POLITICO-ECONOMIC DETERMINANTS OF PROTECTIONISM IN PORTUGAL: A CROSS-SECTION ANALYSIS FOR THE YEAR 1982 (*)

Paula Fontoura (**)

The purpose of this study is to account for the differences in protection against imports (exercised both through restrictions on trading transactions established in Customs Tariff and through non-tariff protection) among industries in Portugal, as the outcome of politico-economic factors.

The year chosen was 1982, the most recent year for which data was available. The conclusions are considered to be applicable from 1977 to 1985, because it can be considered that the protectionist structure was relatively stable during this period. It was marked by the establishment of protectionist apparatus following the politico-economic changes of 1974, which prevailed until the adoption of the trade laws resulting from postulating EEC membership.

This analysis restricts itself to the manufacturing industry. In other activities, especially in agriculture, protection has details and complexities worthy of their own study.

The identification of the main determinants of protectionism before EEC entrance may help explaining the politico-economic interests more strongly affected by the adhesion. After the full dismantlement of administrative and technical barriers to the free circulation of goods, a consequence of the internal market proposed for 1992, no doubt exists that these interests will be affected. These new conditions impose the need to reestructure sectors relying on protectionism, mainly those facing competitiveness from imports on the basis of non-tariff protection, since protection by means of tariffs was already fairly reduced when Portugal became a member of the EEC.

1 — Methodology

The approach followed stems from the Political Economy of Protectionism. This is a field which emerged in the mid-70's and which aims at investigating theoretical courses which could overcome the difficulties faced by the Pure Theory of international trade to explain recourse to trade barriers in a systematic and generalized way ([1]). Relying on the basic assumptions of the Theory of

---

(**) Lecturer at the Instituto Superior de Economia, Lisbon.
([1]) On this subject see, for example, Frey (1984).

Public Choice, protection is interpreted as the result of a government and public administration action, politically motivated by the need to take the interests of economic agents and pressure groups into account.

On the grounds of a more orthodox view of the Theory of Public Choice, a former explanation stands that the behaviour of politicians is like that of *homo economicus,* that is to say, they pursue selfish goals in a rational way. According to this assumption, politicians balance conflicting interests in such a way as to maximise their stay in power, so the nature of political decisions depends on the preferences of the voters and interest groups.

More recently, greater autonomy in the political decision-making process has been given to those in power, enabling them to implementing some objectives concerning norms and principles. Lavergne (1983), who presented this view in a systematic way, as his contribution to the Political Economy of Protectionism ([2]), rejected the orthodox model which he called «economicist», and suggested a model which is based upon the assumption that the behaviour of those in power is «qualitatively very distinct from that of the consumer and the market producer in the marketplace» (idem, p. 12), mainly because they are conditioned by the social perception that their duty is to serve the general public interest. This does not imply that the two views should be antagonistic; all that is required is that political actors be rational maximizers of some preference function that includes the desire of politicians to be re-elected, not only because their own welfare may be at stake, but also because there are complex factors of the society which they have to consider, including their own perception of national welfare and the welfare of specific groups. According to this view, Lavergne pointed out that trade protection can be the result of governmental procedure principles related to anti-trust policies, national defence or nationalism, in a broader form, protection of less protected groups, support for adjustment costs, or protection of inherited traditional interests (idem, pp. 38-39).

There are still macroeconomic restrictions on government activity, which depend on the economic structure and prevailing economic conditions, and the introduction of trade barriers can be warranted by a rising trade balance deficit and or the maintenance of production and employment.

In the model we built for Portugal, we gave preference to Lavergne's proposition. The Portuguese reality throughout this period is a complex one. The basic interest groups were seriously affected by the 1974 Revolution. The State acquired direct ownership of the financial and industrial centres of the existing private conglomerates, thereby controling some of the country's largest industrial firms, mainly those groups which dominated import substitution in the sixties. The Constitution which emerged from the revolutionary period advocated socialist principles, aiming at the defense of the less favoured groups of the society and maintenance of employment. However the allocative role of prices was predominantely capitalistic, even if, mainly in the public sector, prices have

---

([2]) For a percursory analysis, see Caves (1976).

been manipulated on a distributional role justification. This intricated situation could not be caught through the interest groups' perspective alone, conditioned by an exclusively selfish behaviour of rulers. This period was also characterized by a climat of political instability. From the Revolution to 1987, governments succeeded each other at short intervals (there were six provisional and ten constitutional governments). This situation was responsible for the frequent change of political «clienteles» and channels of influence, which is not *a priori* favourable to the establishment of interest groups.

The empirical models of the Political Economy of Protectionism evaluate politico-economic factors determining protection with econometric models. Built by means of a multiple regression model generally of a single equation, with an indicator of the average level (or change of level) of protection for each industry as a dependent variable, they can be described as a reduced form of a general equilibrium model of protection. Their specification has followed two basic approaches:

1) In the process of the pionnering models, the explanatory variables express the factors which, according to the theory, determine the demand and supply of trade protection.

