested itself in the pattern of import protection. If this is the case one would expect higher import duties in those economic sectors with strong ties with that financial oligarchy.
The purpose of this section is to ascertain the statistical significance of this hypothesized relationship.

2. Methodology and sources of data

As in all other areas of economic research in Spain, the problem of finding or developing reliable sets of data that are sufficiently disaggregated is considerable.

Data on the control of the Spanish economy by its most influential families have been obtained from Las 100 'familias' espanolas, a report written by a collective group of economists and published by Cuadernos de Ruedo Iberico, Paris, 1966. The report focuses on the control of a sample of corporations by the top 100 Spanish families and contains information for 59 industries about the number of firms and equity controlled by those families as well as the number of members of those families who belong to the board of directors in firms within those industries. Data to compute import duties have been obtained from the Spanish Input/Output Tables for 1970.

Several problems have arisen concerning the use of this data. A minor problem is that the data from Las '100 familias' espanolas only refer to corporations: other forms of firms' organization (individual ownership, partnerships, etc.) are excluded. One should not expect this to be a significant problem since it is unlikely that this group of wealthy (by definition) people will engage in many economic activities outside the corporation form. A more serious problem is that the authors have not been explicit about the criteria used to select their
sample of 5427 firms out of a population of 14822 firms, although, from some statements in the report one of the factors of exclusion seems to have been the inability to determine the identity of the members of the board of directors in a firm.

A much more serious problem is the disparity between the classification of sectors between both sources of data. Thanks in part to its higher level of disaggregation it is relatively easy to determine the type of industries included in each sector of the Input/Output Table. This task is much harder concerning the report Las '100 familias' espanolas, since its classification of sectors is often imprecise and overlapping. This has posed the most limiting constraint on the empirical analysis of this part of the research. Educated guesses have often been made to establish the concordance between both data sets. Of the 59 sectors included in Las '100 familias' espanolas report, 25 sectors (water distribution; customs agencies; spas; private banking; state banking; movie theaters; retail trade; foreign trade; construction; credit and savings; electricity; education; railroads; hotels; real estate; shipping; recreation and show business; sales representatives; hospitals; insurance; public services; telephones; dry-cleaning; transportation; streetcars) were excluded because they were either non-tradeable/non-traded goods or services. Two others (auxiliary industries; other industries) were excluded because it was not possible to determine with any degree of certainty what they really contained. Two other sectors (machinery; engines) were aggregated into one single sector since the Input/Output tables do not provide separate information
for each of them. Part of another sector (monopolies) was assigned to a new sector (tobaccos) while the remaining part was assigned to an already existing sector (petroleum). In consequence, the total number of observations was reduced to 31. Appendix T contains the name of those 31 sectors as labeled in the report _Las '100 familias' espanolas_ and their correspondence with the classification of sectors in the Input/Output tables for 1970.

Two sets of indexes of control of the Spanish industry by the 100 most powerful families were computed for the 31 sectors in the sample from the data in _Las '100 familias' espanolas_.

The first set referred to the absolute level of control of each industry by those families. Under the reasonable assumption that, ceteris paribus, the larger the size of the industry, the larger will be those indexes, this set of indexes took, simultaneously, into account the effect of both the size of the industry and the participation of those families in the industry.

Those indexes were:

\[ F_1 = \text{Number of members of the 100 families that are members of the board of directors in the firms that are part of each industry.} \]

\[ F_2 = \text{Number of members of the 100 families that are chairmen of the board of directors in the firms that are part of each industry.} \]

\[ F_3 = \text{Number of firms controlled by the 100 families in each industry.} \]

\[ F_4 = \text{Equity controlled by the 100 families in each industry.} \]
The second set of indexes referred to the relative level of control of each industry by those families. They were obtained by dividing the previous indexes by a measure of the size of the industry and reflected the relative degree of participation of those families across industries. Those indexes were:

\[ F_5 = \text{Average number of members of the 100 families that are members of the board of directors, per firm in the sample.} \]

\[ F'_5 = \text{Average number of members of the 100 families that are members of the board of directors, per firm in the population.} \]

\[ F_6 = \text{Average number of members of the 100 families that are chairman of the board of Directors, per firm in the sample.} \]

\[ F'_6 = \text{Average number of members of the 100 families that are chairman of the board of directors, per firm in the population.} \]

\[ F_7 = \text{Number of firms controlled by the 100 families as a percentage of the total number of firms in the sample.} \]

\[ F'_7 = \text{Number of firms controlled by the 100 families as a percentage of the total number of firms in the population.} \]

\[ F_8 = \text{Equity controlled by the the 100 families as a percentage of the equity of the total number of firms in the sample.} \]

\[ F'_8 = \text{Equity controlled by the 100 families as a percentage of the equity of the total number of firms in the population.} \]

Further, from data in the Input/Output Tables for 1970, import weighted average import duties were computed. Appendix S contains the value of
those import duties and of the $F$ indexes for each economic sector as well as the ranking of those 31 sectors according to the decreasing value of each of these measures.

3. **Empirical results and their evaluation**

Table 5 below lists the rank correlation coefficients between import duties and the different indexes of control of an economic sector by the 100 most powerful families in Spain.

**Table 5**

Rank correlation coefficients between average import-weighted actually applied import duties (1970) and different indexes of control of the Spanish economy by the '100 most powerful families' in Spain.

<table>
<thead>
<tr>
<th>Value of the rank correlation coefficient</th>
<th>Index of control of the economy by the '100 families'</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r_1 = +0.1187$</td>
<td>$F_1 = $ Number of members that are members of the board of directors</td>
</tr>
<tr>
<td>$r_2 = +0.0191$</td>
<td>$F_2 = $ Number of members that are chairmen of the board of directors</td>
</tr>
<tr>
<td>$r_3 = +0.0913$</td>
<td>$F_3 = $ Number of firms controlled</td>
</tr>
<tr>
<td>$r_4 = +0.0979$</td>
<td>$F_4 = $ Equity controlled</td>
</tr>
<tr>
<td>$r_5 = -0.0247$</td>
<td>$F_5 = $ Per firm average number of members who are on the board of directors (sample)</td>
</tr>
</tbody>
</table>
$r_5' = -0.2022$  

$F_5' = \text{Per firm average number of members who are on the board of directors (population)}$

$r_6 = +0.0064$  

$F_6 = \text{Per firm average number of members who are chairmen of the board of directors (sample)}$

$r_6' = +0.0064$  

$F_6' = \text{Per firm average number of members who are chairmen of the board of directors (population)}$

$r_7 = +0.1703$  

$F_7 = \text{Share of firms controlled (sample)}$

$r_7' = -0.0939$  

$F_7' = \text{Share of firms controlled (population)}$

$r_8 = +0.0979$  

$F_8 = \text{Share of equity controlled (sample)}$

$r_8' = +0.0493$  

$F_8' = \text{Share of equity controlled (population)}$

Most of the correlation coefficients are positive as postulated, yet their values are very low and they are not statistically significant. This indicates that the hypothesis that family wealth ownership has played a role in the determination in the determination of the pattern of import duties has to be rejected with the available data.

It should be noted, however, that none of the rank correlation coefficients corresponding to the indexes expressed as absolute quantities ($F_1 \text{ through } F_4$) is negative and their value is on average higher than that for the other indexes. This tends to suggest that the power of the largest families depends more on their absolute degree of participation in a sector rather than on their relative participation. In other words, a sector that has a large number of firms controlled by the 100 largest firms, regardless of the share of the sector, seems to be more
likely to be protected than another sector. This pattern, although not very strong, disappears however, when the degree of control of an economic sector is adjusted for the size of the sector.

Furthermore, it should also be noted that the values of the rank correlation coefficients corresponding to the aforementioned indices $F_1$ through $F_4$ improve substantially (as well as their statistical significance) when four of the 31 sectors in the sample are excluded from the computations of the rank coefficients. Table 6 below illustrates this fact:

**Table 6**

Comparison of a subset of rank correlation coefficients between average import-weighted actually applied import duties and different indexes of control of the Spanish economy by the '100 most powerful families' obtained using the 31 observations in the sample and those obtained after the following 4 industries are excluded:

<table>
<thead>
<tr>
<th>Industry of alcohol</th>
<th>Mining</th>
<th>Paints</th>
<th>Leather and leather products</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Rank correlation coefficient</th>
<th>With all observations</th>
<th>When those four observations are excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r_1$</td>
<td>+0.1187</td>
<td>+0.3742</td>
</tr>
<tr>
<td>$r_2$</td>
<td>+0.0191</td>
<td>+0.2011</td>
</tr>
<tr>
<td>$r_3$</td>
<td>+0.0913</td>
<td>+0.3893</td>
</tr>
<tr>
<td>$r_4$</td>
<td>+0.0979</td>
<td>+0.3422</td>
</tr>
</tbody>
</table>
One of these four industries (mining) has relatively low tariffs while a relatively large level of dependence from the 100 largest families. The low import duties in mining are probably the consequence of effective protection criteria since the iron and steel sector is one of the sectors where the participation of those 100 families is also the strongest.

The three other industries (alcohol, paints and leather products) exhibit relatively high levels of protection while a relatively low degree of association with the 100 largest families. It is believed by this author that the disparities concerning the first two industries might be due, at least partly, to classification and aggregation problems: the wine industry with which the alcohol industry is strongly related exhibits low levels of association with the 100 largest families and, similarly, low levels of import duties. Conversely, the chemical industry with which the paint industry is closely related exhibits a low level of import duties and has a relatively high level of association with the 100 families.

4. **Conclusions**

As in the previous three sections, the examination of the relationship between import duties and family wealth ownership has not lead to very successful results in what concerns one’s ability to explain the pattern of protection in Spain.

The empirical results do not reject the possibility that, in occasional instances, firms controlled by the most powerful families
even sectors where those firms are more common might receive special
tariff treatment. But as a general rule, family wealth ownership does
not seem to play a highly significant role in the systematic differences
in import duties in the Spanish economy. Yet, once four sectors are ex-
cluded from the sample, a pattern of association between import duties
and family wealth ownership appears much more strongly.

It should be remembered that these conclusions are subject to a
very important caveat, which is the paucity of data. If data problems
have been a serious handicap in previous sections, they are more so in
this section. The report containing this data had a very specific goal
in mind, i.e., to show "how much power" in absolute terms the '100 most
powerful' families had in Spain. The criteria used by the authors of
the report to assign firms to each economic sector are not explained in
the report. Yet one suspects that the relative degree of disparity
across sectors being a minor concern within the main goal of the report,
the precision about the assignment of sectors might not have been very
rigorous. An additional problem concerning the data for this report is
the difficulty of interpreting them, i.e., the authors provide a list of
the firms controlled but they do not indicate how they defined "con-
trol". From the context of the report it seems that a firm is assumed
to be controlled as long as one member of the 100 families is a member
of the board. This might be an inadequate way of defining control.

Finally, the criteria of selecting 100 families is arbitrary. The
selection of this 100 families tilts the result towards Madrid,
Barcelona and Bilbao. As the authors of the report recognize, if 200 instead of 100 families had been selected, the results would have been different and would have included other families from Valencia, Zaragoza, and Seville and might have explained better the pattern of protection of commodities produced in those areas.
VI. **OTHER DETERMINANTS OF THE PATTERN OF IMPORT DUTIES PROTECTION IN SPAIN**

1. **Introduction**

The previous four sections in this chapter have analyzed the relationship between the Spanish import duty rates and a set of international and national characteristics specific to the Spanish socio-political structure.

Due to both the nature of these characteristics and to the incompatibility of data sets, the degree of association between the characteristics and import duties was examined on a one by one basis using bivariate rank correlation techniques.

This section uses multiple regression analysis to test the remaining hypotheses included in Chapter II. Its purpose, again, is to determine how the variables indicated in that Chapter determine the pattern of import duty protection.

2. **Methodology and Sources of Data**

Chapter II postulated the existence of a negative relationship between the level of protection and the profitability of an industry, its labor intensity, and the concentration of buyers from that industry. It also postulated that the level of import duties was positively associated with the natural resources content, the import duties to which the inputs of an industry were subject, the size of the industry and the extent of forward and backward linkages of that industry with the rest of the economy. An additional question to be
tested but for which there was not any strong a priori expectation concerning the sign of the relationship was the association between the level of protection and import penetration in an industry.

In consequence, a first model to be estimated was:

$$\text{ANTAR}_j = f(\text{PRORI}_j, \text{NAIN}4_{7j}, \text{LABI}1_{7j}, \text{ATRIN}7_j, \text{BUYCI}1_{7j}, \text{NUOUT}7_j, \text{NUINP}7_j, \text{IMPI}17_j)$$

(1)

where \(\text{ANTAR}_j\) is the nominal import-weighted nominal average import duty for sector \(j\); \(\text{PRORA}_j\) is the profit/output ratio for sector \(j\); \(\text{LABI}1_{7j}\) and \(\text{NAIN}4_{7j}\) are the labor and natural resources intensities, respectively, in the production of the output of sector \(j\); \(\text{ATRIN}7_j\) is the average import-weighted nominal import duty on the imported inputs used by sector \(j\); \(\text{BUYCI}1_{7j}\) is an index of concentration among buyers from sector \(j\); \(\text{NUOUT}7_j\) and \(\text{NUINP}7_j\) are proxies for the forward and backward linkages, respectively generated by sector \(j\); and \(\text{IMPI}17_j\) measures the penetration of imports in sector \(j\).

During preliminary research it was found that, not surprisingly, \(\text{ATRIN}7_j\) was associated to a considerable degree with some of the other independent variables in the equation above. Hence it was suspected that the effect of those variables on \(\text{ANTAR}_j\) might be masked by the influence of \(\text{ATRIN}7_j\) on the former. As a result, a second model to be estimated was:

$$\text{ANTAR}_j = f(\text{PRORI}_j, \text{NAIN}4_{7j}, \text{LABI}1_{7j}, \text{BUYCI}1_{7j}, \text{NUOUT}_j, \text{NUINP}7_j, \text{IMPI}17_j)$$

(2)
which is identical to the previous one except that ATRIN7j is not included as an independent variable.

Another question to be tested was the connection between import duties and export performance. Again, it was not clear whether there would be any degree of association between both variables and if so of what nature. In principle one could hypothesize that the industries more likely to excel in their export performance would be those that are internationally price competitive, thus without any need for import protection. Still, a government engaged in aggressive export promotion might decide to protect some industries in order to either provide them with windfall profits with which to finance their export activities or to facilitate their achieving optimum economies of scale. In order to analyze this issue two different measures of export performance were selected: EXPOR7j, a measure of the absolute level of exports of each sector; and EXPI17j, a measure of export intensity, i.e., of the proportion of exports out of the total sales of that sector. The inclusion of either of these measures in equations (1) and (2) resulted in the following additional four models to be estimated:

\[
\text{ANTAR7}_j = f(\text{PRORI7}_j, \text{NAIN47}_j, \text{LABI17}_j, \text{ATRIN7}_j, \text{BUYC17}_j, \text{NUOUT7}_j, \\
\text{NUINP7}_j, \text{IMPI17}_j, \text{EXPOR7}_j) \quad (3)
\]

\[
\text{ANTAR7}_j = f(\text{PRORI7}_j, \text{NAIN47}_j, \text{LABI17}_j, \text{ATRIN7}_j, \text{BUYC17}_j, \text{NUOUT7}_j, \\
\text{NUINP7}_j, \text{IMPI17}_j, \text{EXPI17}_j) \quad (4)
\]
\[
\text{ANTAR7}_j = f(\text{PRI7}_j, \text{NAIN47}_j, \text{LABI17}_j, \text{BUY17}_j, \text{NUOUT7}_j, \\
\text{NUINP7}_j, \text{IMPI17}_j, \text{EXPO7}_j)
\]  

(5)

\[
\text{ANTAR7}_j = f(\text{PRI7}_j, \text{NAIN47}_j, \text{LABI17}_j, \text{BUY17}_j, \text{NUOUT7}_j, \\
\text{NUINP7}_j, \text{IMPI17}_j, \text{EXPI17}_j)
\]  

(6)

Chapter II also hypothesized a positive relationship between import duties and size of the sector but assumed that the relevance of industry size as a determinant of import duties is subject to decreasing returns. In order to test this hypothesis, two additional variables, \(\text{FREVA7}_j\) and \(\text{SOUVA7}_j\), the free-trade value of value added by industry \(j\) and its square, respectively, were added to each of the equations (1) through (6) above.

The 12 equations were independently estimated by using OLS. Observations for each of their variables were derived from data contained in the Spanish Input/Output Tables of 1970. The computational definition and meaning of each of these variables is given in Table 7 below.

Table 7

Definition of variables in the multiple regression equations

\[
\text{ANTAR7}_j = (\text{TARIF7}_j/\text{IMPO7}_j) \times 100
\]

\[
\text{PRI7}_j = \text{NETSU7}_j/\text{VPRFR7}_j
\]

\[
\text{NAIN47}_j = (\text{PUDAG7}_j + \text{PUCAT7}_j + \text{PUFIS7}_j)/\text{VPRFR7}_j
\]

\[
\text{LABI17}_j = \text{WAGES7}_j/\text{VPRFR7}_j
\]
\[ ATRIN7_j = \left( \frac{\text{TARIN7}_j}{\text{IMINT7}_j} \right) \times 100 \]

\[ \text{BUYCl7}_j = \frac{\text{SUMFI7}_j}{(\text{INSA27} - \text{INTR27}_j + \text{IMPTA7}_j - \text{EXPOR7}_j)} \]

\[ \text{NUOUT7}_j = \text{Number of sectors that purchase inputs from sector j} \]

\[ \text{NUINP7}_j = \text{Number of sectors that sell inputs to sector j} \]

\[ \text{IMPI17}_j = \frac{\text{IMPOR7}_j}{\text{FINAL7}_j} \]

\[ \text{EXPOR7}_j = \text{FOB value of exports of sector j} \]

\[ \text{EXPI17}_j = \frac{\text{EXPOR7}_j}{\text{FINAL7}_j} \]

\[ \text{FREVA7}_j = \frac{\text{NVARF7}_j}{(1 + \left[ \frac{\text{ANTAR7}_j}{100} \right])} = \text{Free trade value added of sector j} \]

\[ \text{SQUVA7}_j = \left( \frac{\text{FREVA7}_j}{100} \right)^2 \]

\[ \text{TARIF7}_j = \text{Import duties collected on imported final goods equivalent to those produced by sector j} \]

\[ \text{IMPOR7}_j = \text{CIF value of imported final goods equivalent to those produced by sector j} \]

\[ \text{NETSU7}_j = \text{Net surplus of sector j} \] (=Difference between gross value added at factor cost and the sum of salaries, wages and fringe benefits and capital depreciation)

\[ \text{VPRFR7}_j = \text{Value of domestic production at factor cost of sector j} \]

\[ \text{PUDAG7}_j = \text{Purchases from the agricultural sector by sector j} \]

\[ \text{PUCAT7}_j = \text{Purchases from the cattle sector by sector j} \]

\[ \text{PUFIS7}_j = \text{Purchases from the fishing sector by sector j} \]

\[ \text{INTR27}_j = \text{Sales (domestic production) by sector j to itself} \]

\[ \text{IMPTA7}_j = \text{CIF value of imported final goods equivalent to those produced by sector j plus their duties} \]

\[ \text{FINAL7}_j = \text{All resources made available for final demand by sector j} \]

\[ \text{NVAFR7}_j = \text{Net value added at factor cost by sector j} \]
TARIN7j = Import duties collected on all intermediate inputs purchased by sector j

IMINT7j = CIF value of intermediate inputs imported by sector j

SUMPI7j = Sales (domestic production plus equivalent imports and their duties) by sector j to the non-final sectors whose purchases from sector j are at least 5% of this sector's sales to all non-final sectors except j

INSA27j = Sales (domestic production plus equivalent imports and their duties) by sector j to all non-final sectors including sector j

It should be noted before concluding that, as defined, NAIN47 measures the agriculture, cattle and fishing intensity of output. Yet, it is here used as a proxy for natural resource intensity in general. Other measures of natural resource intensity that included only agricultural resources, or only mining and petroleum resources or all of them together were found to be highly correlated with ANTAR7 as well.

3. Empirical results and their evaluation

Tables 8.I through 8.IV below contain the econometric estimates of the 12 equations described in the previous section. Before discussing specific equations and variables it should be noted that all equations are statistically significant at least at the 99% level, and their adjusted coefficient of determination oscillates between 0.240 and 0.358. The adjusted-R² and their corresponding F-statistics are always higher in the equations in which ATRIN7 appears as an independent variable.
Table 8.1
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of Sectors: 112)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation T1</th>
<th>Equation T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+21.723&lt;sup&gt;a&lt;/sup&gt;</td>
<td>+14.799&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(2.7822)</td>
<td>(1.8432)</td>
</tr>
<tr>
<td>PRORI7</td>
<td>-32.31&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-28.3&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(3.2895)</td>
<td>(2.7408)</td>
</tr>
<tr>
<td>NAIR47</td>
<td>-22.563&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-24.834&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(3.5397)</td>
<td>(3.6952)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+2.291</td>
<td>+10.148&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(0.3624)</td>
<td>(1.2162)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.367&lt;sup&gt;a&lt;/sup&gt;</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(3.6985)</td>
<td></td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.090</td>
<td>-0.459</td>
</tr>
<tr>
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<td>(0.1061)</td>
<td>(0.5106)</td>
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<tr>
<td>NUOUT7</td>
<td>+0.0005</td>
<td>-0.0062</td>
</tr>
<tr>
<td></td>
<td>(0.0279)</td>
<td>(0.3019)</td>
</tr>
<tr>
<td>NUINP7</td>
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<td>+0.144&lt;sup&gt;d&lt;/sup&gt;</td>
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<tr>
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<td>(0.1964)</td>
<td>(1.4486)</td>
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<td>-19.937&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>(2.7920)</td>
<td>(2.9561)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.3292$ adj. $R^2 = 0.2474$
$F = 7.808$ $F = 6.212$
$D - W = 1.8738$ $D - W = 1.6613$

Note: In this and following tables, the numbers in parenthesis are the t-statistics for each estimated coefficient. The meaning of the superscripts on the value of the coefficients is as follows:

a. significant at 99% level
b. significant at 97.5% level
c. significant at 95% level
d. significant at 90% level
e. significant at 80% level
Table 8.11

Determinants of import duties: OLS estimations

Dependent variable = ANTAR7
(Number of sectors: 112)

<table>
<thead>
<tr>
<th></th>
<th>Equation T3</th>
<th>Equation T4</th>
<th>Equation T5</th>
<th>Equation T6</th>
</tr>
</thead>
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<td>+22.036a</td>
<td>+15.000c</td>
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<tr>
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<td>(1.8421)</td>
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<td>PROR17</td>
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<td>(3.5078)</td>
<td>(3.5880)</td>
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<td>(3.7035)</td>
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<tr>
<td>LABI17</td>
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<td>+10.107e</td>
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<td>(1.2051)</td>
<td>(1.1186)</td>
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</tr>
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<td>ATRIN7</td>
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<td>+0.371a</td>
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<td>--</td>
</tr>
<tr>
<td>(3.6853)</td>
<td>(3.7173)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUC177</td>
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<td>-0.134</td>
<td>-0.454</td>
<td>-0.492</td>
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<td>(0.1562)</td>
<td>(0.5022)</td>
<td>(0.5433)</td>
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<td>NOOUT7</td>
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<td>+0.001</td>
<td>-0.007</td>
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<td>(0.764)</td>
<td>(0.0728)</td>
<td>(0.3231)</td>
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<td>NUINP7</td>
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<td>+0.141d</td>
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<td>(2.7236)</td>
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<td>EXPOR7</td>
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<tr>
<td>(0.6538)</td>
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<td>(0.4340)</td>
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</table>

adj. $R^2 = 0.323$  adj. $R^2 = 0.325$  adj. $R^2 = 0.240$  adj. $R^2 = 0.246$

$F = 6.885$  $F = 6.950$  $F = 5.389$  $F = 5.417$

$D - W = 1.869$  $D - W = 1.870$  $D - W = 1.660$  $D - W = 1.654$
Table 8. III

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

<table>
<thead>
<tr>
<th>Equation T7</th>
<th>Equation T8</th>
</tr>
</thead>
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<td>INTERCEPT</td>
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</tr>
<tr>
<td></td>
<td>(1.5800)</td>
</tr>
<tr>
<td>PROCR17</td>
<td>-19.186c</td>
</tr>
<tr>
<td></td>
<td>(1.4202)</td>
</tr>
<tr>
<td>NAIRN47</td>
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</tr>
<tr>
<td></td>
<td>(3.1954)</td>
</tr>
<tr>
<td>LAB117</td>
<td>+6.379</td>
</tr>
<tr>
<td></td>
<td>(0.7922)</td>
</tr>
<tr>
<td>ATRIN7</td>
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<td></td>
<td>(3.8103)</td>
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<td>BUYC17</td>
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<td></td>
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</tr>
<tr>
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<td>IMPI17</td>
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<td>EXPI17</td>
<td>--</td>
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<td>SQUVA7</td>
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</tr>
<tr>
<td></td>
<td>(2.3691)</td>
</tr>
</tbody>
</table>

adj. \( R^2 = 0.350 \)  \( F = 7.192 \)  \( D - W = 1.921 \)
adj. \( R^2 = 0.273 \)  \( F = 5.631 \)  \( D - W = 1.697 \)
Table 8.4V

Determinants of import duties: OLS estimations

Dependent variable: ANTER7
(Number of sectors: 112)

<table>
<thead>
<tr>
<th>Equation T9</th>
<th>Equation T10</th>
<th>Equation T11</th>
<th>Equation T12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1.6174)</td>
<td>(1.5901)</td>
<td>(0.7603)</td>
</tr>
<tr>
<td></td>
<td>(1.5727)</td>
<td>(1.7287)</td>
<td>(1.2326)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-20.89a</td>
<td>-20.526a</td>
<td>-23.123a</td>
</tr>
<tr>
<td></td>
<td>(3.2571)</td>
<td>(3.1742)</td>
<td>(3.3947)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+6.115</td>
<td>+5.970</td>
<td>+13.482d</td>
</tr>
<tr>
<td></td>
<td>(0.7569)</td>
<td>(0.7221)</td>
<td>(1.6117)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.375a</td>
<td>+0.372a</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(3.8407)</td>
<td>(3.7997)</td>
<td></td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.023</td>
<td>-0.017</td>
<td>-0.358</td>
</tr>
<tr>
<td></td>
<td>(0.0280)</td>
<td>(0.2026)</td>
<td>(0.4034)</td>
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<tr>
<td>NUOUT7</td>
<td>+0.014</td>
<td>+0.016</td>
<td>+0.006</td>
</tr>
<tr>
<td></td>
<td>(0.6505)</td>
<td>(0.7367)</td>
<td>(0.2973)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.074</td>
<td>+0.082</td>
<td>+0.243b</td>
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<tr>
<td></td>
<td>(0.0666)</td>
<td>(0.7403)</td>
<td>(2.2289)</td>
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<tr>
<td></td>
<td>(3.0961)</td>
<td>(3.0256)</td>
<td>(3.1286)</td>
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<tr>
<td>EXPOR7</td>
<td>+0.0003</td>
<td>--</td>
<td>+0.0001</td>
</tr>
<tr>
<td></td>
<td>(0.7240)</td>
<td></td>
<td>(0.4434)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>--</td>
<td>+2.438</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.2393)</td>
<td></td>
</tr>
<tr>
<td>FREVA7</td>
<td>-0.0004a</td>
<td>-0.0004a</td>
<td>-0.0004a</td>
</tr>
<tr>
<td></td>
<td>(2.6217)</td>
<td>(2.4854)</td>
<td>(2.3995)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+2.10^-9b</td>
<td>+2.10^-9b</td>
<td>+2.10^-9c</td>
</tr>
<tr>
<td></td>
<td>(2.0368)</td>
<td>(2.2904)</td>
<td>(1.9912)</td>
</tr>
</tbody>
</table>

adj. \( R^2 = 0.355 \) \( \text{adj. } R^2 = 0.352 \) \( \text{adj. } R^2 = 0.267 \) \( \text{adj. } R^2 = 0.265 \)
\( F = 6.555 \) \( F = 6.482 \) \( F = 5.048 \) \( F = 5.019 \)
\( D-W = 1.903 \) \( D-W = 1.917 \) \( D-W = 1.692 \) \( D-W = 1.696 \)
Finally, the variables that are highly significant tend to remain so and to keep their size unaltered, regardless of the specification of the import duties equation. However, the sign and the level of significance of the other variables tends to be more sensitive to the specification of the regression equation.

More specifically, PRORI7, NAIN47, ATRIN7, IMPI17, PREVA7 and SQUVA7 are consistently highly significant in all equations and their sign is always the same. LABI17's sign is always the same but its level of significance varies with different equations. The levels of significance of BUVC17, EXPOR7 and EXPI17 are always below 80%, and, tend to vary somewhat with the specification of the equations but their sign does not change with different equations. The level of significance and the sign of both NUOUT7 and NUINP7 tend to vary substantially across equations as discussed below.

All the equations indicate that tariff rates are higher, the lower is the profit-output ratio (PROR17). This relationship, which is highly statistically significant, suggests as indicated in hypothesis D in Chapter II that sectors with low profit ratios are likely to be successful in obtaining protection by claiming that their low profits make them vulnerable to "unfair" import competition. The relationship also suggests, however, that tariff policy might not have been the most conducive for economic development purposes. Low profits levels prevent capital accumulation while the relatively higher tariffs in those sectors might remove the incentives in those industries to increase their production efficiency.
All equations also indicate that import duties tend to be significantly lower in those sectors that intensively use natural resources. This result rejects, in principle, the validity of hypothesis in Chapter II which postulated, on economic development grounds, that industries using natural resources intensively would be more protected since they were likely to have been selected as those upon which to set the foundations of Spain's industrial development. Yet, the discussion of this hypothesis in Chapter II recognized that other factors might counter the expected relationship. Specifically, high import duties on those sectors might hurt the growth of the other industries that purchase imports from them, by increasing the cost of production. Therefore, the low tariff rates on natural resources intensive goods are likely to be the result of effective protection considerations that would enhance the country's ability to export those goods.

The estimated equations also suggest that import duties tend to be higher in industries with higher labor intensity. The relationship is not statistically significant in the equations that contain ATRIN7 as a dependent variable. It becomes statistically significant, although not very highly, when ATRIN7 is not included in the equations. Further, when LAB117 only is regressed on ANTAR7 the relationship is positive and highly significant. Spain is relatively abundant in labor resources. It is for that reason that Spain's exports use labor intensively. Spain's imports tend not to be labor intensive, although the negative relationship between labor inten-
sity and imports is not highly statistically significant. This might be the result, as indicated in Chapter II of the wage policies in Franco's Spain that kept wages above the value of their marginal product thus eroding part of the comparative advantage in labor-intensive industries. From comparative advantage considerations, one would expect labor intensive industries to be less protected than otherwise, since their need to be protected from imports is lower. Yet, the lack of a sufficiently statistically strong relationship between imports and labor intensity might explain why the relationship between import duties and labor intensity is not highly statistically significant. Furthermore, as indicated in Chapter II, socio-political considerations such as Franco's regime emphasis on ensuring full employment might have made the administration more willing to protect sectors that use labor intensively. Equivalently, labor intensive industries might have used the threat of lay-offs or bankruptcy as a tool to obtain protection. These factors would help neutralize the expectation from comparative advantage considerations of low tariffs for labor intensive sectors, thus would explain why the sign of LABI17 is positive.

All equations suggest also that import duties tend to be higher in those industries whose inputs are subject to relatively high tariffs. Although it has been claimed that Spanish Tariff rates were not set according to effective protection criteria until 1973, the positive and highly statistically significant relationship between input and output import duties tends to support the contrary.
Further, this relationship could be caused, as postulated in Chapter II, by the pressure that industries which feared their inputs might be subject to high tariffs are likely to have put on the administration on "equity" grounds considerations. This suggests that even if it were true that tariff policy did not deliberately take into account effective protection considerations, the political process resulted in a tariff structure that responded to those considerations.

Chapter II postulated the existence of a negative relationship between import duties and buyer concentration on the assumption that the more concentrated are the buyers of the output of a given industry the stronger their opposition to tariffs on their inputs is likely to be, on the grounds that the free rider problem is less likely to take place in such a coalition. The statistical evidence tends, in general, to support this hypothesis although only mildly since the relationship is totally non-statistically significant. In two of the specifications of the import duties equation the relationship becomes positive but still non-statistically significant. It should be noted, however, that when variable ATRIN7 is not included in the regressions, the relationship is always negative and the degree of statistical significance tends to improve considerably.

As indicated before, two raw indices of economic linkages are included in the import duties equations: the number of inputs used by an industry (NUINP7) as a proxy for backward linkages; and the number of outputs or sectors to which an industry sells its output
(NUOUT7) as a proxy for forward linkages. The higher are those indexes for a given sector, the stronger is the connection between that sector and the rest of the economy and, similarly, the stronger is the dependence of the rest of the economy from that sector in what concerns both output and job creation. On economic development grounds one would expect, the administration to be especially keen on favoring the growth of these sectors. Correspondingly, these industries are likely to be especially successful in their requests for import protection on the grounds that their contribution to the economy should not be prevented or restricted by import competition.

The empirical evidence from the estimated equations seems to provide support in what concerns backward linkages: while the relationship, against our expectations, is negative and not statistically significant when ATRIN7 is included in the estimated equations, it becomes positive and statistically significant in all equations where ATRIN7 is not included. As in the case of BUC17, the high degree of association between ATRIN7 and NUINP7 masked the effect of the latter on ANTAR7. On the other hand, the estimates of NUOUT7 hardly provide any support for the hypothesis: the relationship between this variable and ANTAR7 is statistically non-significant always and the direction of the relationship is quite sensitive to the equation specification. The relationship is positive in those equations that do not include either EXPOR7 or EXPI17 and in those equations that include FREVA7 and SQUVA7 even if either EXPOR7 or EXPI17 are included.
Regardless of the specification of the equation, the econometric estimates indicate that import duties are significantly higher in those industries where import penetration is lower. Although no specific hypothesis was made concerning this variable, on an *a priori* basis one might have thought that the relationship would be positive on the grounds that sectors with high import penetration are those who can more convincingly ask for import protection. It should be mentioned, however, that IMPI7 may not be the most appropriate measure to test this hypothesis. A more correct way for this test would have been to use a lagged value of that variable on the likely event that a high import penetration in a previous period is likely to result in higher tariffs in the next period. As IMPI7 is measured, the negative relationship between import duties and import penetration seems to suggest that tariff rates are indeed effective in restricting imports.

Another question to be tested was the correlation, if any, between import duties and export performance measured by both EXPOR7 and EXPI7. The relationship is found to be always positive but not statistically significant.

Finally, it was hypothesized that industries with larger value added measured at world prices were more likely to obtain protection, even though the effect of this variable on import duties was assumed to have a decreasing importance as the size of an industry increased. The estimation of equations 7 through 12 totally reject
this hypothesis. Both variables FREVA7 and SQUA7 are highly statistically significant, but their signs are the opposite of those hypothesized, suggesting that size of an industry is indeed important in the determination of import duties, but that those are likely to be larger in smaller industries than in larger industries. An attempt to explain this, in principle, surprising result is made in the next chapter.

4. Conclusions

In summary, most of the empirical results contained in Tables I through IV tend to provide some support to the hypotheses postulated in Chapter II. Of the six signed variables that are statistically significant, three of them (PROR17, ATRIN7, NUINP7) have the expected signs. The other three (NAIN47, FREVA7, SQUVA7) do not, but as the next chapter will show, a plausible explanation can be provided for those results. Another signed variable (BUYC17) is not statistically significant but it has the expected sign. Finally, five others are not statistically significant and either have a sign different from that expected (LABI17) or the sign varies depending on the specification for the model.
NOTES TO CHAPTER III

CHAPTER IV: THE DETERMINANTS OF QUANTITATIVE RESTRICTIONS IN SPAIN AND THEIR RELATIONSHIP WITH IMPORT DUTIES

I. THE RELATIONSHIP BETWEEN QUANTITATIVE RESTRICTIONS AND INDUSTRIAL CONCENTRATION IN SPAIN

1. Introduction and hypothesis formulation

Chapter II hypothesized the existence of a positive relationship between industrial concentration and the level of protection. However, the testing of that relationship in Chapter III in an attempt to explain the patterns of import duties yielded unsuccessful results: at least with the available data, higher levels of industrial concentration do not seem to be associated with higher import duties for the whole sample of sectors for which data are available (those in Appendix E). Furthermore, when the complete sample was broken into subsamples depending on the trade regime to which each economic sector was subject, the results were in fact contrary to those expected suggesting, although not very significantly, that perhaps the relationship, if at all, was of a direction different from that which had been postulated in Chapter II. Yet, as pointed out in Chapter III, it might be that where industrial concentration plays an important role is not in the pattern of import duties but in the determination of the trade regime to which commodities are assigned.

2. Methodology and sources of data

In order to test whether there is a relationship between the degree of industrial concentration and the assignment of commodities
to specific trade regimes, the Mann-Whitney U test, a non-parametric technique to determine whether two independent groups of data have been drawn from the same population was used. This test involves the computation of statistic U whose value is defined as:

\[ U = n_1 n_2 + \frac{n_1 (n_1 + 1)}{2} - R_1 \]

where \( n_1 \) and \( n_2 \) are the number of observations in the smaller and the larger of both groups of data respectively, and \( R_1 \) is the sum of the ranks assigned to the group whose sample size is \( n_1 \).

For large samples (\( n_2 > 20 \)), the sampling distribution of \( U \) approaches the normal distribution and its statistical significance can be tested through statistic \( z \), whose value is:

\[ z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}}} \]

The data to perform those tests are the same ones used in Section III of Chapter III and included in Appendixes G, H and I.

3. **Empirical results and their evaluation**

A first use of this test to determine the relationship between industrial concentration and non-tariff barriers, involved the partition of the group of 68 sectors in Appendix E into two subgroups: Group 1 contained the 19 sectors listed in Appendix G with rela-
tively high indexes of incidence of non-tariff barriers \((i_j > 1.000)\); and group 2 contained the remaining 49 sectors, listed in Appendix H. Thus, \(n_1 = 19\) and \(n_2 = 49\).

In the context of this test, the null hypothesis is that industrial concentration is essentially the same regardless of whether a sector is subject to highly restrictive non-tariff barriers (group 2 of data) or not (group 1 of data) and the alternative hypothesis is that industrial concentration is smaller in group 1, i.e., among sectors under liberalized trade or under global quotas.

The rankings from which \(R_1\) is computed are the rankings of the whole group of 68 sectors according to the decreasing value of their index of industrial concentration. The value of \(R_1\) is 835, thus \(U = 286\) and \(z = -2.4533\). Since \(z \leq -2.4533\) has a one-tailed probability under \(H_0\) of \(p < .0071\), the null hypothesis can be rejected with a 99.29% level of confidence and it can be concluded that the economic sectors that are mostly under bilateral trade and State trade regimes tend to be more concentrated than the rest of the sectors in the sample.

A second use of this test involved the partition of the group of 68 sectors in Appendix E into two alternative subgroups: group 1 contained the 25 sectors listed in Appendix I which were completely free of non-tariff barriers; and group 2 contained the remaining 44 sectors, i.e., all those subject either partially or totally, to non-tariff barriers. The alternative hypothesis in this case is that sectors free of non-tariff barriers have a lower degree of
industrial concentration than the rest of the 68 sectors. The rankings from which \( R_1 \) is computed are again the rankings listed in Appendix E, corresponding to those 25 sectors under liberalized trade in terms of the value of their corresponding Gini coefficients of industrial concentration. From them, \( R_1 = 859 \). Further, since \( n_1 = 25 \) and \( n_2 = 44 \), the value of \( U \) is 541 and \( z = 0.0445 \). For this value of \( z \), the null hypothesis cannot be rejected and it must be concluded that the degree of industrial concentration in economic sectors free of non-tariff barriers is not different from the degree of industrial concentration in the other economic sectors.

A final use of the Mann-Whitney U-test concerned the subsample of 49 sectors either under liberalized trade or mostly under global quotas, which is listed in Appendix H. The purpose of this test was to determine whether sectors under liberalized trade (defined as group 1) had a lower degree of industrial concentration than sectors mostly under global quotas (defined now as group 2). The value of \( R_1 \) was obtained from the ranking listed for the 49 sectors in Appendix H, according to their degree of industrial concentration. For \( n_1 = 24 \), \( n_2 = 25 \), and \( R_1 = 568 \), the value of \( U \) is 332 with \( z = 0.6400 \). The null hypothesis that the degree of industrial concentration is not different under global quotas than under free trade can only be rejected at a confidence level of 26.11%. Hence, the test indicates that the relatively more concentrated industries are more likely to be under liberalized trade than protected by global quotas with a probability of 73.89%.
4. **Conclusions**

The empirical research in Section III of Chapter III was unable to provide support for the hypothesis that import duties were higher among the most concentrated industries.

It was thought that the influence of industry concentration would manifest itself through the trade regimes to which commodities to be imported are assigned. Specifically, one expected to find that commodities under liberalized trade would be produced by sectors with a relatively low degree of industrial concentration. Other tests were performed to determine possible patterns of industrial concentration and trade regimes. The empirical results do not seem to confirm our hypotheses. Specifically, concerning non-tariff barriers, the analysis has shown that the degree of industrial concentration

- among the 25 sectors under liberalized trade is not statistically different from that of the rest of the economy.
- among the 25 sectors under liberalized trade is not statistically different from that of the sectors mostly under global quotas.

The only relationship that was found statistically significant concerned the manufacturing sectors under state trade or trade under individual license. Specifically, it was found that the degree of industrial concentration among these sectors tends to be higher than in the rest of the sectors in the economy.
II. THE RELATIONSHIP BETWEEN QUANTITATIVE RESTRICTIONS AND 'FIRM BIGNESS' INCIDENCE IN SPAIN

1. Introduction and hypothesis formulation

Section IV in Chapter III analyzed the relationships between 'firm bigness' incidence and the pattern of import duties. Through the use of rank correlation techniques, it was possible to obtain useful support in some cases to the hypothesis that the presence of Spain's largest firms does indeed play a significant role in the determination of import duties.