These models are not obtained from models of general equilibrium and this is in fact their main problem. It is thus difficult to identify, for many variables, what relates to the demand and to the supply side of protection. A particular reason is the lack of synchronization between theoretical and empirical work in this area. Fundamental theoretical results emerged in the beginning of the 80's [3], in the sequence of several important empirical studies [4]. This fact has not been favourable either to enriching the relation between empirical practice and theory or to improving the specifications of the models. Nevertheless further empirical work has been warranted because, amongst other reasons: *a)* it confirms the influence of politico-economic factors on protection, which has served as an incentive for the applicability of the method to other periods and countries, and *b)* it provides the possibility of forecasting the structure of protection from characteristics of industries (Baldwin, 1984);

2) An alternative approach consists in analysing protection structure based on theories or specific hypotheses on political behaviour, and was the methodology followed by Lavergne (1983). For each «submodel» he grouped variables which were simultaneously test-

[3] Brock and Magee (1979, 1980), Findlay and Wellisz (1983), Mayer (1984), Rodrick (1986), amongst others. Krueger (1974) may be considered the pioneer of the theoretical work, but related to the demand for revenues resulting from protection and effects of this activity on welfare.

[4] The percursors were Pincus (1975) and Caves (1976). For a summary of empirical works published see, for example, Porto (1982) and Lavergne (1983).

ed on a multiple linear regression equation; accuracy was thus measured by the degree of coherence shown by the variables chosen and by statistical significance criteria. The «mixed» variables, i. e., those which fall into more than one group, were assigned to the block of variables to which they resembled most closely. This methodology enables to test the relative explanatory power of the alternative models. However, as Baldwin (1984) pointed out, this is a difficult task at the actual stage of empirical testing, since the same independent variables are employed to test several of the hypotheses. «To do so, it is necessary to find economic variables that delineate the various models more sharply and thereby reduce the overlap that now exists» (idem, p. 581).

The methodology we followed is closer to the first approach. We specified a model containing the factors which, on the demand and supply sides, we considered the most representative in determining the protectionist structure in the case of Portugal; nevertheless we do not claim to solve the above-mentioned problems of identification, inherent in these models. We did not follow Lavergne's methodolgy because we were rendered conditioned by the number of observations in the model. Because of difficulties that arise on making production data compatible with foreign trade data, and also because of the way the non-tariff protection indicator was constructed, 1974 input-output table disaggregation was basically selected — a total of 28 observations (⁵). This restricts the number of degrees of freedom we could have at our disposal to conveniently test the high number of variables that such a methodology demands. We also believe that, as far as the first approach is concerned, a more rigorous selection of the variables and the reduction of multicollinearity (which is generally a serious problem in this kind of models, often due to the unclear way used to define some proxy variables), can help isolating the factors that explain the variation of protection among industries. Futhermore, the selection of the variables of demand and or variables of supply was done accounting for the main hypotheses on political behaviour.

2 — Description of the model

The model we used is a linear simultaneous equation system with the following relations:

$$PROT = f(X1, X2, \ldots, Xn, RCA) \tag{1}$$
$$RCA = h(Y2, \ldots, Ym) \tag{2}$$

(⁵) See appendix.

PROT is a measurement of protection; $X1$, $X2$, ..., Xn are explanatory variables of protection; *RCA* is a proxy for measuring comparative advantage; $Y1$, $Y2$, ..., Ym are variables expressing factors determining comparative advantage, which proved to have an explanatory value in the Portuguese case.

As far as we know, similar empirical models did not use this specification.

Our choice relies on the evidence that there are several reasons for a positive relation between comparative disadvantage (CD) and protection [6] —and therefore all politico-economic models try to control the influence of the CD by introducing one or more proxy variables— but that comparative disadvantage (or comparative advantage, CA) cannot be directly observed. This reason has led to the construction of indicators that measure «revealed» comparative advantage (RCA), which are supposed to be an alernative to the direct measurement of CA.

Previous models included CA measurement in the explanatory equation for protection, using one of the following solutions: 1) an indicator of RCA and «indirect» measures of the CA, i. e., proxy variables for measuring a priori known factors (e. g., by means of other studies) that determine the CA (e. g., Lavergne, 1983); 2) some «indirect» measures, without the RCA indicator (e. g., Caves, 1976).

Our criticism is to both ways. The RCA indicator is proposed as an alternative to measuring the CA directly, by assuming that it «reveals» the differences in relative costs as well as those in non-price factors (Balassa, 1965). For this reason, the inclusion, in the *same* equation, of indicators for the RCA and for the factors determining the CA, is not justified. This process causes multicollinearity, eventually of a high degree, as we confirmed. Concerning the second solution, CA is not completed seized, since we do not account for all its determinants.

To overcome these difficulties, we decided to construct the simultaneous equation model with one explanatory equation for protection which includes comparative advantage, measured by means of an RCA indicator, and another for comparative advantage.

Residuais of equations **(1)** and **(2)** are correlated. This is a typical case of «seemingly unrelated equations», and if we apply the method of least squares to each of the equations, the efficiency of the estimators becomes questionable. Zellner (1962) proposed a method for the estimation of models in these circumstances, which improves efficiency — to be compared with the efficiency obtained when the equations are estimated separately.

2.1 — Dependent variables

Protection is a broad concept which embodies customs duties and the whole panoply of «non-tariff» means of protection: quotas for importation, subsidies, governmental purchases and other ways of intervening in the circum-

---

[6] See, for example, Lavergne (1983), pp. 68-74.

stances of international trade by which national production in competition with foreign production is favoured.

Portuguese trade policy in the period under study was characterized by customs protection reinforcement (especially through the introduction of a surcharge), and the novelty of the systematic recourse to non-tariff protection [7].

The two upheavals of 1973-1974 — oil cut off and the April Revolution — destroyed the liberalising tendency of trade policy after 1970. International markets shrunk with further protection and the growing competition of the Newly Industrialised Countries, NIC. In Portugal, the fast deterioration of the trade balance justified the introduction of new kinds of import barriers:

a) Surcharge on imports (SC) (from May, 1975);
b) Quotas for the importation of non-essential goods and CKD automobiles [8] (from February, 1977).

In addition [9], the bulletin for import registration (boletim para registo de importações, BRI) was systematically used for protection and exchange rate control, thus exceeding previous administrative reasons.

These measures were justified on the grounds of difficulties in the balance of payments, but their permanent presence throughout this period, even in 1979, when the current account equilibrium was nearly achieved, suggests that «[...] long term reasons provided the background for the continuation of non-tariff protection [...]» (Silva, 1986, p. 110), a hypothesis that this model allows to test.

Two of these instruments took on particular importance: the surcharge and the BRIs. The surcharge became a more efficient means to control imports than tariffs, and this was especially important with regard to imports from EEC and from EFTA, due to the dismantlement of duties and the loss of the autonomy of the state concerning customs policy definition for this area [10]. The BRIs constituted a simple and efficient means for a specific discretionary protection of some individual enterprises facing competitive problems with regards to imports.

In this period, the traditionally most important instrument of trade policy, protection through tariffs, declined. Its protective role remained, in practical terms, only for products subject to the m. f. n. article, the only kind of tariffs Portuguese government still had autonomy (albeit restricted by GATT treaties). After 1974, two important reforms took effect, in October 1976 and in 1980-1982. The 1980-1982 Reform represented «[...] a reversed movement

---

[7] For an analysis of trade policy in this period, see Silva (1986).

[8] This regime was new, for beforehand only the restriction on importation of CBU vehicles had been in force.

[9] From October 1976 to January 1978 it was also temporarily made obligatory to pay a prior deposit on imports of non-essential goods, equivalent to 50 % of the c. i. f. volue of the imports.

[10] In fiscal terms, the surcharge was responsible for almost half the customs revenues in 1975-1980 (Silva, 1986, p. 114).

towards the protectionist duties of 1970 [. . .]» (Silva, 1986, p. 116), thus confirming the protectionist purpose of trade policy in this period.

Our dependent variables measure the above refered forms of protection.

Concerning tariff protection, the choice between the nominal tariff (NT) and the effective tariff (ET) must be discussed. Whilst the former measures the percentage increase of the domestic price of a commodity (or an industry, if averaged) resulting from the tariff, the latter measures the percentage change in the value added of an industry as the economy moves from a free trade situation to one of tariff protected trade.

The same question applies to non-tariff protection. However in the case of Portugal, and concerning this kind of protection, we had to limit ourselves to the protection of the final good, for we do not possess a reliable measure of the non-tariff protection of the intermediate goods.

Some authors have inequivocally advocated the effective tariff, for, as Porto (1982) argues, «[. . .] the direction and effects of protection are only concerned with the value added in the sectors and the remuneration of the factors of production» (idem, p. 286). However, this point is not pacific. Cheh (1974), for example, argues it is easier for industries to call for changes in the duties on the final product than in the effective tariff, which may unleash an adverse reaction from the producers of intermediate goods. Faced with the absence of agreement on the most adequate concept, we chose to examine both measures, following the example of several authors.

We also introduced the absolute change in duties between 1974 and 1982, as a dependent variable. This variable was proposed by Lavergne (1983) as a way to by-pass the inherent difficulties in the concept of equilibrium between the demand and the supply of protection (idem, pp. 36-47), and which are related to the obstacles to the instant adaptation of the protectionist structure to the changes in the relative influence of the variables: the importance of traditionally forged structural factors, international control, lack of transparency of the information, established social interests, and also because it may happen that it is not the total level of protection but rather the changes in its level that are the source of costs and gains.

Finally, we constructed a nominal tariff-cum-surcharge variable to test whether the surcharge was designed to combine its protective effect with that of the tariff.