The purpose of this section is to investigate whether, as one would expect, the presence of large firms also helps economic sectors to obtain protection through quantitative restrictions.

2. Methodology and sources of data

As was the case of Section I in this chapter, the determination of whether the presence of largest Spanish firms in a sector affects the assignation of certain commodity to specific import trade regimes can be ascertained empirically through the use of the Mann-Whitney U-test, discussed in that previous section.

Most of the information needed to undertake the different uses below of this test was already used in Section IV of Chapter III and is contained in Appendix K and Appendixes M through R. Additional information for the use of this non-parametric test in this section has been compiled in Appendices S and T, included at the end of this section.
3. **Empirical results and their evaluation**

The U-test was first used to determine whether the incidence of 'firm bigness' was larger in the 8 economic sectors whose imports were mostly subject to State trade or to trade under individual license than in the 26 remaining sectors in the economy. The value of the normally distributed t-statistics were 1.1773, -0.5074 and 1.3397, respectively, when the measure of the presence of the 500 largest firms in the different economic sectors were \( P_1 \), \( P_2 \) and \( P_3 \), respectively. Those values indicate that \( P_1 \) is higher, \( P_2 \) is lower and \( P_3 \) is higher within the group of sectors subject to State trade or trade under individual license than in the other sectors, at statistically significant levels of 87.90%, 69.50% and 90.99%, respectively.

A second use of the Mann-Whitney test involved the comparison between the 5 sectors totally free of quantitative restrictions and the other 29 sectors. The value of the t-statistics were 0.6078, -0.6321 and 0.9968, when \( P_1 \), \( P_2 \) and \( P_3 \), respectively, were used as the measure for 'firm bigness' incidence. Those values indicate that \( P_1 \) is higher, \( P_2 \) is lower and \( P_3 \) is higher among economic sectors under liberalized trade than among all the other sectors of the Spanish economy, at statistically significant levels of 72.91%, 73.57% and 84.05%, respectively.

A third use of this test involved the comparison between the 21 sectors the regime most common for whose imports is global quota trade and the 13 remaining sectors, which are either under
free trade or subject in some degree to State trade or trade under individual license. A computation complication appeared when the U-test was applied to the ranking of index \( P_2 \) due to the presence of a considerable number of ties in the ranks. For this case, the value of statistic \( z \) was adjusted by computing it with the following formula:

\[
z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{n_1 n_2}{N(N-1)} \left[ \frac{N^3 - N}{12} - \sum_{j=1}^{m} T_j \right]}}
\]

where \( N \) is the total number of observations (thus, equal to \( n_1 + n_2 \)) and \( \sum_{j=1}^{m} T_j \) is the correction factor for ties.

The value of this correction factor is:

\[
\sum_{j=1}^{m} T_j = \sum_{j=1}^{m} \frac{t_j (t_j^2 - 1)}{12}
\]

where \( t \) is the number of observations tied for a given rank in the whole sample of \( N \) observations.

After using this formula for the case of index \( P_2 \) the value of the \( z \)-statistics were \(-1.4706\), \(0.9943\) and \(-1.8959\), when \( P_1 \), \( P_2 \) and \( P_3 \), respectively, were used as the measure for 'firm bigness' incidence. Those values indicate that \( P_1 \) is lower, \( P_2 \) is higher and \( P_3 \) is lower among economic sectors subject to global quotas than among all other sectors at statistically significant levels of \(92.99\%, 83.89\%\) and \(97.06\%, \) respectively.
A fourth use of the Mann-Whitney test was concerned with determining whether the presence of the 500 largest firms was more pronounced among the 8 sectors subject to State trade or trade under bilateral license than in the 5 sectors totally free of quantitative restrictions. The U-test (performed by using the rankings of sectors in Appendix V) indicates that this is the case, regardless of the index of 'firm bigness' incidence used. The results, however, are not highly significant statistically. The values of the z-statistics were -0.1463, 0.5929 (corrected for ties), and -0.2927, when P₁, P₂ and P₃, were used, respectively as measures of the presence of the 500 largest firms. These results are significant at the 55.76%, 72.33% and 61.41% levels, respectively.

A fifth use of this test was based on the rankings in Appendix V and had as its purpose to determine whether the presence of the 500 largest Spanish firms was higher among the 8 sectors protected by State trade and trade with individual license than among the 21 sectors that received some degree of protection through quota trade. The z-statistics were 1.5614, -0.7578 and 1.3174 when the presence of the 500 largest firms was measured by indexes P₁, P₂ and P₃ respectively, indicating that sectors under State trade or individual license regimes have higher P₁, lower P₂, and higher P₃ than sectors under global quotas, at levels of statistical significance of 90.73%, 77.58% and 94.06%, respectively.

The final use of this test involved the comparison between the 5 sectors totally free of quantitative restrictions and the 21
sectors which were, in general, subject in part to liberalized trade and in part to quota trade. The value of the z-statistics were 0.9434, -0.8458 and 1.3898, respectively when $P_1$, $P_2$ and $P_3$ were used as the indicators for the presence of the 500 largest firms in those sectors. Those values show that in the sectors under free trade $P_1$ is higher, $P_2$ is lower, and $P_3$ is higher than in the sectors where the presence of commodities under liberalized trade coincides with the presence of commodities subject to global quotas (and, in a lesser degree, to the other two more restrictive import regimes) at statistically significant levels of 82.72%, 80.11% and 91.90%.

4. Conclusions

In summary, the results of the Mann-Whitney test that are highly statistically significant are the following:

1. With a probability of 90.99%, sectors protected by State trade or trade under individual license tend to have a higher $P_2$ than the rest of the sectors in the economy. With probabilities of 90.73% and 94.06%, those sectors have higher $P_1$ and $P_3$ indexes than sectors under global quotas.

2. With a probability of 91.90%, sectors totally free of quantitative restrictions have a higher $P_3$ index than sectors subject in some degree to global quotas. This result tends to reject the hypothesis that protection through quotas is more likely to happen in sectors the output of whose largest firms constitutes a relatively large share of the total output of the sector.
3. With probabilities of 92.99% and 97.06%, sectors protected in some degree by global quotas have lower $P_1$ and $P_3$ indexes than all the other sectors in the economy. And, specifically, with probability of 90.73% and 94.00%, those sectors have lower $P_1$ and $P_3$ indexes than sectors under State trade or trade under individual license.

The statistical significance of the other results from the U-tests performed is considerably lower. Yet, it is worth reporting that the following pattern emerges:

1. Sectors under State or individual license trade tend to have higher $P_1$ indexes (with probability of 87.90%), than all the other sectors in the economy. Yet, their $P_2$ index tends to be lower (with a probability of 69.50%) than in all the other sectors. Further, their $P_1$, $P_2$ and $P_3$ indexes are higher (with probabilities of 55.76%, 72.33% and 61.41%, respectively) than those for sectors totally free of quantitative restrictions. These later results are consistent with the hypotheses stated early in the chapter on the political power of the 500 largest firms.

2. Sectors totally under free trade also tend to have higher $P_1$ and $P_3$ indexes than (with probabilities of 72.91% and 84.15%, respectively) and a lower $P_2$ index (with a probability of 73.57%) than the rest of the sectors in the economy. Specifically, they tend to have higher $P_1$ and lower $P_2$ indexes than sectors protected in some degree by global quotas. These results tend to reject the hypo-
thesis that the presence of the 500 largest firms tends to result in a higher degree of non-tariff protection than otherwise.

3. Sectors protected by global quotas are sectors with a $P_2$ index higher (with a probability of 83.89%) than that in the rest of the economy.

The previous summary focuses on how the values of the incidence of 'firm bigness' vary across trade regimes. An alternative way of analyzing these results is by observing how the trade regime varies depending on the index used for 'bigness' incidence. From this perspective the following results emerge:

1. Economic sectors where the unweighted output of the 500 largest firms as a fraction of the total output is relatively high (i.e., sectors where $P_1$ is high) are more likely to be under State or individual license trade than under the other regimes; and they are more likely to be under free trade than under global quota trade. The evidence from which this last implication is derived is highly statistically significant.

2. Economic sectors which contain a larger number of the 500 largest firms (i.e., sectors where $P_2$ is high) are more likely to be under global quotas than under the other trade regimes; and they are more likely to be under State or individual license trade than under liberalized trade. The evidence upon which these implications are inferred is not highly statistically significant.

3. Economic sectors where the output of the 500 largest firms as a fraction of total output weighted by the number of firms is
high (i.e., where $P_3$ is high) are more likely to be under State trade or trade with individual license than under other regimes. And they are more likely to be under free trade than under global quotas. The evidence upon which all these implications are inferred is highly statistically significant.

In conclusion, the hypothesis that sectors with large firms are more likely to be protected by non-tariff barriers is supported statistically if one uses the number of large firms in an economic sector as the indicator of the power that the 500 largest firms exert. But the hypothesis receives mixed results when other indicators are used. Those indicators mildly support the hypothesis that economic sectors where the output of large firms is relatively large are more likely to be protected by state trade or trade under individual license than being under liberalized trade; but they strongly reject the hypothesis, that those sectors are more likely to be under global quotas than under liberalized trade.
III. THE RELATIONSHIP BETWEEN QUANTITATIVE RESTRICTIONS AND IMPORT DUTIES

1. Introduction

A fundamental question when examining import policy is the role of quantitative restrictions as a barrier to trade, and their effects on domestic consumption, production and prices. While the question of the equivalence between tariffs and quotas has been analyzed by Bhagwati and others, other issues have not received an extensive treatment in the literature due to the difficulty of quantifying non-tariff barriers.

Still, the increasing use of those instruments in the industrialized western countries has lead economists to develop some measures of the restrictiveness of quantitative barriers to trade. The U.S. International Trade Commission has devised one such measure for both the U.S. and the major industrial countries, encompassing all the non-tariff barriers in those nations; that measure was used by Ray (1981a and 1981b) and Marvel and Ray (1983) to analyze the political and economic determinants of protection in the U.S. and its major trade partners. The Australian Trade Commission has developed an effective tariff rate across sectors that includes the estimated price effects of most non-tariff barriers and was used by Anderson (1980) to study the market for protection in Australia. But measures for similar purposes are not available for Spain nor for other countries.

Yet as discussed in Chapter II the role of non-tariff barriers has been historically important in Spain. In fact, until 1959
almost all foreign trade was subject to quantitative restrictions in the sense that an import license was required for the importation of commodities. This type of import policy resulted in an inward-looking industrialization process that led to considerable inefficiencies and prevented the growth of exports. The progressive decrease in foreign exchange holdings put Spain near the point of bankruptcy in international payments. The realization of those failures led to a reorientation of policies that eased both domestic and foreign trade by reducing government intervention in both. Thus, in 1959 four foreign trade regimes (liberalized trade, globalized trade, State trade and trade under individual license).

A few months later a new Tariff Law was enacted. The preparatory work for it had started in 1957 since the tariff schedule in use since 1922 had become antiquated, because both its classification of commodities was outmoded and its tariff rates, many of them specific, had often become ineffective.

Average tariff rates progressively decreased during the 1960s, and, until the liberalization enthusiasm lost its momentum around 1967, the Administration published, from time to time lists in which commodities under the relatively more restrictive regimes were transferred to less restrictive regimes. Obviously, not all sectors were affected equally: some sectors remained with relatively higher tariffs and some sectors retained important quantitative restrictions.

Whether the same sectors that had high tariffs in 1970 were also protected by quantitative restrictions is the main focus of
this section. In the process, a set of indexes to measure the restrictiveness of quantitative barriers across sectors of the Spanish economy is constructed.

2. Hypotheses concerning the relationship between tariff rates and quantitative restrictions and their application to the Spanish economy

Three alternative hypotheses concerning the relationship between both instruments of protection against foreign competition are possible:

A. Positive relationship between tariffs and quantitative restrictions

This is a hypothesis consistent with the recent analysis of tariff policy from the perspective of the economic theory of politics and it was successfully tested by Ray (1981a and 1981b) and Marvel and Ray (1983). According to this hypothesis, the same interest groups with sufficient incentives and political power to obtain high tariff rates would be expected to achieve protection through non tariff barriers as well.

Ray's analysis of the determinants of protection in the US and the Common Market countries showed that high tariffs and non-tariff barriers are coincidental in those nations, for whom, as a result of international trade negotiations, maximum tariff rates were agreed upon for many commodities. Faced with the inability to obtain additional protection through tariffs, special interest groups used their influence to restrain imports through quantitative restrictions.
Whether that hypothesis would hold in the case of the Spanish economy is not totally clear, since initial conditions in Spain were different from those found in the countries studied by Ray. In them, originally, the primary instrument for protection was tariffs and tariff decreases led to the establishment of quantitative restrictions. In Spain, trade was traditionally limited by the use of quantitative restrictions. With the relaxation of quantitative restrictions, the administration could still provide a substantial protection by keeping tariff rates high. Yet, Spanish businessmen have traditionally looked upon the government as their problem-solver and have feared competition (whether domestic or foreign). Further, it is not uncommon to hear statements to the effect that, given a choice, a Spaniard would rather choose a foreign made, even if more expensive, item than one domestically produced. For those reasons, one would suspect that, whenever possible, Spanish firms have tried to get non tariff barriers as a safety net and a complement to tariff protection. That this is more than a mere suspicion is confirmed by two non-public statements made by officials in the Ministry of Commerce. One, a retired high official who played a fundamental role in the setting of import policy in the 1960s and another a current junior official, coincided among other things, in two points: the different degree of protection is directly related to the power of the interest groups and those groups tend to obtain protection through every means at hand. Further, Tamames (1977), himself a former official at the Ministry of Commerce as well as a prestigious academic economist points out the connection between
high tariff rates, quantitative restrictions and pressure groups for
a list of 26 selected commodities.

B. Negative relationship between tariffs and quantitative
restrictions

A given level of protection can be obtained either through
tariff barriers or through quantitative restrictions, and for that
reason both types of instruments might be used as substitutes rather
than as complements as the previous hypothesis suggested.

In that case, whether one instrument or another is chosen prob-
ably depends more on political factors and inability to forecast the
behavior of imports than on theoretical considerations. Quantita-
tive restrictions might be preferred over tariff rates when the im-
port elasticity of demand is unknown or when it is believed to be
low (since a very high tariff rate, internationally unacceptable,
might be needed to achieve the same level of import restrictiv-
eness).

A negative relationship between tariff and non-tariff barriers
might be found as well if industries protected by strong non-tariff
barriers consider this protection to be sufficient and therefore are
unwilling to bring additional pressure and spend political capital
and economic resources to obtain tariff protection also. Finally,
in international trade negotiations the administration might be more
willing to reduce tariff rates in those industries that are already
protected by other means.
C. Absence of a systematic relationship between tariffs and quantitative restrictions

Tariff and non-tariff barriers might not be systematically related. Under a rational administration this is not likely to happen, though, since it would mean that two instruments whose goal is the same are used by the administration as two independent, unrelated tools. The absence of a systematic pattern would indicate that either the pattern of tariff rates is similar across different trade regimes or, conversely, that the pattern of tariffs is very different within each of the trade regimes. One such case would be if some industries with high tariff rates obtain non-tariff barriers while the other high-tariff industries are not protected through quantitative restrictions. Although the absence of a systematic relationship might be the result of many factors, it would not necessarily reject the hypothesis that some groups are able to obtain both high tariff rates and quantitative restrictions, since it could happen that this positive relationship was cancelled by a substitute-type of relationship in other sectors.

3. The Measurement of the incidence of quantitative restrictions in Spain

In this section, different indexes of the restrictiveness of non-tariff barriers are constructed and proposed for the 112 sectors of the Spanish economy included in Appendix B.
The elaboration of the indexes requires four prior steps:

1. The determination of the trade regime to which each commodity is subject.

The source of information for this task was Regimen de Comercio Exterior. This publication lists the trade regime(s) of each importable commodity. Some commodities, however, are subject to more than one trade regime (due to the existence of different varieties, qualities and uses of a commodity), i.e., some tariff positions are partially subject to a quantitative restriction while some are subject to two different quantitative restrictions. This led to a first classification of quantitative restrictions indexes into two types. In Type-1 measures, when a commodity was subject to two trade regimes it was assumed that each of them affected that commodity in an equal manner, i.e., a 50% share was assigned to each regime.

It seems safe to assume that, when the administration lists two regimes for a commodity, the regime listed in second place is at most as important and relevant for that commodity as the first one and that, often, the regime listed in the second place might have a residual character. In order to take this possibility into account, Type-2 measures were developed as well. In them, the first regime listed for the commodity was given a 75% share of the commodity, while the second regime received a 25% share.

2. The assignment of the trade regime of each commodity to its corresponding sector in the 1970 Input-Output Tables. This was done
by using, with some corrections, the correspondence tables included in *Tablas Input-Output de la Economía Española 1970*, where the Input Output Tables are contained.

3. The selection of a weighting scheme

The purpose of the weighting scheme is to obtain indexes of the incidence of quantitative restrictions that take into account the relative restrictiveness of each of the trade regimes. The selection of the weights requires an a priori appraisal of the relative restrictiveness of each type of quantitative barrier.

Common sense suggests, as indicated in Chapter II that the three different types of quantitative barriers (quota trade, state trade and trade with individual license) are not equally restrictive, since if they were, it would seem more logical to simply have one type of non-tariff barrier, rather than three. Chapter II provided a suitable rationale for considering quotas less restrictive than the other types of quantitative barriers. What is less clear is whether state trade is more, less or as restrictive as trade under individual license, because the discretion of the administration concerning the specific importation of commodities under either of both regimes is considerable. Still, there are reasons to believe that State trading might be even if marginally, more restrictive than trade with individual license, since the intervention of the administration is more direct and comprehensive in the first case. This reasoning seems to be supported by the perception that
the administration itself had of those trade regimes. In effect, in the memorandum sent to the OEEC and IMF prior to the overhaul of the import system regulations, the administration took the commitment of applying a "code of liberalization of commodities" by reducing its own degree of intervention in trade transactions and transferring an increasing volume of State trade to private trade, and within the later from trade under individual license to global quotas and from this to liberalized trade.³

The testing of this issue is beyond the scope of this work, among other things because it is empirically difficult, if possible at all, to verify. Hence, the weighting schemes constructed below allow for different perceptions concerning the relative restrictiveness of both regimes.

4. The selection of the specific weights

Once the rank of restrictiveness is decided, the next step is to assign a weight to each of the regimes according to its rank. Given the arbitrary nature of these weights it was decided to use them in their simplest form: a weight of 0 through 3 was assigned to each of the regimes. Hence, the weights that reflected the reasoning expressed in the previous subsection were:

liberalized trade: weight = 0

global quotas : weight = 1

individual license: weight = 2

state trade : weight = 3
The discussion in that subsection indicates as well that it is not easy to make a definite judgement of the relative restrictiveness of state trade versus trade under individual license. For that reason it was decided to create an index in which the weights for those two regimes were reversed, and two other indexes where the weights were equal. In one of the latter, the weights were twice and in the other three times the weight assigned to global quotas.

Finally, for controlling purposes, an unweighted index, i.e., an index that assigned the same weight (equal to unity) to all quantitative restrictions, was also produced.

The formula to derive those different indexes for each sector was the following:

\[
\text{Index} = \frac{\sum_{i=1}^{4} (\text{no. of commodities under regime } i \text{ in sector } j \times \text{weight for regime } i)}{\text{total no. of commodities in sector } j}
\]

which for the unweighted index collapsed to:

\[
\text{Unweighted index} = \frac{\sum_{i=1}^{4} \text{no. of commodities under quantitative restrictions in sector } j}{\text{total no. of commodities in sector } j}
\]

Since the weight assigned to commodities under liberalized trade is always zero, the resulting indexes are:
* Unweighted indexes

* $QUNW_{17} = \frac{CUPO_{17} + BILA_{17} + STAT_{17}}{TARPO_{7}}$

* $QUNW_{27} = \frac{CUPO_{27} + BILA_{27} + STAT_{27}}{TARPO_{7}}$

* Weighted indexes

* $QWE_{I17} = \frac{CUPO_{17}*1 + BILA_{17}*2 + STAT_{17}*3}{TARPO_{7}}$

* $QWE_{217} = \frac{CUPO_{27}*1 + BILA_{27}*2 + STAT_{27}*3}{TARPO_{7}}$

* $QWE_{I47} = \frac{CUPO_{17}*1 + BILA_{17}*3 + STAT_{17}*2}{TARPO_{7}}$

* $QWE_{247} = \frac{CUPO_{27}*1 + BILA_{27}*3 + STAT_{17}*2}{TARPO_{7}}$

* $QWE_{I67} = \frac{CUPO_{17}*1 + BILA_{17}*2 + STAT_{17}*2}{TARPO_{7}}$

* $QWE_{267} = \frac{CUPO_{27}*1 + BILA_{27}*2 + STAT_{27}*2}{TARPO_{7}}$

* $HILE_{17} = \frac{CUPO_{17}*1 + BILA_{17}*3 + STAT_{17}*3}{TARPO_{7}}$

* $SPATT_{7} = \frac{CUPO_{27}*1 + BILA_{27}*3 + STAT_{27}*3}{TARPO_{7}}$

where $CUPO_{17}$, $BILA_{17}$ and $STAT_{17}$, on one hand, and $CUPO_{27}$, $BILA_{27}$ and $STAT_{27}$, on the other, are the number of commodities under global
quotas, individual license and state trade measured by Type-1 and Type-2 measures, respectively and TARPO7 is the total number of commodities, in a given sector.

4. The statistical relationship between import duties and indexes of incidence of quantitative restrictions.

Each of the indexes above was regressed on the average duty rate actually paid on imports (ANTAR7) in each of the 112 sectors in Appendix B.

As long as a correlation exists between tariff and quantitative restrictions, one would expect the correlation to be stronger when commodities and trade regimes are mapped using Type-2 rather than Type-1 measures. We would also expect the correlation to be stronger when indices QWE117 and QWE217 are used since, from the discussion above they are believed to represent, better than the others, the ranking of restrictiveness of the different trade regimes. Still, since the other indexes are not very different in their structure from those above and since the assumptions behind them are plausible we would expect them to perform in a similar way. Finally, we would expect the correlation to be less pronounced when the unweighted indexes, QUNW17 and QUNW27, are used, since they do not take into account the different degree of restrictiveness of each regime.
Table 9 contains a summary of the results obtained from the regressions of each of the indexes of quantitative restrictions on ANTAR7. An inspection of the results confirms the expectations just mentioned for the relative performance of the indexes. Those calculated with Type-2 measures exhibit a higher t-statistic than the others. The correlation between import duties and unweighted indices is the least significant of all. Finally, all the weighted indexes are significantly correlated with non-tariff barriers, but the highest degree of statistical significance corresponds to the regressions with QWE117 and QWE217.

With the exception of QUNW27 all the estimated coefficients of the indexes are negative and their level of significance is high. This, in principle, indicates that, on average and in aggregate terms, sectors with very restrictive and/or abundant non-tariff barriers tend to have lower import duties than sectors relatively freer from quantitative restrictions, i.e., that tariff barriers tend to be substitutes for quantitative restrictions and vice versa. More specifically, these statistical results indicate it is likely that sectors with commodities under State trade and individual license have, on average, lower tariff rates than those with commodities under liberalized trade and global quotas. This should not be surprising. State trade is, in most countries, such a restrictive regime that tariff rates under such regimes are likely to have a nominal character. An examination of the commodities subject to this regime in Spain makes this reasoning even more plausible. Most of those commodities are agricultural foodstuffs, tobacco and
TABLE 9
Bivariate regressions of indexes of incidence of quantitative restrictions on import duties

Dependent variable: ANTAR7

Case I: All sectors are included

<table>
<thead>
<tr>
<th>Name of independent variable</th>
<th>A. Type-I indexes</th>
<th>Name of independent variable</th>
<th>B. Type-2 indexes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estim. coef.</td>
<td></td>
<td>Estim. coef.</td>
</tr>
<tr>
<td>QUNW17</td>
<td>-2.98</td>
<td>QUNW27</td>
<td>-3.20</td>
</tr>
<tr>
<td></td>
<td>(0.827)</td>
<td></td>
<td>(0.899)</td>
</tr>
<tr>
<td>QWEI17</td>
<td>-4.25</td>
<td>QWE217</td>
<td>-4.50</td>
</tr>
<tr>
<td></td>
<td>(2.260)</td>
<td></td>
<td>(2.444)</td>
</tr>
<tr>
<td>QWEI47</td>
<td>-2.25</td>
<td>QWE247</td>
<td>-2.38</td>
</tr>
<tr>
<td></td>
<td>(1.4000)</td>
<td></td>
<td>(1.510)</td>
</tr>
<tr>
<td>QWEI67</td>
<td>-3.78</td>
<td>QWE267</td>
<td>-4.106</td>
</tr>
<tr>
<td></td>
<td>(1.716)</td>
<td></td>
<td>(1.852)</td>
</tr>
<tr>
<td>HILE17</td>
<td>-2.78</td>
<td>SPATT7</td>
<td>-2.95</td>
</tr>
<tr>
<td></td>
<td>(1.894)</td>
<td></td>
<td>(2.048)</td>
</tr>
</tbody>
</table>

Note: The levels of statistical significance of the t-statistics in this and next tables are as follows:

<table>
<thead>
<tr>
<th>Range of the statistic</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.460 and above</td>
<td>99.95%</td>
</tr>
<tr>
<td>2.660 and above</td>
<td>99.5%</td>
</tr>
<tr>
<td>2.390 and above</td>
<td>99%</td>
</tr>
<tr>
<td>2.000 and above</td>
<td>97.5%</td>
</tr>
<tr>
<td>1.671 and above</td>
<td>95%</td>
</tr>
<tr>
<td>1.296 and above</td>
<td>90%</td>
</tr>
<tr>
<td>0.848 and above</td>
<td>80%</td>
</tr>
<tr>
<td>0.679 and above</td>
<td>75%</td>
</tr>
</tbody>
</table>
petroleum products. The two latter groups of goods are mostly imported by State monopolies that manufacture and distribute them and those goods, as one would expect, have a 0% import duty. Other political considerations also lead us to expect low tariff rates for agricultural commodities under State trade. The price and availability of foodstuffs in most countries are very sensitive issues in political terms. Historical experience seems to suggest that this sensitivity is more pronounced in authoritarian regimes that try to buy social peace by keeping the prices of basic goods relatively low and stable. This seems to have been the case of Spain and the State trade regime provided an instrument to achieve those goals while simultaneously protecting the domestic industry. When domestic shortages put upward pressure on prices, it was simple for the administration to open the door to imports; otherwise, it was equally simple to keep it closed. But if the main purpose is to ensure a constant supply of those commodities at relatively low prices it is not very sensible to expect that tariffs (with their resulting effect on prices) would be used in a major way on those commodities. It is very likely that this was the reasoning behind a 1964 decree by which the agricultural products under State trade were "granted a 1% tariff rate and an equal reduction in compensatory import taxes when the commodities were directly imported by the administration". Since the State trade regime has been assumed, in the definitions of the indexes developed above, as the most restrictive, in general, of the foreign trade regimes, one would expect that the relationship between import duties and quantitative restrictions observed in the
previous regressions would be less pronounced if the sectors with commodities under state trade were excluded from the statistical analysis.

Testing this last hypothesis poses some empirical difficulties since, in most sectors of the Input-Output Tables, some of their commodities are subject to one trade regime while others within the sector are subject to another regime. Specifically, only 53 of the 112 sectors have a single trade regime for the commodities included in them and while State trade is present in 15 sectors, only one of them is totally subject to this regime. Therefore, instead of just excluding from the statistical analysis those sectors where at least one commodity was under State trade, it was decided to also conduct regressions in which the sectors excluded from the analysis were those in which the presence of State trade was increasingly large. More clearly, successive regressions were run where the excluded sectors were those in which SHST17 (or SHST27) was larger than 0.00, 0.10, 0.20, 0.30, 0.40, 0.50 and 0.70. SHST17 and SHST27 were defined as the share of State trade commodities in the total number of commodities in a sector, i.e., SHST17 = STAT17/TARPO7 and SHST27 = STAT27/TARPO7.

The results of those regressions are contained in Table 10. As the reasoning above seemed to suggest, the negative relationship between import duties and quantitative restrictions is less significant than before. In fact, that relationship becomes non-significant and is positive in many instances.
Both reasoned intuition and statistical inference seem to place State trade in a different plane with respect to the other trade regimes. The regressions in Table 10 suggest that a major factor in the negative relationship between import duties and quantitative restrictions was the specially low tariff rates of the commodities subject to this trade regime.

Can a similar argument be made for the commodities subject to other trade regimes? In other words is there any other trade regime in which specific political factors or institutional constraints would lead us to expect, a priori, a specific pattern between tariffs and the restrictiveness of that regime. The special harshness of the system of individual license, makes this regime an appealing topic of investigation. Still, the analysis of this regime is rather complex. The regime of individual license is a hybrid of residual character. In fact, the technical name of this regime is "not liberalized, not globalized, not State trade" regime. While this regime was the prevalent method of protection prior to 1959, the commodities that have remained under it are those under private trade that had not been specially transferred to liberalized trade or global quotas. Hence, while a positive justification can be inferred on the motives of why some commodities are under the other trade restrictions, the heterogeneity of the commodities under individual license make it specially difficult to find a similar justification for that regime. Still, an attempt on that direction is made below.
Table 10

Bivariate regressions of indexes of incidence of quantitative restrictions on import duties

Dependent variable: ANTAR7

Case II: Sectors subject (either partially or totally) to State trade are excluded

A. Type-1 indexes

<table>
<thead>
<tr>
<th>Name of independent variable</th>
<th>0.00</th>
<th>0.10</th>
<th>0.20</th>
<th>0.30</th>
<th>0.40</th>
<th>0.50</th>
<th>0.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUNW17</td>
<td>+2.88</td>
<td>+2.87</td>
<td>+2.75</td>
<td>+2.32</td>
<td>+0.96</td>
<td>-0.73</td>
<td>-0.73</td>
</tr>
<tr>
<td></td>
<td>(0.719)</td>
<td>(0.723)</td>
<td>(0.694)</td>
<td>(0.519)</td>
<td>(0.237)</td>
<td>(0.190)</td>
<td>(0.190)</td>
</tr>
<tr>
<td>QWEI17</td>
<td>+0.20</td>
<td>+0.19</td>
<td>+0.06</td>
<td>-0.63</td>
<td>-1.93</td>
<td>-2.54</td>
<td>-2.54</td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td>(0.090)</td>
<td>(0.029)</td>
<td>(0.297)</td>
<td>(0.926)</td>
<td>(1.334)</td>
<td>(1.334)</td>
</tr>
<tr>
<td>QWEI47</td>
<td>-0.19</td>
<td>-0.16</td>
<td>-0.21</td>
<td>-0.31</td>
<td>-0.68</td>
<td>-1.00</td>
<td>-1.00</td>
</tr>
<tr>
<td></td>
<td>(0.131)</td>
<td>(0.117)</td>
<td>(0.152)</td>
<td>(0.216)</td>
<td>(0.465)</td>
<td>(0.465)</td>
<td>(0.698)</td>
</tr>
<tr>
<td>QWEI67</td>
<td>+0.20</td>
<td>+0.21</td>
<td>+0.12</td>
<td>-0.22</td>
<td>-1.08</td>
<td>-1.74</td>
<td>-1.74</td>
</tr>
<tr>
<td></td>
<td>(0.095)</td>
<td>(0.101)</td>
<td>(0.058)</td>
<td>(0.103)</td>
<td>(0.504)</td>
<td>(0.845)</td>
<td>(0.845)</td>
</tr>
<tr>
<td>HILE17</td>
<td>-0.19</td>
<td>-0.17</td>
<td>-0.24</td>
<td>-0.50</td>
<td>-1.10</td>
<td>-1.47</td>
<td>-1.47</td>
</tr>
<tr>
<td></td>
<td>(0.131)</td>
<td>(0.124)</td>
<td>(0.172)</td>
<td>(0.348)</td>
<td>(0.762)</td>
<td>(1.068)</td>
<td>(1.068)</td>
</tr>
</tbody>
</table>

no. of sectors excluded 15 13 12 9 6 3 3

no. of sectors included 97 99 100 103 106 109 109
Table 10 (continued)

B. Type-2 indexes

Sectors excluded are those where SHST27 exceeds:

<table>
<thead>
<tr>
<th>Name of independent variable</th>
<th>Estim. coef. 0.00</th>
<th>Estim. coef. 0.10</th>
<th>Estim. coef. 0.20</th>
<th>Estim. coef. 0.30</th>
<th>Estim. coef. 0.40</th>
<th>Estim. coef. 0.50</th>
<th>Estim. coef. 0.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNNW27</td>
<td>+2.51</td>
<td>+2.51</td>
<td>+2.31</td>
<td>+2.03</td>
<td>+1.49</td>
<td>+1.15</td>
<td>+0.13</td>
</tr>
<tr>
<td></td>
<td>(0.641)</td>
<td>(0.646)</td>
<td>(0.597)</td>
<td>(0.517)</td>
<td>(0.379)</td>
<td>(0.295)</td>
<td>(0.035)</td>
</tr>
<tr>
<td>QWE 217</td>
<td>+0.02</td>
<td>+0.02</td>
<td>-0.23</td>
<td>-0.75</td>
<td>-1.25</td>
<td>-1.51</td>
<td>-2.24</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.010)</td>
<td>(0.110)</td>
<td>(0.358)</td>
<td>(0.604)</td>
<td>(0.752)</td>
<td>(1.171)</td>
</tr>
<tr>
<td>QWE 247</td>
<td>-0.30</td>
<td>-0.27</td>
<td>-0.35</td>
<td>-0.41</td>
<td>-0.56</td>
<td>-0.64</td>
<td>-0.91</td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.198)</td>
<td>(0.255)</td>
<td>(0.289)</td>
<td>(0.397)</td>
<td>(0.453)</td>
<td>(0.647)</td>
</tr>
<tr>
<td>QWE 267</td>
<td>+0.02</td>
<td>0.04</td>
<td>-0.11</td>
<td>-0.36</td>
<td>-0.70</td>
<td>-0.89</td>
<td>-1.47</td>
</tr>
<tr>
<td></td>
<td>(0.139)</td>
<td>(0.212)</td>
<td>(0.056)</td>
<td>(0.170)</td>
<td>(0.333)</td>
<td>(0.429)</td>
<td>(0.721)</td>
</tr>
<tr>
<td>SPATT7</td>
<td>-0.30</td>
<td>-0.28</td>
<td>-0.40</td>
<td>-0.59</td>
<td>-0.82</td>
<td>-0.95</td>
<td>-1.34</td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.205)</td>
<td>(0.291)</td>
<td>(0.416)</td>
<td>(0.584)</td>
<td>(0.682)</td>
<td>(0.979)</td>
</tr>
</tbody>
</table>

no. of sectors excluded       | 15                | 13                | 11                | 9                 | 8                 | 6                 | 3                 |

no. of sectors included       | 97                | 99                | 101               | 103               | 104               | 106               | 109               |
The commodities under individual license can be classified into three major categories:

1. Commodities whose placement under individual license seems dictated by reason of national security and similar considerations.

This seems the case for guns and armaments (to ensure the existence of a domestic war industry while preventing the uncontrolled entry of arms in Spain), radioactive materials (for reasons of safety and health) and coins and precious metals and stones (to prevent the exportation of domestic currency). Stretching the point, a similar case could be made to justify the inclusion of movies in this type of trade regime: it could be argued that this trade regime provided an easy method of applying an indirect censorship or that the special pricing policies of movie distribution made both tariffs and quotas a less reliable method of protecting the national industry.

In many of these cases the main purpose of the individual license regime seems to have been to allow the administration to control the flow of those commodities, rather than protecting the domestic industry. For those instances one would therefore expect tariff rates to be rather low. And, in fact, this is the case. Radioactive materials have a zero tariff rate. Coins, precious stones and metals are either free of tariffs or their tariffs are very low; the exception is jewelry and precious silverware (i.e.,
those commodities that involve manufacturing) that have relatively high tariffs. Movies also have low tariff rates. An interesting, but not surprising, case is that of guns and armaments. War materials, i.e., armament purchased by the administration, are tariff free while the other types of armament is subject to a moderately high tariff.

In summary, the main purpose of requiring individual license for the importation of the commodities included in this category is apparently the control of their entry into Spain for political reasons rather than the protection of the domestic industry. This is left, when appropriate, for tariffs.

A case could be made to include in this category the shipbuilding industry, which is also under individual license trade. A large part of Spanish territory is surrounded by seas and the existence of a shipbuilding industry is important for national defense and this might have dictated the protection of this industry. Again one would expect tariff rates on warships to be lower than for the other types of ships. And this is also the case of Spain.

2. Agricultural and agriculture-based commodities

There is a considerable number of agricultural commodities subject to the requirement of individual import license (all fruits; beet and sugar cane; many sugar based commodities; most cereal-based products from corn-flakes to bread and pastry; alcohol and all alcoholic beverages). In many of these commodities Spain is
a major producer and exporter. Recalling that many similar agricultural products are subject to State trade one wonders if the agricultural commodities requiring an individual license would not have been included in State trade if the administration had expected frequent shortages of these commodities. The case being just the opposite, the administration's interest in protecting domestic agriculture had to be combined with the ability to intervene in case a shortage should materialize. The individual license seems the most logical choice, since it provides (from the point of view of a short run intervention in the market by the administration) more flexibility than global quotas, without requiring the institutional complexities of State trade. Finally, the same rationale used to explain the low tariff rates for agricultural commodities under State trade can be extended here: since most of those commodities are basic foodstuffs whose prices are politically sensitive, and since the protection of domestic producers is already insured in "normal" times by the requirement of an individual import license, one would expect tariffs on those commodities to be low. An item by item examination of the tariffs on the commodities involved confirms this expectation.

3. Other commodities

By 1970 some other commodities were also included under individual license for reasons that can not be intuitively explained by the arguments used above. For those reasons one would suspect that
their permanence since the beginning of the liberalization process under this regime might have been the result of pressures of strong interest groups, especially in the case of passenger cars and trucks that also exhibit very high tariff rates. It should be noted that before 1974 most of these commodities were transferred to less restrictive regimes: cars and trucks were placed under global quotas, while lead, sulphur and bathroom soap were transferred to liberalized trade.

In summary, it seems that for many of the commodities under individual license, their placement under that regime (and the variation of tariff rates within that regime) has important institutional connotations that place it together with State trade under a class essentially different from the other two types of foreign trade regimes (global quotas and liberalized trade).

Based on those considerations, it seems that the crucial test on the relationship between tariff and non-tariff barriers is that involving liberalized trade and global quotas. The empirical question would be to determine whether sectors that obtain quantitative restrictions primarily in the form of global quotas are those whose import duties are relatively higher. Empirically this involves excluding from the regression those sectors where both State trade and trade under individual license are present. Since, as suggested before, some sectors are subject to more than one trade regime, alternative sets of regressions were conducted between ANTap7 and the different indexes of quantitative barriers, the difference between
those sets of regressions being the kind of sectors that were excluded. The criterion used was the value of SHSB17 (and SHSB27), which are defined as the ratio of number of commodities under individual license and State trade in a given sector, i.e., $SHSB17 = (STAT17 + BI1A17)/TARPO7$ and $SHSB27 = (STAT27 + BI1A27)/TARPO7$. Regressions between ANTA17 and each of the indices of the incidence of quantitative restrictions were run for sectors where $SHSB17$ (and $SHSB27$) were larger than 0.00, 0.10, 0.20, 0.30, 0.40, 0.50, and 0.70.

The results of those regressions are in Table 11. What the signs there indicate is that, in general, there is a positive relationship between import duties and quantitative restrictions, when the sectors under individual license or State trade are excluded from the statistical analysis. In other words, when the main quantitative restriction considered is global quotas, these tend to be significantly and positively associated with import duties. The negative signs associated with some of the regressions where $SHSB17$ and $SHSB27$ exceed 0.50, it should be noted, should be taken with care since they are a likely consequence of the way the indexes are defined and the partitions established. The regressions where either $SHSB17$ or $SHSB27$ are larger than 0.50 contain, for instance, 37 sectors where both State trade and individual license trade are all partially present and the share of those regimes is still receiving a considerable weight (either 2 or 3) and this tends to counterbalance the total effect of global quotas in the indexes.
Table 11

Bivariate regressions of indexes of incidence of quantitative restrictions on import duties

Dependent variable: ANTAR7

Case III: Sectors subject (either partially or totally) to State trade or to trade with individual license are excluded

A. Type-1 indexes

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<td>+8.00</td>
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<td>(0.990)</td>
<td>(1.538)</td>
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<td>+4.40</td>
<td>-3.05</td>
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<td>(1.682)</td>
<td>(1.860)</td>
<td>(1.455)</td>
<td>(0.423)</td>
<td>(1.044)</td>
<td>(1.126)</td>
<td>(0.611)</td>
</tr>
</tbody>
</table>

no. of sectors excluded     | 5i          | 32          | 26          | 24          | 21          | 14          | 13          |

no. of sectors included     | 61          | 80          | 86          | 88          | 91          | 98          | 99          |
**Table 11 (continued)**

**B. Type-2 indexes**

Sectors excluded are those where SHSB27 exceeds:

<table>
<thead>
<tr>
<th>Name of independent variable</th>
<th>0.00</th>
<th>0.10</th>
<th>0.20</th>
<th>0.30</th>
<th>0.40</th>
<th>0.50</th>
<th>0.70</th>
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<td>(2.044)</td>
<td>(1.723)</td>
<td>(2.203)</td>
<td>(1.782)</td>
<td>(1.14)</td>
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<td>+11.87</td>
<td>+9.31</td>
<td>+3.40</td>
<td>4.50</td>
<td>0.27</td>
<td>-2.47</td>
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<td>(1.984)</td>
<td>(1.707)</td>
<td>(0.662)</td>
<td>(0.965)</td>
<td>(0.078)</td>
<td>(0.837)</td>
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<tr>
<td>QWE 247</td>
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<td>+11.21</td>
<td>+7.51</td>
<td>+3.85</td>
<td>7.45</td>
<td>4.33</td>
<td>1.21</td>
</tr>
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<td>(1.727)</td>
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<td>(1.915)</td>
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<td>+2.18</td>
<td>4.67</td>
<td>1.33</td>
<td>-1.30</td>
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<td>(1.858)</td>
<td>(1.462)</td>
<td>(0.468)</td>
<td>(1.412)</td>
<td>(0.429)</td>
<td>(0.483)</td>
</tr>
</tbody>
</table>

| no. of sectors excluded     | 51   | 33   | 25   | 24   | 21   | 17   | 15   |
| no. of sectors included     | 61   | 79   | 86   | 88   | 91   | 95   | 97   |
The plausibility of this argument is made more evident in Table 12 below which contains regressions on ANTAR7 of a new index of incidence of quantitative restrictions that only takes into account the role of global quotas and, hence, does not attribute any weight to the remaining quantitative restrictions regimes. This index, $SHCU17$ (and $SHCU27$) measures the ratio of the number of commodities under global quotas to the total number of commodities in this sector, i.e., $SHCU17 = CUPO17/TARPO7$ and $SHCU27 = CUPO27/TARPO7$.