In short, the dependent variables in the model are the following:

    1) Nominal tariff (m. f. n.) (NT);
    2) Effective tariff (ET);
    3) Surcharge on imports (SC);
    4) Customs protection rate (CPR): nominal tariff-cum-surcharge;
    5) Nominal tariff change (DNT);
    6) Effective tariff change (DET);
    7) Non-tariff protection (NTP), which embodies the remaining measurements of protection, amongst which the quotas and the BRIs stand out.

We constructed and evaluated a NTP indicator, because no previous reliable evaluations were available in Portugal. We used a methodology based on Hamilton and Svensson (1984) and Balassa (1965): products are ranked according to two comparative advantage measures: 1) an «inherent» comparative advantage measure, which reflects the «potential» trade pattern that would result under free trade; 2) a «realized» comparative advantage measure, which reflects the actual trade pattern distorted with respect to the «potential» pattern by trade barriers. When the influence of customs protection (including the surcharge) is eliminated from the second measure, if there is strong evidence that the position of a product in the second ranking is significantly better than in the first one, then indication exists of non-tariff protection, if it is confirmed at the industry level ([11]). The final result was expressed in a binary variable, assuming a value of one in the case of industries with a non-tariff protection indication, and zero in the other cases. We list in appendix the description of industries with a qualitative indication of non-tariff protection.

2.2 — Independent variables

Interest groups demand protection until the marginal costs of this activity equal the marginal benefit which the increase in protection offers them (Baldwin, 1982). If we assume that «industry» is the relevant concept for the study of protection, «investment» of producer(s) in the demand for protection depends upon: a) the factors determining the benefits they can expect to obtain with protection, and b) the factors determining the costs of demand for protection.

2.2.1 – Determinants of the potential benefits of protection

The expected benefits depend on the economic environment (Brennan and Pincus, 1987, pp. 30-31).

In a static perspective, the benefit producers can potentially obtain from protection is larger (up to a certain point) the greater the *comparative disadvantage* (CD) ([12]).

For the reasons given above, we use an RCA indicator to measure the comparative advantage, but, in opposition to the solution exploited by Lavergne, we excluded the RCA indicators which embody imports. The problem with this kind of indicators is well known: imports are undervalued relative to the free

---

([11]) In the first stage, the comparison of rankings, we started with 490 products. Then we aggregated them according to the 1974 input-output table disaggregation — 28 sectors, in total. For each sector we accepted the qualitative indication of non-tariff protection as granted whenever it could be confirmed for more than 50 % of its products (adjusted to their representative weight in the sector).

([12]) See, for example, Lavergne (1983), pp. 70-71.

trade value by the effect of protection. For this reason, Balassa suggested an export performance ratio for RCA measurement, the ratio (normalized by global trade volume, for purposes of comparison) between the exports made per industry for the world and the same exports made by the world.

In the Portuguese case and for the statistical disaggregation of the manufacturing industry in 28 sectors, we compared, for 1982, the RCA indication provided by an indicator embodying imports and the above-mentioned Balassa indicator. We concluded that the former, although «amended» by the influence of duties, is a bad proxy for comparative advantage, due (at least) to the distortion caused by non-tariff protectionism — thereby warranting the alternative use of the export-share measure of RCA ([13]).

In a dynamic perspective, the benefit producers can obtain from protection is greater the larger the degree of *penetration of imports in home consumption,* in its absence. It is assumed, therefore, that the proportion of imports that competed with home production in apparent consumption (MP), is positively related to protection obtained by an industry. A positive relation between MP and the protection by means of the surcharge and non-tariff protection can also be related to the use of these measures to improve the trade balance deficit.

In a dynamic perspective and as far as import restriction through prices is concerned, the benefit producers can obtain with protection is greater the more inelastic the domestic demand (because, pottentially, home producers have a bigger market at their disposal). If imports are restricted by quantitative means, the volume of imports is the same whatever the elasticity of demand may be (if all the quota is filled); but the more inelastic demand is, the greater the increase in the home market price and, therefore, the greater the expansion of production allowed by protection and the revenue received by import licence holders. It is therefore assumed that there is a negative relation between the absolute value of *domestic demand elasticity* (ELAS) and the variables that measure protection.

If we assume that ELAS is a proxy for import price elasticity ([14]):

1) A negative relation between ELAS and tariff protection can occur if the legislator tried basically to get fiscal revenues through tariffs, as was deduced by Porto (1982) concerning 1970 and 1974; however this is barely plausible, if we consider the feeble percentage of fiscal revenues represented by tax revenues of tariffs in this period;

([13]) The use of this variable poses the problem that it is the only variable in the model which is normalized by world values. However this did not prevent various authors, e. g. Sun Lee (1986), from using this indicator in models with an identical problem.

([14]) This is an assumption rather acceptable in the case of industries competing with imports, the majority in our sample (if the ratio between home supply and imports is zero, the import price elasticity is equal to the domestic demand elasticity — see, e. g., Dougan, 1984, note 9). Besides, the value of domestic demand elasticity for the intermediate goods was based on an import price elasticity estimate (0.50), for data construction reasons.

115

2) Concerning the surcharge, a positive relation with ELAS can express the governmental policy towards the trade deficit, because the import restriction effect of this measure is positively related to the import demand elasticity. Concerning the import quotas policy for several goods, such a positive relation may occur if they actually applied to non-essential goods, as officially prescribed ([15]).

Some authors introduce the *elasticity of supply* into their models. In static terms, the more elastic the supply, the greater the benefit the producer can obtain from the protection of his industry. This argument is not necessarily valid if we consider that: *a)* if there are not barriers to entry in the industry (due to monopolistic control of the market or to other reasons), a high elasticity of supply incentivates new producers to go into the branch, thus reducing eventual individual gains; *b)* if supply is relatively elastic, a low tariff can be sufficient to ensure that all consumption is internally supplied, and the marginal benefits allowed by tariff increases tend to zero (Lavergne, 1983, p. 82); *c)* if productive factors are fully employed, the increase in production determines the rise of their cost, thereby reducing or even eliminating the eventual benefit for the producer. Futhermore, it is difficult to construct a proxy variable for the supply elasticity. As Lavergne remarked (idem, p. 81), in a competitive model it is determined by the short or long run scarcity of industry specific resources, and not by the firm's average cost function. For these reasons, we do not introduce this factor directly into the model, even if the SE variable, proposed in 2.2.9 as a proxy for scale economies, has been interpreted as a proxy for supply elasticity (Ray, 1981), which should only be done taking into account the last restriction mentioned above.

If markets are not perfectly competitive, enterprises receiving protection can obtain monopoly rents and the demand for these revenues may, on its own, be a good motive for demanding protection. This influence can be perceived through variables that measure the degree of concentration of an industry and that are introduced in 2.2.2.

2.2.2 – Determinants of the costs of demand for protection

One question is the *interest* producers can have in protection, another is the *capability* they possess to organize themselves and defend their interests. The demand costs of protection are especially related with this capability, and

---

([15]) That is not to exclude a statistically non significant relation between NTP and ELAS for two reasons: *a)* if the supply curve of the product shifts, the price increase permitted by the restriction can be cancelled out; *b)* the absolute value of elasticity can be underestimated by the influence of the restriction, for this makes import demand more inelastic (see Deardorff and Stern, 1985, p. 8).

also (positively) to the opposition of those who consume the protected product, i. e. , the consumers and the producers that use it as an intermediate good.

The theoretical analysis of the conditions which favour the constitution of interest groups was formulated basically by Olson (1965). Protection is a public good if no firm can be excluded from it, thus creating a «free-rider» problem: the individual firm has an incentive not to contribute to the collective effort of demanding protection if it can enjoy global protection benefits. Olson concluded that constitution of interest groups should then be easier for small groups ([16]). Another condition relates to incentives to the members of interest groups, according to whether they contribute or not to the provision of the public good (as usually happens in unions).

Olson's analysis justified the selection of variables which measure the degree of *concentration of producers* (of production, market domain or enterprises), and a positive relation between these indicators and protection is expected.

However, this relation is not apparent in empirical models (Lavergne, 1983), or may be even negative (Caves, 1976), and has given rise to criticism. Some authors declare problems in the construction of the proxy for measuring the political influence (Caves, idem, note 10; Baldwin, 1984). Others question the influence of interest groups on protectionist structure, emphasizing alternative explanations of an historical character and related to normative attitudes towards less concentrated industries (Lavergne, 1983). Still others reject the self-interest, and even the rationality assumptions of the Public Choice (Quiggin, 1987).

We formulated the hypothesis that the interest of enterprises in protectionism at a global industry level can be non-uniform and, in that case, the absence of the expected positive relation between the degree of concentration and protection can be justified if the divergence is not considered.

A distinction should be made between private national capital and foreign capital interests, because, even if the former favours protection, foreign investors can oppose it. This opposition is especially important under two circumstances: *a*) if their strategy is predominantly oriented to the intra-industry trade and or if they are importers of taxed intermediate goods; *b*) if they fear that a climate of protectionism may give rise to retaliation from export markets.

Foreign capital should favour protection if it basically aims to catch a quota in the home market. In this case, protection of a non-tariff character can be prefered, to guarantee imports competition obstruction. Another reason for a positive relation between foreign capital and protection is «tariff jumping», i. e., investing instead of exporting, used by foreign interests to overcome barriers to trade.

([16]) It has been shown that Olson's argument is valid only if the value of the provision of a public good decreases proportionally to the number who share it, in terms of individual benefit (e. g., Oliver and Marwell, 1988, p. 3). This is the case of protection, for its value to a firm declines proportionally to the number of firms in the industry, *ceteris paribus*, since the benefits of protection must be shared among a wider group.