As those regressions confirm, there exists a positive relationship between tariff rates and global quotas, i.e., the higher is the relative number of commodities protected by global quotas, the higher import duties tend to be.

5. Conclusions

The purpose of this section was to examine the relationship between import duties and quantitative restrictions in Spain. When all quantitative restrictions were lumped together in an aggregate measure and all economic sectors were taken into account, it was found that there was a negative relationship between both means of protection.

An institutional study of the systems of State trade and individual license and of the commodities covered by them suggests, however, the convenience of excluding from the analysis the sectors under those regimes, since by their very nature one would expect import duties to be minimal in most cases and since the existence
### Table 12

Regressions of an index of incidence of global quotas on import duties

Dependent variable: ANTAR7

Case III: Sectors subject (either partially or totally) to State trade or to trade under individual license are excluded

#### A. Type-1 index

Sectors excluded are those where SHSB17 exceeds:

<table>
<thead>
<tr>
<th>Name of independent variable</th>
<th>0.00</th>
<th>0.10</th>
<th>0.20</th>
<th>0.30</th>
<th>0.40</th>
<th>0.50</th>
<th>0.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estim. coef.</td>
<td>+12.91</td>
<td>+15.34</td>
<td>+13.93</td>
<td>+14.89</td>
<td>+17.99</td>
<td>+15.67</td>
<td>+15.22</td>
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<tr>
<td>(1.682)</td>
<td>(2.375)</td>
<td>(2.234)</td>
<td>(2.363)</td>
<td>(2.698)</td>
<td>(2.321)</td>
<td>(2.251)</td>
<td></td>
</tr>
<tr>
<td>no. of sectors excluded</td>
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<td>32</td>
<td>26</td>
<td>24</td>
<td>21</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>no. of sectors included</td>
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<td>86</td>
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<td>91</td>
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</table>

#### B. Type-2 index

Sectors excluded are those where SHSB27 exceeds:

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<th>0.40</th>
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<th>0.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estim. coef.</td>
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<td>86</td>
<td>88</td>
<td>91</td>
<td>95</td>
<td>97</td>
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</tbody>
</table>
of those regimes by 1970 probably was, in many instances, associated with aggregate national concerns and institutional characteristics of the political regime rather than to sectoral interests.

When this is done, i.e., when the statistical analysis concentrates mostly on the comparison between sectors free of quantitative restrictions and those subject to quotas, a positive and significant relationship was found between import duties and quantitative restrictions. This, in turn, suggests that interest groups that are willing and able to obtain higher import duties are able to obtain additional protection through global quotas.
IV. THE DETERMINANTS OF QUANTITATIVE RESTRICTIONS IN SPAIN

1. Introduction

Chapter III analyzed empirically the determinants of import duties in Spain on the basis of the model developed in Chapter II, which attempted of explaining her pattern of protection through the effect of a set of political and economic variables. The hypotheses postulated in that chapter were sufficiently general to warrant the assumption that those variables would be capable of explaining the patterns of both import duties and non-tariff barriers. The model was tested with some success in Chapter III with respect to imports duties. While earlier sections in this Chapter IV used non-parametric techniques to test the relevance of industry concentration and firm bigness in the determination of non-tariff barriers, this section investigates the role of the other economic and political determinants of quantitative restrictions.

2. The complete sample of sectors: sources of data and methodology

Section I in this chapter has shown the existence of a negative and significant relationship between import duties and quantitative restrictions in general. The relationship, however, became positive and rather significant when sectors partially subject to State trade or to trade under individual license were removed from the analysis. A sensible implication from this finding is that economic sectors
subject to either of those regimes might have a basis for protection that is significantly different from that of the other sectors. If this is the case, the determinants of protection for all economic sectors might be different from the determinants of protection when the sectors subject to State trade and trade under individual license are removed from the sample.

In order to allow for the comparison of both possibilities, the empirical analysis in this section has two sub-parts. In the first sub-part, the determinants of quantitative restrictions for the whole set of 112 sectors are examined. In the second sub-part, the determinants for a subset of 91 sectors is studied.

Each subpart, in turn uses two different ways of measuring non-tariff barriers, and correspondingly, two different estimating techniques. A first way of measuring non-tariff barriers is the indexes of quantitative restrictions developed in Section I in this Chapter. In order to reduce the complexity of presentation, 4 of these indexes (out of the 11 indexes proposed in that section) have been selected: SHCU27, QUNW27, QWE217 and SPATT7. All of them correspond to the Type-2 measures defined in that section, on the basis mentioned there that they are believed to reflect the extent of non-tariff barriers incidence better than the Type-1 measures. Further, the four of them are quite representative of the weighting schemes mentioned in Section I. QUNW27 is a unweighted indexed in the sense that the three non-tariff barriers have the same weight; QWE217 and SPATT7 are weighted indexes where State trade and trade under individual license have the same weight, 2 and 3, respectively while
global quotas trade has a weight of 1. SHCU27 simply measures the share of global quota positions in the total number of tariff positions in an economic sector; equivalently, only tariff positions under global quotas have a positive weight, while the other two quantitative restrictions have a zero weight. In the four indexes, commodities under liberalized trade receive a zero weight.

In accordance with the discussions in Section I in this Chapter for the case of whole sample of 112 sectors, one does not expect very meaningful results from the regressions on SHCU27; this variable measures the importance of global quotas but that importance is truly meaningful when the other non-tariff barriers are not present, which is not the case here. For similar reasons, this author does not plan to place excessive reliance on the estimation of the QUNW27 equations, since this index lumps together the three quantitative barriers without any allowance for their different degrees of restrictiveness. Still, the regression equations on both indexes are reported below for two reasons: First, because they provide a way of comparing their results with those of the other indexes. Second, because those two indexes are believed to be meaningful when commodities subject to State trade and trade under individual license are removed from the analysis. The comparison between results in both cases might prove to be useful.

A second way of measuring the presence of non-tariff barriers is through the use of dummy variables, derived from those indexes. The justification for this form of measurement is as follows: the
different indexes discussed above are, by definition, arbitrary
since there is not a way to determine the appropriateness of the
weighting schemes upon which they are based. While, obviously,
liberalized trade is less restrictive than, let's say, State trade,
it is not possible to determine whether it is so by a factor of 2 or
of 3 or, for that matter, of any other number. This problem can be
minimized through the use of a dummy variable that takes a value of
zero when a quantitative index has a zero value and a value of one
when the value of that index is positive.

Two of those dummy variables are proposed: The first, DUMSC7,
is derived from SHUC27, and takes a value of one when in an economic
sector there is at least one tariff position subject to global
quotas and a value of zero, when there is none. The empirical esti-
mates based on DUMSC7 are not believed to be highly reliable since
this dummy variable is derived from SHCU27 which, for reasons ex-
plained above, is not thought to be very adequate as a measure of
non-tariff barriers for the whole sample of 112 sectors. The second
variable, DUMUN7 (=DUMWE7 = DUMPSP7), is derived from the other three
indexes QUNW27, QWE217 and SPATT7 all of which are zero when the
economic sector is totally free of quantitative restrictions and pos-
itive when there is at least one tariff position in the sector sub-
ject to either quotas, State trade or individual license.

Each of these four indexes and two dummy variables are the de-
pendent variables in, basically, the same set of regression equa-
tions discussed in Section 6 of Chapter III. The only difference is
that equation specifications (7) and (8) are not included for considering the information gathered from them to be somewhat redundant. Further, all the equations contain import duties (ANTAR7) as an additional independent variable.

The equations where quantitative restrictions were measured with indexes were estimated by using TOBIT estimation techniques since the fact that those indexes constitute censored data makes their estimation through OLS inappropriate. The equations where a dummy variable was the dependent variable were estimated by using PROBIT methods. Data upon which the empirical research of this section is based are the same ones discussed in section III in this chapter and in section VI in Chapter III.

3. The complete sample of sectors: Empirical results and their evaluation

Tables 13 and 14 below contain the empirical estimates of those equations, when the dependent variable is one of the indexes of quantitative restrictions. The labels of the equations parallel those given to the import duties equations in Table 8 (included in section VI of Chapter III). The difference in the labels is that the prefix T (for tariffs) has been replaced by the prefix Q (for quantitative restrictions) followed by a letter (a, b, c, d) for each of the indexes (SHCU27, QUNW27, QWE217 and SPATT7, respectively). Table 14 differs from Table 13 in that its equations do not contain variable ATRIN7. Similarly Tables 15 and 16 contain the same equation specification forms of Tables 13 and 14, except that
<table>
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<th>Equation Qa1</th>
<th>Equation Qa3</th>
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Determinants of quantitative restrictions: Tobit estimations

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Table 14b

Determinants of quantitative restrictions: TOBIT estimations

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(Number of sectors: 112)

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Table 14c

Determinants of quantitative restrictions: TOBIT estimations

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(Number of sectors: 112)

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Table 14d
Determinants of quantitative restrictions: Tobit estimations

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Dependent variable: QWE217
(Number of sectors: 112)
### Table 15a

Determinants of quantitative restrictions: PROBIT estimations

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### Table 16a
Determinants of quantitative restrictions: PROBIT estimations

*Dependent variable: DUMSC7*

(112 sectors)

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**Table 16b**

Determinants of quantitative restrictions: PROBIT estimations

Dependent variable: DUMUN7 (= DUMWE7 = SPATT7)
(Number of sectors: 112)
[for 70, DUMUN7 = 1]
[for 42, DUMUN7 = 0]
the dependent variable is a dummy variable. Again the labels of the equations in Tables 15 and 16 parallel those of Tables 8, 13 and 14: the difference now is that the prefix is D (for dummy variable) followed by a letter (a, b) for each of the two variables (DUMSC7 and DUMUN7, respectively).

Before proceeding with the discussion of the specific results, an important point should be repeated: Section III in this chapter established that it may not be very appropriate to use the complete data set to analyze the determinants of quantitative restrictions since the inclusion of sectors under State trade and under individual license trade might distort the value and sign of the estimates. Therefore, the results obtained in Tables 13 through 16 will have to be accepted with some care until they are contrasted with those obtained when sectors whose commodities are subject to those regimes are removed from the data set.

As in the case of the import duties regressions, the level of quantitative restrictions is, as expected, negatively associated with PROR17, the profit-output ratio regardless of the form in which the quantitative restrictions equation is specified and regardless of the index of quantitative restrictions used. However, and not unexpectedly, the relationship is not statistically significant when the index is SHCU27. For the other three indexes, the relationship is statistically significant always, although the degree of significance increases both when PREVA7 and SQUVA7, the net value added and its square, are included as independent variables, and when ATRIN7
is not included as an independent variable. When dummy variables are used, the relationship is also negative always. Yet, it is not, and again not unexpectedly, statistically significant when DUMSC7 (the dummy variable corresponding to SHCU27) is the dependent variable. When DUMUN7 is the dependent variable, its relationship with PROR17 is statistically significant but only if FREVA7 and SQUVA7 are included in the specification of that equation. In summary, it can be said that although the evidence is not as strong as in the case of the import duties equations, the relationship between quantitative restrictions and PROR17 exhibits the same characteristics concerning its sign.

Import duties were found to be negatively and significantly associated with natural resources intensity (NAI4N7). Yet, as predicted by our hypothesis they are found to be positively and significantly associated with the indexes of quantitative restrictions, as well as with the dummy variables. Again the degree of association is weaker (yet, significant) in the cases of SHCU27 and DUMSC7.

Import duties were positively associated (although non-significantly) with labor intensity (LABI7). Yet, both the indexes of quantitative restrictions and the dummy variables are found to be negatively associated with labor intensity, although the level of significance is low and in the case of SHCU27 the relationship is not significant.

ATRIN7, the average import duty on inputs, is negatively associated with both the indexes and the dummy variables of quantita-
tive restrictions. Its level of significance is low. Yet, the relationship between ATRIN7 and ANTAR7 was found positive and highly statistically significant.

Contrary to our expectations, BUC17, the buyer's concentration measure was not significantly associated with import duties and the relationship was not consistently negative. However, the relationship between this variable and quantitative restrictions, whether measured by indexes or by dummy variables is always negative and significant although, in general, not very strongly. It should be noted that the statistical significance is somewhat better when quantitative restrictions are measured by dummy variables and also when they are measured by indexes SHCU27 and QUNW27, the two indexes that are believed to be less reliable.

As in the case of import duties, the evidence concerning NUOUT7 is not clear-cut. In general, as in the ANTAR7 regressions, this variable is not significantly associated with the indexes of quantitative restrictions, except when the index is SHCU27: in this case there seems to be a strongly significant and positive association. With the other three indexes the relationship is not statistically significant, but it is positive concerning index QUNW27 and negative with the other two indexes. When quantitative restrictions are measured by dummy variables, the existence of forward linkages is positively and significantly associated with the existence of non-tariff barriers.

In accordance with our expectations, NUINP7 was found positively and significantly associated with import duties. Yet, except
in the case of SHCU27 (and its corresponding dummy variable DUMSC7) its relationship with quantitative restrictions is negative and, in general, non-statistically significant.

IMPI17, the measure of import penetration, was found to be highly statistically significant and negatively associated with import duties. In what concerns quantitative restrictions the evidence is at once mixed and clear cut: the indexes of quantitative restrictions are always non-significantly related with import penetration and the sign of the relationship varies with the equation specification. Yet, when quantitative restrictions are measured by dummy variables the relationship is always positive although the level of significance is low.

The level of exports is also non-significantly associated with quantitative restrictions whether measured by indexes or by dummy variables. The sign of the relationship is negative with the equation specifications where FREVA7 and SQUVA7 are included and positive otherwise. This is in contrast with the import duty equations where EXPORT7 was always positively, even though non-significantly, associated with ANTAR7.

Also in contrast with the import duties equations where these were positively, but non-significantly, associated with the export share of output, this variable is negatively associated with quantitative restrictions: the relationship is highly statistically significant except in the case where non-tariff barriers are measured by SHCU27 or DUMSC7.
Contrary to what happened with the ANTAR7 equations, where FREVA7 and SQUVA7 were found, against our expectations, to be negatively and positively associated, respectively, with import duties, non-tariff barriers are higher in industries with large value added and the importance of this variable decreases as the size of value added increases. The evidence concerning these variables is highly statistically significant (except, again, in the cases of SHCU27 and DUMSC7).

Finally, import duties are not significantly associated with the indexes of quantitative restrictions. The lack of significance of ANTAR7 and its positive sign in the non-tariff barriers equations when these are measured by the indexes of quantitative restrictions comes somewhat as a surprise since Section I in this chapter showed that (for the complete sample of 112 sectors) the relationship between both variables when they were regressed alone was significantly negative. Further, when non-tariff barriers are measured by dummy variables, the relationship between import duties and quantitative restrictions appears positively significant.

In summary, the empirical estimates of the non-tariff barriers equations offer substantially different results from those obtained from the import duties equations. Yet, given the reservations expressed in Section III of this Chapter, it is not possible to determine whether those results are legitimate or whether they are a consequence of inappropriately including in the sample those sectors under State trade on individual license trade, whose characteristics set them apart from the rest of the sectors. For that reason
an evaluation of the results obtained above is postponed until the same regressions are performed on a more restricted sample that excludes both groups of sectors.

4. A restricted sample of sectors: Sources of data and methodology

Section III in this chapter showed that special socio-political considerations might account, perhaps considerably, for both the assignment of certain commodities to either the State trade regime or to the individual license trade regime and their, often low, import duties.

If this is the case, it might be legitimate to look upon the econometric estimates reported in previous pages with some doubts since those results could be biased due to the introduction of the sectors under those two regimes. Therefore it seems logical to want to investigate whether (and by how much) those results would differ if sectors under either State trade or individual license trade were eliminated from the sample. Yet, a serious problem, already mentioned in Section III, is that there is not a clear cut manner of eliminating those sectors, since most contain many commodities, groups of which are under different regimes. The question becomes that of determining a rule by which to exclude those sectors where those regimes are especially important. Any such rule is by definition arbitrary. A rule consistent with work in Section III is to base the exclusion of sectors upon the percentage of tariff positions within a sector subject to State trade and/or to
individual license trade. Yet the question is still: What percentage of tariff positions subject to either regime should be considered appropriate to determine whether a sector is under those regimes? Should it be 10%, 50%, or 100%? The break point that was decided was 40%. Percentages much below this, such as 10% or 20%, were considered too high in the sense that they would have excluded sectors where the presence of commodities under the other two regimes was rather high. Percentages much above this such as 60% or 80% were considered too low in the sense that they would have excluded only those sectors whose commodities were almost completely under those regimes, which was rather unlikely since as shown in Chapter II most commodities are not under either of those regimes. The choice of 40% as the break point, such that sectors with more than 40% of their tariff positions under State trade and and/or individual license trade were excluded from the sample, seemed thus appropriate.

Data to conduct these regressions were the same obtained for the previous sub-part.

5. A restricted sample of sectors: Empirical results and their evaluation

The same regressions conducted above for the case of the complete sample of 112 sectors were performed for a restricted sample of 91 sectors, i.e., those sectors where SHS827 ≥ 40%.

The results of those estimations are reported in Tables 17 through 20 below, which are identical to Tables 13 through 16 except
### Table 17a

Determinants of quantitative restrictions: TOBIT estimations

**Dependent variable:** HCU27  
**Sectors excluded:** Those where SNSB27 ≥ 40%  
(Paragraph: Number of sectors: 91)

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Table 17b
Determinants of quantitative restrictions: TOBIT estimations
Dependent variable: QUNW27
Sectors excluded: Those where SH$127 > 40$
(Number of sectors: 91)

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Table 17c
Determinants of quantitative restrictions: TOBIT estimations

Dependent variable: QWE217
Sectors excluded: Those where SHSB27 ≥ 40%
(Number of sectors: 91)

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Table 17d
Determinants of quantitative restrictions: TOBIT estimations

Dependent variable: SPATT7

Sectors excluded: Those where SHSB27 \( \geq 40\% \)
(Number of sectors: 91)

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Table 18a

Determinants of quantitative restrictions: TUBIT estimations

Dependent variable: SCHU27

Sectors excluded: Those where SHSB27 ≥ 40%
(Number of sectors: 91)

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### Table 18b

Determinants of quantitative restrictions: TOBIT estimations

**Dependent variable:** QUNW877

**Sectors excluded:** Those where SHSB87 > 40%

(No of sectors: 91)

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### Table 18c

**Determinants of quantitative restrictions: TOBIT estimations**

**Dependent variable:** QWE217  
**Sectors excluded:** Those where SMSB27 ≥ 40%  
**Number of sectors:** 91

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### Table 18d

**Determinants of quantitative restrictions: TOBIT estimations**

**Dependent variable:** SPATT7  
**Sectors excluded:** Those where SHSB27 ≥ 40%  
**Number of sectors:** 91

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Table 19a
Determinants of quantitative restrictions: PROBIT estimations

Dependent variable: DUMSC7
Sectors excluded: Those where SH5827 ≥ 40%
(Number of sectors: 91)

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Table 19b
Determinants of quantitative restrictions: PROBIT estimations

Dependent variable: DUMUN?  
Sectors excluded: Those where SHSB27 $\geq$ 40%  
(Number of sectors: 91)  
[for 38, DUMSC7 = 1]  
[for 53, DUMSC7 = 0]

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### Table 20a

**Determinants of quantitative restrictions: PROBIT estimations**

Dependent variable: DUMSC7  
Sectors excluded: Those where SHSB27 ≥ 40%  
(Number of sectors: 91)  
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[for 53, DUMSC7 = 0]

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<td></td>
<td>(1.5310)</td>
<td>(1.5310)</td>
<td>(1.5310)</td>
<td>(1.5310)</td>
</tr>
<tr>
<td>FREVA7</td>
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<td>--</td>
<td>--</td>
<td>+10^{-5}</td>
</tr>
<tr>
<td></td>
<td>(0.1997)</td>
<td>(0.1997)</td>
<td>(0.1997)</td>
<td>(0.1997)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>+10^{-10}e</td>
</tr>
<tr>
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<td>(0.1085)</td>
<td>(0.1085)</td>
<td>(0.1085)</td>
<td>(0.1085)</td>
</tr>
</tbody>
</table>
Table 20b

Determinants of quantitative restrictions: PROBIT estimations

Dependent variable: DUM7
Sectors excluded: Those where SMS327 > 40%

(Number of sectors: 91) [for 49, DUM3C = 1]
[for 42, DUMSC7 = 0]

<table>
<thead>
<tr>
<th>Equation Db2</th>
<th>Equation Db5</th>
<th>Equation Db6</th>
<th>Equation Db1</th>
<th>Equation Db12</th>
</tr>
</thead>
<tbody>
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<td>-0.003</td>
<td>+0.719</td>
</tr>
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<td>(0.4520)</td>
<td>(0.3772)</td>
<td>(0.0024)</td>
<td>(0.5047)</td>
</tr>
<tr>
<td>PROR17</td>
<td>+0.553</td>
<td>+0.432</td>
<td>+0.769</td>
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</tr>
<tr>
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<td>(0.2787)</td>
<td>(0.4647)</td>
<td>(0.7350)</td>
</tr>
<tr>
<td>NAIVT47</td>
<td>+4.212a</td>
<td>+3.951a</td>
<td>+5.196a</td>
<td>+4.816a</td>
</tr>
<tr>
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<td>(2.4612)</td>
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</tr>
<tr>
<td>LABI17</td>
<td>-1.138e</td>
<td>-1.183e</td>
<td>-0.673</td>
<td>-1.837d</td>
</tr>
<tr>
<td></td>
<td>(0.9120)</td>
<td>(0.9439)</td>
<td>(0.5262)</td>
<td>(1.3698)</td>
</tr>
<tr>
<td>ATRI7</td>
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<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
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<td>-0.145e</td>
<td>-0.237e</td>
<td>-0.171e</td>
</tr>
<tr>
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<td>(1.1115)</td>
<td>(1.1013)</td>
<td>(1.3190)</td>
<td>(1.2493)</td>
</tr>
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<td>NOUT7</td>
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<td>+0.011a</td>
<td>+0.012a</td>
<td>+0.010a</td>
</tr>
<tr>
<td></td>
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<td>(3.0436)</td>
<td>(3.1921)</td>
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</tr>
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<td>NJINP7</td>
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<td>-0.032d</td>
</tr>
<tr>
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<td>(0.8408)</td>
<td>(1.1689)</td>
<td>(1.6310)</td>
</tr>
<tr>
<td>IMP17</td>
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<td>+2.350b</td>
<td>+2.480b</td>
<td>+3.210a</td>
</tr>
<tr>
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<td>(2.0756)</td>
<td>(2.0756)</td>
<td>(2.5025)</td>
<td>(2.5515)</td>
</tr>
<tr>
<td>ANTAR7</td>
<td>+0.041a</td>
<td>+0.040a</td>
<td>+0.046a</td>
<td>+0.053a</td>
</tr>
<tr>
<td></td>
<td>(2.4955)</td>
<td>(2.4587)</td>
<td>(2.7133)</td>
<td>(2.9139)</td>
</tr>
<tr>
<td>EXPORT7</td>
<td>--</td>
<td>+2.10^-4</td>
<td>--</td>
<td>-6.10^-4</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>(0.6720)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>--</td>
<td>--</td>
<td>-8.596a</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>PREVA7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>+6.10^-3c</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.6948)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>-2.10^-8e</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.0355)</td>
</tr>
</tbody>
</table>
for the size of the sample. In order to simplify the presentation, these results will be compared with those obtained from the sample of 112 sectors and with those expected from our theoretical model. Something should be mentioned before proceeding to comment on the specific results. It should be recalled that index SHCU27 measures the share of positions under global quotas while QUNW27 measures the share of positions under all quantitative restrictions in a given sector. Neither of those indexes was believed to be extremely meaningful when the complete sample was analyzed empirically: in the case of SHCU27, because it takes into account only one type of quantitative restrictions while the sample contains sectors subject to other non-tariff barriers; in the case of QUNW27 because it lumps together all quantitative restrictions without giving them any differentiating weights. For those reasons, it was indicated above that the regressions containing those indexes as well as DUMSC7, the dummy variable corresponding to SHUC27, as the dependent variable should be looked upon with certain degree of skepticism. The skepticism seemed warranted. If, as it is believed, the other indexes are better measures than QUNW27, and especially SHCU27, and if DUMUN7 is a better measure than DUMSC7, it is not surprising that the results obtained from regressions on SHCU27 and DUMSC7 were substantially different from the others, and that, in general, they provided less support for the hypotheses in our model.

However, with the restricted sample these disparities should disappear since, in the sample with 91 observations, those sectors
are mostly under either liberalized trade or under global quotas. Therefore, SHCU27 and QUW27 are appropriate measures now to measure the importance of global quotas across economic sectors.

Our model predicted that the level of protection would be higher the lower is the profit-output ratio (PROR17) in a sector. In what concerns quantitative restrictions, this prediction was not substantially supported by the empirical results for the sample of 112 sectors. For the restricted sample the prediction receives some support but it is not general. Yet, when the estimates support the hypothesis, they do so in a low but still significant manner.

With both samples of 112 and 91 observations and with both the indexes and the dummy variables for quantitative restrictions, non-tariff barriers seem to be significantly higher in sectors with higher natural resources content. This is in marked contrast with the results obtained with the import duties equations. These results are both interesting and appear consistent with each other. What the results suggest is that those sectors were protected by quantitative restrictions in order to allow for the growth of domestic basic industries while import duties lower than for other sectors were granted for effective protection considerations, i.e., to prevent the industries that used the output of those sectors from being abnormally non-competitive.

LABI17, the labor intensity of output is negatively associated with the existence and restrictiveness of non-tariff barriers in both samples of data. The relationship is statistically signifi-
cant, even though not extremely high. These results again are in contrast with those obtained for the import duties equations where the relationship was positive but not statistically significant. It should be recalled that those results were against the postulated hypothesis that protection would be lower in labor intensive goods. Yet the results obtained with non-quantitative restrictions seem to provide support for that hypothesis. If Spain, as hypothesized, has a comparative advantage in the production of labor intensive goods, sectors that produce those goods have less incentives to lobby for protection.

The rate of import duties on imports, ATRIN7, is negatively associated with the existence and extent of quantitative restrictions, in both samples, except in the cases of SHCU27 and DUMSC7, where the relationship is positive. Yet, while the negative relationship was significant, even though not strongly, in most equation specifications in the 112 observations sample, it is barely significant in the restricted sample. What those associations suggest is that firms with high quantitative restrictions tend to face, if not significantly, lower duties on their inputs than the others.

As predicted by our model, buyer concentration, BUVC17, is negatively associated with protection through quantitative restrictions, regardless of the sample used in the regressions. These results coincide with those obtained in the import duties equations, but the degree of statistical significance is now higher.
Perhaps one of the most striking results from the estimations of the quantitative restrictions for the sample of 91 sectors is the strong degree of positive association between NUOUT7 and non-tariff barriers, measured by either indexes or dummy variables. This is in strong contrast with the results obtained both for the quantitative restrictions equations and the import duties equations for the 112 sectors, where the relationship was found to be not statistically significant and often negative. Further comments about the implications of these results will be made below. It should suffice now to say that those results are consistent with the expectations of the model developed in Chapter II.

NUINP7, a measure of backward linkages with the rest of the economy was found to be, contrary to our expectations, negatively and, in general not significantly, associated with the level or existence of quantitative restrictions for the sample with 112 observations. The only exception to this were the equations where SHCU27 or DUMSC7 were the dependent variables: in both cases their relationship was positive but only significant in the second of those cases. Now, the relationship is significantly negative with indexes QUNW27, QWE217 and SPATT7 and DUMUN7, negative but not significant in the case of SHCU27 and, again, positive and generally significant in the case of DUMSC7.

The import penetration ratio, IMPI17, was found to be significantly and positively associated with quantitative restrictions, when measured by dummy variables, for the 112 observations sample.
This relationship remains positive for the sample of 91 observations and becomes highly statistically significant for DUMUN7 while it is not statistically significant for DUMSC7. On the other hand, in the sample of 112 observations, IMPI17 was not significant when the dependent variable was any of the indexes of quantitative restrictions and the sign of the relationship was sensitive to equation specification. However, for the restricted sample, as in the case of the dummy variables, the relationship is always positive, and, generally, significant.

The results on the relationship between either the level of exports (EXPOR7) or the export share of output (EXPI17) and the existence or level of quantitative restrictions is very similar in both samples. Non-tariff barriers are negatively and significantly associated with export intensity, implying that sectors that export a considerable part of their output tend to be less protected by quantitative restrictions. Quantitative restrictions seem to be positively and slightly significantly associated with the level of exports when the dummy variable is DUMSC7 and not significantly associated with them when the dummy variable is DUMUN7; this holds for both samples. Also in both samples, the indexes of quantitative restrictions are not generally significantly associated with the level of exports: the relationship tends to be positive in the equation specifications where variables FREVA7 and SQUVA7 are not included as independent variables, and positive otherwise.

Contrary to what happened in the import duties equations, where the relationships were significant but exhibited signs different
from those expected, quantitative restrictions, whether measured by indexes or by dummy variables, are significantly and positively associated with the size of an industry measured by its value added, and they are negatively, although not always very significantly, associated with the square of that variable. The comparison of the results from the import duties and quantitative restrictions, suggests that large industries tend to be protected by quantitative restrictions while smaller industries tend to be protected by import duties.

Finally, as expected from our previous work, import duties are positively and highly significantly associated with quantitative restrictions in the restricted sample, i.e., when the indexes and the dummy variables for quantitative restrictions take into account only those sectors that are mostly free of quantitative restrictions and sectors that are mostly subject to quotas.

V. THE DETERMINANTS OF IMPORT DUTIES REVISITED

1. Quantitative restrictions as an independent variable in the import duties equations

Section IV in this Chapter IV has analyzed the determinants of non-tariff barriers, and import duties have been included as an independent variable in its quantitative restrictions equations. On the other hand, Chapter III discussed the determinants of import duties but it did not include the level or existence of quantitative restrictions as an independent variable. Still, it seems worthwhile
to do so to investigate whether and how the introduction of this variable affects the estimated equations. Doing this is somewhat cumbersome due to the fact that the relative uncertainty about the ability to measure accurately the incidence of quantitative restrictions has suggested in previous parts of this research the convenience of using a set of four indexes rather than a simple index of incidence of non-tariff barriers.

The tables below contain the estimation of equations (1) through (6) and (9) through (12) estimated in Chapter III, to each of which, either one of the four indexes of quantitative restrictions (SHCU27, QUNW27, QWE217 and SPATT7) or one of the two dummy variables of quantitative restrictions (DUMSC7 and DUMUN7) have been added. For ease of comparison with previous results each of the equations is labelled in a consistent manner. The first part of the label contains the number of the same equation in Table 8 of Chapter III. The second part contains either a Q (for indexes of quantitative restrictions) or a D (for dummy variable) accompanied by a letter. For the case of quantitative restrictions that letter is one of the following: a (for SHCU27), b (for QUNW27), c (for QWE217) and d (for SPATT7). For the case of the dummy variables that letter is either a (for DUMSC7) or b (for DUMUN7). Tables 21 and 23 contain the equations with each of the indexes and dummy variables, respectively. Tables 22 and 24 contain those same equations, respectively, except for the exclusion of ATRIN7 as an independent variable.
Table 21.1
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction index is:

<table>
<thead>
<tr>
<th></th>
<th>SCHU27 Equation T1.Qa</th>
<th>QUNW27 Equation T1.Qb</th>
<th>QWE217 Equation T1.Qc</th>
<th>SPATT7 Equation T1.Qd</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+20.449^a</td>
<td>+21.994^a</td>
<td>+22.363^a</td>
<td>+23.159^a</td>
</tr>
<tr>
<td></td>
<td>(2.6202)</td>
<td>(2.6951)</td>
<td>(2.7653)</td>
<td>(2.8572)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-31.224^a</td>
<td>-32.499^a</td>
<td>-32.714^a</td>
<td>-33.270^a</td>
</tr>
<tr>
<td></td>
<td>(3.1903)</td>
<td>(3.2527)</td>
<td>(3.2900)</td>
<td>(3.4445)</td>
</tr>
<tr>
<td>NAIV47</td>
<td>-22.385^a</td>
<td>-22.387^a</td>
<td>-22.221^a</td>
<td>-21.460^a</td>
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<td>(3.5332)</td>
<td>(3.4075)</td>
<td>(3.4246)</td>
<td>(3.2556)</td>
</tr>
<tr>
<td>LAB117</td>
<td>+2.265</td>
<td>2.847</td>
<td>+2.602</td>
<td>+2.255</td>
</tr>
<tr>
<td></td>
<td>(0.2804)</td>
<td>(0.3475)</td>
<td>(0.3167)</td>
<td>(0.2751)</td>
</tr>
<tr>
<td>ATR1N7</td>
<td>+0.355^a</td>
<td>0.366^a</td>
<td>+0.364^a</td>
<td>+0.358^a</td>
</tr>
<tr>
<td></td>
<td>(3.5807)</td>
<td>(3.6526)</td>
<td>(3.6359)</td>
<td>(3.5657)</td>
</tr>
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<td>BUY1C7</td>
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<td>-0.099</td>
<td>-0.110</td>
</tr>
<tr>
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<td>(0.081)</td>
<td>(0.1142)</td>
<td>(0.1153)</td>
<td>(0.1292)</td>
</tr>
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<td>-0.0001</td>
<td>-0.0007</td>
</tr>
<tr>
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<td>(0.3259)</td>
<td>(0.0273)</td>
<td>(0.0071)</td>
<td>(0.0346)</td>
</tr>
<tr>
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<td>-0.022</td>
<td>-0.025</td>
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<td>(0.0400)</td>
<td>(0.2066)</td>
<td>(0.2145)</td>
<td>(0.2430)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-16.355^a</td>
<td>-17.927^a</td>
<td>-17.947^a</td>
<td>-18.077^a</td>
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<tr>
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<td>(2.5441)</td>
<td>(2.7766)</td>
<td>(2.7921)</td>
<td>(2.8166)</td>
</tr>
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<td>Quantitative</td>
<td>+9.231</td>
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<td>-0.384</td>
<td>-0.770</td>
</tr>
<tr>
<td>restrictions</td>
<td>(1.5171)</td>
<td>(0.1207)</td>
<td>(0.3239)</td>
<td>(0.6828)</td>
</tr>
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</table>

adj. $R^2 = 0.337$  adj. $R^2 = 0.322$  adj. $R^2 = 0.323$  adj. $R^2 = 0.325$
$F = 7.284$  $F = 6.876$  $F = 6.892$  $F = 6.957$
$D - W = 1.842$  $D - W = 1.878$  $D - W = 1.881$  $D - W = 1.896$
Table 21.IIa
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction index is:

<table>
<thead>
<tr>
<th></th>
<th>SCHU27 Equation T3.0a</th>
<th>QUNW27 Equation T3.Qb</th>
<th>QWE217 Equation T3.Qc</th>
<th>SPATT7 Equation T3.Qd</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+20.821a (2.6345)</td>
<td>+22.270a (2.6924)</td>
<td>+22.665a (2.7622)</td>
<td>+23.474a (2.8544)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-31.590a (3.1975)</td>
<td>-32.767a (3.2461)</td>
<td>-33.002a (3.2839)</td>
<td>-33.571a (3.3392)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-22.831a (3.5243)</td>
<td>-22.696a (3.3805)</td>
<td>-22.536a (3.4000)</td>
<td>-21.784a (3.2384)</td>
</tr>
<tr>
<td>LAB117</td>
<td>+2.163 (0.2665)</td>
<td>+2.7837 (0.3382)</td>
<td>+2.528 (0.3060)</td>
<td>+2.179 (0.2644)</td>
</tr>
<tr>
<td>ATR1N7</td>
<td>+0.355a (3.5690)</td>
<td>+0.367a (3.6394)</td>
<td>+0.365a (3.6224)</td>
<td>+0.359a (3.5525)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.083 (0.0966)</td>
<td>-0.91 (0.1053)</td>
<td>-0.091 (0.1061)</td>
<td>-0.103e (0.8622)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.008 (0.3766)</td>
<td>-0.0001 (0.0080)</td>
<td>-0.0009 (0.0443)</td>
<td>-0.001 (0.0728)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>-0.010 (0.0974)</td>
<td>-0.026 (0.2445)</td>
<td>-0.027 (0.2545)</td>
<td>-0.030 (0.2851)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-16.375a (2.5364)</td>
<td>-17.960a (2.7684)</td>
<td>-17.984a (2.7844)</td>
<td>-18.115a (2.8091)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+9.396d (1.5336)</td>
<td>-0.383 (0.1213)</td>
<td>-0.394 (0.3311)</td>
<td>-0.781 (0.6881)</td>
</tr>
<tr>
<td>EXPORT7</td>
<td>+1.0e-4 (0.3663)</td>
<td>+7.10e-5 (0.2515)</td>
<td>+7.10e-5 (0.2621)</td>
<td>+7.10e-5 (0.2734)</td>
</tr>
</tbody>
</table>

adj. \( R^2 = 0.331 \) \ adj. \( R^2 = 0.316 \) \ adj. \( R^2 = 0.317 \) \ adj. \( R^2 = 0.319 \)
\[ F = 6.514 \quad F = 6.138 \quad F = 6.133 \quad F = 6.212 \]
\( D - W = 1.839 \quad D - W = 1.874 \quad D - W = 1.877 \quad D - W = 1.891 \)
Table 21.11b

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction index is:

<table>
<thead>
<tr>
<th>SCHU27</th>
<th>QUNW27</th>
<th>QWE217</th>
<th>SPATT7</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>20.767a</td>
<td>+22.012a</td>
<td>22.455a</td>
</tr>
<tr>
<td></td>
<td>(2.6510)</td>
<td>(2.6895)</td>
<td>(2.7676)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-31.617a</td>
<td>-32.670a</td>
<td>-32.940a</td>
</tr>
<tr>
<td></td>
<td>(3.2184)</td>
<td>(3.2592)</td>
<td>(3.3001)</td>
</tr>
<tr>
<td>MAIN47</td>
<td>-23.090a</td>
<td>-23.216a</td>
<td>-22.928a</td>
</tr>
<tr>
<td></td>
<td>(3.5955)</td>
<td>(3.4571)</td>
<td>(3.4672)</td>
</tr>
<tr>
<td>LAB17</td>
<td>+1.162</td>
<td>+1.975</td>
<td>+1.794</td>
</tr>
<tr>
<td></td>
<td>(0.1411)</td>
<td>(0.2372)</td>
<td>(0.2148)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.358a</td>
<td>+0.371a</td>
<td>+0.368a</td>
</tr>
<tr>
<td></td>
<td>(3.6037)</td>
<td>(3.6788)</td>
<td>(3.6575)</td>
</tr>
<tr>
<td>BUC17</td>
<td>+0.024</td>
<td>-0.133</td>
<td>-0.137</td>
</tr>
<tr>
<td></td>
<td>(0.0288)</td>
<td>(0.1545)</td>
<td>(0.1592)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.006</td>
<td>+0.001</td>
<td>+0.0009</td>
</tr>
<tr>
<td></td>
<td>(0.2848)</td>
<td>(0.0719)</td>
<td>(0.0451)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>-0.010</td>
<td>-0.026</td>
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<td>(0.2597)</td>
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<td>(2.7191)</td>
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<td>-0.262</td>
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<td>(0.2173)</td>
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<tr>
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</tr>
</tbody>
</table>

EXPI17  +7.495   +6.729   +6.319   +5.529

(0.7357) (0.6395) (0.6053) (0.5272)

adj. $R^2 = 0.334$  adj. $R^2 = 0.318$  adj. $R^2 = 0.3191$  adj. $R^2 = 0.320$

$F = 6.581$  $F = 6.193$  $F = 6.201$  $F = 6.244$

$D - W = 1.841$  $D - W = 1.869$  $D - W = 1.874$  $D - W = 1.888$
Table 21. IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction index is:

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<tr>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
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<td>INTERCEPT</td>
<td>+12.661a (1.5156)</td>
<td>+12.326d (1.3849)</td>
<td>+12.855d (1.4514)</td>
<td>+13.819d (1.5504)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-17.051d (1.5113)</td>
<td>-16.648d (1.4208)</td>
<td>-17.175d (1.4711)</td>
<td>-18.083d (1.5408)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-20.291a (3.2797)</td>
<td>-21.456a (3.2431)</td>
<td>-21.116a (3.2473)</td>
<td>-20.770a (3.1456)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+5.331 (0.6623)</td>
<td>+6.546 (0.8007)</td>
<td>+6.455 (0.7847)</td>
<td>+5.996 (0.7292)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.363a (3.7310)</td>
<td>+0.379a (3.8483)</td>
<td>0.378a (3.8287)</td>
<td>+0.374a (3.7693)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.178 (0.2126)</td>
<td>+0.054 (0.0640)</td>
<td>+0.032 (0.0381)</td>
<td>+0.020 (0.0237)</td>
</tr>
<tr>
<td>N JOUT7</td>
<td>+0.006 (0.2718)</td>
<td>+0.014 (0.6691)</td>
<td>+0.015 (0.6804)</td>
<td>+0.013 (0.6263)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.084 (0.7633)</td>
<td>+0.082 (0.7223)</td>
<td>+0.078 (0.6916)</td>
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<tr>
<td>Quantitative restrictions index</td>
<td>+8.855d (1.4769)</td>
<td>+1.336 (0.4240)</td>
<td>+0.303 (0.2545)</td>
<td>-0.103 (0.0905)</td>
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<th>expor7</th>
<th>FREVA7</th>
<th>SQUVA7</th>
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<td></td>
<td>+0.0003 (0.8387)</td>
<td>-0.0004a (2.5707)</td>
<td>+2.10^-9c (1.9592)</td>
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<tr>
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<td>+0.0003 (0.7461)</td>
<td>-0.0004a (2.6433)</td>
<td>+2.10^-9b (2.0676)</td>
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<td>+0.0003 (0.7275)</td>
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<td>+0.0003 (0.7164)</td>
<td>-0.0004a (2.5198)</td>
<td>+2.10^-9c (1.9815)</td>
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</table>

adj. $R^2 = 0.370$  adj. $R^2 = 0.349$  adj. $R^2 = 0.348$  adj. $R^2 = 0.348$
$F = 6.261$  $F = 5.974$  $F = 5.958$  $F = 5.950$
$D-W = 1.870$  $D-W = 1.890$  $D-W = 1.899$  $D-W = 1.905$
### Table 21.IVb

Determinants of import duties: OLS estimations

**Dependent variable:** ANTAR7  
(Number of sectors: 112)

When the quantitative restriction index is:

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<td>+12.600a</td>
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<tr>
<td><strong>PROR17</strong></td>
<td>-19.098c</td>
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<td><strong>LABI17</strong></td>
<td>+5.104</td>
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<td>+0.375a</td>
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<td>+8.589d</td>
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<td>+21.0^{-9}b</td>
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<td>(2.2340)</td>
<td>(2.3178)</td>
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<td>(2.2347)</td>
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adj. $R^2 = 0.358$  
adj. $R^2 = 0.346$  
adj. $R^2 = 0.346$  
adj. $R^2 = 0.345$  
$F = 6.174$  
$F = 5.906$  
$F = 5.893$  
$F = 5.883$  
$D - W = 1.883$  
$D - W = 1.901$  
$D - W = 1.911$  
$D - W = 1.919$
### Table 22.1

**Determinants of import duties: OLS estimations**

**Dependent variable:** ANTAR7  
(Number of sectors: 112)

When the quantitative restriction index is:

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<th>QWE217 Equation T2.Qc</th>
<th>SPATT7 Equation T2.Qd</th>
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<td><strong>INTERCEPT</strong></td>
<td>+13.558&lt;sup&gt;c&lt;/sup&gt;</td>
<td>+15.934&lt;sup&gt;c&lt;/sup&gt;</td>
<td>+16.228&lt;sup&gt;c&lt;/sup&gt;</td>
<td>+17.520&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>(1.6978)</td>
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<td>(1.9400)</td>
<td>(2.0883)</td>
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<td>-27.206&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-29.119&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-29.237&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-30.134&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>(2.6502)</td>
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<td>(2.7930)</td>
<td>(2.8817)</td>
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<td>-24.526&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-24.122&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-24.094&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-22.872&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>(3.2937)</td>
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<td><strong>LARI17</strong></td>
<td>+9.040&lt;sup&gt;e&lt;/sup&gt;</td>
<td>+9.696&lt;sup&gt;e&lt;/sup&gt;</td>
<td>+9.331&lt;sup&gt;e&lt;/sup&gt;</td>
<td>+8.685&lt;sup&gt;e&lt;/sup&gt;</td>
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<tr>
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<td><strong>NUOUT7</strong></td>
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<td>(0.3881)</td>
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<tr>
<td><strong>NUINP7</strong></td>
<td>+0.157&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+0.137&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+0.1375&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+0.128&lt;sup&gt;e&lt;/sup&gt;</td>
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<td>(1.5868)</td>
<td>(1.3570)</td>
<td>(1.3668)</td>
<td>(1.2821)</td>
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<tr>
<td><strong>IMPI17</strong></td>
<td>-18.061&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-20.217&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-20.105&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-20.237&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>(2.6683)</td>
<td>(2.9731)</td>
<td>(2.9700)</td>
<td>(3.0013)</td>
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<td><strong>Quantitative restrictions index</strong></td>
<td>+11.067&lt;sup&gt;c&lt;/sup&gt;</td>
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<td>-1.3036</td>
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<tr>
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<td>(1.7289)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>(0.4439)</td>
<td>(0.6307)</td>
<td>(1.1050)</td>
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</table>

adj. $R^2 = 0.261$    adj. $R^2 = 0.241$    adj. $R^2 = 0.243$    adj. $R^2 = 0.249$

$F = 5.913$    $F = 5.419$    $F = 5.454$    $F = 5.600$

$D - W = 1.638$    $D - W = 1.676$    $D - W = 1.673$    $D - W = 1.695$
### Table 22.IIa

Determinants of import duties: OLS estimations

**Dependent variable:** \( \text{ANTAR7} \)

**Number of sectors:** 112

When the quantitative restriction index is:

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<th></th>
<th>SCHU27 Equation T5.Qa</th>
<th>OUNW27 Equation T5.Qb</th>
<th>QWE217 Equation T5.Qc</th>
<th>SPATT7 Equation T5.Qd</th>
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</thead>
<tbody>
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<td>INTERCEP'T</td>
<td>+13.886(^c) (1.7166)</td>
<td>+16.140(^c) (1.8833)</td>
<td>+16.470(^c) (1.9402)</td>
<td>+17.781(^b) (2.0886)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-27.531(^a) (2.6566)</td>
<td>-29.323(^a) (2.7570)</td>
<td>-29.470(^a) (2.7855)</td>
<td>-30.385(^a) (2.8750)</td>
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<tr>
<td>NA1N47</td>
<td>-24.929(^d) (3.6594)</td>
<td>-24.361(^d) (3.4365)</td>
<td>-24.352(^d) (3.4834)</td>
<td>-23.145(^d) (3.2654)</td>
</tr>
<tr>
<td>LABIL7</td>
<td>+8.954(^d) (1.0747)</td>
<td>+9.653 (1.1381)</td>
<td>+9.276(^e) (1.0897)</td>
<td>+8.626(^e) (1.0168)</td>
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<tr>
<td>ATRIL7</td>
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<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUIY17</td>
<td>-0.239 (0.2653)</td>
<td>-0.479 (0.5271)</td>
<td>-0.464 (0.5121)</td>
<td>-0.471 (0.5221)</td>
</tr>
<tr>
<td>NOUT7</td>
<td>-0.016 (0.7442)</td>
<td>-0.007 (0.3198)</td>
<td>-0.008 (0.3856)</td>
<td>-0.009 (0.4137)</td>
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<tr>
<td>NUINP7</td>
<td>+0.151(^d) (1.5034)</td>
<td>+0.134(^d) (1.2979)</td>
<td>+0.133(^d) (1.3024)</td>
<td>+0.124(^d) (1.2165)</td>
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<td>-18.081(^a) (2.6594)</td>
<td>-20.244(^a) (2.9624)</td>
<td>-20.137(^a) (2.9600)</td>
<td>-20.271(^a) (2.9916)</td>
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<td>+11.218(^c) (1.7398)</td>
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<td>-1.312 (1.1067)</td>
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<tr>
<td>EXPORT7</td>
<td>+9.10(^-3) (0.3123)</td>
<td>+0.00005 (0.1827)</td>
<td>+0.00006 (0.2023)</td>
<td>+0.00006 (0.2183)</td>
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**adj. \( R^2 \):** 0.255  0.234  0.235  0.242

**\( F \):** 5.221  4.775  4.808  4.937

**\( D - W \):** 1.6388  1.675  1.672  1.694
Table 22.IIb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction index is:

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<th>QWE217 Equation T6.0c</th>
<th>SPATT7 Equation T6.0d</th>
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</thead>
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<td>INTERCEPT</td>
<td>+13.749(^c)</td>
<td>+15.899(^c)</td>
<td>+16.241(^c)</td>
<td>+17.504(^b)</td>
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<td>(1.8722)</td>
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<td>(2.0767)</td>
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<td>-27.476(^a)</td>
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<td>-29.347(^a)</td>
<td>-30.190(^a)</td>
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<td>+8.247(^e)</td>
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<td>BUYC17</td>
<td>-0.288</td>
<td>-0.508</td>
<td>-0.495</td>
<td>-0.495</td>
</tr>
<tr>
<td></td>
<td>(0.3188)</td>
<td>(0.5578)</td>
<td>(0.5447)</td>
<td>(0.5464)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.015</td>
<td>-0.006</td>
<td>-0.007</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.6577)</td>
<td>(0.2741)</td>
<td>(0.3324)</td>
<td>(0.3669)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.153(^d)</td>
<td>+0.136(^d)</td>
<td>+0.135(^d)</td>
<td>+0.127(^d)</td>
</tr>
<tr>
<td></td>
<td>(1.5425)</td>
<td>(1.3360)</td>
<td>(1.3412)</td>
<td>(1.2648)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-17.760(^a)</td>
<td>-19.989(^a)</td>
<td>-19.917(^a)</td>
<td>-20.106(^a)</td>
</tr>
<tr>
<td></td>
<td>(2.50548)</td>
<td>(2.9140)</td>
<td>(2.9196)</td>
<td>(2.9576)</td>
</tr>
<tr>
<td><strong>Quantitative restrictions index</strong></td>
<td><strong>+11.255(^c)</strong></td>
<td><strong>-1.238</strong></td>
<td><strong>-0.719</strong></td>
<td><strong>-1.251</strong></td>
</tr>
<tr>
<td></td>
<td><strong>(1.749)</strong></td>
<td><strong>(0.3647)</strong></td>
<td><strong>(0.5656)</strong></td>
<td><strong>(1.0365)</strong></td>
</tr>
<tr>
<td>EXPI17</td>
<td>+5.736</td>
<td>+3.917</td>
<td>+3.703</td>
<td>+2.5420</td>
</tr>
<tr>
<td></td>
<td>(0.5333)</td>
<td>(0.3527)</td>
<td>(0.3358)</td>
<td>(0.2301)</td>
</tr>
</tbody>
</table>

adj. \( R^2 = 0.2563 \)  adj. \( R^2 = 0.235 \)  adj. \( R^2 = 0.236 \)  adj. \( R^2 = 0.242 \)
\( F = 5.252 \)  \( F = 4.789 \)  \( F = 4.819 \)  \( F = 4.938 \)
\( D - W = 1.633 \)  \( D - W = 1.667 \)  \( D - W = 1.665 \)  \( D - W = 1.689 \)
### Table 22.IVa

Determinants of import duties: OLS estimations

**Dependent variable:** ANTAR7  
**Number of sectors:** 112

When the quantitative restriction index is:

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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+5.815 (0.6715)</td>
<td>+6.567 (0.7016)</td>
<td>+7.030 (0.7558)</td>
<td>+8.634 (0.9216)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-14.033e (1.1736)</td>
<td>-14.797e (1.1847)</td>
<td>-15.217e (1.2237)</td>
<td>-16.706d (1.3384)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-23.066a (3.4167)</td>
<td>-23.152a (3.3070)</td>
<td>-22.999a (3.3270)</td>
<td>-22.175a (3.1614)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+12.263d (1.4734)</td>
<td>+13.509d (1.5881)</td>
<td>+13.275d (1.5504)</td>
<td>+12.484d (1.4590)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUCY17</td>
<td>-0.157 (0.1768)</td>
<td>-0.357 (0.3989)</td>
<td>-0.361 (0.4050)</td>
<td>-0.373 (0.4191)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.0002 (0.1102)</td>
<td>+0.006 (0.2964)</td>
<td>+0.006 (0.2724)</td>
<td>+0.004 (0.2114)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.249b (2.3057)</td>
<td>+0.244b (2.1712)</td>
<td>+0.240b (2.1542)</td>
<td>+0.229b (2.0389)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.716a (2.9344)</td>
<td>-21.525a (3.1925)</td>
<td>-21.551a (3.2047)</td>
<td>-21.610a (3.2189)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+10.666e (1.6796)</td>
<td>+0.067 (0.020!)</td>
<td>-0.1618 (0.1277)</td>
<td>-0.718 (0.5983)</td>
</tr>
</tbody>
</table>

**adj. R^2 = 0.280**  
**adj. R^2 = 0.259**  
**adj. R^2 = 0.260**  
**adj. R^2 = 0.262**  
**F = 4.928**  
**F = 4.544**  
**F = 4.546**  
**F = 4.592**  
**D - W = 1.669**  
**D - W = 1.691**  
**D - W = 1.693**  
**D - W = 1.707**
### Table 22.IVb

**Determinants of import duties: OLS estimations**

**Dependent variable:** ANTAR7  
(Number of sectors: 112)

**When the quantitative restriction index is:**

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<th>QUNW27</th>
<th>QWE217</th>
<th>SPATT7</th>
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</thead>
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<td><strong>Equation T12.Qa</strong></td>
<td><strong>Equation T12.0b</strong></td>
<td><strong>Equation T12.Qc</strong></td>
<td><strong>Equation T12.Qd</strong></td>
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<td></td>
<td>(0.6583)</td>
<td>(0.6912)</td>
<td>(0.7389)</td>
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<tr>
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<td>(1.3005)</td>
<td>(1.2823)</td>
<td>(1.3137)</td>
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<tr>
<td></td>
<td>(3.3358)</td>
<td>(3.2121)</td>
<td>(3.2371)</td>
</tr>
<tr>
<td></td>
<td>(1.4319)</td>
<td>(1.5643)</td>
<td>(1.5325)</td>
</tr>
<tr>
<td><strong>ATRIN7</strong></td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>BUCY17</strong></td>
<td>-0.189</td>
<td>-0.374</td>
<td>-0.376</td>
</tr>
<tr>
<td></td>
<td>(0.2123)</td>
<td>(0.4161)</td>
<td>(0.4190)</td>
</tr>
<tr>
<td><strong>NUOUT7</strong></td>
<td>-0.0008</td>
<td>+0.008</td>
<td>+0.007</td>
</tr>
<tr>
<td></td>
<td>(0.0340)</td>
<td>(0.3491)</td>
<td>(0.3239)</td>
</tr>
<tr>
<td><strong>NUINP7</strong></td>
<td>+0.256b</td>
<td>+0.249b</td>
<td>+0.247b</td>
</tr>
<tr>
<td></td>
<td>(2.3604)</td>
<td>(2.2247)</td>
<td>(2.2121)</td>
</tr>
<tr>
<td><strong>Quantitative restrictions index</strong></td>
<td>+10.425e</td>
<td>+0.009</td>
<td>-0.169</td>
</tr>
<tr>
<td></td>
<td>(1.6411)</td>
<td>(0.0028)</td>
<td>(0.1326)</td>
</tr>
<tr>
<td><strong>EXPI17</strong></td>
<td>+1.586</td>
<td>+0.403</td>
<td>+0.268</td>
</tr>
<tr>
<td></td>
<td>(0.1474)</td>
<td>(0.0401)</td>
<td>(0.0244)</td>
</tr>
<tr>
<td><strong>FREVA7</strong></td>
<td>-0.0004b</td>
<td>-0.0004b</td>
<td>-0.0004b</td>
</tr>
<tr>
<td></td>
<td>(2.2452)</td>
<td>(2.2851)</td>
<td>(2.2464)</td>
</tr>
<tr>
<td><strong>SQUVA7</strong></td>
<td>+2.10-9b</td>
<td>+2.10-9b</td>
<td>+2.10-10b</td>
</tr>
<tr>
<td></td>
<td>(2.1287)</td>
<td>(2.1587)</td>
<td>(2.1279)</td>
</tr>
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</table>

adj. $R^2 = 0.277$  adj. $R^2 = 0.258$  adj. $R^2 = 0.258$  adj. $R^2 = 0.261$  
F = 4.884  F = 4.517  F = 4.520  F = 4.568  
D - W = 1.670  D - W = 1.696  D - W = 1.699  D - W = 1.716
### Table 23.1

**Determinants of import duties: OLS estimations**

**Dependent variable:** ANTAR7  
(Number of sectors: 112)

**When the quantitative restriction dummy variable is:**

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<tr>
<th></th>
<th>DUMSC7 Equation T1.9a</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T1.0b</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+22.135*</td>
<td>+20.146*</td>
</tr>
<tr>
<td></td>
<td>(2.8785)</td>
<td>(2.5534)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-30.376*</td>
<td>-31.333*</td>
</tr>
<tr>
<td></td>
<td>(3.1264)</td>
<td>(3.1880)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-23.277*</td>
<td>-24.178*</td>
</tr>
<tr>
<td></td>
<td>(3.7034)</td>
<td>(3.7262)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+4.034*</td>
<td>+4.076*</td>
</tr>
<tr>
<td></td>
<td>(0.5038)</td>
<td>(0.5004)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.343*</td>
<td>+0.365*</td>
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<tr>
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<td>(3.7160)</td>
</tr>
<tr>
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<tr>
<td></td>
<td>(0.1420)</td>
<td>(0.590)</td>
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<td></td>
<td>(0.6952)</td>
<td>(0.2203)</td>
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<tr>
<td>NUINP7</td>
<td>-0.046</td>
<td>-0.026</td>
</tr>
<tr>
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<td>(0.4502)</td>
<td>(0.2506)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-18.811*</td>
<td>-18.679*</td>
</tr>
<tr>
<td></td>
<td>(2.9807)</td>
<td>(2.9138)</td>
</tr>
<tr>
<td>Dummy variable</td>
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<td>+2.595e</td>
</tr>
<tr>
<td></td>
<td>(2.0658)</td>
<td>(1.2439)</td>
</tr>
</tbody>
</table>

**adj. R² = 0.349**  
**F = 7.634**  
**D - W = 1.869**

**adj. R² = 0.332**  
**F = 7.150**  
**D - W = 1.819**
Table 23.1la

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
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<th>DUMUN7 = DUMWE7 = DUMSP7</th>
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</thead>
<tbody>
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<td>INTERCEPT</td>
<td>+22.098a</td>
<td>+20.340a</td>
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<td>(2.8337)</td>
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</tr>
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<td>-30.335a</td>
<td>-31.517a</td>
</tr>
<tr>
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<td>(3.0842)</td>
<td>(3.1715)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-23.235a</td>
<td>-24.367a</td>
</tr>
<tr>
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<td>(3.6167)</td>
<td>(3.6816)</td>
</tr>
<tr>
<td>LARI17</td>
<td>+4.045</td>
<td>+4.024</td>
</tr>
<tr>
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<td>(0.5023)</td>
<td>(0.4913)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.343a</td>
<td>+0.368a</td>
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<tr>
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<td>(3.4596)</td>
<td>(3.7005)</td>
</tr>
<tr>
<td>BUYC17</td>
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<td>+0.054</td>
</tr>
<tr>
<td></td>
<td>(0.4376)</td>
<td>(0.0627)</td>
</tr>
<tr>
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<td>-0.015</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>(0.6865)</td>
<td>(0.2380)</td>
</tr>
<tr>
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<td>-0.045</td>
<td>-0.028</td>
</tr>
<tr>
<td></td>
<td>(0.4376)</td>
<td>(0.2732)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-18.809a</td>
<td>-18.692a</td>
</tr>
<tr>
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<td>(2.9656)</td>
<td>(2.9017)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+4.544b</td>
<td>+2.571e</td>
</tr>
<tr>
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<td>(2.0390)</td>
<td>(1.2231)</td>
</tr>
<tr>
<td>EXPOR7</td>
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<td>+0.00004</td>
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<td>(0.0352)</td>
<td>(0.1658)</td>
</tr>
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adj. $R^2 = 0.343$  adj. $R^2 = 0.326$
$F = 6.804$  $F = 6.376$
$D - W = 1.869$  $D - W = 1.817$
Table 23.IIb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
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<td>+20.340a</td>
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</tr>
<tr>
<td>PROR17</td>
<td>-30.775a</td>
<td>-31.722a</td>
</tr>
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<td>(3.1566)</td>
<td>(3.2233)</td>
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<td>-24.025a</td>
<td>-25.392a</td>
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<td>LAB117</td>
<td>+2.929</td>
<td>+2.831</td>
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<td>(0.3594)</td>
<td>(0.3430)</td>
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<td>+0.346a</td>
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</tr>
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<td>(3.7608)</td>
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<td>BUYN17</td>
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<td>+0.010</td>
</tr>
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<td>(0.0866)</td>
<td>(0.0118)</td>
</tr>
<tr>
<td>NUOUT7</td>
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</tr>
<tr>
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<td>(0.6576)</td>
<td>(0.1975)</td>
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<td>NUINP7</td>
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<td>-0.035</td>
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<tr>
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<td>(0.3418)</td>
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<td>IMPI17</td>
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<td>-18.327a</td>
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<tr>
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<td>(2.9082)</td>
<td>(2.8527)</td>
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<td>(0.9500)</td>
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</table>

adj. $R^2 = 0.347$  adj. $R^2 = 0.332$

$F = 6.903$  $F = 6.519$

$D - W = 1.870$  $D - W = 1.812$
Table 23.IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
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<td>+10.688(e)</td>
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</tr>
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<td>PROR17</td>
<td>-16.271(d)</td>
<td>-15.190(d)</td>
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<td>(1.3375)</td>
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<td>-21.343(a)</td>
<td>-22.695(a)</td>
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<tr>
<td></td>
<td>(3.3688)</td>
<td>(3.5149)</td>
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<td>+7.007(e)</td>
<td>+7.879(e)</td>
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<tr>
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<td>(0.9747)</td>
</tr>
<tr>
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<td>+0.352(a)</td>
<td>+0.377(a)</td>
</tr>
<tr>
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<td>(3.6248)</td>
<td>(3.8882)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.207</td>
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<tr>
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<td>(0.2484)</td>
<td>(0.2533)</td>
</tr>
<tr>
<td>NUOUT7</td>
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<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.0317)</td>
<td>(0.3998)</td>
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<td>+0.077</td>
</tr>
<tr>
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<td>(0.6972)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-20.293(a)</td>
<td>-20.703(a)</td>
</tr>
<tr>
<td></td>
<td>(3.2576)</td>
<td>(3.2914)</td>
</tr>
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<td>+3.370(d)</td>
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<tr>
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<td>(1.6374)</td>
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<td>+0.0002</td>
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<td>(0.7057)</td>
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<td>-0.0004(a)</td>
<td>-0.0004(a)</td>
</tr>
<tr>
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<td>(2.5224)</td>
<td>(2.8369)</td>
</tr>
<tr>
<td>SQUVA7</td>
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<td>+2.10^{-9}(b)</td>
</tr>
<tr>
<td></td>
<td>(1.9237)</td>
<td>(2.2071)</td>
</tr>
</tbody>
</table>

\(\text{adj. } R^2 = 0.372\) \hspace{1cm} \(\text{adj. } R^2 = 0.365\)

\(F = 6.479\) \hspace{1cm} \(F = 6.333\)

\(D - W = 1.900\) \hspace{1cm} \(D - W = 1.839\)
Table 23.IVb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation T10.Da</th>
<th>Equation T10.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+14.174c</td>
<td>+10.717e</td>
</tr>
<tr>
<td></td>
<td>(1.7008)</td>
<td>(1.2591)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-17.781d</td>
<td>-17.128d</td>
</tr>
<tr>
<td></td>
<td>(1.5925)</td>
<td>(1.5198)</td>
</tr>
<tr>
<td>NA1N47</td>
<td>-21.266a</td>
<td>-22.877a</td>
</tr>
<tr>
<td></td>
<td>(3.3316)</td>
<td>(3.4950)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+6.628</td>
<td>+7.268e</td>
</tr>
<tr>
<td></td>
<td>(0.8128)</td>
<td>(0.8841)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.349a</td>
<td>+0.375a</td>
</tr>
<tr>
<td></td>
<td>(3.6010)</td>
<td>(3.8731)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.169</td>
<td>+0.162</td>
</tr>
<tr>
<td></td>
<td>(0.2027)</td>
<td>(0.1932)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.0002</td>
<td>-0.010</td>
</tr>
<tr>
<td></td>
<td>(0.0097)</td>
<td>(0.4697)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.052</td>
<td>+0.079</td>
</tr>
<tr>
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<td>(0.4677)</td>
<td>(0.7202)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>~19.962a</td>
<td>~20.266a</td>
</tr>
<tr>
<td></td>
<td>(3.1899)</td>
<td>(3.2131)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+4.356c</td>
<td>+3.637d</td>
</tr>
<tr>
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<td>(1.9945)</td>
<td>(1.7301)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>+3.680</td>
<td>+6.002</td>
</tr>
<tr>
<td></td>
<td>(0.3659)</td>
<td>(0.5831)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>-0.0004b</td>
<td>-0.0004a</td>
</tr>
<tr>
<td></td>
<td>(2.3779)</td>
<td>(2.6721)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+2.10^{-7}b</td>
<td>+2.10^{-7}a</td>
</tr>
<tr>
<td></td>
<td>(2.0957)</td>
<td>(2.4267)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.370$  
$F = 6.450$  
$D - W = 1.908$

adj. $R^2 = 0.364$  
$F = 6.310$  
$D - W = 1.841$
Table 24.I

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
<thead>
<tr>
<th></th>
<th>DUMSC7</th>
<th>DUMUN7 = DUMWE7 = DUMSP7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equation T2.Da</td>
<td>Equation T2.Db</td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>+15.851&lt;sup&gt;b&lt;/sup&gt;</td>
<td>+13.237&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(2.0148)</td>
<td>(1.6281)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-26.335&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-27.377&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(2.5938)</td>
<td>(2.6425)</td>
</tr>
<tr>
<td>NAINT47</td>
<td>-25.510&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-26.423&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(3.8762)</td>
<td>(3.8570)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+10.884&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+11.277&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(1.3322)</td>
<td>(1.3443)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUCY17</td>
<td>-0.175</td>
<td>-0.321</td>
</tr>
<tr>
<td></td>
<td>(0.1976)</td>
<td>(0.3545)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.025&lt;sup&gt;e&lt;/sup&gt;</td>
<td>-0.012</td>
</tr>
<tr>
<td></td>
<td>(1.0972)</td>
<td>(0.5271)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.099&lt;sup&gt;e&lt;/sup&gt;</td>
<td>+0.139&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(1.0049)</td>
<td>(1.3977)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-20.928&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-20.757&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(3.1654)</td>
<td>(3.0653)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>5.455&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2.5469&lt;sup&gt;e&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(2.3782)</td>
<td>(1.1510)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.279$  adj. $R^2 = 0.249$

$F = 6.386$  $F = 5.618$

$D - W = 1.686$  $D - W = 1.625$
Table 24.IIa
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
<thead>
<tr>
<th></th>
<th>DUMSC7 Equation T5.Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T5.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+15.701c (1.9694)</td>
<td>+13.358d (1.6175)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-26.161a (2.5467)</td>
<td>-27.493a (2.6247)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-25.328a (3.7627)</td>
<td>-26.545a (3.7973)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+10.923d (1.3299)</td>
<td>+11.247d (1.3334)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>- -</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.177 (0.1986)</td>
<td>+0.319 (0.3503)</td>
</tr>
<tr>
<td>NUGUT7</td>
<td>-0.025e (1.0750)</td>
<td>-0.012 (0.5330)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.102e (1.0105)</td>
<td>+0.137d (1.3526)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-20.915a (3.1481)</td>
<td>-20.767a (3.0517)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.502b (2.364)</td>
<td>+2.531e (1.355)</td>
</tr>
<tr>
<td>EXPOR7</td>
<td>~0.00004 (0.1446)</td>
<td>+0.00003 (0.1003)</td>
</tr>
</tbody>
</table>

adj. R² = 0.272
F = 5.625
D - W = 1.687

adj. R² = 0.242
F = 4.947
D - W = 1.625
Table 24.IIb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERCEPT</strong></td>
<td>+13.313d</td>
</tr>
<tr>
<td></td>
<td>(1.6333)</td>
</tr>
<tr>
<td><strong>PROR17</strong></td>
<td>-27.638a</td>
</tr>
<tr>
<td></td>
<td>(2.6594)</td>
</tr>
<tr>
<td><strong>NAIN47</strong></td>
<td>-27.398a</td>
</tr>
<tr>
<td></td>
<td>(3.9100)</td>
</tr>
<tr>
<td><strong>LABII7</strong></td>
<td>+10.382e</td>
</tr>
<tr>
<td></td>
<td>(1.2205)</td>
</tr>
<tr>
<td><strong>ATRIN7</strong></td>
<td>--</td>
</tr>
<tr>
<td><strong>BUYC17</strong></td>
<td>-0.357</td>
</tr>
<tr>
<td></td>
<td>(0.3925)</td>
</tr>
<tr>
<td><strong>NUOUT7</strong></td>
<td>-0.011</td>
</tr>
<tr>
<td></td>
<td>(0.5125)</td>
</tr>
<tr>
<td><strong>NUINP7</strong></td>
<td>+0.133d</td>
</tr>
<tr>
<td></td>
<td>(1.3323)</td>
</tr>
<tr>
<td><strong>IMPI17</strong></td>
<td>-20.504a</td>
</tr>
<tr>
<td></td>
<td>(3.0162)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+2.892e</td>
</tr>
<tr>
<td></td>
<td>(1.2727)</td>
</tr>
<tr>
<td><strong>EXPI17</strong></td>
<td>+7.763</td>
</tr>
<tr>
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<td>(0.7008)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.275$  
adj. $R^2 = 0.246$

$F = 5.677$  
$F = 5.024$

$D - W = 1.682$  
$D - W = 1.613$
Table 24.IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
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<th>Equation TII.0a</th>
<th>Equation TII.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERCEPT</strong></td>
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</tr>
<tr>
<td></td>
<td>(0.9091)</td>
</tr>
<tr>
<td><strong>PROR17</strong></td>
<td>-13.165e</td>
</tr>
<tr>
<td></td>
<td>(1.1117)</td>
</tr>
<tr>
<td><strong>NA1N47</strong></td>
<td>-23.502a</td>
</tr>
<tr>
<td></td>
<td>(3.5185)</td>
</tr>
<tr>
<td><strong>LAB117</strong></td>
<td>+14.024c</td>
</tr>
<tr>
<td></td>
<td>(1.7094)</td>
</tr>
<tr>
<td><strong>ATRIN7</strong></td>
<td>--</td>
</tr>
<tr>
<td><strong>BUYC17</strong></td>
<td>-0.103</td>
</tr>
<tr>
<td></td>
<td>(0.1172)</td>
</tr>
<tr>
<td><strong>NUOUT7</strong></td>
<td>-0.011</td>
</tr>
<tr>
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<td>(0.4552)</td>
</tr>
<tr>
<td><strong>NUINP7</strong></td>
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</tr>
<tr>
<td></td>
<td>(1.8351)</td>
</tr>
<tr>
<td><strong>IMPI17</strong></td>
<td>-22.355a</td>
</tr>
<tr>
<td></td>
<td>(3.4030)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.181b</td>
</tr>
<tr>
<td></td>
<td>(2.2565)</td>
</tr>
<tr>
<td><strong>EXPOR7</strong></td>
<td>+0.0001</td>
</tr>
<tr>
<td></td>
<td>(0.2839)</td>
</tr>
<tr>
<td><strong>FREVA7</strong></td>
<td>-0.0004b</td>
</tr>
<tr>
<td></td>
<td>(2.2976)</td>
</tr>
<tr>
<td><strong>SQUA7</strong></td>
<td>+2.10e-9c</td>
</tr>
<tr>
<td></td>
<td>(1.8621)</td>
</tr>
<tr>
<td><strong>DUMSC7</strong></td>
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</tr>
<tr>
<td></td>
<td>(0.4286)</td>
</tr>
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<td><strong>DUMUN7 = DUMWE7 = DUMSP7</strong></td>
<td>-12.268e</td>
</tr>
<tr>
<td></td>
<td>(1.0134)</td>
</tr>
<tr>
<td></td>
<td>-24.887a</td>
</tr>
<tr>
<td></td>
<td>(3.6219)</td>
</tr>
<tr>
<td></td>
<td>+15.236c</td>
</tr>
<tr>
<td></td>
<td>(1.8147)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.295$  
$F = 5.238$  
$D - W = 1.714$

adj. $R^2 = 0.276$  
$F = 4.850$  
$D - W = 1.650$
Table 24. IVb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
(Number of sectors: 112)

When the quantitative restriction dummy variable is:

<table>
<thead>
<tr>
<th>Equation T12.Da</th>
<th>Equation T12.Db</th>
</tr>
</thead>
<tbody>
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<td><strong>DUMSC7</strong></td>
<td><strong>DUMUN7 = DUMWE7 = DUMSP7</strong></td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>INTERCEPT</td>
</tr>
<tr>
<td>+ 7.886e</td>
<td>+ 3.838</td>
</tr>
<tr>
<td>(0.9146)</td>
<td>(0.4319)</td>
</tr>
<tr>
<td>PROR17</td>
<td>PROR17</td>
</tr>
<tr>
<td>-13.992e</td>
<td>-13.514e</td>
</tr>
<tr>
<td>(1.1996)</td>
<td>(1.1269)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>NAIN47</td>
</tr>
<tr>
<td>-23.471a</td>
<td>-24.997a</td>
</tr>
<tr>
<td>(3.4913)</td>
<td>(3.5895)</td>
</tr>
<tr>
<td>LABI17</td>
<td>LABI17</td>
</tr>
<tr>
<td>+13.771d</td>
<td>+14.828c</td>
</tr>
<tr>
<td>(1.6455)</td>
<td>(1.7391)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>ATRIN7</td>
</tr>
<tr>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>BUYC17</td>
</tr>
<tr>
<td>-0.122</td>
<td>-0.206</td>
</tr>
<tr>
<td>(0.1392)</td>
<td>(0.2305)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>NUOUT7</td>
</tr>
<tr>
<td>-0.010</td>
<td>+0.005</td>
</tr>
<tr>
<td>(0.4344)</td>
<td>(0.1082)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>NUINP7</td>
</tr>
<tr>
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<td>+0.248b</td>
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<td>(1.8342)</td>
<td>(2.2849)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>IMPI17</td>
</tr>
<tr>
<td>-22.164a</td>
<td>-22.431a</td>
</tr>
<tr>
<td>(3.3632)</td>
<td>(3.3441)</td>
</tr>
<tr>
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<td>Dummy variable</td>
</tr>
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<td>+3.463d</td>
</tr>
<tr>
<td>(2.2915)</td>
<td>(1.5441)</td>
</tr>
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<td>EXP117</td>
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<td>+3.8351</td>
</tr>
<tr>
<td>(0.1976)</td>
<td>(0.3495)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>FREVA7</td>
</tr>
<tr>
<td>-0.0004b</td>
<td>-0.0004a</td>
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<td>(2.2125)</td>
<td>(2.4866)</td>
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<tr>
<td>SQUA7</td>
<td>SQUA7</td>
</tr>
<tr>
<td>+2.10^{-10}c</td>
<td>+2.10^{-9}b</td>
</tr>
<tr>
<td>(1.9740)</td>
<td>(2.3059)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.295$  
adj. $R^2 = 0.275$

$F = 5.232$  
$F = 4.842$

$D - W = 1.714$  
$D - W = 1.643$
An analysis of the results contained in those tables reveals that the structure of the equations remains substantially unaltered as a result of the inclusion of non-tariff barriers in the import duties equations. Section III of this chapter revealed that when different indexes of quantitative restrictions were regressed on import duties, the relationship was significantly negative. The enclosed tables show that when those indexes are regressed in the context of the import duties equations this relationship remains negative (except in the case of SHCU27), yet non-significant. (This is in contrast with what was found when import duties were included in the quantitative restrictions equations: in this case the relationship appeared non-significant, yet positive.) Further, the dummy variables for quantitative restrictions appear significantly and positively associated with import duties.

With regard to the rest of the variables included in the import duties equation, the addition of either an index or a dummy variable for quantitative restrictions does not essentially alter the significance or sign any of the them. Yet, it should be noted, that NUOUT7, the proxy for forward linkages, although remaining non-statistically significant becomes negatively related to import duties in some of the instances when the indexes of quantitative restrictions are added to the equations. Also EXPOR7, which in general, is not significantly though positively, associated with import duties becomes negative when dummy variable DUMSC7 is included in the equations. Finally, EXPI17 which is also not significantly but
positively associated with import duties, becomes negatively associated with them when one of the indexes, SPATT7, is included in the equation.

2. The determinants of import duties in a restricted sample

Previous sections have investigated the relationship between import duties and different indexes of quantitative restrictions. The analysis in Section III of this chapter shed light on the special characteristics of a set of sectors with commodities subject to rather restrictive non-tariff barriers and, often, low import duties.

The differences obtained from the quantitative restrictions equations both when all economic sectors were included in the sample used for the empirical analysis and when the sectors with these special characteristics (i.e., those subject to a considerable extent to either State trade or trade under individual license) were eliminated from that sample, are not markedly different: the estimated signs of the independent variable remain substantially unaltered in all cases, even though the statistical significance of some of the variables do change: in the restricted sample, both ANTAR7 and NUOUT7 are considerably more statistically significant in the indexes equations. The significance of BUYC17 and IMPI17 also improves. Finally, the significance of EXPI17, FREVA7 and SQUVA7 decreases.
Yet, if sectors under State trade or trade under individual license have specific characteristics that explain their assignment to those regimes, those characteristics might perhaps result in a pattern of tariffs that would distort the relationships estimated for the import duties equations in Chapter III. In order to investigate this possibility, the set of import duties equations used in Chapter III and contained in Table 8 as well as the set discussed in the previous part (those including indexes and dummy variables of quantitative restrictions and contained in Tables 21 through 24) were estimated again for the restricted sample of 91 sectors.

The results of those estimations are reported in the tables below. The equations in Table 25 are identical to those in Table 8 (reported in Chapter 3) except for the sample that now contains 91 observations. The equations in Tables 26 through 29 are identical to those in Tables 21 through 24, respectively except again for the sample size.