117

We constructed an industry's concentration variable (based on value added, for data availability reasons) for each kind of capital, to test the difference between the interests of private national capital and foreign capital (CONC and FK1, respectively). We also introduced the variable FK1 into the model for the industries with a weak intra-industry trade indicator, FK2 —thus excluding the main factor which could explain a course of free exchange of foreign capital in the Portuguese case— to test the hypothesis of a positive relation between the presence of foreign capital and protection.

For each industry, we still constructed a variable for the most concentrated public enterprises at the industry level (PS). In the Portuguese case, it is largely justified to control the influence of the public sector. Traditionally following a strategy of imports substitution, the majority of these enterprises suffer from competitiveness. In the period under analysis, they became important sources of economic and political power, presenting characteristics that favour the granting of protection.

The high degree of concentration of most of the state-owned enterprises (the majority belonged to the conglomerates nationalized in 1975), could have favoured the demand for protection and stimulated the demand for monopoly rents based on protection. Theoretically, we can expect that the positive relation between the concentration of the public sector and protection should be still more clear with non-tariff protection. In the case of a «small» country, with production monopoly (and perfect competition in the import licence market), when tariff and import quota give rise to the same home market price, the tariff is more favourable than the quota to increase the profits of the producers ([17]). However, for identical restrictive effect of imports, the home market price (and the producer's profits, as well) increase more strongly with the quota tan with the tariff. Furthermore, some enterprises still have the import monopoly ([18]), which favours the demand for measures which set a quota for imports: the resultant home market price can be higher than in a situation of perfect competition at the import level, and — an important feature — they take the protection rent (which, in unitary terms, is the excess of the home market price over the import price).

Protection to the public sector may also have been granted for normative reasons, frequently invoked by those in power. In that case, the PS variable may not express this aspect conveniently, if the capability of the enterprises of the public sector to obtain protection is not strictly related to the demand side. We therefore tested, as an alternative to PS, a binary variable with the value of one if the production of the public sector dominates in that industry, and a value of zero in the opposite case, independently of the degree of concentration of the entreprises of the public sector at the industry level (PS'). We found that

---

([17]) If there is perfect competition in all markets, tariffs and import quotas are equivalent in all respects, except for revenue considerations (Bhagwati, 1965).

([18]) Relating to this analysis, it is the case of QUIMIGAL.

the sign and degree of statistical significance of PS in the duties protection equations do not differ greatly if we use PS' instead. In the non-tariff protection equation, PS' is greater than PS, statistically.

The capability of an industry to obtain protection is counterbalanced by the opposition of those who are adversely affected, when they are able to organize their opposition effectively. As for consumers, Olson's theory concludes that, in general, consumers are incapable of opposing, due to their dispersion and also to the dilution of the increase of the product's price in their consumers' basket. This argument does not apply to producers that use the protected goods as intermediate ones, and their opposition can counteract the demand for protection. We included, therefore, a variable that measures the degree of the *opposition of buyers* (BO), given by the degree of concentration of sales of one industry to the others, weighted by the degree of concentration of the buying industries. The presumed sign of this variable is negative, i. e., eventual opposition of the buying industries should not be sufficient to hinder the action of the demand for protection.

2.2.3 – Industry vs. factors of production

According to the theoretical analysis of the effects of protection on the income redistribution, there is an important theoretical reason not to find a positive relation between concentration and protection, which is scarcely touched on the theoretical literature and omitted in most of the empirical models. It consists in denying the role of «industry» as the central interest group of the politico-economic approach of protection.

Economic theory teaches us that the relation between the price of goods and the income of the factors of production depends on whether we look at the short or the long term.

In the long term, factor mobility prevails, and the analysis is generally carried on the context of the HOS model (Stolper-Samuelson Theorem). According to this theorem, protection favours one factor against the other (in a two factor model). Thus, the HOS model cannot explain why work and capital owners can have a common interest as far as protection is concerned. Besides, since a mobile factor earns the same return in every industry, the owners of such a factor should not have a special interest in securing protection for a particular industry.

In the short term, the appropriate model assumes that factors are specific to a particular industry or that their mobility is limited (specific factors model of Jones, or others, that include degrees of imperfect factorial mobility). In certain circumstances, these models enable us to prove the existence of collective interests, concerning industry's protection [19].

---

[19] See, for example, Hill and Mendez (1983) and Mendez (1985).

Most politico-economic models of protection assume implicitly that: «since people work, consume, and earn income in the short run, it is not surprising that such attitudes of factory owners toward trade policies cannot be explained by any long-run theory, such as we find in the standard models of international trade theory» (Mayer, 1974, p. 957). Nevertheless, this hypothesis has not been confirmed in the politico-economic models of protection, and it would be interesting to find if, when the relation between concentration and protection is unexpected, it might be factory owners, and not industry, that demand protection.