The comparison of those results with those for the complete sample of 112 sectors brings about a rather remarkable fact: As in the case of the quantitative restrictions equations, the empirical estimates do not differ substantially from one sample to the other: in both samples import duties are significantly and negatively related to the profit output ratio (PROR17), to natural resources intensity (NAIN47) and to the size of the industry (FREVA7) and significantly and positively related to import duties on imports (ATRIN7) and to the square of value added (SQUVA7). The only sub-
Table 25.1

Determinants of import duties

Dependent variable: ANTR7
Sectors excluded: Those where SHSB 27 > 40%

(Number of sectors: 91)

<table>
<thead>
<tr>
<th></th>
<th>Equation T1</th>
<th>Equation T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>$13.730^d$</td>
<td>$7.777^e$</td>
</tr>
<tr>
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adj. $R^2 = 0.342$  adj. $R^2 = 0.295$
$F = 6.87$  $F = 6.400$
$D - W = 2.155$  $D - W = 2.081$
Table 25.11

Determinants of import duties
Dependent variable: ANTAG7

Sectors excluded: Those where SHSB27 > 40%

(Number of sectors: 91)

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<th>Equation T6</th>
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adj. $R^2 = 0.337$  adj. $R^2 = 0.337$  adj. $R^2 = 0.289$  adj. $R^2 = 0.287$

$F = 6.094$  $F = 6.093$  $F = 5.587$  $F = 5.549$

$D-W = 2.155$  $D-W = 1.490$  $D-W = 2.084$  $D-W = 2.073$
Determinants of import duties: OLS estimations

Dependent variable: ANTA7

Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

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adj. $R^2 = 0.362$  adj. $R^2 = 0.311$
$F = 6.123$  $F = 5.533$
$D - W = 2.127$  $D - W = 2.0507$
Table 25. IV

Determinants of import duties: OLS estimations
Dependent variable: ANTAR7

Sectors excluded: Those where SHSB27 $\geq$ 40%

(Number of sectors: 91)

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adj. $R^2 = 0.372$  adj. $R^2 = 0.354$  adj. $R^2 = 0.317$  adj. $R^2 = 0.303$

$F = 5.852$  $F = 5.501$  $F = 5.191$  $F = 4.920$

$D - W = 2.106$  $D - W = 2.124$  $D - W = 2.039$  $D - W = 2.053$
Table 26.1

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB 27 ≥ 40%

(Number of sectors: 91)

Where the quantitative restrictions index is:

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<td>Equation T1, Qb</td>
<td>Equation T1, Qc</td>
<td>Equation T1, Qd</td>
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<td>+11.292d (1.3520)</td>
<td>+11.171d (1.3229)</td>
</tr>
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<td>-39.466a (4.4465)</td>
<td>-40.508a (4.4193)</td>
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<td>+4.0131 (0.4892)</td>
<td>+3.990 (0.4824)</td>
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adj. $R^2 = 0.364$  adj. $R^2 = 0.375$  adj. $R^2 = 0.382$  adj. $R^2 = 0.372$

$F = 6.738$  $F = 7.016$  $F = 7.193$  $F = 0.929$

$D - W = 2.074$  $D - W = 2.078$  $D - W = 2.106$  $D - W = 2.1154$
Table 26.11a

Determinants of import duties: OLS estimations

Dependent variable: ANTA37
Sectors excluded: Those where SHSB27 > 40%
(Number of sectors: 91)

Where the quantitative restrictions index is:

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<td>(0.4992)</td>
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</table>

adj. $R^2 = 0.360$  adj. $R^2 = 0.369$  adj. $R^2 = 0.375$  adj. $R^2 = 0.364$


$D - W = 2.078$  $D - W = 2.079$  $D - W = 2.105$  $D - W = 2.114$
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERCEPT</strong></td>
<td>+11.122\textsuperscript{d} (1.3019)</td>
<td>+10.403\textsuperscript{e} (1.2299)</td>
<td>+11.187\textsuperscript{d} (1.3412)</td>
<td>10.970\textsuperscript{d} (1.3011)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-26.384\textsuperscript{a} (2.6680)</td>
<td>-26.430\textsuperscript{a} (2.7087)</td>
<td>-27.586\textsuperscript{a} (2.8571)</td>
<td>-27.546\textsuperscript{a} (2.8298)</td>
</tr>
<tr>
<td>NAIRN47</td>
<td>-37.209\textsuperscript{a} (4.0022)</td>
<td>-40.344\textsuperscript{a} (4.3921)</td>
<td>-42.559\textsuperscript{a} (4.5815)</td>
<td>-44.026\textsuperscript{a} (4.5584)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+2.587 (0.2906)</td>
<td>+2.5000 (0.2991)</td>
<td>+2.540 (0.3062)</td>
<td>+2.472 (0.2956)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.272\textsuperscript{a} (2.6080)</td>
<td>+0.274\textsuperscript{a} (2.6581)</td>
<td>+0.278\textsuperscript{a} (2.7168)</td>
<td>+0.281\textsuperscript{a} (2.7298)</td>
</tr>
<tr>
<td>BUIC17</td>
<td>-0.081 (0.1039)</td>
<td>-0.087 (0.1186)</td>
<td>-0.149 (0.1958)</td>
<td>-0.188 (0.2450)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.030\textsuperscript{d} (1.3506)</td>
<td>-0.031\textsuperscript{d} (1.4250)</td>
<td>-0.029\textsuperscript{d} (1.3414)</td>
<td>-0.028\textsuperscript{e} (1.3018)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.180\textsuperscript{d} (1.5897)</td>
<td>+0.184\textsuperscript{d} (1.6380)</td>
<td>+0.170\textsuperscript{d} (1.5349)</td>
<td>+0.176\textsuperscript{d} (1.5726)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-14.275\textsuperscript{c} (1.9815)</td>
<td>-14.370\textsuperscript{b} (2.0350)</td>
<td>-15.941\textsuperscript{b} (2.3033)</td>
<td>-16.019\textsuperscript{b} (2.2957)</td>
</tr>
<tr>
<td><strong>Quantitative restrictions index</strong></td>
<td>+11.308\textsuperscript{c} (1.9988)</td>
<td>+12.668\textsuperscript{a} (2.4335)</td>
<td>+9.796\textsuperscript{a} (2.6749)</td>
<td>+8.537\textsuperscript{a} (2.4068)</td>
</tr>
<tr>
<td>EXPL17</td>
<td>+7.420 (0.7428)</td>
<td>+9.825 (0.9853)</td>
<td>+11.085\textsuperscript{e} (1.1117)</td>
<td>+11.527\textsuperscript{e} (1.1376)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.361$ \hspace{1cm} adj. $R^2 = 0.375$ \hspace{1cm} adj. $R^2 = 0.384$ \hspace{1cm} adj. $R^2 = 0.374$

$F = 6.086$ \hspace{1cm} $F = 6.409$ \hspace{1cm} $F = 6.616$ \hspace{1cm} $F = 6.388$

$D - W = 2.074$ \hspace{1cm} $D - W = 2.077$ \hspace{1cm} $D - W = 2.104$ \hspace{1cm} $D - W = 2.109$
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%
(Number of sectors: 91)

Where the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+3.3952 (0.4305)</td>
<td>+1.682 (0.1854)</td>
<td>+0.791 (0.0883)</td>
<td>-0.365 (0.0406)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-13.562e (1.2162)</td>
<td>-10.696e (0.9713)</td>
<td>-8.909 (0.8207)</td>
<td>-7.497 (0.6829)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-34.272a (3.8892)</td>
<td>-37.503a (4.2871)</td>
<td>-39.349a (4.5494)</td>
<td>-41.701a (4.7027)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+5.294 (0.6351)</td>
<td>+5.734 (0.7025)</td>
<td>+6.331 (0.7901)</td>
<td>+6.464 (0.8043)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.278a (2.7432)</td>
<td>+0.278a (2.8036)</td>
<td>+0.281a (2.8949)</td>
<td>+0.285c (2.9283)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.146 (0.1921)</td>
<td>+0.201 (0.2694)</td>
<td>+0.177 (0.2424)</td>
<td>+0.152 (0.2217)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.024 (0.0852)</td>
<td>-0.026e (1.1866)</td>
<td>-0.023e (1.0798)</td>
<td>-0.022e (1.0633)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.271b (2.2330)</td>
<td>+0.292a (2.4447)</td>
<td>+0.296a (2.5300)</td>
<td>+0.312a (2.6453)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-18.560a (2.6068)</td>
<td>-19.005a (2.7659)</td>
<td>-21.183a (3.1712)</td>
<td>-21.495a (3.2098)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+10.776c (1.9561)</td>
<td>+13.613a (2.7137)</td>
<td>+11.703a (3.2640)</td>
<td>+11.178a (3.1912)</td>
</tr>
<tr>
<td>EXPORT7</td>
<td>+0.0007c (1.9571)</td>
<td>+0.0008c (1.8073)</td>
<td>+0.0009c (1.9134)</td>
<td>+0.0009b (2.0409)</td>
</tr>
<tr>
<td>FREA</td>
<td>-0.0003b (2.2854)</td>
<td>-0.0004a (2.6105)</td>
<td>-0.0004a (2.9334)</td>
<td>-0.0005a (3.0649)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+1.10^{-9}d (1.3253)</td>
<td>+1.10^{-9}d (1.4039)</td>
<td>+1.10^{-9}d (1.5021)</td>
<td>+1.10^{-9}d (1.5549)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.393$  adj. $R^2 = 0.419$  adj. $R^2 = 0.440$  adj. $R^2 = 0.437$
$F = 5.875$  $F = 6.410$  $F = 6.907$  $F = 6.836$
$D - W = 2.031$  $D - W = 2.010$  $D - W = 2.033$  $D - W = 2.036$
Table 26.IVb
Determinants of import duties: OLS estimations

Dependent variable = ANTAR7
Sectors excluded: Those where SHSB27 \( \geq \) 40%
(Number of sectors: 91)

Where the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th>SHCU27 Equation T10,Qa</th>
<th>QUNW27 Equation T10,Qb</th>
<th>QWE217 Equation T10,Qc</th>
<th>SPATT7 Equation T10,Qd</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+3.463 (0.3706)</td>
<td>+1.403 (0.1516)</td>
<td>+0.575 (0.0632)</td>
<td>-0.410 (0.0444)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-16.536(^d) (1.4598)</td>
<td>-14.403(^e) (1.2878)</td>
<td>-12.942(^e) (1.1742)</td>
<td>-12.047(^e) (1.0818)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-33.107(^a) (3.5816)</td>
<td>-36.571(^a) (3.9586)</td>
<td>-38.678(^a) (4.2212)</td>
<td>-40.820(^a) (4.3239)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+6.302 (0.7350)</td>
<td>+6.5326 (0.7759)</td>
<td>+6.961(^e) (0.8415)</td>
<td>+7.068(^e) (0.8500)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.274(^a) (2.6535)</td>
<td>+0.275(^a) (2.7190)</td>
<td>+0.280(^a) (2.8123)</td>
<td>+0.284(^a) (2.8392)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.034 (0.0445)</td>
<td>+0.059 (0.0777)</td>
<td>+0.024 (0.0323)</td>
<td>-0.007 (0.0095)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.021(^e) (0.9174)</td>
<td>-0.022(^e) (0.9818)</td>
<td>-0.018(^e) (0.8668)</td>
<td>-0.018(^e) (0.8282)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.282(^a) (2.2752)</td>
<td>+0.300(^a) (2.4570)</td>
<td>+0.303(^a) (2.5291)</td>
<td>+0.318(^a) (2.6237)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-17.291(^a) (2.3687)</td>
<td>-17.440(^a) (2.4651)</td>
<td>-19.364(^a) (2.8218)</td>
<td>-19.519(^a) (2.8306)</td>
</tr>
<tr>
<td>Quantitative</td>
<td>+10.576(^c) (1.8842)</td>
<td>+13.170(^a) (2.5587)</td>
<td>+11.435(^a) (3.0968)</td>
<td>+10.669(^a) (2.9498)</td>
</tr>
<tr>
<td>restrictions</td>
<td>index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPI17</td>
<td>+3.799 (0.3491)</td>
<td>+5.6740 (0.5691)</td>
<td>+7.034 (0.7145)</td>
<td>+7.779 (0.7812)</td>
</tr>
<tr>
<td>FREVA</td>
<td>-0.0003(^c) (1.9470)</td>
<td>-0.0003(^b) (2.1843)</td>
<td>-0.0004(^a) (2.4602)</td>
<td>-0.0004(^a) (2.5491)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+2.10(^{-9})(^c) (1.8438)</td>
<td>+2.10(^{-9})(^c) (1.9491)</td>
<td>+2.10(^{-9})(^b) (2.0559)</td>
<td>+2.10(^{-9})(^b) (2.1296)</td>
</tr>
</tbody>
</table>

adj. \( R^2 \) = 0.375 adj. \( R^2 \) = 0.397 adj. \( R^2 \) = 0.418 adj. \( R^2 \) = 0.412
\( F \) = 5.501 \( F \) = 5.942 \( F \) = 6.390 \( F \) = 6.259
\( D - W \) = 2.042 \( D - W \) = 2.017 \( D - W \) = 2.029 \( D - W \) = 2.034
Table 27.I

Determinants of import duties: OLS estimations

Dependent variable = ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%
(Number of sectors: 91)

Where the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th>SHCU27 Equation T2.Qa</th>
<th>QUNW27 Equation T2.Qb</th>
<th>QME217 Equation T2.Qc</th>
<th>SPATT7 Equation T2.Qd</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+5.253 (0.6198)</td>
<td>+4.676 (0.5554)</td>
<td>+5.464 (0.6558)</td>
<td>+5.280 (0.6265)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-22.415b (2.2257)</td>
<td>-22.456b (2.2514)</td>
<td>-23.553b (2.3773)</td>
<td>-23.473b (2.3503)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-35.411a (3.9300)</td>
<td>-38.827a (4.2714)</td>
<td>-40.540a (4.4175)</td>
<td>-41.611b (4.3893)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+9.002e (1.0831)</td>
<td>+9.238e (1.1206)</td>
<td>+9.489e (1.1559)</td>
<td>+9.529e (1.1508)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUVC17</td>
<td>-0.268 (0.3359)</td>
<td>-0.271 (0.3433)</td>
<td>-0.332 (0.4242)</td>
<td>-0.373 (0.4735)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.034d (1.4870)</td>
<td>-0.035d (1.5479)</td>
<td>-0.033d (1.4638)</td>
<td>-0.032 (1.4169)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.314a (3.0048)</td>
<td>+0.317a (3.0599)</td>
<td>+0.305a (2.9690)</td>
<td>+0.312a (3.0023)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-17.026b (2.3261)</td>
<td>-17.480a (2.4338)</td>
<td>-19.188a (2.7165)</td>
<td>-19.356a (2.7174)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+11.865b (2.0461)</td>
<td>+12.534b (2.3652)</td>
<td>+9.368a (2.5191)</td>
<td>+7.881b (2.2043)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.321$  adj. $R^2 = 0.332$  adj. $R^2 = 0.338$  adj. $R^2 = 0.327$


$D - W = 2.026$  $D - W = 2.044$  $D - W = 2.078$  $D - W = 2.082$
Table 27.IIa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 $\geq$ 40%
(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
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<th></th>
<th>SHCU27 Equation T5.Qa</th>
<th>QUNW27 Equation T5.Qb</th>
<th>QWE217 Equation T5.Qc</th>
<th>SPATT7 Equation T5.Qd</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+6.023 (0.7019)</td>
<td>+5.250 (0.6137)</td>
<td>+5.690 (0.6699)</td>
<td>+5.567 (0.6476)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-23.572b (2.2996)</td>
<td>-23.278b (2.2854)</td>
<td>-23.839b (2.3533)</td>
<td>-23.855b (2.3336)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-36.837a (3.9667)</td>
<td>-39.743a (4.2482)</td>
<td>-40.829a (4.3450)</td>
<td>-41.941a (4.3351)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+8.603e (1.0290)</td>
<td>+8.973e (1.0805)</td>
<td>+9.389e (1.1338)</td>
<td>+9.404e (1.1259)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.242 (0.3022)</td>
<td>-0.258 (0.3257)</td>
<td>-0.328 (0.4170)</td>
<td>-0.369 (0.4647)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.036d (1.5534)</td>
<td>-0.036d (1.5791)</td>
<td>-0.033d (1.4641)</td>
<td>-0.033d (1.4211)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.304a (2.8780)</td>
<td>+0.310a (2.9498)</td>
<td>+0.303a (2.8956)</td>
<td>+0.309a (2.9198)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-16.991b (2.3135)</td>
<td>-17.524a (2.4279)</td>
<td>-19.208a (2.7028)</td>
<td>-19.380a (2.7045)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+12.104b (2.0764)</td>
<td>+12.435b (2.3330)</td>
<td>+9.271b (2.4482)</td>
<td>+7.765b (2.1317)</td>
</tr>
<tr>
<td>EXPORT7</td>
<td>$+1.10^{-4}$ (0.6718)</td>
<td>$+1.10^{-4}$ (0.4532)</td>
<td>$+4.10^{-5}$ (0.1647)</td>
<td>$+6.10^{-5}$ (0.2021)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.317$  adj. $R^2 = 0.326$  adj. $R^2 = 0.330$  adj. $R^2 = 0.319$

$F = 5.646$  $F = 5.840$  $F = 5.935$  $F = 5.686$

$D - W = 2.0335$  $D - W = 2.048$  $D - W = 2.078$  $D - W = 2.082$
Table 27.11b
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 $\geq$ 40%
(Number of sectors: 91)

When the quantitative restrictions index is:

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<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
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<td>+4.421</td>
<td>+5.200</td>
<td>+4.935</td>
</tr>
<tr>
<td></td>
<td>(0.6033)</td>
<td>(0.5230)</td>
<td>(0.6224)</td>
<td>(0.5837)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-22.590$^b$</td>
<td>-22.671$^b$</td>
<td>-23.839$^a$</td>
<td>-23.761$^b$</td>
</tr>
<tr>
<td></td>
<td>(2.2309)</td>
<td>(2.2651)</td>
<td>(2.4018)</td>
<td>(2.3735)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-36.583$^a$</td>
<td>-40.775$^a$</td>
<td>-42.936$^a$</td>
<td>-44.337$^a$</td>
</tr>
<tr>
<td></td>
<td>(3.8976)</td>
<td>(4.2823)</td>
<td>(4.4506)</td>
<td>(4.4184)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+8.439$^e$</td>
<td>+8.401$^e$</td>
<td>+8.538$^e$</td>
<td>+8.548$^e$</td>
</tr>
<tr>
<td></td>
<td>(1.0004)</td>
<td>(1.0058)</td>
<td>(1.0277)</td>
<td>(1.0205)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.300</td>
<td>-0.314</td>
<td>-0.384</td>
<td>-0.428</td>
</tr>
<tr>
<td></td>
<td>(0.3729)</td>
<td>(0.3956)</td>
<td>(0.4887)</td>
<td>(0.4027)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.013$^d$</td>
<td>-0.035$^d$</td>
<td>-0.032$^d$</td>
<td>-0.031$^d$</td>
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<td>(1.4550)</td>
<td>(1.5138)</td>
<td>(1.4278)</td>
<td>(1.3855)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.314$^a$</td>
<td>+0.318$^a$</td>
<td>+0.306$^a$</td>
<td>+0.313$^a$</td>
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<tr>
<td></td>
<td>(2.9922)</td>
<td>(3.0584)</td>
<td>(2.9663)</td>
<td>(3.0079)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-16.649$^b$</td>
<td>-16.865$^a$</td>
<td>-18.570$^a$</td>
<td>-18.700</td>
</tr>
<tr>
<td></td>
<td>(2.2506)</td>
<td>(2.3242)</td>
<td>(2.6090)</td>
<td>(2.6051)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+12.102$^b$</td>
<td>+13.182$^b$</td>
<td>+9.992$^a$</td>
<td>+8.611$^b$</td>
</tr>
<tr>
<td></td>
<td>(2.0693)</td>
<td>(2.4441)</td>
<td>(2.6275)</td>
<td>(2.3366)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>+4.870</td>
<td>+7.133</td>
<td>+8.463</td>
<td>+8.815</td>
</tr>
<tr>
<td></td>
<td>(0.4732)</td>
<td>(0.7098)</td>
<td>(0.8211)</td>
<td>(0.8413)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.353$  adj. $R^2 = 0.328$  adj. $R^2 = 0.335$  adj. $R^2 = 0.324$
$F = 5.605$  $F = 5.895$  $F = 6.054$  $F = 5.807$
$D - W = 2.019$  $D - W = 2.035$  $D - W = 2.068$  $D - W = 2.069$
Table 27.IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 > 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th>SHCU27</th>
<th>QUINW27</th>
<th>QWE217</th>
<th>SPATT7</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-1.924</td>
<td>-4.288</td>
<td>-5.122</td>
</tr>
<tr>
<td></td>
<td>(0.2072)</td>
<td>(0.4579)</td>
<td>(0.5651)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-10.505e</td>
<td>-7.562</td>
<td>-5.792</td>
</tr>
<tr>
<td></td>
<td>(0.0900)</td>
<td>(0.6622)</td>
<td>(0.5129)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-35.202a</td>
<td>-38.554a</td>
<td>-40.364a</td>
</tr>
<tr>
<td></td>
<td>(3.8422)</td>
<td>(4.2314)</td>
<td>(4.6686)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+10.961d</td>
<td>+11.436d</td>
<td>+12.120d</td>
</tr>
<tr>
<td></td>
<td>(1.3043)</td>
<td>(1.3877)</td>
<td>(1.4936)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.103</td>
<td>-0.054</td>
<td>-0.088</td>
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<tr>
<td></td>
<td>(0.1307)</td>
<td>(0.699)</td>
<td>(0.1162)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.028e</td>
<td>-0.029e</td>
<td>-0.026e</td>
</tr>
<tr>
<td></td>
<td>(1.1896)</td>
<td>(1.2758)</td>
<td>(1.1607)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.404a</td>
<td>0.426a</td>
<td>+0.431a</td>
</tr>
<tr>
<td></td>
<td>(3.4881)</td>
<td>(3.7266)</td>
<td>(3.8341)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-20.586a</td>
<td>-21.175a</td>
<td>-23.497a</td>
</tr>
<tr>
<td></td>
<td>(2.7940)</td>
<td>(2.9748)</td>
<td>(3.3883)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+11.714b</td>
<td>+14.261a</td>
<td>+11.994a</td>
</tr>
<tr>
<td></td>
<td>(2.0476)</td>
<td>(2.7297)</td>
<td>(3.2003)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.343$ \ adj. $R^2 = 0.368$ \ adj. $R^2 = 0.388$ \ adj. $R^2 = 0.383$

$F = 5.288$ \ $F = 5.777$ \ $F = 6.195$ \ $F = 6.094$

$D - W = 1.992$ \ $D - W = 1.997$ \ $D - W = 2.035$ \ $D - W = 2.039$
Table 27.IVb

Determinants of import duties: OLS estimations

Dependent variable = ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

Where the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-2.4308 (0.2581)</td>
<td>-4.533 (0.4848)</td>
<td>-5.377 (0.5829)</td>
<td>-6.395 (0.6827)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-12.966e (1.1111)</td>
<td>-10.774e (0.9332)</td>
<td>-9.310 (0.8157)</td>
<td>-8.417 (0.7290)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-33.514a (3.4950)</td>
<td>-37.064a (3.8595)</td>
<td>-39.097a (4.0923)</td>
<td>-41.169a (4.1786)</td>
</tr>
<tr>
<td>LARI17</td>
<td>+12.149d (1.4131)</td>
<td>+12.445d (1.4716)</td>
<td>+12.981d (1.5579)</td>
<td>+13.174d (1.5714)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.1865 (0.2331)</td>
<td>-0.169 (0.2158)</td>
<td>-0.213 (0.2767)</td>
<td>-0.250 (0.3238)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.024e (1.0398)</td>
<td>-0.025e (1.0906)</td>
<td>-0.022e (0.9708)</td>
<td>-0.021e (0.9307)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.415a (3.5260)</td>
<td>0.434a (3.7345)</td>
<td>+0.439a (3.8305)</td>
<td>+0.455a (3.9218)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.626a (2.6104)</td>
<td>-19.926a (2.7318)</td>
<td>-21.992a (3.1020)</td>
<td>-22.199a (3.1137)</td>
</tr>
<tr>
<td>Quantitative restrictions index</td>
<td>+11.394c (1.9596)</td>
<td>+13.666a (2.5555)</td>
<td>+11.600a (3.0128)</td>
<td>+10.696a (2.8334)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>+0.9764c (0.093)</td>
<td>+3.1643 (0.3060)</td>
<td>+4.4074c (0.4313)</td>
<td>+5.051 (0.4883)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>-3.10-4c (1.8541)</td>
<td>-3.10-4b (2.0900)</td>
<td>-4.10-4b (2.3498)</td>
<td>-4.10-4a (2.4295)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+2.10-9c (1.7709)</td>
<td>+2.10-9c (1.8747)</td>
<td>+2.10-9c (1.9730)</td>
<td>+2.10-9b (2.0416)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.327$ adj. $R^2 = 0.348$ adj. $R^2 = 0.367$ adj. $R^2 = 0.359$
$F = 4.980$ $F = 5.376$ $F = 5.749$ $F = 5.595$
$D - W = 1.991$ $D - W = 1.985$ $D - W = 2.011$ $D - W = 2.014$
Table 28.1

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 > 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th>Variable</th>
<th>DUMSC7 Equation T12.0b</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T12.0d</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+12.221d</td>
<td>+11.669d</td>
</tr>
<tr>
<td></td>
<td>(1.4754)</td>
<td>(1.4002)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-24.298a</td>
<td>-27.481a</td>
</tr>
<tr>
<td></td>
<td>(2.4987)</td>
<td>(2.8484)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-37.485e</td>
<td>-38.071a</td>
</tr>
<tr>
<td></td>
<td>(4.3232)</td>
<td>(4.3501)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+6.634</td>
<td>+5.059</td>
</tr>
<tr>
<td></td>
<td>(0.8037)</td>
<td>(0.6153)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.250a</td>
<td>(0.263a</td>
</tr>
<tr>
<td></td>
<td>(2.4535)</td>
<td>(2.5828)</td>
</tr>
<tr>
<td>BUJC17</td>
<td>+0.043</td>
<td>+0.026</td>
</tr>
<tr>
<td></td>
<td>(0.0567)</td>
<td>(0.0343)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.041c</td>
<td>-0.040c</td>
</tr>
<tr>
<td></td>
<td>(1.7997)</td>
<td>(1.7560)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.135e</td>
<td>+0.162e</td>
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<tr>
<td></td>
<td>(1.2223)</td>
<td>(1.4593)</td>
</tr>
<tr>
<td>IMPI17</td>
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</tr>
<tr>
<td></td>
<td>(2.5338)</td>
<td>(2.9548)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.566a</td>
<td>+5.046a</td>
</tr>
<tr>
<td></td>
<td>(2.6315)</td>
<td>(2.5092)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.387$  adj. $R^2 = 0.382$

$F = 7.317$  $F = 7.200$

$D - W = 2.069$  $D - W = 2.070$
Table 28.11a

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
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<tr>
<th></th>
<th>DUMSC7 Equation T3. Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T3. Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+12.464\textsuperscript{d} (1.4780)</td>
<td>+12.206\textsuperscript{d} (1.4414)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-24.669\textsuperscript{a} (2.4718)</td>
<td>-28.234\textsuperscript{a} (2.8658)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-37.825\textsuperscript{e} (4.2458)</td>
<td>-38.893\textsuperscript{a} (4.3218)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+6.488 (0.7779)</td>
<td>+4.789 (0.5779)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.251\textsuperscript{a} (2.4428)</td>
<td>(0.264\textsuperscript{a} (2.5753)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.046 (0.0598)</td>
<td>+0.036 (0.0476)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>+0.041\textsuperscript{c} (1.7971)</td>
<td>+0.041\textsuperscript{c} (1.7783)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.133\textsuperscript{e} (1.8493)</td>
<td>+0.155\textsuperscript{e} (1.3846)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.502\textsuperscript{a} (2.5531)</td>
<td>+4.987\textsuperscript{a} (2.4621)</td>
</tr>
<tr>
<td>EXPOR7</td>
<td>+5.10^{-5} (0.1877)</td>
<td>+1.10^{-4} (0.4319)</td>
</tr>
</tbody>
</table>

\textbf{adj. R}^2 = 0.379 \quad \textbf{adj. R}^2 = 0.376

F = 6.510 \quad F = 6.434

D - W = 2.0710 \quad D - W = 2.070
Table 28.IIb
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

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</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+12.243d</td>
<td>+11.573d</td>
</tr>
<tr>
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<td>(1.4772)</td>
<td>(1.3918)</td>
</tr>
<tr>
<td>PRORI7</td>
<td>-24.659a</td>
<td>-28.094a</td>
</tr>
<tr>
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<td>(2.5327)</td>
<td>(2.9145)</td>
</tr>
<tr>
<td>NAINT47</td>
<td>-39.875a</td>
<td>-41.261a</td>
</tr>
<tr>
<td></td>
<td>(4.4177)</td>
<td>(4.5125)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+5.497</td>
<td>+3.612</td>
</tr>
<tr>
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<td>(0.6587)</td>
<td>(0.4354)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.259a</td>
<td>(0.275a</td>
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<tr>
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<td>(2.5284)</td>
<td>(2.6872)</td>
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<tr>
<td>BUUC17</td>
<td>-0.004</td>
<td>-0.022</td>
</tr>
<tr>
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<td>(0.0052)</td>
<td>(0.0293)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.040c</td>
<td>-0.040c</td>
</tr>
<tr>
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<td>(1.7716)</td>
<td>(1.7576)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.129e</td>
<td>+0.155e</td>
</tr>
<tr>
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<td>(1.1606)</td>
<td>(1.4022)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-16.629a</td>
<td>-19.950a</td>
</tr>
<tr>
<td></td>
<td>(2.4130)</td>
<td>(2.8698)</td>
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<tr>
<td>Dummy variable</td>
<td>+5.840a</td>
<td>+5.573a</td>
</tr>
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<td>(2.7349)</td>
<td>(2.7109)</td>
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<tr>
<td>EXPI17</td>
<td>+9.437e</td>
<td>+11.756e</td>
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<tr>
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<td>(0.9585)</td>
<td>(1.1748)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.386$  adj. $R^2 = 0.385$
$F = 6.671$          $F = 6.649$
$D - W = 2.066$      $D - W = 2.061$
Table 28.IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB 27 ≥ 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
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<tr>
<th>Variable</th>
<th>DUMSC7 Equation T9.Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T9.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+4.784d (0.5301)</td>
<td>+2.528 (0.2820)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-11.978e (1.0824)</td>
<td>-12.401e (1.1401)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-35.972a (4.1061)</td>
<td>-37.370a (4.3028)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+8.378e (1.0063)</td>
<td>+7.540e (0.9247)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>+0.264a (2.6308)</td>
<td>(0.276a (2.8020)</td>
</tr>
<tr>
<td>BUYC17</td>
<td>+0.184 (0.2448)</td>
<td>+0.259 (0.3478)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.031d (1.3798)</td>
<td>-0.033d (1.4717)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.230e (1.9153)</td>
<td>+0.271b (2.2901)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-20.798a (3.0246)</td>
<td>-24.938a (3.6277)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.0937a (2.4121)</td>
<td>+5.607a (2.8655)</td>
</tr>
<tr>
<td>EXPORT7</td>
<td>+5.10^{-4}e (1.2005)</td>
<td>+7.10^{-4}e (1.5788)</td>
</tr>
<tr>
<td>FREVAt</td>
<td>-3.10^{-4}b (2.2277)</td>
<td>-4.10^{-4}a (2.7091)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+1.10^{-9}d (1.3462)</td>
<td>+1.10^{-9}d (1.6290)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.408$  
adj. $R^2 = 0.424$

$F = 6.176$  
$F = 6.538$

$D - W = 2.012$  
$D - W = 1.989$
Table 28.IVb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSP27 > 40%
(91 sectors)

When the quantitative restrictions index is:

<table>
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<th>DUMSC7 Equation T10.Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T10.Db</th>
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</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+4.542 (0.4987)</td>
<td>+2.223 (0.2447)</td>
</tr>
<tr>
<td>PRORI7</td>
<td>-14.294e (1.2807)</td>
<td>-15.794d (1.4353)</td>
</tr>
<tr>
<td>NAIR47</td>
<td>-36.164a (3.9387)</td>
<td>-37.572a (4.1004)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+8.904e (1.0544)</td>
<td>+7.9032e (0.9481)</td>
</tr>
<tr>
<td>ATRI17</td>
<td>+0.262a (2.5813)</td>
<td>(0.276a (2.7554)</td>
</tr>
<tr>
<td>BUIC17</td>
<td>+0.106 (0.1395)</td>
<td>+0.138 (0.1834)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.030d (1.3257)</td>
<td>-0.030d (1.3427)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.231c (1.8932)</td>
<td>+0.275c (2.9291)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.460a (2.7914)</td>
<td>-23.411a (3.3587)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.599a (2.6278)</td>
<td>+5.893a (2.9140)</td>
</tr>
<tr>
<td>EXP117</td>
<td>+5.508 (0.5535)</td>
<td>+7.596 (0.7625)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>-3.10^{-4}c (1.9046)</td>
<td>-3.10^{-4}b (2.3099)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+1.10^{-9}c (1.6813)</td>
<td>+2.10^{-9}b (2.0917)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.399$
adj. $R^2 = 0.410$
$F = 5.995$
$F = 6.229$
$D-W = 2.023$
$D-W = 2.004$
Table 29.I
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where \( SHSB27 \geq 40\% \)

(\text{Number of sectors: 91})

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th>DUMSC7</th>
<th>DUMUN7 = DUMWE7 = DUMSP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation T2.Da</td>
<td>DUMUN7</td>
<td>Equation T2.Db</td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>6.757</td>
<td>5.911</td>
</tr>
<tr>
<td></td>
<td>(0.8221)</td>
<td>(0.7119)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-20.716</td>
<td>-24.030</td>
</tr>
<tr>
<td></td>
<td>(2.0918)</td>
<td>(2.4323)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-38.598</td>
<td>-39.129</td>
</tr>
<tr>
<td></td>
<td>(4.3272)</td>
<td>(4.3287)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+11.998</td>
<td>+10.523</td>
</tr>
<tr>
<td></td>
<td>(1.4631)</td>
<td>(1.2808)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.160</td>
<td>-0.203</td>
</tr>
<tr>
<td></td>
<td>(0.2055)</td>
<td>(0.2584)</td>
</tr>
<tr>
<td>NU0UT7</td>
<td>-0.045</td>
<td>-0.043</td>
</tr>
<tr>
<td></td>
<td>(1.9195)</td>
<td>(1.8418)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>0.253</td>
<td>+0.289</td>
</tr>
<tr>
<td></td>
<td>(2.4617)</td>
<td>(2.8195)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.516</td>
<td>-23.031</td>
</tr>
<tr>
<td></td>
<td>(2.790 )</td>
<td>(3.2363)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>6.084</td>
<td>5.321</td>
</tr>
<tr>
<td></td>
<td>(2.8061)</td>
<td>(2.5629)</td>
</tr>
</tbody>
</table>

\( \text{adj. } R^2 = 0.349 \) \quad \text{adj. } R^2 = 0.340

\( F = 7.048 \) \quad \text{F} = 6.796

\( D - W = 2.050 \) \quad \text{D - W} = 2.053
Table 29.IIa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 > 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th>DUMSC7 Equation T5.Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T5.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+6.911 (0.8261)</td>
<td>+6.394 (0.7575)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-20.959b (2.0624)</td>
<td>-24.717a (2.4496)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-38.826a (4.2348)</td>
<td>-39.888a (4.2898)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+11.908d (1.4375)</td>
<td>+10.285e (1.2420)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.159 (0.2023)</td>
<td>-0.194 (0.2454)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.045c (1.9118)</td>
<td>-0.044c (1.8591)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.252a (2.4161)</td>
<td>+0.284a (2.7252)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.528a (2.7748)</td>
<td>-23.002a (3.2183)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+6.042a (2.7359)</td>
<td>+5.268a (5.5185)</td>
</tr>
<tr>
<td>EXPOR7</td>
<td>+3.10^{-5} (0.1213)</td>
<td>+1.10^{-4} (0.3847)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.341$  adj. $R^2 = 0.333$

$F = 6.191$  $F = 5.995$

$- W = 2.051$  $D - W = 2.547$
Table 29.IIb

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB 27 > 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th></th>
<th>DUMSC7 Equation T6, Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T6, Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>+6.626 (0.8035)</td>
<td>+5.643 (0.6783)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-20.896b (2.1028)</td>
<td>-24.397a (2.4643)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-40.452a (4.3409)</td>
<td>-41.673a (4.3927)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+11.274d (1.3603)</td>
<td>+9.567d (1.1534)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.202 (0.2573)</td>
<td>-0.249 (0.3158)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.0454 (1.8981)</td>
<td>-0.043c (1.8423)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.252a (2.4360)</td>
<td>+0.288a (2.8078)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-19.025a (2.6988)</td>
<td>-22.654a (3.1739)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>6.307a (2.8706)</td>
<td>5.746a (2.6946)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>7.202 (0.7112)</td>
<td>9.2462 (0.8944)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.345$  adj. $R^2 = 0.338$
$F = 6.283$  $F = 6.115$
$D - W = 2.041$  $D - W = 2.037$
Table 29.IVa

Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation T11.Da</th>
<th>Equation T11.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-0.737 (0.0810)</td>
<td>-3.311 (0.3642)</td>
</tr>
<tr>
<td>PRORI7</td>
<td>-8.852 (0.7760)</td>
<td>-9.363 (0.8299)</td>
</tr>
<tr>
<td>NA1N47</td>
<td>-37.078a (4.0869)</td>
<td>-38.411a (4.2464)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+14.081c (1.6894)</td>
<td>+13.297d (1.6163)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.040 (0.0515)</td>
<td>-0.008 (0.0108)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.036e (1.1583)</td>
<td>-0.036d (1.5612)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.352a (3.0544)</td>
<td>+0.403a (3.5604)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-22.868a (3.2288)</td>
<td>-27.377a (3.8514)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+5.686a (2.6123)</td>
<td>5.876a (2.841)</td>
</tr>
<tr>
<td>EXPOR7</td>
<td>-5.10⁻⁴e (1.0035)</td>
<td>+6.10⁻⁴d (1.3878)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>-3.10⁻⁴b (2.0520)</td>
<td>-4.10⁻⁴a (2.5286)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+1.10⁻⁹e (1.2872)</td>
<td>+1.10⁻⁹d (1.5694)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.364$  adj. $R^2 = 0.374$

$F = 5.683$  $F = 5.906$

$D - W = 1.999$  $D - W = 1.994$
Determinants of import duties: OLS estimations

Dependent variable: ANTAR7
Sectors excluded: Those where SHSB27 ≥ 40%

(Number of sectors: 91)

When the quantitative restrictions index is:

<table>
<thead>
<tr>
<th>Variable</th>
<th>DUMSC7 Equation T12.Da</th>
<th>DUMUN7 = DUMWE7 = DUMSP7 Equation T12.Db</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-0.994</td>
<td>-3.665</td>
</tr>
<tr>
<td></td>
<td>(0.1085)</td>
<td>(0.3988)</td>
</tr>
<tr>
<td>PROR17</td>
<td>-10.696e</td>
<td>-12.226e</td>
</tr>
<tr>
<td></td>
<td>(0.9330)</td>
<td>(1.0750)</td>
</tr>
<tr>
<td>NAIN47</td>
<td>-36.823a</td>
<td>-38.049a</td>
</tr>
<tr>
<td></td>
<td>(3.8755)</td>
<td>(3.9904)</td>
</tr>
<tr>
<td>LABI17</td>
<td>+14.682c</td>
<td>+13.868d</td>
</tr>
<tr>
<td></td>
<td>(1.7417)</td>
<td>(1.6552)</td>
</tr>
<tr>
<td>ATRIN7</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>BUYC17</td>
<td>-0.096</td>
<td>-0.090</td>
</tr>
<tr>
<td></td>
<td>(0.1229)</td>
<td>(0.1161)</td>
</tr>
<tr>
<td>NUOUT7</td>
<td>-0.035d</td>
<td>-0.034d</td>
</tr>
<tr>
<td></td>
<td>(1.4679)</td>
<td>(1.4412)</td>
</tr>
<tr>
<td>NUINP7</td>
<td>+0.353a</td>
<td>+0.408a</td>
</tr>
<tr>
<td></td>
<td>(3.0332)</td>
<td>(3.5682)</td>
</tr>
<tr>
<td>IMPI17</td>
<td>-21.830a</td>
<td>-26.099a</td>
</tr>
<tr>
<td></td>
<td>(3.0515)</td>
<td>(3.6331)</td>
</tr>
<tr>
<td>Dummy variable</td>
<td>+6.072a</td>
<td>+6.069a</td>
</tr>
<tr>
<td></td>
<td>(2.7629)</td>
<td>(2.8799)</td>
</tr>
<tr>
<td>EXPI17</td>
<td>+3.3169</td>
<td>+5.097</td>
</tr>
<tr>
<td></td>
<td>(0.3231)</td>
<td>(0.4936)</td>
</tr>
<tr>
<td>FREVA7</td>
<td>-3.10^{-4}c</td>
<td>-3.10^{-4}b</td>
</tr>
<tr>
<td></td>
<td>(1.8101)</td>
<td>(2.2103)</td>
</tr>
<tr>
<td>SQUVA7</td>
<td>+1.10^{-9}d</td>
<td>+2.10^{-9}b</td>
</tr>
<tr>
<td></td>
<td>(1.6016)</td>
<td>(2.0130)</td>
</tr>
</tbody>
</table>

adj. $R^2 = 0.356$  adj. $R^2 = 0.361$
$F = 5.537$           $F = 5.634$
$D - W = 2.002$       $D - W = 1.993$
substantial difference in the empirical estimates from both samples is
the sign and significance of NUOUT7, the index for forward linkages:
this variable was not significant in the context of the large sample
and its sign varied with the specification of the equation. Yet,
the relationship becomes, as predicted by our model, positive and
highly statistically significant, once the sectors subject to a con-
siderable extent to State trade or trade under individual license
are removed from the sample.
NOTES TO CHAPTER IV


2. Ibid., pp. 124-125.


CHAPTER V: CONCLUSIONS AND SUGGESTIONS FOR FURTHER WORK

The point of departure of this research was the assumption that industry characteristics play a fundamental role in the determination of the degree of import protection that each economic sector receives. Based on that assumption, this dissertation has studied empirically the relationship between import duties and quantitative restrictions in Spain as well as the industry-level determinants of both forms of import barriers.

The investigation of those same issues with regard to developed countries is part of a body of research that has emerged in recent years in the field of international trade. Yet, no attempt has been made until now to extend this area of analysis to non-industrialized countries or to investigate how the determinants of protection differ between DCs and LDCs. This dissertation tries to fill that gap. The attempt is worthwhile since many of the idiosyncrasies (political as well as social and economic) of developing countries might lead one to believe that their economic policies are determined by factors that are radically different from those in industrialized nations. Yet, this dissertation has shown that, once the influence of some of those idiosyncratic characteristics is taken into account, many of the arguments used in the literature to explain the pattern of protection in other countries can also be used to explain that pattern in Spain. Hence, while tariff and non-tariff barriers seem to act as substitutes for each other when all forms of non-tariff barriers are taken into account, they are
shown to be complementary tools for import protection when commodities under State trading and under trade with individual license (two import regimes used, in many cases, for non-standard economic reasons) are excluded from the analysis. This conforms with the findings for the US and the Common Market countries that sectors able to obtain higher import duties have the political clout to obtain protection through global quotas as well.

Furthermore, this research has found that the degree of import protection (whether in the form of import duties or in the form of global quotas) is significantly higher in industries with low profit-output ratios and with a low degree of buyer concentration. These results are consistent with those found in other countries. They are also consistent with our hypotheses which postulated that industries which did not enjoy a comparative advantage as well as those that did not face strong coalitions of purchasing firms were more likely to be successful in obtaining protection. As predicted, the degree of import protection has also been found to be higher in industries which generate numerous backward linkages with the rest of the economy, i.e., sectors whose growth particularly increases the demand for the output produced by other industries. For similar reasons, global quotas have been found to be higher in sectors that generate numerous forward linkages with the rest of the economy, i.e., sectors whose growth particularly create the conditions for the growth of other sectors by providing inputs to them.

For effective protection reasons and, as expected also, import duties are higher in industries that purchase inputs that are
subject to relatively high import duties. Somewhat surprisingly, those industries that generate large volumes of exports tend to be more protected by import duties than other industries. It has been argued in Spain that this reflects a conscious policy on the part of the administration to favor the expansion of the exporting sectors. Yet, since exporting sectors are less likely to be affected by import competition, and thus, to be in need of protection, that explanation is hardly satisfactory. The positive relationship between import duties and the level of exports is more likely to be the result of both the inertia of the policymaking process and of the interest of the administrators in keeping tariff rates at levels higher than necessary, in order to have a bargaining tool for its negotiations with the EEC.

Import duties have been found to be lower while protection through global quotas is higher in sectors with high value added measured at world prices and in sectors which use valued resources intensively. The opposite happens in sectors that use labor intensively. Since the fundamental effects of both quotas and import duties is similar, i.e., to increase domestic prices, it is not immediately obvious why those two types of instruments have been used in this conflicting manner in industries with those characteristics. While this issue is beyond the scope of this research, it merits attention and its investigation in the future should prove useful. It should suffice to say that the use of one instrument rather than other is expected to have been the result of the perception on the part of both of both the administration and of
the concerned industries about the marginal profitability of each instrument.

Originally, the primary objective of this research was to analyze the relationship between a selected group of socio-political variables and the level of protection. Those variables were chosen as indicators of the power over the Spanish economy that "common wisdom" in Spain attributes to the so-called "financial oligarchy". The fundamental assumption behind this part of the analysis was that, if this power did indeed exist and it was successfully exercised, it would manifest itself in the pattern of protection. Although the empirical results are not as robust as those in other parts of the dissertation, one has found some evidence that protection tends to be higher in sectors controlled by that, also called, "ruling class". Hence, while industry concentration has been found not to be, in general, positively and significantly associated with the degree of protection, a related measure, the number of largest Spanish firms in each economic sector is capable of explaining that pattern satisfactorily. Similarly, while the degree of control by the "most powerful families" was not significantly associated with import protection, the relationship is significantly positive once some sectors of particular character are excluded from the analysis.

During numerous interviews that were conducted with administration officials during this research, this author faced considerable skepticism when those officials were told about the goals of this investigation. Many of them, when pressed, recognized
more or less openly the influence that pressure groups have had on the adoption of some policies but insisted it would be impossible to "build a case" that would explain the patterns of protection. In their opinion, the reasons for protection were as varied as the number of economic sectors in the economy, and the specific adoption of policies would often depend on who was friend with whom, or in which industry this Deputy Assistant Secretary or that Director General had worked before becoming part of the administration. This research has partly disproved those claims by showing that there are some general patterns that seem to be able to explain the structure of protection without falling into excessive casual empiricism. Yet, the fact that the investigation has not brought, in several occasions, results that were more significant statistically than expected can, perhaps, be attributed to the personalistic ties that characterized the relationship between administrators and administered in Franco's Spain; to the myriad of instruments of protection and support to firms and economic sectors in a country such as Spain, characterized even after the "liberalization" of industry and trade since the end of 1950s by an interventionist administration; and finally, to problems concerning the data sets.

The regulation of imports is not the only way by which the domestic industry can receive protection. Most economic sectors were heavily subsidized, supported and regulated during the 1960s. Some of that support came in the form of direct government outlays but most came in very different forms and in very different amounts,
from granting land expropriation rights at political prices, to
credits at below-the-market rates. It is not hard to hypothesize
that the granting of these subsidies has been the result of interest
groups pressures, and future research should attempt to determine
the ability of our model to explain the pattern of protection
through subsidies. Yet, much of the data concerning subsidies are
not available and the figures for those that are available encompass
information of government outlays that are not in their totality, at
least, subsidies, per se, but reimbursements of indirect business
taxes for goods that were exported.

This problem with data concerning subsidies is not unique. As
As previous chapters have often stated, the statistical problems
that this dissertation has faced have been considerable and have
been even if not completely, through ingenuity and hard labor.
The statistical sources in Spain are in a serious state of
underdevelopment. Data do not exist on many areas or with a
sufficient degree of disaggregation and, when they do exist, they
are often incomplete and unreliable. Data gathering and their
reliability come only at considerable expense and the Spanish
administrations have not apparently appropriated the value of
such data, or if they did, they have lacked the political will
to incur the costs.

Even with those data limitations, this research could be
extended in the future into several different areas. First, the
import duties equations have estimated the determinants of import
taxes which included not only tariffs but also the indirect taxes
which imported goods have to pay to make them subject to the same
taxes to which Spanish produced goods are supposedly subject. Yet,
as indicated in Chapter II, the indirect taxes to which imports are
subject (ICGI) overestimate considerably the extent of the taxes
paid by domestic producers, and, therefore, they act as an
additional tariff to a substantial extent. Still, it would be
useful to determine the extent of this overestimation in order to
obtain "pure import duties" that would measure more accurately the
extent of protection. Second, it would also be desirable to obtain
through the Leontief inverse of the Input-Output Tables more
accurate measures of linkages than those used in this dissertation.

Finally, it would also prove useful to investigate the
ability of my model to predict the pattern of changes in import
duties and quantitative restrictions over time. Specifically, one
would like to determine how the political change from an authori-
tarian regime to a democratic regime might have affected the pattern
protection.
APPENDIX A

SOME SPECIAL ISSUES IN SPANISH IMPORT POLICY

The purpose of these brief notes is to address some issues specific to a better understanding of Spain's institutional environment and the international setting within which trade liberalization began in 1959 and evolved during the 1960s. Most of these issues were mentioned only in passing in Chapter II but their relevance to the hypotheses postulated in that chapter suggests the usefulness of expanding their treatment.

I. THE OLD 1922 TARIFF AS AN INSTRUMENT OF ECONOMIC POLICY

Can the statement: "Tariffs were not used, prior to 1960, as an instrument of economic policy." (Section V, part C of Chapter II) be documented/justified?

As a result of the Great Depression, most countries instituted non-tariff barriers to supplement the restrictive effects of tariffs. Spain was not an exception. Initially, the quantitative barriers were not, it is said, highly binding but during the Civil War and, thereafter, they became the main instrument to limit international trade and tariffs took a secondary role.¹ Two reasons explain this diminished role of the tariff schedule. First, the tariffs established in 1922 were specific duties and were not significantly changed until their replacement in 1960. Prices increased, however, during this span of almost forty years, and consequently, the ad valorem equivalent of the specific duties steadily decreased. Second, the shortage
of foreign goods, resulting from the quantitative restrictions, was so acute in the 1940s and 1950s that marginal price considerations (such as the increase in price caused by the tariff) were relatively unimportant in the import decision\(^2\). In other words, import demand was very inelastic.

II. **TARIFF VS. NON-TARIFF BARRIERS**

Can the statement: "Since at the time the tariff schedule was being prepared, the trade regime to which each commodity would be assigned was not known, it is unlikely that the original tariff rates were set such as to compensate for lower tariffs with more restrictive non-tariff barriers." (Section V, Part C of Chapter II) be documented/justified?

There is a chronological argument implicit in that statement. The preparation of the 1960 Tariff schedule had started in 1957, i.e., two years before the liberalization measures, which included the establishment of the four trade regimes, were implemented. Hence, the statement that both sets (tariff and non-tariff) of protective measures were set independently. Two pieces of evidence tend to support this assumption. An unsigned article in *Información Comercial Española*, an official publication of the Spanish Ministry of Trade says in a special issue on the new 1960 Tariff that "the Tariff Act was prepared on the assumption that all trade would be free of quantitative restrictions."\(^3\) Furthermore, this was confirmed to this author through personal interviews held with one of the highest officials in the Tariff Revision Board.
It should be noted, however, that by the time the new Tariff Law was enacted, almost 50% of all trade was still subject to quantitative controls. As a result, transitory rates (lower than the definitive ones) were immediately established both for goods that were not expected to be produced in Spain in the near future and for goods subject to quantitative restrictions.

III. THE TARIFF AS A SOURCE OF GOVERNMENT REVENUE

While the tariff is not used as a source of government revenue in most industrialized countries, it is used for this purpose in many LDCs. In these cases, the government becomes an "interest group", one of whose objectives might be the establishment of revenue maximizing tariff rates. Couldn't this be the case for Spain in the 1960s?

Six arguments can at least be used to discount the relevance of the Tariff in Spain as a source of government revenue. First, tariff revenues have represented only 10% of the total taxation revenues in Spain. This does not mean that tariff revenues were or are unimportant but it suggests that, when setting tariff rates, fiscal purposes have had, at most, a secondary importance. Second, if revenue purposes had been important in import policy, one would have expected tariffs to have been used as the primary instrument of import control in goods with more inelastic demand. Yet, one argument used by the administration to justify the use of global quotas, which do not generate revenue for the government, has been the need to protect the Spanish economy from price inelastic imports. Third, even in a period such as that from 1936 to 1957 when government revenues were scarce,
tariff rates were not changed (and, since, as explained before, they were specific duties, their ad valorem equivalents actually decreased). Fourth, while several laws have reformed and modified the Tax System since 1940 none of them include the slightest suggestion about the convenience of changing the tariff rates for fiscal purposes.

Further, while the responsibility for raising taxes falls on the Ministry of Finance, the Ministry of Commerce has the last word in the question of tariff-setting. And, although a member of the General Direction of Customs, which is dependent on the Ministry of Finance, sits on the Tariff Board, this functional division of responsibilities might have reduced the relevance of tariffs in the tax-raising question.

Finally, the Spanish legislation has occasionally addressed this issue. Thus, the foreword of a 1965 decree establishing the reduction of tariff rates on the importation of equipment goods says "...the levels of protection have to be established on the basis of convenience and development of domestic production and (on the basis) of consumption needs, regardless of tariff revenue considerations."  

IV. THE FOUNDATIONS OF THE SPANISH AUTARKYC SYSTEM

Can the ideological and economic arguments for the implementation and eventual failure of the autarkyc system established in Spain after its Civil War be documented/justified?
Protectionist ideas are not something unique to the first period of Franco's rule. The whole 19th century witnessed in Spain a constant polemic between supporters of protection and free-traders. In general, the ideas of the former were more often implemented than the others'.

The reason for this seems to have been the late arrival to Spain of the industrial revolution that took place in Europe during the late XVIII century and early XIX century. This delay led Spanish governments to adopt highly restrictive policies towards imports in an attempt to find in the domestic market the source to economic expansion.5

Although these policies were not uniformly implemented due to the opposition of the "free traders", by the end of the XIX century the protectionists had clearly won the battle as illustrated by the enactment of the Tariff Law of December 31, 1891 ("War Tariff"), the Law of Tariff Principles of 1906 and the 1906 and 1907 Laws for the Protection of National Industries, all of them extremely protectionistic. These protectionist tendencies were reinforced after World War I (when Spain's war neutrality and isolationism allowed her the start of an industrial base) and resulted in the implementation of the Tariff Law of 1922 ("Cambo Tariff"). Finally, the 1929 crash led to further import restrictions. Hence, the autarky ideas of Franco's regime were not a novelty. What gave them special relevance were the ideological foundations upon which they were based.

Autarky and Sindicatos ("vertical", government-controlled trade unions) were conceived as the pivot for the spiritual, social and economic reconstruction of the country "so that Spain could fulfill her
historic mission". Autarky was necessary to achieve freedom (from political, military and economic domination) and Sindicatos, as the instruments to achieve a discipline in production, were necessary to achieve autarky. Sindicatos were justified on the premise that legitimate private interest were to be subordinated to the collective interests of the Motherland. Autarky was justified on the premise that economic concerns were to be subordinated to political concerns. To be against Autarky or against Sindicatos was to be against those premises and to be against those premises was to be against the basic ideology of the State and it was "equivalent to being an enemy of the independence and freedom of Spain".

Still, the aim of Autarky was more than political. It attempted to eliminate, as well, deficits in the balance of trade. For that reason, autarky never meant a complete elimination of foreign trade. The goal was to be self-sufficient in the production of those goods relevant to national security such as arms, transportation (hence, vehicles and fuels), food (hence, nitrogenated fertilizers) and clothing. But it was recognized early on that complete autarky was not possible, that economic autarky had its limits. Specifically, it was understood that:

1. Imports would always be needed for some categories of goods: raw materials, equipment that Spain could hardly produce, technology, many semimanufactured goods, ...

2. To compensate for those imports, the country would have to keep on exporting agricultural goods, as it had done historically.
3. Further, importing and exporting was also necessary in order to fulfill the bilateral agreements Spain had signed in the 1930s.

4. Foreign credits would be needed in order to import, as well, those goods necessary for post-war reconstruction.11

The above paragraphs based on the reflections by the first General Director of Industry in Franco's government after the Civil War seem to indicate that the autarkic principles at the beginning of Franco's period of rule were less radically protectionist than the policies implemented in later years. Therefore, it might be correct to infer that the autarkic policies of the 1940s and 1950s were not as much a natural characteristic of Franco's regime as they were a response (that later became ingrained in the system) to the disruptions caused by World War II and the U.N. blockade-based isolationism of Spain until the early fifties.

In other words, it seems that, even at its beginning, the regime was not firmly opposed to foreign trade. Its main concern was to avoid trade deficits but this did not preclude trade by itself. That those policies became extremely protectionist might have been the result of the international political factors mentioned above, which might have forced Spain to attempt to produce domestically as many goods as possible. Once those international conditions ceased to exist in the early and mid 1950s, domestic political considerations might have prevented a policy of freer trade. First, the justification of autarky had become part of the orthodoxy of the regime. Second, many private interests (both within the bureaucracy and among business) would have been negatively affected by a change in policy. The discretionary
granting of import licenses provided Administration officials considerable benefits, both economic (in the form of corruption) and political (in the form of priviness of power). On the other hand, many producing firms were able to survive simply because of the protection they were enjoying. Finally, whatever little could be imported was a source of substantial profits for importing firms.

Clearly, the continuation of autarky had important negative effects. Besides the static costs resulting from misallocation of resources, it reduced the ability to export and limited industrial growth. With protection, it was more profitable to engage in import substitution and importing activities than in exporting. And the consequently limited export supply failed to match the import demand for goods necessary for developing the economy.

The realization of the above factors and the economic success of the liberalization of trade among the European countries created a climate of opinion increasingly favorable towards adopting alternative policies. But it was not until the balance of payments problems became extremely acute (Spain was near bankruptcy) that the policy of autarky was officially declared obsolete.

VII. THE INFLUENCE OF FOREIGN INSTITUTIONS ON THE DESIGN AND IMPLEMENTATION OF TRADE POLICIES IN SPAIN

Given the advisory and financial role that some international institutions played in the establishment and success of the economic policy changes that started in 1959, one might suspect that a determinant of Spanish tariff patterns might have been the pressure exercised by those organizations to grant lower import barriers for
some goods or categories of goods. The role, early in the 1960s, of the World Bank and the GATT negotiations might conceivably have been, for similar reasons a determinant of Spanish tariff policy as well. Can this issue be clarified either through documentation or an analysis of how the negotiations between those organizations and the Spanish administration were conducted?

A. The influence of the OCDE and IMF on Spain's trade policy

The import liberalization measures whose implementation started in 1959 were part of a policy package of measures (known as the "Stabilization Plan") whose main purpose was to put the Spanish economy on a path towards economic development by first reducing the rate of inflation and the balance of payments problems. The role of the IMF and OCDE in supporting this package of policies was important. First, the IMF and the OCDE sent experts to Spain to analyze its economic situation and advise the Spanish government on the policies that should be implemented to improve it. Their recommendations provided the Administration with a justification, vis-a-vis the public opinion, for a set of policies whose initial contractionary effects were expected to be unpopular. Second, the IMF arranged the granting of an important amount of foreign credits and loans for the implementation of the plan. Finally, a condition for full membership of Spain in the OCDE was the liberalization of trade with its member countries.

Hence, it is likely that the opinions (and pressures) of those international institutions played an important role in the general setup of the Stabilization Plan and the liberalization measures. Yet, it is less clear whether they played a significant role in the design
of specific measures, such as the relative height of tariff rates or even the distribution of the liberalization measures across the economic sectors.

The available evidence tends to suggest that their role on that respect was not very significant. The OCDE and IMF reports confined themselves to recommend very general measures such as tighter monetary and government expenditures control, reduction of non-tariff barriers and elaboration of a new tariff schedule, less intervention by the Administration in domestic production and trade and the like. Even the conditions for membership in the OCDE were relaxed for Spain. At the time of Spain's entry in the OCDE, its members were required to:

a. keep free from quantitative restrictions at least 90% of the volume of private trade in an agreed-upon base year.

b. keep free from quantitative restrictions at least 75% of the volume of the private trade for the same agreed-upon base year in each of the following three economic categories in which all commodities were classified:

Group I: Foodstuffs and animal feeding products

Group II: Raw materials

Group III: Manufactured products

Neither of those requirements was initially mandated for Spain, upon the consideration that the other member countries had adjusted to those requirements in a progressive manner and over a period of ten years and that Spain had not received any reconstruction help from the Marshall Plan.
In consequence, Spain was required to liberalize initially only 50% (instead of 90%) of its volume of private trade, and no constraint was imposed upon the distribution of that 50% among the three commodity groups indicated above. Using this possibility of choice, the Spanish Administration centered most of its initial liberalization efforts on goods essential for the development of agriculture and industry.

B. The influence of Spain's joining the GATT on her trade policy

The effects of Spain's membership in the GATT were rather limited. A main reason was that, at the time of entry (the negotiations started in June 1960 and the Protocol of Agreement was signed in July 1963), Spain was mostly interested in the general advantages of being a member of the GATT but was not looking for specific tariff advantages that would have required additional concessions on her own part. In fact, the Spanish administration, expecting a prompt entry into the Common Market was reluctant to reduce tariffs since this would have diminished the margin of maneuver with the EEC.

As a result, three means were used to minimize the extent of the concessions to the GATT:

a. negotiations took place on the definitive rates, which in most instances exceeded the transitory rates, those actually applied.

b. tariff reductions were limited to up to 20% of the definitive rates.

c. some tariff positions were declared non-negotiable.
Of a total of 1158 tariff positions in the Spanish Tariff schedule at the time, 518 were not negotiated. Of those negotiated, Spain agreed not to raise the rates in 56 positions, to consolidate the rates in 126 positions, to reduce the rates by less than 20% in 99 positions, to reduce the rates between 20% and 49% in 357 positions and by more than 50% in 2 positions.\footnote{14}

Since, as indicated before, those agreements were on the definite rates, only 151 positions had, in fact, their actual rates reduced. In volume of trade these 151 positions represented in 1962 only 4.4% of Spain's total imports. Further, the fact that those 151 positions can be classified into these three categories:

a. commodities that had high tariff rates (up to 85%, as in the case of automobiles): even with the GATT reductions the level of protection remained high.

b. commodities that had average tariff rates, but were also protected by quantitative restrictions: in this case the level of protection remained high as well.

c. commodities with low tariff rates, but which either were not produced in Spain or were internationally competitive, suggests that the negative effects of those concessions on the protection of domestic industries were probably symbolic.

C. The influence of GATT's Kennedy Round on Spain's Trade policy

As with the original entry in the GATT negotiations, Spanish Tariff concessions were rather limited during the Kennedy Round since
Spain (together with Greece, Israel, Portugal and Turkey) was classified as a "country in special situation". While the advantages received from the Round were considerable (both because of the mutual granting of most favored nation status and because of the substantial tariff concessions by the U.S., U.K. and the Scandinavian countries), Spain granted tariff concessions on only 102 positions (that represented less than 10% of the volume of imports in 1967) and the reductions were also based on the definitive rates, not those actually applied at the time.

In consequence, 45 of those reductions resulted in tariff rates identical to those actually applied, 44 of the reductions resulted in rates still higher than those actually applied and only 13 positions (representing less than 0.3% of the value of imports) got rates that were below those actually applied until then.\textsuperscript{15}

D. The influence of the World Bank report on Spain’s trade policy

Upon the successful completion of the Stabilization and liberalization measures of 1959, the Spanish administration decided to elaborate a four year Development Plan, for whose preparation it asked the World Bank for a Report on the conditions of the Spanish economy and the appropriate measures for a development policy.

The main recommendations of the Report, delivered in 1963, concerning foreign trade were the following:
1. The process of liberalization of foreign trade should continue ("the aim of foreign economic policy should be to bring about a major expansion of the external sector")

2. Specifically, with respect to imports it said that:
   a. imports of goods necessary for economic development should be facilitated (especially, capital equipment) and should be procured at the lowest cost (consistent with a minimum of protection to domestic producers)
   b. removal of quantitative restrictions should be extended to more manufactured goods and a calendar for the removal of quotas should be made known to the domestic firms in order to reduce uncertainty
   c. tariff policy should be considered primarily in the context of its effect on economic development and therefore

* a reduction should take place:
  - in the level of duties
  - particularly in the case of capital goods (iron and steel products, machine-tools and equipment) needed for development: their present rates are incompatible with the development needs of Spain.
  - in a systematic manner, keeping producers informed about plans and timetables so that they can adjust their plans accordingly.
transitory tariffs should be replaced by permanent tariffs in order to reduce uncertainty among producers.

tariff exemptions and reductions should be provided in relation to general development objectives (e.g., export promotion or regional development) and through the application of general criteria to branches of industry (or regions) rather than individually to firms.

3. With respect to exports it said that:

a. earnings from exports should be expanded.

b. indirect taxes reimbursements should be extended to all exporting sectors and without reference to purported need.

c. draw-back legislation should be updated and export credit and insurance should be extended.

Finally, additional recommendations included the increase of earnings from tourism and efforts to attract foreign capital.

Most of the above recommendations appeared subsequently as policy goals in the first Development Plan of Spain. This does not necessarily mean, though, that they were included as a result of pressures from the World Bank. It seems more sensible to think that the Spanish administration considered them worth pursuing since, in fact, some of those policies were already being carried out, even before the Administration requested the assistance of the World Bank. The plausibility of this view was confirmed to this author through interviews held with one of the highest officials of the economic administration of that time. According to this official, the main purpose for the Spanish
administration accepting a report from the World Bank was to use it as a public relations tool to defend the appropriateness of the policies that it was already implementing or it was planning to undertake.

VIII. DEVELOPMENT POLICIES AND TRADE POLICY

Can the possible role of the Development Plans on the conduct of trade policy be explained/documentd?

Three consecutive four-year Plans (1964-1967; 1968-1971; 1972-1975) were implemented in Spain during Franco's regime. A fourth (1976-1979) was prepared but never implemented. All Plans (compulsory for the public sector, indicative for the private sectors) stated objectives and established policies both at the aggregate level and at the industry level.

The general principles and objectives of the Plans can be summarized as follows:

1. Subsidiary role of government-controlled firms,
2. Improvement of statistical information and development of "alert signals" to check the fulfillment of the development goals.
3. Achievement of regional development through the creation of development poles and improvements in the agricultural sectors.
4. Restructuring of the industrial sectors by granting incentives for firms' mergers and establishing agreements between
the Administration and each industrial sector willing to enter in a "Concerted Action Program".

5. Expansion of exports.

6. Achievement of full employment of resources, and, mainly, labor.

In the context of foreign trade, the emphasis was put on exports rather than imports. Still, tariff policy, while not highlighted as a general or fundamental instrument was used to achieve some of the objectives mentioned above, namely 3, 4 and 5. In this sense, Art. 31 of the decree approving the Development Plan stated that "the government shall revise the system of tariff exemptions and bonuses adapting it to the requirements of development policy for general application by the various economic sectors". The Plan also said that "although exports should grow out of a more competitive domestic economy, the increase in exports will, of course, require general protection for its promotion. This will be achieved through draw-back and similar mechanisms as well as proper systems of export credit and insurance" (see p. 44 of the First Plan). The second Plan stated on the other hand, that "tariff policy shall create the conditions for a rapid expansion of exports...shall use the means to ensure that Spanish industries with ability to compete in world markets will be in conditions of equality with foreign firms".

As a result, tariff exemptions and reductions (as well as other benefits not related to foreign trade) were granted on the purchase of inputs by firms that established factories in development poles and by firms that subscribed concerted action agreements with the Administrat-
tion. In order to stimulate exports, "the top priority in the Development Plan", according to Ullastres (minister of Commerce and a member of the team responsible for the Stabilization Plan and the first Development Plan), tariff advantages (as well as a broader implementation of export credit and insurance policies) were established. Also export charters with additional advantages were granted to firms, groups of firms or sectors that were export oriented.

The tariff advantages for export activities involved in one form or another either the exemption from tariffs or the reimbursements of tariffs paid on goods imported that were exported after being manufactured. Specifically, four methods were used:

*Temporary admission and temporary importation: they allowed for tariff-free importation of raw materials and manufactured goods, respectively, destined for further manufacturing and export.

*Import replacement: it allowed for tariff-free importation of raw materials in a quantity equivalent to the amount of them incorporated in goods previously exported.

*Draw-back: it allowed for the reimbursement of tariff on goods, when the same or equivalent goods were exported.

Not all the above policies and instruments were implemented with the same intensity. Consistent with the recommendations of the World Bank report and the objective of the Development Plans, the Administration engaged in an aggressive export policy, that resulted in high rates of growth in exports.

With respect to imports, the picture is a bit different. The liberalization measures started in 1959 continued, but despite the
recommendations of the international institutions and the suggestions of the 1960-1964 Plan, it stopped almost completely by 1967, and up to 1971 (when "liberalized" trade accounted for 74.7% of imports). Further reductions of quantitative restrictions took place in that year and thereafter but they were increased afterwards. As a result, in 1975 only 73.5% of imports were under free trade. The lack of liberalization was most notable in foodstuffs (which were under State Trading or under trade under individual license), textiles and transportation equipment (which were under global quotas).

With the exception of transportation equipment, most capital equipment was liberalized (as recommended by the World Bank) by the end of 1967, but their tariffs were not substantially lowered. Nominal tariffs on metallic goods and transportation equipment were the highest in the tariff schedule. They were still the highest in 1975 despite some tariff reductions that occurred in 1973, based on effective protection criteria. The only equipment that enjoyed low tariffs were the capital goods not produced in Spain. The actual situation offers a serious contrast with the recommendations of the World Bank.
NOTES TO APPENDIX A

17. Decreto-Ley 194/1963
Appendix B

ECONOMIC SECTORS (=112) INCLUDED IN THE ECONOMETRIC ANALYSIS

001 Agriculture
002 Cattle-Raising
003 Forestry
004 Fishing
005 Soft-Coal Mining
006 Hard-Coal Mining
007 Lignite Mining
008 Petroleum and Natural Gas Drilling
009 Iron-Ore Mining
010 Non-Ferrous Metals Mining
011 Freestone, Clay and Gravel Quarries
012 Non-Metallic Minerals Mining
013 Salt Quarries
014 Other Mining and Quarrying
015 Slaughtering and Meat Processing Industry
016 Milk Industry
017 Vegetable Canning Industry
018 Fish Canning Industry
019 Vegetable and Animal Oils and Fats Processing Industry
020 Milling Industry
021 Bread and Pastry Baking Industry
022 Sugar Industry
023 Cocoa, Chocolate and Candy Industry
024 Coffee Industry
025 Animal Feeding Industry
026 Other Food Industries
027 Alcohol Industry
028 Liquor and Spirits Industry
029 Wine Industry
030 Beer Industry
031 Non-Alcoholic Drinks Industry
032 Tobacco Industry
033 Natural Fibers Processing Industry
034 Yarn-Spinning-Industry
035 Weaving Industry
036 Knitwear Industry
037 Cord-Making Industry
038 Other Textile Industries
039 Fabrics and Tapestry Industry
040 Wearing Apparel Industry
041 Tanning Industry
042 Leather Goods Industry
043 Shoemaking Industry
044 Timber and Sawmill Industry
Lumber and Carpentry Industry
Crate and Basket-Making and Other Wood Products Industry
Cork Industry
Non-metallic Furniture-Making Industry
Pulp Mills and Paper and Cardboard Mills Industry
Paper and Cardboard Processing Industry
Printing and Publishing
Non-Organic Basic Chemical Products Manufacturing Industry
Organic Basic Chemical Products Manufacturing Industry
Colours and Pigments Manufacturing Industry
Fertilizer Manufacturing Industry
Pesticide Manufacturing Industry
Basic Plastic Materials Manufacturing Industry
Synthetic Fibers Manufacturing Industry
Paints, Varnishes and Inks Manufacturing Industry
Basic Pharmaceuticals Manufacturing Industry
Pharmaceutical Preparations Industry
Perfumes, Soaps and Detergents Industry
Wax and Paraffin Processing Industry
Explosives and Pyrotechnics Manufacturing Industry
Adhesives and Accoutrements Manufacturing Industry
Sensitive Photographic Materials Manufacturing Industry
Other Chemical Products Manufacturing Industry
Petroleum Refining Industry
Coal Agglomerates Manufacturing Industry
Mineral Coal Distilling and Coke Manufacturing Industry
Other Petroleum and Coal Products Manufacturing Industry
Tire Manufacturing Industry
Other Rubber Products Manufacturing Industry
Plastic Products Manufacturing Industry
Clay, Ceramics and Porcelain Manufacturing Industry
Glass Manufacturing Industry
Glass Products Manufacturing Industry
Brick and Roof Tiles Manufacturing Industry
Glazed Tiles Manufacturing Industry
Refractories and Sandstone Manufacturing Industry
Artificial Cement Manufacturing Industry
Natural Cement Processing and Lime and Gypsum Manufacturing Industry
Fibrocement Manufacturing Industry
Cement By-Products Manufacturing Industry
Mechanical Abrasives Manufacturing Industry
Natural Stone and Other Mineral Products Manufacturing Industry
Iron and Steel Basic Industry
Aluminium Basic Industry
Copper Basic Industry
Other Non-Ferrous Metals Basic Industry
Cutlery, Hand Tools and Hardware Manufacturing Industry
Metallic Furniture Manufacturing Industry
Structural Metallic Products and Boilers Manufacturing Industry
Other Metallic Products Manufacturing Industry
Non-Electrical Machinery Manufacturing and Repairing Industry
Agricultural Machinery Manufacturing and Repairing Industry
Electrical Machinery Manufacturing and Repairing Industry
Shipbuilding and Repairing Industry
Railroad Equipment Construction Industry
Automotive Construction Industry
Motorcycles and Bicycles Construction Industry
Aircraft Construction and Repairing Industry
Other Transportation Equipment Construction Industry
Engineering and Scientific Instruments Manufacturing Industry
Photographic and Optical Equipment and Clock-Making Industry
Jewelry Manufacturing Industry
Toys and Games Manufacturing Industry
Other Manufactures
Electricity Production, Transportation and Distribution
Recreational Services
Other Services to Firms and Households
Recycling

SECTORS EXCLUDED (=15) BECAUSE THEY WERE NON-TRADED GOODS OR SERVICES

Textile Auxiliary Industry
Gas Production and Distribution
Water Distribution and Steam and Hot Water Production and Distribution
Building Construction
Civil Engineering and Public Works
Wholesale Trade
Retail Trade
Food and Lodging
Transportation of Passengers by Road
Transportation of Goods by Road
Use and Maintenance of Residential Buildings
Education and Research
Health Services
Domestic Services
Public Administration, Defense and Welfare
SECTORS EXCLUDED (=9) BECAUSE THEY WERE SERVICES SECTORS NOT SUBJECT TO TARIFFS

118 Railroad Transportation
121 Maritime and River Transportation
122 Air Transportation
123 Warehousing and Other Transportation-related Services
124 Communications
125 Financial Institutions
126 Insurance Services
128 Leasing and Other Services to Firms
132 Other Repairing Services and Services to Households
### Appendix C

Rates of import-weighted actually applied import duties in Spain (1962, 1970) and the EEC (1965) for all primary and manufacturing sectors, and their rankings (Number of sectors: 44)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Sector Name</th>
<th>Average rate of import actually applied input-weighted duties (tariffs plus border adjustment taxes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Spain 1962</td>
</tr>
<tr>
<td>010</td>
<td>Agriculture, cattle raising, and forestry</td>
<td>5.59% (38)</td>
</tr>
<tr>
<td>030</td>
<td>Fishing</td>
<td>5.09% (39)</td>
</tr>
<tr>
<td>110*</td>
<td>Coal and coke</td>
<td>7.90% (33)</td>
</tr>
<tr>
<td>130*</td>
<td>Petroleum and gas</td>
<td>0.00% (43)</td>
</tr>
<tr>
<td>161*</td>
<td>Electrical energy and water production and distribution</td>
<td>0.00% (42)</td>
</tr>
<tr>
<td>211*</td>
<td>Metallic minerals mining</td>
<td>6.98% (36)</td>
</tr>
<tr>
<td>222*</td>
<td>Iron and steel basic industry</td>
<td>25.34% (22)</td>
</tr>
<tr>
<td>224</td>
<td>Other metals basic industry</td>
<td>16.75% (25)</td>
</tr>
<tr>
<td>241*</td>
<td>Non-metallic minerals mining and basic industry</td>
<td>10.56% (29)</td>
</tr>
<tr>
<td>242</td>
<td>Cement</td>
<td>10.53% (30)</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>247</td>
<td>Glass and glass products</td>
<td>32.11%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(13)</td>
</tr>
<tr>
<td>252*</td>
<td>Chemical products and plastics</td>
<td>27.33%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(18)</td>
</tr>
<tr>
<td>311</td>
<td>Foundry products</td>
<td>26.49%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(19)</td>
</tr>
<tr>
<td>312</td>
<td>Other metallic products (except machinery and transportation equipment)</td>
<td>43.57%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9)</td>
</tr>
<tr>
<td>320*</td>
<td>Agricultural and industrial machinery, aircraft and railroad equipment</td>
<td>23.89%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23)</td>
</tr>
<tr>
<td>330</td>
<td>Calculators and computers</td>
<td>26.48%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
</tr>
<tr>
<td>340</td>
<td>Electrical machinery and equipment</td>
<td>31.24%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(14)</td>
</tr>
<tr>
<td>350</td>
<td>Automotive products</td>
<td>46.23%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8)</td>
</tr>
<tr>
<td>361</td>
<td>Shipbuilding</td>
<td>29.11%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(17)</td>
</tr>
<tr>
<td>363</td>
<td>Motorcycles and bicycles</td>
<td>77.85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>370</td>
<td>Precision instruments</td>
<td>18.41%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24)</td>
</tr>
<tr>
<td>411</td>
<td>Milk products</td>
<td>4.54%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(41)</td>
</tr>
<tr>
<td>412</td>
<td>Slaughtering and meat processing</td>
<td>5.66%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(37)</td>
</tr>
<tr>
<td>413</td>
<td>Oils and fats</td>
<td>49.58%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6)</td>
</tr>
<tr>
<td>414</td>
<td>Vegetable and fish canned products</td>
<td>15.39%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(26)</td>
</tr>
<tr>
<td>416</td>
<td>Cereal products</td>
<td>53.33%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>1975</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(68)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(68)</td>
</tr>
<tr>
<td>420</td>
<td>Sugar</td>
<td>13.20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28)</td>
</tr>
<tr>
<td>421</td>
<td>Cocoa, chocolate and candy</td>
<td>49.53%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7)</td>
</tr>
<tr>
<td>422</td>
<td>Animal feeding products</td>
<td>4.73%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40)</td>
</tr>
<tr>
<td>423</td>
<td>Other food products for human consumption</td>
<td>39.96%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10)</td>
</tr>
<tr>
<td>424</td>
<td>Beverages</td>
<td>63.79%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>429</td>
<td>Tobacco</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(44)</td>
</tr>
<tr>
<td>431*</td>
<td>Textiles</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11)</td>
</tr>
<tr>
<td>441</td>
<td>Tanning Industry</td>
<td>13.40%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27)</td>
</tr>
<tr>
<td>442</td>
<td>Leather goods (except shoes)</td>
<td>30.66%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
</tr>
<tr>
<td>451</td>
<td>Shoes</td>
<td>50.00%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5)</td>
</tr>
<tr>
<td>453</td>
<td>Wearing apparel</td>
<td>63.27%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td>461*</td>
<td>Wood products</td>
<td>7.32%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(34)</td>
</tr>
<tr>
<td>471*</td>
<td>Paper products</td>
<td>25.54%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21)</td>
</tr>
<tr>
<td>473</td>
<td>Printing and publishing</td>
<td>6.50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(35)</td>
</tr>
<tr>
<td>481</td>
<td>Rubber products</td>
<td>8.26%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(32)</td>
</tr>
<tr>
<td>490</td>
<td>Other industrial products</td>
<td>29.73%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(16)</td>
</tr>
<tr>
<td>Code</td>
<td>Sector</td>
<td>Tariff Rate 1</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td>620</td>
<td>Recycling</td>
<td>9.72%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(31)</td>
</tr>
<tr>
<td>960*</td>
<td>Recreation</td>
<td>32.66%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12)</td>
</tr>
</tbody>
</table>

**Notes:**

1) The sector numbers are those corresponding to the 1965 EEC Input Output Tables. The (*) accompanying the number of some of the sectors indicate they are aggregates of the basic classification of EEC members Input-Output tables.