Accepting that capital is more fixed than work, we examined the relation between the degree of work mobility and protection. With this purpose, we introduced the dispersion index of monthly average earnings in relation to the simple average, after all sex and skill differences have been removed (MOB), assuming that a high dispersion index stimulates work mobility. Therefore, MOB functions as a control variable of the short term perspective, and cannot be positively related to protection if this perspective is confirmed.

2.2.4 – Historical duties

Protectionist structure can partly due to the historical legacy, which hampers adaptation to new circumstances. The reasons are generally connected with the safeguard of traditional social groups, to prevent significant reductions in their income. In the Portuguese case, bureaucratic inertia appears to be a more relevant argument. To test this hypothesis, we introduced the 1974 duties (HD) in the duties protection equations (the 1974 NT if protection is nominal and the 1974 ET if protection is effective). A positive relation with tariff protection is expected, if our hypothesis is true.

2.2.5 – Regional dispersion of production

There are two kinds of reasoning, at least, to assume a negative relation between regional dispersion of production (RD) (by districts) and protection. If any criteria of geographical proximity applies: 1) on the demand side, the proximity eases the organization of producers, and 2) on the supply side, the effect of protection is more visible, thus benefiting the government, and provides electoral support at district level (which can be an important argument in the Portuguese case).

However, the political impact of this peculiar economic structure is not consensual. When industries are dispersed, the multiplication of channels for influencing political representatives at the district level is expected, which may favour the granting of protection mainly if those industries are concentrated, in Olson's view. Besides, wider distribution of political support becomes possible, favouring electoral perspectives. Finally, when displacement costs (vd. 2.2.7) must be taken into account, problems can arise if industry is geographically concentrated, since competition for alternative jobs in the district may become more severe, as Lavergne (1983, p. 116) pointed out.

120

2.2.6 – Volume of workers

The absolute size of the labour force (L) was considered to express the demand for protection exercised by the unions established at industry level. But L is also an indicator of the strength of the industry, and therefore a positive relation between this variable and protection might be connected to the supply side of protection, as a means of gaining politico-electoral support and or protecting significant low-income strata of the population.

2.2.7 – Adjustment costs

The reduction of industrial production, as caused by imports competition, can impose substantial losses of capital and unemployment. The effect of these adjustment costs on protection was mentioned for the first time by Cheh (1974) and is currently related mainly to forms of non-tariff protection. Protection of these industries can also result from government's views on social welfare of certain groups.

As a measurement of adjustment costs, we tested the rate of growth of labour at the industry level (DL) as a means of measuring the adjustment costs of labour. We also introduced the ratio between real and normal profit, which is an indicator of the relative remuneration of capital (LUC). LUC measures the capability of the industry to reduce prices when facing foreign competition, thereby accepting lower profits. LUC can thus be interpreted as an indicator of the ease of capital adjustment. If a positive relation exists between adjustment costs and protection, the sign of these two variables must be negative.

2.2.8 – Complementary of forms of protection

Has non-tariff protection worked as a compensation for «disprotection» through tariffs or, on the contrary, has it functioned as a supplementary form of protection, favouring the industries that have a greater capability to obtain tariff protection? This is an important question to discuss if different forms of protection are to be considered, as happens in this model. To test these hypotheses, we introduced the NPR variable into the NTP equation. It should be negative if complementary is found.

2.2.9 – Variables which explain comparative advantage

In equation **(2)** we introduced the following factors determining comparative advantage in the Portuguese case: capital stock (K), volume of skilled labour (LS) and volume of unskilled labour (LU), degree of use of natural resources (NR), scale economies (SE), and technological advantage (PAT).

121

According to our view of the Portuguese reality, and based on the work of Courakis and Roque (1984), it is assumed that K and LS are negative and LU and NR are positive. The SE and PAT indicators are the size elasticity of enterprises and the number of patents per sector, respectively. They are constructed differently and no hypotheses can be made concerning their sign.

The above-mentioned variables constitute the explanatory variables for each dependent variable indicated in 2.1 and are summarized in tables no. 1 and no. 2.

The functional form we chose was the linear with respect to the parameters to be estimated and the variables, thus following previous empirical work ([20]).

In the regression on non-tariff protection, the original model had to be transformed because of the characteristics of the dependent variable. The method of estimation used was the PROBIT and for this reason this equation is estimated individually. This method of estimation introduces another restriction. In the case of models with a qualitative dependent variable, the number of explanatory variables cannot be higher than the number of observations with positive value (or negative value if this number is lower) — in this case 9 variables. Therefore we had to exclude some explanatory variables of the NTP equation. We selected the variables included in table no. 1, which we considered essential to specify this equation. The disregarded variables were also introduced on a later step, one by one, and their sign was always the expected one, although only BO was statistically significant.

The regressions on duties levels were estimated with the method of Zellner for Seemingly Unrelated Regressions. This method could not be used for the equations on duties changes. In this case, it is correct to express the independent variables in terms of changes, if possible. This is what we have done concerning the RCA indicator (DRCA) and the ratio of competitive imports penetration in apparent consumption. As we do not dispose of data to express all the independent variables of equation **(2)** in terms of changes, those equations are estimated without equation **(2),** by the method of least squares.