2) Numbers in parenthesis below each tariff rate indicate the order rank of the 44 economic sectors. A (*) accompanying a number in parenthesis indicates there is tie in that rank.
### Appendix D

Table of correspondences between the Spanish (1962, 1970) and the EEC (1965) Input-Output Tables
(Number of sectors: 44)

<table>
<thead>
<tr>
<th>Sector in the 1965 EEC Input-Output Classification</th>
<th>Corresponding Sector(s) in the 1962 Spain Input-Output Classification</th>
<th>Corresponding Sector(s) in the 1970 Spain Input-Output Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>010</td>
<td>(1; 2; 3 (33%) of 24 (50%) of 21</td>
<td>(1; 2; 3 (33%) of 19 (50%) of 29</td>
</tr>
<tr>
<td>033</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>110*</td>
<td>5; 6</td>
<td>5; 6; 7; 70; 71</td>
</tr>
<tr>
<td>130*</td>
<td>10; 46</td>
<td>8; 69; 72</td>
</tr>
<tr>
<td>161*</td>
<td>71; 72</td>
<td>110; 111; 112</td>
</tr>
<tr>
<td>211*</td>
<td>7; 8</td>
<td>9; 10</td>
</tr>
<tr>
<td>222*</td>
<td>50</td>
<td>(50%) of 88</td>
</tr>
<tr>
<td>224</td>
<td>51</td>
<td>(50%) of 89 (50%) of 90 (66%) of 91</td>
</tr>
<tr>
<td>241*</td>
<td>(9 (8.8%) of 10; (100%)** of 10; (73.1%) of 47; (68.3%)** of 47</td>
<td>(11; 12; 13; 14 (76; 79; 80; 81; (50%) of 87)</td>
</tr>
<tr>
<td>242</td>
<td>(48 (1.6%) of 47; (1.0%)** of 47</td>
<td>82; 83; 84; 85</td>
</tr>
<tr>
<td>247</td>
<td>49</td>
<td>77; 78</td>
</tr>
<tr>
<td>252*</td>
<td>(41; 42; 43; 44; 45 (16.1%) of 47; (19.2%) of 47 (31.5%) of 65; (35.1%)** of 65</td>
<td>(53; 54; 55; 56; 57 (57; 58; 59; 60; 61; (62; 63; 64; 65; (66; 67; 68; 75; (86 (50%) of 109)</td>
</tr>
<tr>
<td>Page</td>
<td>Number</td>
<td>Value</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>311</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>312</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>320*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>330</td>
<td></td>
<td></td>
</tr>
<tr>
<td>340</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>350</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>361</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>370</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>411</td>
<td></td>
<td></td>
</tr>
<tr>
<td>412</td>
<td></td>
<td>11; 12</td>
</tr>
<tr>
<td>413</td>
<td></td>
<td>(50%) of 16</td>
</tr>
<tr>
<td>414</td>
<td></td>
<td>13; 19</td>
</tr>
<tr>
<td>416</td>
<td></td>
<td>( 18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>((1.2%)* of 17;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6.4%)** of 17</td>
</tr>
<tr>
<td>420</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>421</td>
<td></td>
<td>(15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>((50%) of 16</td>
</tr>
<tr>
<td>422</td>
<td></td>
<td>((33%) of 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>((98.8% of 17</td>
</tr>
<tr>
<td>423</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>424</td>
<td>(22; 23</td>
<td>(50% of 21</td>
</tr>
<tr>
<td>429</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>431*</td>
<td>26; 27; 28; 30</td>
<td>(33; 34; 35; 36; 37; 38; 39; 40</td>
</tr>
<tr>
<td>441</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td>442</td>
<td>39</td>
<td>43</td>
</tr>
<tr>
<td>451</td>
<td>31</td>
<td>44</td>
</tr>
<tr>
<td>453</td>
<td>29</td>
<td>41</td>
</tr>
<tr>
<td>461*</td>
<td>32; 33; 34</td>
<td>45; 46; 47; 48; 49</td>
</tr>
<tr>
<td>471*</td>
<td>35; 36</td>
<td>50; 51</td>
</tr>
<tr>
<td>473</td>
<td>37</td>
<td>52</td>
</tr>
<tr>
<td>481</td>
<td>(40</td>
<td>((9.2% of 47;</td>
</tr>
<tr>
<td></td>
<td>(10.9%)* of 47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>((50%) of 83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>((2.2%)* of 55;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.5%)** of 55</td>
<td></td>
</tr>
<tr>
<td>490</td>
<td>((68.5%)* of 65;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(64.8%)** of 65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>((3.7%)* of 84;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(50%)** of 86</td>
<td></td>
</tr>
<tr>
<td>620</td>
<td>70</td>
<td>136</td>
</tr>
<tr>
<td>960*</td>
<td>((50%) of 83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(50.6%)* of 84;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>((50%) of 128</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Percentage numbers in parenthesis indicate the percent level of import and import duties of a sector in the Spanish Input/Output classifications assigned to its corresponding EEC Input/Output Sector. Percentage numbers in parenthesis with a (*) sign and percentage numbers in parenthesis with a (**) sign indicate the percentage level of imports and import duties, respectively, of a sector in the Spanish Input/Output classifications assigned to its corresponding EEC Input/Output sector. Further explanations on the criteria upon which this Table was developed are available from the author.
### Appendix E

Gini coefficients of industrial concentration (1966) for a sample of manufacturing sectors and their corresponding average unweighted legal tariff rates and indexes of incidence of non-tariff barriers (1970), and their rankings (Number of sectors: 68)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Sector Name</th>
<th>Gini coefficients of industrial concentration</th>
<th>Average unweighted legal tariff rates</th>
<th>Index of incidence of non-tariff barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Canned fruits and vegetables</td>
<td>0.524 (25)</td>
<td>13.75% (49)</td>
<td>0.333</td>
</tr>
<tr>
<td>2</td>
<td>Flour mills</td>
<td>0.257 (65)</td>
<td>13.60% (50)</td>
<td>2.666</td>
</tr>
<tr>
<td>3</td>
<td>Food products, health food products, yeasts and others</td>
<td>0.426 (44)</td>
<td>21.19% (24)</td>
<td>1.200</td>
</tr>
<tr>
<td>4</td>
<td>Crackers and cookies</td>
<td>0.435 (32)</td>
<td>28.25% (13)</td>
<td>3.222</td>
</tr>
<tr>
<td>5</td>
<td>Production and refining of sugar</td>
<td>0.375 (50)</td>
<td>4.33% (13)</td>
<td>1.500</td>
</tr>
<tr>
<td>6</td>
<td>Chocolate and cocoa products</td>
<td>0.436 (41)</td>
<td>33.50% (6)</td>
<td>3.000</td>
</tr>
<tr>
<td>7</td>
<td>Nougats and marzipans</td>
<td>0.335 (46)</td>
<td>30.50% (8*)</td>
<td>3.000</td>
</tr>
<tr>
<td>8</td>
<td>Hard-candy and chewing gum</td>
<td>0.368 (51)</td>
<td>30.50% (8*)</td>
<td>3.000</td>
</tr>
<tr>
<td>9</td>
<td>Oils industry</td>
<td>0.431 (42)</td>
<td>8.51% (64)</td>
<td>1.388</td>
</tr>
<tr>
<td>10</td>
<td>Pasta</td>
<td>0.384 (47)</td>
<td>29.50% (10)</td>
<td>3.000</td>
</tr>
<tr>
<td>11</td>
<td>Roasting of coffee and its substitutes</td>
<td>0.276 (61)</td>
<td>33.62% (5)</td>
<td>1.909</td>
</tr>
<tr>
<td>12</td>
<td>Other food products</td>
<td>0.516 (27)</td>
<td>18.81% (34)</td>
<td>0.769</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Value</td>
<td>Percentage</td>
<td>Total Value</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>13</td>
<td>Production and distilling of wine alcohols</td>
<td>6.261</td>
<td>48.00%</td>
<td>3.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(64)</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Production of spirits, liqueurs and blends</td>
<td>0.357</td>
<td>42.20%</td>
<td>3.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(55)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Production of beer and beer malts</td>
<td>0.509</td>
<td>19.75%</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28)</td>
<td>(29)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Production of sodas, syrups and fruit drinks</td>
<td>0.300</td>
<td>10.90%</td>
<td>0.461</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(59)</td>
<td>(60)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Bottling of mineral waters</td>
<td>0.521</td>
<td>18.00%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(26)</td>
<td>(38)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Tobacco industry</td>
<td>0.828</td>
<td>0.00%</td>
<td>3.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)</td>
<td>(68)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Textile industry: cotton and artificial silk</td>
<td>0.550</td>
<td>22.81%</td>
<td>1.090</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22)</td>
<td>(18)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Textile industry: wool</td>
<td>0.544</td>
<td>16.43%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23)</td>
<td>(42)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Textile industry: natural silk, rayon and synthetic fibers</td>
<td>0.501</td>
<td>18.49%</td>
<td>0.457</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(29)</td>
<td>(37)</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Textile industry: reprocessed and recyclable materials</td>
<td>0.440</td>
<td>11.52%</td>
<td>0.625</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40)</td>
<td>(57)</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Textile industry: other fibers</td>
<td>0.747</td>
<td>28.31%</td>
<td>0.266</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9)</td>
<td>(12)</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Production of shoes (except all-rubber shoes)</td>
<td>0.375</td>
<td>22.66%</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(48)</td>
<td>(19)</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Production of textile apparel</td>
<td>0.457</td>
<td>28.21%</td>
<td>0.114</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(37)</td>
<td>(14)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Production of leather apparel</td>
<td>0.291</td>
<td>19.48%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(60)</td>
<td>(30)</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Second transformation of wool</td>
<td>0.208</td>
<td>17.41%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(67)</td>
<td>(39)</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Production of veneer, boards, and plywood</td>
<td>0.501</td>
<td>18.75%</td>
<td>0.750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(30)</td>
<td>(36)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industry</td>
<td>Value 1</td>
<td>Percentage 1</td>
<td>Value 2</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------</td>
<td>----------</td>
<td>--------------</td>
<td>----------</td>
</tr>
<tr>
<td>30</td>
<td>Cork industry</td>
<td>0.427</td>
<td>13.25%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(43)</td>
<td>(51)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Production of metallic furniture</td>
<td>0.477</td>
<td>34.73%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(34)</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Production of paper pulps, paper and cardboard</td>
<td>0.476</td>
<td>12.10%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(35)</td>
<td>(55)</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Paper and cardboard processing industry</td>
<td>0.401</td>
<td>29.47%</td>
<td>0.023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(45)</td>
<td>(11)</td>
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</tr>
<tr>
<td>34</td>
<td>Printing industry</td>
<td>0.366</td>
<td>13.15%</td>
<td>0.000</td>
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<tr>
<td></td>
<td></td>
<td>(53)</td>
<td>(53)</td>
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</tr>
<tr>
<td>35</td>
<td>Production of tanned leather</td>
<td>0.478</td>
<td>10.22%</td>
<td>0.000</td>
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<tr>
<td></td>
<td></td>
<td>(33)</td>
<td>(62)</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Production of rubber goods</td>
<td>0.712</td>
<td>18.96%</td>
<td>0.060</td>
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<tr>
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<td></td>
<td>(11)</td>
<td>(33)</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Production of carbohydrates and glues</td>
<td>0.455</td>
<td>16.76%</td>
<td>0.093</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(38)</td>
<td>(40)</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Production of industrial alcohols and yeasts</td>
<td>0.471</td>
<td>15.93%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(36)</td>
<td>(46)</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Production of artificial and synthetic fibers</td>
<td>0.773</td>
<td>14.50%</td>
<td>0.000</td>
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<tr>
<td></td>
<td></td>
<td>(8)</td>
<td>(48)</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Pyrotechnics industries</td>
<td>0.270</td>
<td>21.36%</td>
<td>3.000</td>
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<td></td>
<td></td>
<td>(622)</td>
<td>(22)</td>
<td></td>
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<tr>
<td>41</td>
<td>Production of pharmaceutical products and preparations</td>
<td>0.570</td>
<td>16.12%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
<td>(44)</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Products of lyses</td>
<td>0.183</td>
<td>22.00%</td>
<td>1.000</td>
</tr>
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<td></td>
<td>(68)</td>
<td>(20)</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Production of wax and paraffin products</td>
<td>0.556</td>
<td>13.00%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21)</td>
<td>(54)</td>
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</tr>
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<td>44</td>
<td>Production of other chemical products</td>
<td>0.611</td>
<td>16.00%</td>
<td>0.061</td>
</tr>
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<td>(15)</td>
<td>(45)</td>
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</tr>
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<td>45</td>
<td>Production of glass</td>
<td>0.648</td>
<td>15.02%</td>
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<td>(17)</td>
<td>(47)</td>
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</tr>
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<td>46</td>
<td>Manufacturing of glass</td>
<td>0.375</td>
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<td>0.019</td>
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<td>(49)</td>
<td>(23)</td>
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<td>Description</td>
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<td>Percentage</td>
<td>Number</td>
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<td>--------------------------------------------------</td>
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<td>------------</td>
<td>--------</td>
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<tr>
<td>47</td>
<td>Production of clay goods and pottery</td>
<td>0.366</td>
<td>9.50%</td>
<td>(52)</td>
</tr>
<tr>
<td>48</td>
<td>Production of refractories and sandstone</td>
<td>0.651</td>
<td>11.92%</td>
<td>(16)</td>
</tr>
<tr>
<td>49</td>
<td>Production of earthenware and porcelain</td>
<td>0.713</td>
<td>32.17%</td>
<td>(10)</td>
</tr>
<tr>
<td>50</td>
<td>Production of glazed tiles</td>
<td>0.250</td>
<td>11.20%</td>
<td>(66)</td>
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<tr>
<td>51</td>
<td>Industries of natural stone</td>
<td>0.301</td>
<td>10.35%</td>
<td>(58)</td>
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<tr>
<td>52</td>
<td>Production of cement products</td>
<td>0.262</td>
<td>20.65%</td>
<td>(63)</td>
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<tr>
<td>53</td>
<td>Production of fibrocement</td>
<td>0.798</td>
<td>20.65%</td>
<td>(7)</td>
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<tr>
<td>54</td>
<td>Production of abrasives</td>
<td>0.696</td>
<td>21.63%</td>
<td>(13)</td>
</tr>
<tr>
<td>55</td>
<td>Iron and steel basic industries (except foundries)</td>
<td>0.871</td>
<td>13.21%</td>
<td>(3)</td>
</tr>
<tr>
<td>56</td>
<td>Basic industries of non-ferrous metals (except foundries)</td>
<td>0.799</td>
<td>11.43%</td>
<td>(5)</td>
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<tr>
<td>57</td>
<td>Foundries</td>
<td>0.363</td>
<td>1.50%</td>
<td>(54)</td>
</tr>
<tr>
<td>58</td>
<td>Production of other metallic goods</td>
<td>0.696</td>
<td>19.33%</td>
<td>(31)</td>
</tr>
<tr>
<td>59</td>
<td>Industrial machinery (non-electric)</td>
<td>0.527</td>
<td>16.71%</td>
<td>(24)</td>
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<tr>
<td>60</td>
<td>Electrical machinery, equipment and other</td>
<td>0.794</td>
<td>23.82%</td>
<td>(6)</td>
</tr>
<tr>
<td>61</td>
<td>Naval construction (steel and wood)</td>
<td>0.927</td>
<td>8.32%</td>
<td>(1)</td>
</tr>
<tr>
<td>62</td>
<td>Construction and large repairs of railroad</td>
<td>0.711</td>
<td>18.79%</td>
<td>(12)</td>
</tr>
<tr>
<td>Sector</td>
<td>Gini Coefficient</td>
<td>Tariff Rate (%)</td>
<td>Value</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------</td>
<td>-----------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>63 Construction of automobiles and bicycles</td>
<td>0.895</td>
<td>26.92%</td>
<td>1.314</td>
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</tr>
<tr>
<td>64 Industries of metallic products</td>
<td>0.666</td>
<td>19.33%</td>
<td>0.176</td>
<td></td>
</tr>
<tr>
<td>65 Scientific and professional instruments and equipment; photographic, optical, watchmaking and musical instruments</td>
<td>0.619</td>
<td>20.93%</td>
<td>0.040</td>
<td></td>
</tr>
<tr>
<td>66 Production of sensitive photographic material</td>
<td>0.687</td>
<td>20.84%</td>
<td>1.100</td>
<td></td>
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<tr>
<td>67 Production of jewels and imitation jewelry</td>
<td>0.354</td>
<td>16.42%</td>
<td>2.437</td>
<td></td>
</tr>
<tr>
<td>68 Production of plastic goods</td>
<td>0.448</td>
<td>37.10%</td>
<td>0.750</td>
<td></td>
</tr>
<tr>
<td>69 Production of brooms and brushes</td>
<td>0.306</td>
<td>26.85%</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1) The numbers for the sectors have been assigned sequentially by this author to the sectors listed in Hipola (1968).

2) Numbers in parenthesis below the Gini coefficients and tariff rates indicate the order rank of the 48 economic sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix F

Table of correspondences between the classification of manufacturing sectors used by the Servicio de Productividad Industrial and the classification of commodities in the Spanish Tariff Schedule

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Corresponding tariff positions or subpositions in the Spanish Tariff Schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20.01; 20.02; 20.03; 20.04; 20.05; 20.06; 20.07</td>
</tr>
<tr>
<td>2</td>
<td>11.01; 11.02; 11.03; 11.04</td>
</tr>
<tr>
<td>3</td>
<td>04.05; 21.06; 19.02</td>
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<td>4</td>
<td>19.08</td>
</tr>
<tr>
<td>5</td>
<td>17.01; 17.03; 23.03</td>
</tr>
<tr>
<td>6</td>
<td>18.01; 18.02; 18.03; 18.04; 18.05; 18.06</td>
</tr>
<tr>
<td>7</td>
<td>17.04</td>
</tr>
<tr>
<td>8</td>
<td>17.04</td>
</tr>
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<td>9</td>
<td>15.01; 15.02; 15.03; 15.04; 15.05; 15.06; 15.07; 15.08; 15.09; 15.10; 15.11; 15.12; 15.13; 15.14; 15.17</td>
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<td>10</td>
<td>19.03</td>
</tr>
<tr>
<td>11</td>
<td>09.71; 1901; 21.01; 21.02</td>
</tr>
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<td>12</td>
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</tr>
<tr>
<td>13</td>
<td>22.08; 22.09</td>
</tr>
<tr>
<td>14</td>
<td>22.09</td>
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<tr>
<td>15</td>
<td>22.03; 11.07</td>
</tr>
<tr>
<td>16</td>
<td>20.07; 21.07; 22.02</td>
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35.04; 35.05; 35.06
38
21.06; 29.04; 29.05
39
56.01; 56.02; 56.04
40
36.01; 36.02; 36.03; 36.04; 36.06; 36.07
41
30.01; 30.02; 30.03; 30.04; 30.05
42
34.02
43
34.06; 34.07
44
28.01; 28.02; 28.03; 28.04; 28.05; 28.06;
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70.07
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70.20; 70.21

47
68.08; 68.09; 68.10

48
68.15; 68.16; 69.01; 69.02; 69.03

49
69.10; 69.11; 62.12 69.13

50
69.04; 69.05; 69.06; 69.07; 69.08; 69.14

51
68.01; 68.02; 68.03

52
68.11; 68.12

53
68.11; 68.12

54
68.04; 68.05; 68.06

55
73.02; 73.03; 73.04; 73.05; 73.06

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81.03; 81.04

57
73.01

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85.19; 85.20; 85.21; 85.22; 85.23; 85.24;
85.25; 85.26; 85.27; 85.28

61
89.01; 89.02; 89.03; 89.04; 89.05

62
86.01; 86.02; 86.03; 86.04; 86.05; 86.06;
86.07; 86.08; 86.09; 86.10

63
87.01; 87.02; 87.03; 87.04; 87.05; 87.06;
87.07; 87.08; 87.09; 87.10; 87.11; 87.12;
87.13; 87.14

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   92.03; 92.04; 92.05; 92.06; 92.07; 92.08;
   92.09; 92.10; 92.11; 92.12; 92.13

66 37.01; 37.02; 37.03; 37.04; 37.05; 37.06;
    37.07; 37.08

67 71.12; 71.13; 71.14; 71.15; 71.16

68 39.07

69 96.01; 96.02; 96.03; 96.04; 96.05; 96.06
Appendix G

Gini coefficients of industrial concentration (1966) for a subsample of manufacturing sectors and their corresponding average unweighted legal tariff rates (1970) and their rankings

[Sectors mostly under state trade or trade under individual license]

(number of sectors = 19)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Sector Name</th>
<th>Gini coefficients of industrial concentration</th>
<th>Average unweighted legal tariff rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Flour mills</td>
<td>0.257 (19)</td>
<td>13.75% (15)</td>
</tr>
<tr>
<td>3</td>
<td>Food products, health food products, yeast and others</td>
<td>0.456 (7)</td>
<td>21.19% (12)</td>
</tr>
<tr>
<td>4</td>
<td>Crackers and cookies</td>
<td>0.485 (6)</td>
<td>28.25% (8)</td>
</tr>
<tr>
<td>5</td>
<td>Production and refining of sugar</td>
<td>0.375 (12)</td>
<td>4.33% (18)</td>
</tr>
<tr>
<td>6</td>
<td>Chocolate and cocoa products</td>
<td>0.436 (8)</td>
<td>33.50% (4)</td>
</tr>
<tr>
<td>7</td>
<td>Nougats and marzipans</td>
<td>0.385 (10)</td>
<td>30.50% (5*)</td>
</tr>
<tr>
<td>8</td>
<td>Hard-candy and chewing gun</td>
<td>0.368 (13)</td>
<td>30.50% (5*)</td>
</tr>
<tr>
<td>9</td>
<td>Oils industry</td>
<td>0.431 (9)</td>
<td>8.51% (16)</td>
</tr>
<tr>
<td>10</td>
<td>Pasta</td>
<td>0.384 (11)</td>
<td>29.50% (7)</td>
</tr>
<tr>
<td>11</td>
<td>Roasting of coffee and its substitutes</td>
<td>0.276 (16)</td>
<td>33.62% (3)</td>
</tr>
<tr>
<td>12</td>
<td>Production and distilling of wine alcohols</td>
<td>0.261 (18)</td>
<td>48.00% (1)</td>
</tr>
<tr>
<td></td>
<td>Activity Description</td>
<td>Gini Coefficient</td>
<td>Rank</td>
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<td>---</td>
<td>---------------------------------------------</td>
<td>-----------------</td>
<td>------</td>
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<tr>
<td>14</td>
<td>Production of spirits, liqueurs and blends</td>
<td>0.357</td>
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<tr>
<td>18</td>
<td>Tobacco industry</td>
<td>0.828</td>
<td>(3)</td>
</tr>
<tr>
<td>19</td>
<td>Textile industry: cotton and artificial silk</td>
<td>0.550</td>
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<td>40</td>
<td>Pyrotechnics industries</td>
<td>0.270</td>
<td>(17)</td>
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<td>61</td>
<td>Naval construction (steel and wood)</td>
<td>0.917</td>
<td>(1)</td>
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<td>63</td>
<td>Construction of automobiles and bicycles</td>
<td>0.895</td>
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<td>66</td>
<td>Production of sensitive photographic material</td>
<td>0.687</td>
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<tr>
<td>67</td>
<td>Production of jewels and imitation jewelry</td>
<td>0.354</td>
<td>(15)</td>
</tr>
</tbody>
</table>

Notes:
1) The numbers for the sectors have been assigned sequentially by this author to the sectors listed in Hipola (1968).

2) Numbers in parenthesis below the Gini coefficients and tariff rates indicate the order rank of the 19 economic sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix H

Gini coefficients of industrial concentration (1966) for a subsample of manufacturing sectors and their corresponding average unweighted legal tariff rates and "comprehensive indexes of protection" (1970), and their rankings

[Sectors mostly under liberalized trade or mostly under global quotas]

(Number of sectors: 49)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Sector Name</th>
<th>Gini coefficients of individual concentration</th>
<th>Average unweighted legal tariff rates</th>
<th>Hypothesized tariff rate equivalent of its non-tariff barriers</th>
<th>Comprehensive Indexes of protection</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Canned fruits and vegetables</td>
<td>0.524 (20)</td>
<td>13.75% (35)</td>
<td>6.00% (24)</td>
<td>19.75% (24)</td>
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<td>12</td>
<td>Flour mills</td>
<td>0.516 (22)</td>
<td>18.81% (21)</td>
<td>13.87% (7)</td>
<td>32.68% (7)</td>
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<tr>
<td>15</td>
<td>Production of beer beer malts</td>
<td>0.509 (23)</td>
<td>19.75% (16)</td>
<td>18.03% (4)</td>
<td>37.78% (4)</td>
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<td>16</td>
<td>Production of sodas, syrups and fruit drinks</td>
<td>0.300 (44)</td>
<td>10.90% (45)</td>
<td>8.31% (26)</td>
<td>19.21% (26)</td>
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<td>17</td>
<td>Bottling of mineral waters</td>
<td>0.521 (21)</td>
<td>18.00% (25)</td>
<td>0.00% (29)</td>
<td>18.00% (29)</td>
</tr>
<tr>
<td>20</td>
<td>Textile industry: wool</td>
<td>0.544 (18)</td>
<td>16.43% (29)</td>
<td>0.00% (34)</td>
<td>16.43% (34)</td>
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<td>21</td>
<td>Textile industry: natural silk, rayon and synthetic fibers</td>
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<td>18.49% (24)</td>
<td>8.24% (17)</td>
<td>26.50% (17)</td>
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<tr>
<td>22</td>
<td>Textile industry: reprocessed and recyclable materials</td>
<td>0.440 (34)</td>
<td>11.52% (42)</td>
<td>11.27% (15)</td>
<td>22.79% (15)</td>
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<td>Textile industry: other fibers</td>
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<td>4.80% (6)</td>
<td>33.11% (6)</td>
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<td>Production of shoes (except all-rubber shoes)</td>
<td>0.375 (37)</td>
<td>22.66% (9)</td>
<td>0.00% (16)</td>
<td>22.66% (16)</td>
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<td>26</td>
<td>Production of textile apparel</td>
<td>0.457 (31)</td>
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<td>2.06% (9)</td>
<td>30.27% (9)</td>
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<td>Value</td>
<td>Percentage</td>
<td>Error</td>
<td>Value</td>
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<tr>
<td>27</td>
<td>Production of leather apparel</td>
<td>0.291</td>
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<td>0.00%</td>
<td>19.48%</td>
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<td>(45)</td>
<td>(17)</td>
<td>(25)</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Second transformation of wool</td>
<td>0.208</td>
<td>17.41%</td>
<td>0.00%</td>
<td>17.41%</td>
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<td>(48)</td>
<td>(26)</td>
<td>(30)</td>
<td></td>
</tr>
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<td>29</td>
<td>Production of veneer, boards and plywood</td>
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<tr>
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<td>(8)</td>
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<td>Cork industry</td>
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<td>(35)</td>
<td>(36)</td>
<td>(40)</td>
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</tr>
<tr>
<td>31</td>
<td>Production of metallic furniture</td>
<td>0.477</td>
<td>34.73%</td>
<td>0.00%</td>
<td>34.73%</td>
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<td>(28)</td>
<td>(2)</td>
<td>(5)</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Production of paper pulps, paper and cardboard</td>
<td>0.476</td>
<td>34.73%</td>
<td>0.00%</td>
<td>34.73%</td>
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<td>(40)</td>
<td>(44)</td>
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<td>Paper and cardboard processing industry</td>
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<td>(4)</td>
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<td>Printing industry</td>
<td>0.366</td>
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<td>0.00%</td>
<td>13.15%</td>
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<td>(40)</td>
<td>(38)</td>
<td>(42)</td>
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<tr>
<td>35</td>
<td>Production of tanned leather</td>
<td>0.478</td>
<td>10.22%</td>
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<td>10.22%</td>
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<td>(47)</td>
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<td>Production of carbohydrates and glues</td>
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<td>Production of industrial alcohols and yeasts</td>
<td>0.471</td>
<td>15.93%</td>
<td>0.00%</td>
<td>15.93%</td>
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<td>Production of pharmaceutical products and</td>
<td>0.570</td>
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<td>Production of wax and paraffin products</td>
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<td>(32)</td>
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<td>(32)</td>
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<td>Manufacturing of glass</td>
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<td>(12)</td>
<td>(14)</td>
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<tr>
<td></td>
<td>Production of clay goods and pottery</td>
<td>0.366</td>
<td>9.50%</td>
<td>0.00%</td>
<td>9.50%</td>
</tr>
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<td>(48)</td>
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<tr>
<td>48</td>
<td>Production of refractories and sandstone</td>
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<td>0.00%</td>
<td>11.92%</td>
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<td>(46)</td>
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<td>Production of earthenware and porcelain</td>
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<td>50</td>
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<td>(44)</td>
<td>(33)</td>
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<td>Industries of natural stone</td>
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<td>0.00%</td>
<td>15.18%</td>
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<td>(46)</td>
<td>(38)</td>
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<td>Production of cement products</td>
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<td>Production of fibrocement</td>
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<td>20.65%</td>
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<td>(21*)</td>
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</tr>
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<td>54</td>
<td>Production of abrasives</td>
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<td>21.63%</td>
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<td>(11)</td>
<td>(20)</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Iron and steel basic industries (except foundry)</td>
<td>0.871</td>
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<td>13.21%</td>
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<td>(37)</td>
<td>(41)</td>
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<tr>
<td>56</td>
<td>Basic industries of non-ferrous metals (except foundry)</td>
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<td>11.43%</td>
<td>0.61%</td>
<td>12.04%</td>
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<td>(45)</td>
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<td>57</td>
<td>Foundries</td>
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<td>1.50%</td>
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<td>(41)</td>
<td>(49)</td>
<td>(49)</td>
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</tr>
<tr>
<td>58</td>
<td>Production of other metallic goods</td>
<td>0.496</td>
<td>19.33%</td>
<td>3.17%</td>
<td>22.50%</td>
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<td>(18*)</td>
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<td>Industrial machinery (non-electric)</td>
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<td>16.71%</td>
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<td>(19)</td>
<td>(28)</td>
<td>(31)</td>
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<tr>
<td>60</td>
<td>Electrical machinery equipment and other</td>
<td>0.794</td>
<td>23.82%</td>
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<td>25.41%</td>
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<td>(3)</td>
<td>(9)</td>
<td>(13)</td>
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</tr>
<tr>
<td>62</td>
<td>Construction and large repairs of railroad equipment</td>
<td>0.711%</td>
<td>18.79%</td>
<td>0.00%</td>
<td>18.79%</td>
</tr>
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<td>(9)</td>
<td>(22)</td>
<td>(29)</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>Industries of metallic products</td>
<td>0.666%</td>
<td>19.33%</td>
<td>3.17%</td>
<td>22.50%</td>
</tr>
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<td>(11)</td>
<td>(18*)</td>
<td>(17*)</td>
<td></td>
</tr>
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<td>65</td>
<td>Scientific and professional instruments and equipment; photographic, optical, watchmaking and musical instruments</td>
<td>0.619%</td>
<td>20.33%</td>
<td>0.72%</td>
<td>21.65%</td>
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<td>(19)</td>
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<td>Sector</td>
<td>Share 1</td>
<td>Share 2</td>
<td>Share 3</td>
<td>Share 4</td>
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<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Production of plastic goods</td>
<td>0.448%</td>
<td>37.10%</td>
<td>13.52%</td>
<td>50.62%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(33)</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Production of brooms and brushes</td>
<td>0.306%</td>
<td>26.85%</td>
<td>0.00%</td>
<td>26.85%</td>
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</tr>
<tr>
<td></td>
<td>(42)</td>
<td>(7)</td>
<td>(7)</td>
<td>(11)</td>
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</tr>
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</table>

**Notes:**
1) The numbers for the sectors have been assigned sequentially by this author to the sectors listed in Hipola (1968).

2) Numbers in parenthesis below the Gini coefficients, tariff rates and comprehensive index of protection indicate the order rank of 49 economic sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix I

Gini coefficients of industrial concentration (1966) for a subsample of manufacturing sectors and their corresponding average unweighted legal tariff rates (1970), and their rankings

(Numbers of sectors: 25)

[Sectors under liberalized trade]

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Sector Name</th>
<th>Gini coefficients of industrial concentration</th>
<th>Average unweighted legal tariff rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Bottling of mineral water</td>
<td>0.521 (11)</td>
<td>18.00% (9)</td>
</tr>
<tr>
<td>20</td>
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<td>Cork industry</td>
<td>0.427 (16)</td>
<td>13.25% (16)</td>
</tr>
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<td>31</td>
<td>Production of metallic furniture</td>
<td>0.477 (13)</td>
<td>34.73% (1)</td>
</tr>
<tr>
<td>32</td>
<td>Production of paper pulps, paper and cardboard</td>
<td>0.476 (14)</td>
<td>12.10% (20)</td>
</tr>
<tr>
<td>34</td>
<td>Printing industry</td>
<td>0.366 (18)</td>
<td>13.15% (18)</td>
</tr>
<tr>
<td>35</td>
<td>Production of tanned leather</td>
<td>0.478 (12)</td>
<td>10.22% (23)</td>
</tr>
<tr>
<td>38</td>
<td>Production of industrial alcohols and yeasts</td>
<td>0.471 (15)</td>
<td>15.93% (13)</td>
</tr>
<tr>
<td>39</td>
<td>Production of artificial and synthetic fibers</td>
<td>0.773</td>
<td>14.50%</td>
</tr>
<tr>
<td>41</td>
<td>Production of pharmaceutical and preparations</td>
<td>0.570</td>
<td>16.21%</td>
</tr>
<tr>
<td>43</td>
<td>Production of wax and paraffin goods</td>
<td>0.556</td>
<td>13.00%</td>
</tr>
<tr>
<td>45</td>
<td>Production of glass</td>
<td>0.375</td>
<td>21.20%</td>
</tr>
<tr>
<td>47</td>
<td>Production of clay goods and pottery</td>
<td>0.366</td>
<td>9.50%</td>
</tr>
<tr>
<td>48</td>
<td>Production of refractories and sandstone</td>
<td>0.651</td>
<td>11.92%</td>
</tr>
<tr>
<td>51</td>
<td>Industries of natural stone</td>
<td>0.391</td>
<td>10.35%</td>
</tr>
<tr>
<td>52</td>
<td>Production of cement products</td>
<td>0.262</td>
<td>20.65%</td>
</tr>
<tr>
<td>53</td>
<td>Production of fibrocement</td>
<td>0.789</td>
<td>20.65%</td>
</tr>
<tr>
<td>54</td>
<td>Production of abrasives</td>
<td>0.696</td>
<td>21.63%</td>
</tr>
<tr>
<td>55</td>
<td>Iron and steel basic industries (except foundries)</td>
<td>0.871</td>
<td>13.21%</td>
</tr>
<tr>
<td>57</td>
<td>Foundries</td>
<td>0.363</td>
<td>1.50%</td>
</tr>
<tr>
<td>62</td>
<td>Construction and large repairs of railroad equipment</td>
<td>0.711</td>
<td>18.79%</td>
</tr>
<tr>
<td>69</td>
<td>Production of brooms and brushes</td>
<td>0.306</td>
<td>26.85%</td>
</tr>
</tbody>
</table>

**Notes:** 1) The numbers for the sectors have been assigned sequentially by this author to the sectors listed in Hipola (1968).
2) Numbers in parenthesis below the Cini coefficients and tariff rates indicate the order rank of the 25 economic sector according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
## Appendix J

Indexes of presence of the 500 largest firms (1972) in all non-agricultural, non-service, economic sectors, and their rankings

(Number of sectors: 34)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Value of index ( P_1 )</th>
<th>Value of index ( P_2 )</th>
<th>Value of index ( P_3 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>55.0% (13)</td>
<td>2.2% (14)</td>
<td>25.00 (10)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>7.7% (29)</td>
<td>1.4% (21*)</td>
<td>8.86 (21)</td>
</tr>
<tr>
<td>6.4</td>
<td>Meat industries</td>
<td>36.1% (14)</td>
<td>2.4% (13)</td>
<td>15.04 (14)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables canning industry</td>
<td>5.8% (30)</td>
<td>0.6% (32*)</td>
<td>9.67 (20)</td>
</tr>
<tr>
<td>6.2</td>
<td>Fish canning industry</td>
<td>43.6% (14)</td>
<td>0.8% (25*)</td>
<td>57.00 (7)</td>
</tr>
<tr>
<td>6.8</td>
<td>Flour and baking industry</td>
<td>4.8% (31)</td>
<td>1.0% (31)</td>
<td>4.8 (30)</td>
</tr>
<tr>
<td>6.1</td>
<td>Sugar industry</td>
<td>102.2% (4)</td>
<td>0.8% (25*)</td>
<td>127.75 (1)</td>
</tr>
<tr>
<td>6.5</td>
<td>Other foods industries</td>
<td>22.0% (23)</td>
<td>2.6% (12)</td>
<td>8.46 (24)</td>
</tr>
<tr>
<td>6.3</td>
<td>Beverage industries</td>
<td>36.4% (18)</td>
<td>4.2% (6*)</td>
<td>8.66 (23)</td>
</tr>
<tr>
<td>7.1</td>
<td>Tobacco</td>
<td>65.1% (10)</td>
<td>0.6% (32*)</td>
<td>108.50 (2)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industries</td>
<td>11.8% (26)</td>
<td>3.2% (10*)</td>
<td>3.69 (32)</td>
</tr>
<tr>
<td>Section</td>
<td>Industry Description</td>
<td>1988</td>
<td>1989</td>
<td>Total 1989</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industries</td>
<td>3.1%</td>
<td>0.8%</td>
<td>3.87%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(33)</td>
<td>(25*)</td>
<td>(31)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and shoes industries</td>
<td>4.4%</td>
<td>0.8%</td>
<td>5.12%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(32)</td>
<td>(25*)</td>
<td>(29)</td>
</tr>
<tr>
<td>7.1</td>
<td>Tobacco</td>
<td>65.1%</td>
<td>0.6%</td>
<td>108.50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10)</td>
<td>(32*)</td>
<td>(2)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industries</td>
<td>11.8%</td>
<td>3.2%</td>
<td>3.69%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(26)</td>
<td>(10*)</td>
<td>(32)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industries</td>
<td>3.1%</td>
<td>0.8%</td>
<td>3.87%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(32)</td>
<td>(25*)</td>
<td>(29)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industry</td>
<td>56.7%</td>
<td>2.2%</td>
<td>25.77%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12)</td>
<td>(14*)</td>
<td>(9)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>11.9%</td>
<td>0.8%</td>
<td>14.87%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(25)</td>
<td>(25*)</td>
<td>(15)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>11.7%</td>
<td>1.4%</td>
<td>8.36%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27)</td>
<td>(21*)</td>
<td>(25)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>80.3%</td>
<td>6.4%</td>
<td>12.55%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6)</td>
<td>(2)</td>
<td>(17)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastics industries</td>
<td>10.8%</td>
<td>1.6%</td>
<td>6.75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28)</td>
<td>(20)</td>
<td>(27)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>129.2%</td>
<td>1.4%</td>
<td>92.98%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(21*)</td>
<td>(3)</td>
</tr>
<tr>
<td>4.6</td>
<td>Pharmaceutical industries</td>
<td>36.5%</td>
<td>4.2%</td>
<td>8.69%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(17)</td>
<td>(6*)</td>
<td>(22)</td>
</tr>
<tr>
<td>4.7</td>
<td>Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>34.8%</td>
<td>2.0%</td>
<td>17.40%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
<td>(17*)</td>
<td>(12)</td>
</tr>
<tr>
<td>4.5</td>
<td>Other chemical industries</td>
<td>41.3%</td>
<td>2.0%</td>
<td>20.65%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
<td>(17*)</td>
<td>(11)</td>
</tr>
<tr>
<td>1.1</td>
<td>Petroleum refining</td>
<td>155.7%</td>
<td>2.0%</td>
<td>77.85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(17*)</td>
<td>(5)</td>
</tr>
<tr>
<td>4.3</td>
<td>Rubber manufacturing</td>
<td>74.7%</td>
<td>1.0%</td>
<td>74.70%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7)</td>
<td>(24)</td>
<td>(6)</td>
</tr>
<tr>
<td>5.1</td>
<td>Glass, ceramics, cement and auxiliary construction materials</td>
<td>33.4%</td>
<td>5.4%</td>
<td>6.18 (21)</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and steel industries</td>
<td>72.8%</td>
<td>6.2%</td>
<td>11.74 (8)</td>
</tr>
<tr>
<td>3.5</td>
<td>Metallurgy of non-ferrous metals</td>
<td>59.7%</td>
<td>3.6%</td>
<td>16.58 (11)</td>
</tr>
<tr>
<td>3.8</td>
<td>Metallic products manufacturing industry</td>
<td>20.2%</td>
<td>5.6%</td>
<td>3.61 (24)</td>
</tr>
<tr>
<td>3.7</td>
<td>Production of mechanic machinery and equipment</td>
<td>26.6%</td>
<td>3.4%</td>
<td>7.82 (22)</td>
</tr>
<tr>
<td>3.1</td>
<td>Production of electric and electronic machinery and equipment</td>
<td>103.1%</td>
<td>9.0%</td>
<td>11.45 (3)</td>
</tr>
<tr>
<td>3.2</td>
<td>Naval construction and repairs</td>
<td>87.7%</td>
<td>2.2%</td>
<td>39.63 (5)</td>
</tr>
<tr>
<td>3.4</td>
<td>Railroad equipment and airplanes</td>
<td>69.5%</td>
<td>0.8%</td>
<td>86.87 (9)</td>
</tr>
<tr>
<td>3.6</td>
<td>Construction of automobiles, bicycles, etc.</td>
<td>40.9%</td>
<td>3.2%</td>
<td>12.78 (16)</td>
</tr>
<tr>
<td>7.7</td>
<td>Other industries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.00 (34)</td>
</tr>
</tbody>
</table>

Notes: 1) The sector number are those corresponding to the classification of sectors in Las 500 grandes empresas industriales españolas en 1972.

2) Numbers in parenthesis below the indexes of 'firm bigness' and the import duties indicate the order rank of the 34 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix K

Import duties and indexes of incidence of non-tariff barriers (1970) for all non-agricultural, non-service economic sectors, and their rankings

(Number of sectors: 34)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name of Sector</th>
<th>Average Import weighted applied import duties</th>
<th>Index of incidence of non-tariff barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>1.35% (32)</td>
<td>0.163 (22)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>3.07% (30)</td>
<td>0.970 (10)</td>
</tr>
<tr>
<td>6.4</td>
<td>Meat industries</td>
<td>12.12% (25)</td>
<td>2.192 (4)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables-canning industry</td>
<td>13.91% (23)</td>
<td>0.578 (12)</td>
</tr>
<tr>
<td>6.2</td>
<td>Fish canning industries</td>
<td>6.29% (27)</td>
<td>0.000 (30*)</td>
</tr>
<tr>
<td>6.8</td>
<td>Flour and baking industries (including cookies and crackers)</td>
<td>2.35% (31)</td>
<td>2.850 (2)</td>
</tr>
<tr>
<td>6.1</td>
<td>Sugar industry</td>
<td>8.48% (26)</td>
<td>2.500 (3)</td>
</tr>
<tr>
<td>6.5</td>
<td>Other food industries (including oils)</td>
<td>5.30% (28)</td>
<td>1.175 (7)</td>
</tr>
<tr>
<td>6.3</td>
<td>Beverage industries</td>
<td>26.58% (7)</td>
<td>1.951 (5)</td>
</tr>
<tr>
<td>7.1</td>
<td>Tobacco</td>
<td>0.00% (33*)</td>
<td>3.000 (1)</td>
</tr>
<tr>
<td>Section</td>
<td>Industry Description</td>
<td>Value 1</td>
<td>Value 2</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
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<tr>
<td>7.3</td>
<td>Textile industries</td>
<td>22.17%</td>
<td>0.355</td>
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<td>(12)</td>
<td>(17)</td>
</tr>
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<td>7.6</td>
<td>Textile apparel industries</td>
<td>28.71%</td>
<td>0.382</td>
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<tr>
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<td>(5)</td>
<td>(15)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and shoes industries</td>
<td>15.29%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21)</td>
<td>(30*)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industries</td>
<td>20.65%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
<td>(30*)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>40.69%</td>
<td>0.028</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(29)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>15.98%</td>
<td>0.114</td>
</tr>
<tr>
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<td></td>
<td>(20)</td>
<td>(25)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>18.61%</td>
<td>0.124</td>
</tr>
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<td>(24)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastics industries</td>
<td>25.89%</td>
<td>0.394</td>
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<td>(10)</td>
<td>(13)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>24.60%</td>
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<td>(19)</td>
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<tr>
<td>4.6</td>
<td>Pharmaceutical industries</td>
<td>17.19%</td>
<td>0.029</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(18)</td>
<td>(21)</td>
</tr>
<tr>
<td>4.7</td>
<td>Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>26.30%</td>
<td>0.0600</td>
</tr>
<tr>
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<td>(8)</td>
<td>(11)</td>
</tr>
<tr>
<td>4.5</td>
<td>Other chemical industries</td>
<td>21.04%</td>
<td>0.386</td>
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<td></td>
<td></td>
<td>(14)</td>
<td>(14)</td>
</tr>
<tr>
<td>1.1</td>
<td>Petroleum refining</td>
<td>0.00%</td>
<td>1.227</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(33*)</td>
<td>(8)</td>
</tr>
<tr>
<td>4.3</td>
<td>Rubber manufacturing</td>
<td>14.14%</td>
<td>0.018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22)</td>
<td>(28)</td>
</tr>
<tr>
<td>5.1</td>
<td>Glass, ceramics, cement and auxiliary construction materials</td>
<td>26.03%</td>
<td>0.093</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9)</td>
<td>(26)</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and steel industries</td>
<td>21.54%</td>
<td>0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(13)</td>
<td>(30*)</td>
</tr>
<tr>
<td>3.5</td>
<td>Metallurgy of non-ferrous metals</td>
<td>12.90%</td>
<td>0.364</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24)</td>
<td>(16)</td>
</tr>
<tr>
<td>3.8</td>
<td>Metallic products manufacturing industry</td>
<td>32.92%</td>
<td>0.224</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)</td>
<td>(20)</td>
</tr>
<tr>
<td>3.7</td>
<td>Production of mechanic machinery and equipment</td>
<td>18.72%</td>
<td>0.126</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
<td>(23)</td>
</tr>
<tr>
<td>3.1</td>
<td>Production of electric and electronic machinery and equipment</td>
<td>26.90%</td>
<td>0.054</td>
</tr>
<tr>
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<td></td>
<td>(6)</td>
<td>(27)</td>
</tr>
<tr>
<td>3.2</td>
<td>Naval construction and repairs</td>
<td>37.295</td>
<td>1.500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
<td>(6)</td>
</tr>
<tr>
<td>3.4</td>
<td>Railroad equipment and airplaine construction</td>
<td>4.81%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(29)</td>
<td>(30*)</td>
</tr>
<tr>
<td>3.6</td>
<td>Construction of automobiles, bicycles, etc.</td>
<td>58.98%</td>
<td>0.987</td>
</tr>
<tr>
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<td></td>
<td>(1)</td>
<td>(9)</td>
</tr>
<tr>
<td>7.7</td>
<td>Other industries</td>
<td>17.12%</td>
<td>0.322</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(19)</td>
<td>(18)</td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Number in parenthesis below the import duties and the non-tariff barriers indexes indicate the order rank of the 34 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
## Appendix L

Table of correspondences between the classification of economic sectors used in *Las 500 grandes empresas industriales espanolas en 1972* and the classification of economic sectors in the Spanish Input/Output Tables of 1970

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Corresponding sector in the Spanish Input/Output Tables of 1970</th>
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</thead>
<tbody>
<tr>
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<td>5, 6, 7, 8, 9, 10, 11, 12, 13, 14</td>
</tr>
<tr>
<td>6.6</td>
<td>15</td>
</tr>
<tr>
<td>6.4</td>
<td>16</td>
</tr>
<tr>
<td>6.7</td>
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<td>6.8</td>
<td>20, 21</td>
</tr>
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<td>6.5</td>
<td>19, 23, 24, 25, 26</td>
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<td>6.3</td>
<td>27, 28, 29, 30, 31</td>
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<td>32</td>
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<td>7.3</td>
<td>33, 34, 35, 36, 37, 38, 39</td>
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<tr>
<td>7.6</td>
<td>40, 41</td>
</tr>
<tr>
<td>7.5</td>
<td>42, 43, 44</td>
</tr>
<tr>
<td>4.4</td>
<td>50</td>
</tr>
<tr>
<td>7.2</td>
<td>51</td>
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<td>7.4</td>
<td>52</td>
</tr>
<tr>
<td>4.2</td>
<td>53, 54</td>
</tr>
<tr>
<td>4.8</td>
<td>58, 75</td>
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</table>
4.1  59
4.6  61, 62
4.7  63
4.5  55, 56, 57, 60, 64, 65, 66, 67, 68
1.1  69
4.3  73, 74
5.1  76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87
3.3  88
3.5  89, 90, 91
3.8  92, 93, 94, 95
3.7  96, 97, 104
3.1  98
3.2  99
3.4  100, 103
3.6  101, 102
7.7  45, 46, 47, 48, 49, 70, 71, 72, 105, 106, 107, 108, 109
Appendix M

Indexes of presence of the 500 largest Spanish firms (1972) in a subsample of non-agricultural, non-service sectors and their corresponding average import-weighted actually applied import duties (1970), and their rankings

(Number of sectors:  8)

[Sectors mostly under state trade or trade under individual license]

| Sector No. | Name of Sector               | Value of index $P_1$ | Value of index $P_2$ | Value of index $P_3$ | Average Import
|           |                              |                     |                     |                     | Weighted Actually
|           |                              |                     |                     |                     | Applied Import
|           |                              |                     |                     |                     | Duties          |
| 6.4       | Meat industries              | 36.1%               | 2.4%                | 15.04               | 12.12%            |
|           |                              | (6)                 | (3)                 | (5)                 | (3)               |
| 6.8       | Flour and baking industries  | 4.8%                | 1.0%                | 4.80                | 2.35%             |
|           |                              | (8)                 | (6)                 | (8)                 | (4)               |
| 6.1       | Sugar industry               | 102.2%              | 0.8%                | 127.75              | 8.48%             |
|           |                              | (2)                 | (7)                 | (1)                 | (5)               |
| 6.5       | Other food industries        | 22.0%               | 2.6%                | 8.46                | 5.305             |
|           |                              | (7)                 | (2)                 | (7)                 | (6)               |
| 6.3       | Beverage industries         | 36.4%               | 4.2%                | 8.66                | 26.58             |
|           |                              | (5)                 | (1)                 | (6)                 | (2)               |
| 7.1       | Tobacco                      | 65.1%               | 0.6%                | 108.50              | 0.00%             |
|           |                              | (4)                 | (8)                 | (2)                 | (7*)              |
| 1.1       | Petroleum refining          | 155.7%              | 2.0%                | 77.85               | 0.00%             |
|           |                              | (1)                 | (5)                 | (3)                 | (7*)              |
| 3.2       | Naval construction and repairs | 87.7%            | 2.2%                | 39.63               | 37.29%            |
|           |                              | (3)                 | (4)                 | (4)                 | (1)               |
Notes: 1) The sector numbers are those corresponding to the classification of sectors in *Las 500 grandes empresas industriales españolas en 1972*.

2) Numbers in parenthesis below the indexes of 'firm bigness' and the import duties indicate the order rank of the 8 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
### Appendix N

Indexes of presence of the 500 largest Spanish firms (1972) in a subsample of non-agricultural, non-service economic sectors, and their rankings

[Sectors mostly under liberalized trade or under global quotas]

(Number of sectors: 26)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Value of index P1</th>
<th>Value of index P2</th>
<th>Value of index P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>55.0%</td>
<td>2.2%</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9)</td>
<td>(11*)</td>
<td>(6)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>7.7%</td>
<td>1.4%</td>
<td>8.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22)</td>
<td>(15*)</td>
<td>(16)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables-canning industry</td>
<td>5.8%</td>
<td>0.6%</td>
<td>9.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23)</td>
<td>(25)</td>
<td>(15)</td>
</tr>
<tr>
<td>6.2</td>
<td>Fish-canning industry</td>
<td>45.6%</td>
<td>0.8%</td>
<td>9.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10)</td>
<td>(20*)</td>
<td>(4)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industry</td>
<td>11.8%</td>
<td>3.2%</td>
<td>3.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(19)</td>
<td>(9*)</td>
<td>(24)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industry</td>
<td>3.1%</td>
<td>0.8%</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(25)</td>
<td>(20*)</td>
<td>(23)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and shoes industry</td>
<td>4.1%</td>
<td>0.8%</td>
<td>5.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24)</td>
<td>(20*)</td>
<td>(22)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industry</td>
<td>56.7%</td>
<td>2.2%</td>
<td>25.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8)</td>
<td>(11*)</td>
<td>(5)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>11.9%</td>
<td>0.8%</td>
<td>14.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(18)</td>
<td>(20*)</td>
<td>(10)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>11.7%</td>
<td>1.4%</td>
<td>8.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
<td>(16*)</td>
<td>(18)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>80.3%</td>
<td>6.4%</td>
<td>12.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
<td>(2)</td>
<td>(12)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastic industries</td>
<td>10.8%</td>
<td>1.6%</td>
<td>6.75</td>
</tr>
<tr>
<td>------</td>
<td>--------------------</td>
<td>-------</td>
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<td>------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21)</td>
<td>(15)</td>
<td>(20)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and</td>
<td>129.2%</td>
<td>1.4%</td>
<td>92.28</td>
</tr>
<tr>
<td></td>
<td>synthetic industries</td>
<td>(1)</td>
<td>(16*)</td>
<td>(1)</td>
</tr>
<tr>
<td>4.6</td>
<td>Pharmaceutical</td>
<td>36.5%</td>
<td>4.2%</td>
<td>8.69</td>
</tr>
<tr>
<td></td>
<td>industries</td>
<td>(13)</td>
<td>(6)</td>
<td>(17)</td>
</tr>
<tr>
<td>4.7</td>
<td>Perfumes, soaps,</td>
<td>34.8%</td>
<td>2.0%</td>
<td>17.40</td>
</tr>
<tr>
<td></td>
<td>cosmetics, detergents, etc.</td>
<td>(14)</td>
<td>(13*)</td>
<td>(8)</td>
</tr>
<tr>
<td>4.5</td>
<td>Other chemical</td>
<td>41.3%</td>
<td>2.0%</td>
<td>20.65</td>
</tr>
<tr>
<td></td>
<td>industries</td>
<td>(11)</td>
<td>(13*)</td>
<td>(7)</td>
</tr>
<tr>
<td>4.3</td>
<td>Rubber manufacturing</td>
<td>74.7%</td>
<td>1.0%</td>
<td>74.70</td>
</tr>
<tr>
<td></td>
<td>(4)</td>
<td>(19)</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Glass, ceramics, cement and auxiliary construction materials</td>
<td>33.4%</td>
<td>5.4%</td>
<td>6.18</td>
</tr>
<tr>
<td></td>
<td>(15)</td>
<td>(5)</td>
<td>(21)</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and</td>
<td>72.8%</td>
<td>6.2%</td>
<td>11.74</td>
</tr>
<tr>
<td></td>
<td>steel industries</td>
<td>(5)</td>
<td>(3)</td>
<td>(13)</td>
</tr>
<tr>
<td>3.5</td>
<td>Metallurgy of non-ferrous metals</td>
<td>59.7%</td>
<td>3.6%</td>
<td>16.58</td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td>(7)</td>
<td>(9)</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>Metallic products manufacturing industry</td>
<td>20.2%</td>
<td>5.6%</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td>(17)</td>
<td>(4)</td>
<td>(25)</td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>Production of mechanic machinery and equipment</td>
<td>26.6%</td>
<td>3.4%</td>
<td>7.82</td>
</tr>
<tr>
<td></td>
<td>(16)</td>
<td>(8)</td>
<td>(19)</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Production of electric and electronic machinery and equipment</td>
<td>103.1%</td>
<td>9.0%</td>
<td>11.45</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>(1)</td>
<td>(14)</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Railroad equipment and airplane construction</td>
<td>69.5%</td>
<td>0.8%</td>
<td>86.87</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(20*)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Construction of automobiles, bicycles, etc.</td>
<td>40.9%</td>
<td>3.2%</td>
<td>12.78 (11)</td>
</tr>
<tr>
<td>7.7</td>
<td>Other industries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.00 (26)</td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Numbers in parenthesis below the indexes of 'firm bigness' indicate the order rank of the 26 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix 0

Average import-weighted actually applied import duties and "comprehensive indexes of protection" (1970) for a subsample of non-agricultural non-service sectors, and their rankings

[Sectors mostly under liberalized trade or under global quotas]

(Number of sectors: 26)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Average Import weighted actually applied import duties</th>
<th>Comprehensive indexes of protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>1.35% (26)</td>
<td>4.71% (26)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>3.07% (25)</td>
<td>23.06% (14)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables-canning industry</td>
<td>13.91% (21)</td>
<td>25.82% (12)</td>
</tr>
<tr>
<td>6.2</td>
<td>Fish-canning</td>
<td>6.29% (23)</td>
<td>6.29% (24)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industry</td>
<td>22.17% (10)</td>
<td>29.49% (8)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industry</td>
<td>28.71% (4)</td>
<td>36.58% (5)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and shoes industry</td>
<td>15.29% (19)</td>
<td>15.29% (22)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industries</td>
<td>20.65% (13)</td>
<td>20.65% (20)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>40.69% (2)</td>
<td>41.27% (2)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>15.98% (18)</td>
<td>18.33% (21)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>18.61%</td>
<td>21.17%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
<td>(18)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastics industries</td>
<td>25.89%</td>
<td>34.01%</td>
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<td></td>
<td></td>
<td>(8)</td>
<td>(6)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>24.60%</td>
<td>30.39%</td>
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<td></td>
<td></td>
<td>(9)</td>
<td>(7)</td>
</tr>
<tr>
<td>4.6</td>
<td>Pharmaceutical industries</td>
<td>17.19%</td>
<td>21.50%</td>
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<tr>
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<td></td>
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<td>(16)</td>
</tr>
<tr>
<td>4.7</td>
<td>Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>26.30%</td>
<td>39.26%</td>
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<td>(6)</td>
<td>(3)</td>
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<td>4.5</td>
<td>Other chemical industries</td>
<td>21.04%</td>
<td>29.38%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12)</td>
<td>(9)</td>
</tr>
<tr>
<td>4.3</td>
<td>Rubber manufacturing</td>
<td>14.14%</td>
<td>14.52%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
<td>(23)</td>
</tr>
<tr>
<td>5.1</td>
<td>Glass, ceramics, cement and auxiliary construction materials</td>
<td>26.03%</td>
<td>28.03%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7)</td>
<td>(11)</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and steel industries</td>
<td>21.54%</td>
<td>21.54%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11)</td>
<td>(15)</td>
</tr>
<tr>
<td>3.5</td>
<td>Metallurgy of non-ferrous metals</td>
<td>12.90%</td>
<td>20.76%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22)</td>
<td>(19)</td>
</tr>
<tr>
<td>3.8</td>
<td>Metallics products and manufacturing industry</td>
<td>32.92%</td>
<td>37.76%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>3.7</td>
<td>Production of mechanic machinery and equipment</td>
<td>18.72%</td>
<td>21.44%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5)</td>
<td>(10)</td>
</tr>
<tr>
<td>3.1</td>
<td>Production of electric and electronic machinery and equipment</td>
<td>26.90%</td>
<td>28.07%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5)</td>
<td>(10)</td>
</tr>
<tr>
<td>3.4</td>
<td>Railroad equipment and airplane construction</td>
<td>4.81%</td>
<td>4.81%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24)</td>
<td>(25)</td>
</tr>
</tbody>
</table>
3.6 Construction of automobiles, bicycles, etc.

7.7 Other industries

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Numbers in parenthesis below the import duties and the 'comprehensive indexes of protection' indicate the order rank of the 26 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix P

Indexes of presence of the 500 largest firms in a subsample of non-agricultural, non-service sectors (1972) and their corresponding average import-weighted actually applied import duties (1970), and their rankings

[Sectors totally under liberalized trade]

(Number of sectors: 5)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Average Import Weighted Actually Applied Import Duties</th>
<th>Value of index P1</th>
<th>Value of index P2</th>
<th>Value of index P3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2</td>
<td>Fish-canning industries</td>
<td>6.29%</td>
<td>45.6%</td>
<td>0.8%</td>
<td>57.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)</td>
<td>(4)</td>
<td>(3*)</td>
<td>(2)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and shoe industries</td>
<td>15.29%</td>
<td>4.1%</td>
<td>0.8%</td>
<td>5.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
<td>(5)</td>
<td>(3*)</td>
<td>(5)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industry</td>
<td>20.65%</td>
<td>56.7%</td>
<td>2.2%</td>
<td>25.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(3)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and steel industries</td>
<td>20.54%</td>
<td>72.8%</td>
<td>6.2%</td>
<td>11.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(1)</td>
<td>(1)</td>
<td>(4)</td>
</tr>
<tr>
<td>3.4</td>
<td>Railroad equipment and airplane construction</td>
<td>4.81%</td>
<td>69.5%</td>
<td>0.8%</td>
<td>86.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5)</td>
<td>(2)</td>
<td>(3*)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Numbers in parenthesis below the import duties and the indexes of 'firm bigness' indicate the order rank of the 5 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix Q

Indexes of presence of the 500 largest firms (1972)
in a subsample of non-agricultural, non-service economic sectors,
and their rankings

[Sectors mostly under by global quotas]

(Number of sectors: 21)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Value of index $P_1$</th>
<th>Value of index $P_2$</th>
<th>Value of index $P_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>55.0% (6)</td>
<td>2.2% (10)</td>
<td>25.00 (3)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>7.7% (18)</td>
<td>1.4% (14*)</td>
<td>8.86 (12)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables-canning industry</td>
<td>5.8% (19)</td>
<td>0.6% (20)</td>
<td>9.67 (11)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industry</td>
<td>11.8% (15)</td>
<td>3.2% (8*)</td>
<td>3.69 (19)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industry</td>
<td>3.1% (20)</td>
<td>0.8% (18*)</td>
<td>3.87 (18)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>11.9% (14)</td>
<td>0.8% (18*)</td>
<td>14.87 (7)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>11.7% (16)</td>
<td>1.4% (14*)</td>
<td>8.36 (14)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>80.3% (3)</td>
<td>6.4% (2)</td>
<td>12.55 (9)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastic industries</td>
<td>10.8% (17)</td>
<td>1.6% (13)</td>
<td>6.75 (16)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>129.2% (1)</td>
<td>1.4% (14*)</td>
<td>92.98 (1)</td>
</tr>
<tr>
<td>4.6</td>
<td>Pharmaceutical industries</td>
<td>36.5% (9)</td>
<td>4.2% (5)</td>
<td>8.69 (13)</td>
</tr>
<tr>
<td>Sector</td>
<td>Sector 1</td>
<td>Sector 2</td>
<td>Sector 3</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>4.7 Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>34.8%</td>
<td>2.0%</td>
<td>17.40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(11*)</td>
<td>(5)</td>
<td></td>
</tr>
<tr>
<td>4.5 Other chemical industries</td>
<td>41.3%</td>
<td>2.0%</td>
<td>20.65</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td>(11*)</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>4.3 Rubber manufacturing</td>
<td>74.7%</td>
<td>1.0%</td>
<td>74.70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4)</td>
<td>(17)</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>5.1 Glass, ceramics, cement and auxiliary construction materials</td>
<td>33.4%</td>
<td>5.4%</td>
<td>6.18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(11)</td>
<td>(4)</td>
<td>(17)</td>
<td></td>
</tr>
<tr>
<td>3.5 Metallurgy of non-ferrous metals</td>
<td>59.7%</td>
<td>3.6%</td>
<td>16.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5)</td>
<td>(6)</td>
<td>(6)</td>
<td></td>
</tr>
<tr>
<td>3.8 Metallic products manufacturing industry</td>
<td>20.2%</td>
<td>5.6%</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(13)</td>
<td>(3)</td>
<td>(20)</td>
<td></td>
</tr>
<tr>
<td>3.7 Production of mechanic machinery and equipment</td>
<td>26.6%</td>
<td>3.4%</td>
<td>7.82</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(12)</td>
<td>(7)</td>
<td>(15)</td>
<td></td>
</tr>
<tr>
<td>3.1 Production of electronic machinery and equipment</td>
<td>103.1%</td>
<td>9.0%</td>
<td>11.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>(1)</td>
<td>(10)</td>
<td></td>
</tr>
<tr>
<td>3.6 Construction of automobiles, bicycles, etc.</td>
<td>40.9%</td>
<td>3.2%</td>
<td>12.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8)</td>
<td>(8*)</td>
<td>(8)</td>
<td></td>
</tr>
<tr>
<td>7.7 Other industries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(21)</td>
<td>(21)</td>
<td>(21)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Numbers in parenthesis below the indexes of 'firm bigness' indicate the order rank of the 26 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix R

Average import-weighted actually applied import duties and "comprehensive indexes of protection" (1970) for a subsample of non-agricultural non-service sectors, and their rankings

[Sectors mostly protected by global quotas]

(Number of sectors: 21)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Average Import weighted actually applied import duties</th>
<th>Comprehensive indexes of protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>1.35% (21)</td>
<td>4.71% (21)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>3.07% (20)</td>
<td>23.06% (14)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables-canning industry</td>
<td>13.91% (18)</td>
<td>25.82% (12)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industry</td>
<td>22.17% (10)</td>
<td>29.49% (8)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industry</td>
<td>28.71% (4)</td>
<td>36.58% (5)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>40.69% (2)</td>
<td>41.27% (2)</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>15.98% (16)</td>
<td>18.33% (19)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>18.61% (13)</td>
<td>21.17% (17)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastics industries</td>
<td>25.89% (8)</td>
<td>34.01% (6)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>24.60% (9)</td>
<td>30.39% (7)</td>
</tr>
<tr>
<td>Sector</td>
<td>Percentage</td>
<td>Rank</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>4.6 Pharmaceutical industries</td>
<td>17.19%</td>
<td>(14)</td>
<td></td>
</tr>
<tr>
<td>4.7 Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>26.30%</td>
<td>(6)</td>
<td></td>
</tr>
<tr>
<td>4.5 Other chemical industries</td>
<td>21.04%</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td>4.3 Rubber manufacturing</td>
<td>14.14%</td>
<td>(17)</td>
<td></td>
</tr>
<tr>
<td>5.1 Glass, ceramics, cement and auxiliary construction materials</td>
<td>26.03%</td>
<td>(7)</td>
<td></td>
</tr>
<tr>
<td>3.5 Metallurgy of non-ferrous metals</td>
<td>12.90%</td>
<td>(19)</td>
<td></td>
</tr>
<tr>
<td>3.8 Metallic products manufacturing industry</td>
<td>32.92%</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>3.7 Production of mechanic machinery and equipment</td>
<td>18.72%</td>
<td>(12)</td>
<td></td>
</tr>
<tr>
<td>3.1 Production of electric and electronic machinery and equipment</td>
<td>26.90%</td>
<td>(5)</td>
<td></td>
</tr>
<tr>
<td>3.6 Construction of automobiles, bicycles, etc.</td>
<td>58.98%</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>7.7 Other industries</td>
<td>17.12%</td>
<td>(15)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in *Las 500 grandes empresas industriales españolas en 1972*.

2) Numbers in parenthesis below the import duties and the 'comprehensive indexes of protection' indicate the order rank of the 26 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix S (1)

Indexes of presence of the '100 most powerful' Spanish families (1966) in a sample of non-service sectors and their corresponding average import-weighted actually applied import duties (1970), and their rankings

(Number of sectors = 31)

<table>
<thead>
<tr>
<th>Name of Sector</th>
<th>Average Import-weighted Duties</th>
<th>Value of index F₁</th>
<th>Value of index F₂</th>
<th>Value of index F₃</th>
<th>Value of index F₄</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural firms</td>
<td>9.21 (21)</td>
<td>55 (9)</td>
<td>11 (8*)</td>
<td>26 (8)</td>
<td>1790 (11)</td>
</tr>
<tr>
<td>2. Fishing</td>
<td>12.31 (20)</td>
<td>5 (29*)</td>
<td>2 (22*)</td>
<td>5 (22*)</td>
<td>464 (18)</td>
</tr>
<tr>
<td>3. Coals</td>
<td>2.18 (30)</td>
<td>22 (20)</td>
<td>4 (20)</td>
<td>6 (21)</td>
<td>89 (28)</td>
</tr>
<tr>
<td>4. Mining</td>
<td>5.20 (29)</td>
<td>281 (3)</td>
<td>50 (3)</td>
<td>76 (3)</td>
<td>3556 (6)</td>
</tr>
<tr>
<td>5. Salt</td>
<td>14.28 (18)</td>
<td>15 (21)</td>
<td>2 (22*)</td>
<td>4 (26*)</td>
<td>130 (26)</td>
</tr>
<tr>
<td>6. Food products</td>
<td>3.42 (27)</td>
<td>29 (16)</td>
<td>9 (11*)</td>
<td>26 (10)</td>
<td>556 (17)</td>
</tr>
<tr>
<td>7. Oils</td>
<td>5.24 (28)</td>
<td>31 (15)</td>
<td>7 (13*)</td>
<td>10 (19*)</td>
<td>312 (20)</td>
</tr>
<tr>
<td>8. Flours</td>
<td>9.09 (22)</td>
<td>8 (26*)</td>
<td>2 (22*)</td>
<td>4 (26*)</td>
<td>29 (31)</td>
</tr>
<tr>
<td>9. Sugar</td>
<td>8.49 (23)</td>
<td>26 (19*)</td>
<td>5 (18*)</td>
<td>12 (15*)</td>
<td>1684 (12)</td>
</tr>
<tr>
<td>10. Alcohols</td>
<td>55.55 (1)</td>
<td>9 (24*)</td>
<td>1 (29*)</td>
<td>2 (30)</td>
<td>54 (30)</td>
</tr>
<tr>
<td>11. Wines</td>
<td>5.54 (26)</td>
<td>8 (26*)</td>
<td>1 (29*)</td>
<td>5 (22*)</td>
<td>162 (23)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12. Beers</td>
<td>22.41</td>
<td>43</td>
<td>7</td>
<td>18</td>
<td>1446</td>
</tr>
<tr>
<td></td>
<td>(13)</td>
<td>(11)</td>
<td>(13*)</td>
<td>(11*)</td>
<td>(13)</td>
</tr>
<tr>
<td>13. Tobacco</td>
<td>0.00</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>676</td>
</tr>
<tr>
<td></td>
<td>(31)</td>
<td>(29*)</td>
<td>(30*)</td>
<td>(31)</td>
<td>(17)</td>
</tr>
<tr>
<td>14. Textiles</td>
<td>23.40</td>
<td>132</td>
<td>28</td>
<td>49</td>
<td>3308</td>
</tr>
<tr>
<td></td>
<td>(12)</td>
<td>(6)</td>
<td>(5)</td>
<td>(6)</td>
<td>(9)</td>
</tr>
<tr>
<td>15. Leather</td>
<td>31.48</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>131</td>
</tr>
<tr>
<td></td>
<td>(4)</td>
<td>(29*)</td>
<td>(22*)</td>
<td>(22*)</td>
<td>(26)</td>
</tr>
<tr>
<td>16. Wood</td>
<td>8.26</td>
<td>34</td>
<td>9</td>
<td>15</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>(24)</td>
<td>(12*)</td>
<td>(11*)</td>
<td>(13)</td>
<td>(23)</td>
</tr>
<tr>
<td>17. Furniture</td>
<td>27.25</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td>(23)</td>
<td>(30*)</td>
<td>(22*)</td>
<td>(30)</td>
</tr>
<tr>
<td>18. Paper</td>
<td>24.79</td>
<td>26</td>
<td>6</td>
<td>12</td>
<td>842</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(17*)</td>
<td>(16*)</td>
<td>(15*)</td>
<td>(16)</td>
</tr>
<tr>
<td>19. Printing and publishing</td>
<td>15.98</td>
<td>52</td>
<td>11</td>
<td>18</td>
<td>236</td>
</tr>
<tr>
<td></td>
<td>(17)</td>
<td>(10)</td>
<td>(8*)</td>
<td>(11*)</td>
<td>(22)</td>
</tr>
<tr>
<td>20. Chemicals</td>
<td>19.47</td>
<td>294</td>
<td>59</td>
<td>90</td>
<td>11178</td>
</tr>
<tr>
<td></td>
<td>(16)</td>
<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>21. Plastics</td>
<td>25.89</td>
<td>33</td>
<td>7</td>
<td>14</td>
<td>956</td>
</tr>
<tr>
<td></td>
<td>(9)</td>
<td>(14)</td>
<td>(13*)</td>
<td>(14)</td>
<td>(15)</td>
</tr>
<tr>
<td>22. Paints</td>
<td>27.98</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>(5)</td>
<td>(24*)</td>
<td>(22*)</td>
<td>(28*)</td>
<td>(25)</td>
</tr>
<tr>
<td>23. Petroleum</td>
<td>12.97</td>
<td>13</td>
<td>6</td>
<td>10</td>
<td>4954</td>
</tr>
<tr>
<td></td>
<td>(19)</td>
<td>(22)</td>
<td>(16*)</td>
<td>(19*)</td>
<td>(6)</td>
</tr>
<tr>
<td>24. Glassmaking</td>
<td>27.34</td>
<td>26</td>
<td>3</td>
<td>11</td>
<td>314</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(19*)</td>
<td>(21)</td>
<td>(17*)</td>
<td>(20)</td>
</tr>
<tr>
<td>25. Cement</td>
<td>23.79</td>
<td>163</td>
<td>40</td>
<td>58</td>
<td>2508</td>
</tr>
<tr>
<td></td>
<td>(11)</td>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
<td>(10)</td>
</tr>
<tr>
<td>26. Siderurgy</td>
<td>21.54</td>
<td>89</td>
<td>11</td>
<td>23</td>
<td>19180</td>
</tr>
<tr>
<td></td>
<td>(14)</td>
<td>(8)</td>
<td>(8*)</td>
<td>(9)</td>
<td>(1)</td>
</tr>
<tr>
<td>27. Machinery and engines</td>
<td>20.54</td>
<td>354</td>
<td>89</td>
<td>146</td>
<td>10032</td>
</tr>
<tr>
<td></td>
<td>(15)</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td>(3)</td>
</tr>
<tr>
<td>No.</td>
<td>Sector</td>
<td>Employees</td>
<td>Years</td>
<td>Duration</td>
<td>Capital</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------</td>
<td>-----------</td>
<td>-------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>28.</td>
<td>Electrical materials</td>
<td>2690</td>
<td>139</td>
<td>23</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(8)</td>
<td>(5)</td>
<td>(7)</td>
</tr>
<tr>
<td>29.</td>
<td>Shipbuilding</td>
<td>3328</td>
<td>34</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(3)</td>
<td>(12*)</td>
<td>(18*)</td>
</tr>
<tr>
<td>30.</td>
<td>Automobiles</td>
<td>3427</td>
<td>119</td>
<td>26</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>(includes railroad equipment)</td>
<td></td>
<td>(2)</td>
<td>(7)</td>
<td>(6)</td>
</tr>
<tr>
<td>31.</td>
<td>Jewelry</td>
<td>738</td>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(25)</td>
<td>(29*)</td>
<td>(29*)</td>
</tr>
</tbody>
</table>

**Notes:**

1) The sector numbers have been assigned sequentially by this author to the sectors selected from the report *Las 100 familias* espeñas.

2) Numbers in parentheses below the value of each variable corresponding to each sector indicate the rank ordering of the 31 sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
### Appendix S (2)

Indexes of presence of the '100 most powerful' families (1966) in a sample of non-service sectors, and their rankings

(Number of sectors = 31)

<table>
<thead>
<tr>
<th>Name of Sector</th>
<th>Value of index $F_5$</th>
<th>Value of index $F_5'$</th>
<th>Value of index $F_6$</th>
<th>Value of index $F_6'$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural firms</td>
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<td>0.0493 (16)</td>
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<td>0.1481 (11)</td>
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<td>5. Salt</td>
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<td>1.0714 (3)</td>
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<td>6. Food products</td>
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**Notes:**

1) The sector numbers have been assigned sequentially by this author to the sectors selected from the report *Las '100 familias espanolas*.

2) Numbers in parentheses below the value of each variable corresponding to each sector indicate the rank ordering of the 31 sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
## Appendix 2 (3)

Indexes of presence of the '100 most powerful' families (1966) in a sample of non-service sectors, and their rankings

(Number of sectors = 31)

<table>
<thead>
<tr>
<th>Name of Sector</th>
<th>Value of index F7</th>
<th>Value of index F7'</th>
<th>Value of index F8</th>
<th>Value of index F8'</th>
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<td>Agricultural firms</td>
<td>40.62 (6)</td>
<td>11.65 (10)</td>
<td>83.76 (6)</td>
<td>61.77 (11)</td>
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<td>16.12 (21)</td>
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<td>74.91 (11)</td>
<td>59.04 (12)</td>
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<td>Coals</td>
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<td>Edible) Oils</td>
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<td>13.26 (31)</td>
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<td>Beers</td>
<td>Tobacco</td>
<td>Textiles</td>
<td>Leather</td>
</tr>
<tr>
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<td>(10)</td>
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<td>49.23</td>
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<td>(20)</td>
<td>(15)</td>
<td>(16)</td>
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</table>
28. Electrical materials 23,78 (16) 10,81 (12) 66.54 (13) 57.23 (13)
29. Shipbuilding 32,35 (10) 28.20 (4) 92.48 (4) 92.00 (4)
30. Automobiles (includes railroad equipment) 28,69 (120) 10.52 (15) 75.80 (9) 70.67 (7)
31. Jewelry 15,78 (22) 4.34 (26) 52.05 (18) 38.38 (21)

Notes: 1) The sector numbers have been assigned sequentially by this author to the sectors selected from the report las '100 familias' espanolas.
2) Numbers in parentheses below the value of each variable corresponding to each sector indicate the rank ordering of the 31 sectors according to the decreasing value of those variables. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
## Appendix T

Table of correspondences between the classification of economic sectors used in the report *Las '100 familias' espanolas* and the classification of economic sectors in the Spanish Input/Output Tables of 1970

<table>
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<th>Sector No. and Name</th>
<th>Corresponding sector in the Spanish Input/Output Tables of 1970</th>
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<td>2. Fishing</td>
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<tr>
<td>3. Coals</td>
<td>5, 6, 7</td>
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<tr>
<td>4. Mining</td>
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<tr>
<td>5. Salt</td>
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</tr>
<tr>
<td>16. Food products</td>
<td>15, 16, 17, 18, 21, 23, 24, 25, 26, 31</td>
</tr>
<tr>
<td>7. (Edible) oils</td>
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</tr>
<tr>
<td>8. Flours</td>
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<tr>
<td>9. Sugar</td>
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<td>10. Alcohols</td>
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<td>12. Beer</td>
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<td>13. Tobacco</td>
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<td>Electrical materials</td>
</tr>
<tr>
<td>29</td>
<td>Shipbuilding</td>
</tr>
<tr>
<td>30</td>
<td>Automobiles (including railroad equipment)</td>
</tr>
<tr>
<td>31</td>
<td>Jewely</td>
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Appendix U

Indexes of presence of the 500 largest firms (1972) in a subsample of non-agricultural, non-service sectors and their rankings

[Sectors mostly under liberalized trade or under state trade or under trade with individual license]

(Number of sectors: 13)

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<th>Name of Sector</th>
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<th>Value of index $P_2$</th>
<th>Value of index $P_3$</th>
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<td>Fish canning industries</td>
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<td>0.8% (9*)</td>
<td>57.00 (5)</td>
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<tr>
<td>6.8</td>
<td>Flour and baking industries</td>
<td>4.8% (12)</td>
<td>1.0% (8)</td>
<td>4.80 (13)</td>
</tr>
<tr>
<td>6.1</td>
<td>Sugar industry</td>
<td>102.2% (2)</td>
<td>0.8% (9*)</td>
<td>127.75 (1)</td>
</tr>
<tr>
<td>6.5</td>
<td>Other food industries</td>
<td>22.0% (11)</td>
<td>2.6% (3)</td>
<td>8.46 (11)</td>
</tr>
<tr>
<td>6.3</td>
<td>Beverage industries</td>
<td>36.4% (9)</td>
<td>4.2% (1)</td>
<td>8.60 (10)</td>
</tr>
<tr>
<td>7.1</td>
<td>Tobacco</td>
<td>65.1% (6)</td>
<td>0.6% (13)</td>
<td>108.50 (2)</td>
</tr>
<tr>
<td>7.5</td>
<td>Leather apparel and paper industry</td>
<td>4.1% (13)</td>
<td>0.8% (9*)</td>
<td>5.12 (12)</td>
</tr>
<tr>
<td>4.4</td>
<td>Pulp paper mills and paper industry</td>
<td>56.% (7)</td>
<td>2.2% (5*)</td>
<td>25.77 (7)</td>
</tr>
<tr>
<td>1.1</td>
<td>Petroleum refining</td>
<td>155.7% (1)</td>
<td>2.0% (7)</td>
<td>77.85 (4)</td>
</tr>
<tr>
<td>3.3</td>
<td>Basic iron and steel industries</td>
<td>72.8% (4)</td>
<td>3.6% (2)</td>
<td>11.74 (9)</td>
</tr>
</tbody>
</table>
3.2 Naval construction 87.7% 2.2% 39.63
       (3) (5*) (6)

3.4 Railroad equipment and 59.5% 0.8% 86.87
   airplaine construction (5) (9*) (3)

Notes: 1) The sector numbers are those corresponding to the classification of sectors in Las 500 grandes empresas industriales espanolas en 1972.

2) Numbers in parenthesis below the indexes of 'firm bigness' indicate the order rank of the 13 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that rank.
Appendix V

Indexes of presence of the 500 largest firms (1972) in a subsample of non-agricultural, non-service sectors

[Sectors subject to non-tariff barriers]

(Number of sectors: 29)

<table>
<thead>
<tr>
<th>Sector No.</th>
<th>Name of Sector</th>
<th>Value of index $p_1$</th>
<th>Value of index $p_2$</th>
<th>Value of index $p_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Extractive sector</td>
<td>55.0%</td>
<td>2.2%</td>
<td>25.00</td>
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<tr>
<td></td>
<td></td>
<td>(10)</td>
<td>(13)</td>
<td>(7)</td>
</tr>
<tr>
<td>6.6</td>
<td>Milk industries</td>
<td>7.7%</td>
<td>1.4%</td>
<td>8.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(25)</td>
<td>(19*)</td>
<td>(17)</td>
</tr>
<tr>
<td>6.4</td>
<td>Meat industries</td>
<td>36.1%</td>
<td>2.4%</td>
<td>15.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(15)</td>
<td>(12)</td>
<td>(11)</td>
</tr>
<tr>
<td>6.7</td>
<td>Vegetables canning industries</td>
<td>5.8%</td>
<td>0.6%</td>
<td>9.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(26)</td>
<td>(23*)</td>
<td>(16)</td>
</tr>
<tr>
<td>6.8</td>
<td>Flour and baking industries</td>
<td>4.8%</td>
<td>1.0%</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27)</td>
<td>(26)</td>
<td>(25)</td>
</tr>
<tr>
<td>6.1</td>
<td>Sugar industry</td>
<td>102.2%</td>
<td>0.8%</td>
<td>127.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)</td>
<td>(23*)</td>
<td>(1)</td>
</tr>
<tr>
<td>6.5</td>
<td>Other food industries</td>
<td>22.0%</td>
<td>2.6%</td>
<td>8.46</td>
</tr>
<tr>
<td></td>
<td>(including oils)</td>
<td>(19)</td>
<td>(11)</td>
<td>(20)</td>
</tr>
<tr>
<td>6.3</td>
<td>Beverage industries</td>
<td>36.4%</td>
<td>4.2%</td>
<td>8.66</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(14)</td>
<td>(5*)</td>
<td>(19)</td>
</tr>
<tr>
<td>7.1</td>
<td>Tobacco</td>
<td>65.1%</td>
<td>0.6%</td>
<td>108.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8)</td>
<td>(27*)</td>
<td>(2)</td>
</tr>
<tr>
<td>7.3</td>
<td>Textile industries</td>
<td>11.8%</td>
<td>3.2%</td>
<td>3.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22)</td>
<td>(9*)</td>
<td>(27)</td>
</tr>
<tr>
<td>7.6</td>
<td>Textile apparel industries</td>
<td>3.1%</td>
<td>0.8%</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28)</td>
<td>(23*)</td>
<td>(26)</td>
</tr>
<tr>
<td>7.2</td>
<td>Paper and cardboard processing industries</td>
<td>11.9%</td>
<td>0.8%</td>
<td>14.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(21)</td>
<td>(23*)</td>
<td>(12)</td>
</tr>
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<td>Section</td>
<td>Industry Description</td>
<td>Percentage</td>
<td>Other Percentage</td>
<td>Other Percentage</td>
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<td>---------</td>
<td>-----------------------------------------------------------</td>
<td>------------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>7.4</td>
<td>Printing and publishing</td>
<td>11.7%</td>
<td>1.4%</td>
<td>8.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23)</td>
<td>(19*)</td>
<td>(21)</td>
</tr>
<tr>
<td>4.2</td>
<td>Chemical industries</td>
<td>80.3%</td>
<td>6.4%</td>
<td>12.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6)</td>
<td>(2)</td>
<td>(14)</td>
</tr>
<tr>
<td>4.8</td>
<td>Plastics industries</td>
<td>10.8%</td>
<td>1.6%</td>
<td>6.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(24)</td>
<td>(18)</td>
<td>(23)</td>
</tr>
<tr>
<td>4.1</td>
<td>Artificial and synthetic fibers</td>
<td>129.2%</td>
<td>1.4%</td>
<td>92.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
<td>(19*)</td>
<td>(3)</td>
</tr>
<tr>
<td>4.6</td>
<td>Pharmaceutical industries</td>
<td>36.5%</td>
<td>4.2%</td>
<td>8.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(13)</td>
<td>(5*)</td>
<td>(18)</td>
</tr>
<tr>
<td>4.7</td>
<td>Perfumes, soaps, cosmetics, detergents, etc.</td>
<td>34.8%</td>
<td>2.0%</td>
<td>17.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(16)</td>
<td>(15*)</td>
<td>(9)</td>
</tr>
<tr>
<td>4.5</td>
<td>Other chemical industries</td>
<td>41.3%</td>
<td>2.0%</td>
<td>20.65</td>
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<td></td>
<td></td>
<td>(11)</td>
<td>(15*)</td>
<td>(8)</td>
</tr>
<tr>
<td>1.1</td>
<td>Petroleum refining</td>
<td>155.7%</td>
<td>2.0%</td>
<td>77.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(15*)</td>
<td>(4)</td>
</tr>
<tr>
<td>4.3</td>
<td>Rubber manufacturing</td>
<td>74.7%</td>
<td>1.0%</td>
<td>74.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7)</td>
<td>(22)</td>
<td>(5)</td>
</tr>
<tr>
<td>5.1</td>
<td>Glass, ceramics, cement and auxiliary construction materials</td>
<td>33.4%</td>
<td>5.4%</td>
<td>6.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(17)</td>
<td>(4)</td>
<td>(24)</td>
</tr>
<tr>
<td>3.5</td>
<td>Metallurgy of non-ferrous metals</td>
<td>59.7%</td>
<td>3.6%</td>
<td>16.58</td>
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<tr>
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<td></td>
<td>(9)</td>
<td>(7)</td>
<td>(10)</td>
</tr>
<tr>
<td>3.8</td>
<td>Metallics manufacturing industry</td>
<td>20.2%</td>
<td>5.6%</td>
<td>3.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20)</td>
<td>(3)</td>
<td>(28)</td>
</tr>
<tr>
<td>3.7</td>
<td>Production of mechanical machinery and equipment</td>
<td>26.6%</td>
<td>3.4%</td>
<td>7.82</td>
</tr>
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<td></td>
<td>(18)</td>
<td>(8)</td>
<td>(22)</td>
</tr>
<tr>
<td>3.1</td>
<td>Production of electric and electronic machinery and equipment</td>
<td>103.1%</td>
<td>9.0%</td>
<td>11.45</td>
</tr>
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<td></td>
<td></td>
<td>(3)</td>
<td>(1)</td>
<td>(15)</td>
</tr>
<tr>
<td>3.2</td>
<td>Naval construction and repairs</td>
<td>87.7%</td>
<td>2.2%</td>
<td>39.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(50)</td>
<td>(13*)</td>
<td>(6)</td>
</tr>
<tr>
<td>3.6</td>
<td>Construction of automobiles, bicycles, etc.</td>
<td>40.9%</td>
<td>3.2%</td>
<td>12.78</td>
</tr>
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<td>-----</td>
<td>-------------------------------------------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(120)</td>
<td>(9*)</td>
<td>(13)</td>
</tr>
<tr>
<td>7.7</td>
<td>Other industries</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(29)</td>
<td>(29)</td>
<td>(29)</td>
</tr>
</tbody>
</table>

Notes: 1) The sector numbers are those corresponding to the classification of sectors in *Las 500 grandes empresas industriales espanolas en 1972*.

2) Numbers in parenthesis below the indexes of 'firm bigness' indicate the order rank of the 29 sectors according to the decreasing value of the variable in whose column the ranking appears. A (*) accompanying a number in parenthesis indicates there is a tie in that ranking.
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