In appendix we list and define each of the variables to be used. We also provide the sources for the data.

3 — Empirical results

Table no. 1 includes the results of the estimation for each dependent variable. Table no. 2 summarizes the expected signs, the observed signs and the levels of confidence for which the t-ratio is statistically significant.

([20]) In the case of the first equation, the semilogarithmic form and a logit relationship were tested for the levels equations, but the results did not warrant this modification. These specifications are justified on the grounds of the bounded nature of duties (the lowest they can be lowered is to zero); the logit transformation, in addition, accounts for the fact that there shuold be a limit to the increase of the absolute slope of $f(X)$ as X rises (or falls) — see Lavergne (1983), pp. 178-179 for details.

The explanatory power of the model is high enough for a cross-section model. Multicollinearity does not seem to be a problem. The Farrar-Glauber F test [21], at a significance level of 0.025, is negative for all the variables.

With regard to heteroscedasticity, we used the White standard errors to analise the «significancy» of the variables. They supply consistent estimates of the standard errors of the regression coefficients, even if the residuals are heteroscedastic in some unknown way.

These results are still preliminary. Nevertheless, several conclusions can be already drawn in this phase of the research:

1) The estimate of the variable that measures comparative advantage is always the expected one, except in the effective tariff equation (positive and significant), for which we found some possible explanations: *a)* the effective tariff is too high for some exporting industries (clothing, footwear) and has increased since 1974, which could be due to an explicit policy of compensating home producers for the loss of foreign markets because of very high production costs in the period 1974-1976, and bureaucratic inertia; *b)* the effective tariff is low in some non-competitive industries, because it was assured by non-tariff protection: in the iron and steel industry (concentrated in a state company), administrative protection was guaranteed through administrative licensing, and in the automobile sector, the CKD embargo began. However, this result is of particular interest to us because it expresses a conservative policy towards the pattern of comparative advantage which has remained remarkably stable at least since the beginning of the 70's, according to specific studies [22];

2) The variable measuring the degree of concentration of private national capital never has the expected result, thereby reflecting the difficulties of these enterprises to form interest groups in the case of Portugal. This result does not surprise us. It concerns a country where traditional interest groups were weakened by the political changes of 1974. As Olson (1982) deduced, the influence of the interest groups in a country is positively related to the time life of the regime;

3) The expected positive relation between protection and public ownership is confirmed in nearly all equations. On the demand side, the monopolistic structure of the majority of these enterprises and their economic weight favoured the granting of protection. This structure was maintained by means of barriers to entry into the respective sectors with regard to domestic com-

---

[21] See, for example, Johnston (1972), pp. 163-164.

[22] See Courakis and Roque (1987), and unpublished data by the authors relating to 1972-1982.

123

petition, before and after the 1974 Revolution. Before 1974, barriers had been established by the Law of Industrial Conditioning (Lei do Condicionamento Industrial) and by corporatism, as an institutional framework that favoured self-understanding among enterprises. After nacionalizations, which occured in 1975, barriers to entry remained through several legal devices, e. g., charters and a Law of Sector Delimitation (Lei da Delimitação dos Sectores, 1977), which restricted further investment in the public sector to public enterprises. In these circumstances, comercial protectionism kept these monopolies far from foreign competition, guaranteeing, on leaving, the maintenance of rent monopolies.

However, supply related motives must also be considered. There is a strong organic relationship between public enterprises and the State, that manifests itself in the fact that the Government appoints and removes the members of the executive boards of these companies, which depend on superior directives during the exercise of their functions. The result of the dummy for the public sector indicates that the protection given to this sector does not depend only on the degree of concentration of public enterprises, at the level of each industry. This confirms that those in power had ideological-normative reasons to administer this protection, as the Law relative to these firms shows clearly. These principles stem from political and social considerations, including employment — which appears to have been a broad aim, for the variable measuring the level of employment has a positive sign and is significant in the same equations that manage to describe protection of the public sector (even if trade unions refrain and political support can be a good explanation for this policy).

The results concerning the protection of the public sector also confirm the variety of instruments of intervention of the State in these enterprises, which took place under more or less transparent forms: direct subsidies, administrative licensing, monopoly of public acquisitions and price regulation, amongst others;

4) In the case of non-tariff protection, the absence of a positive and significant relation between concentration of private national capital and protection accept an additional explanation beyond the one based on the weakness of private interest groups: a large part of this protection was probably done through BRIs, for which there were no a priori defined criteria. Import barriers were granted case by case, and this led the interested enterprises to take individual attitudes in demanding protection, directed essentially to the Public Administration. Thus, the

problem of «free-riding» did not arise as far as this kind of protection was concerned. The same reasoning can also help to explain why the public sector binary variable in the non-tariff equation is statistically higher than the variable measuring the degree of concentration of public enterprises at the level of each industry;

5) The global results concerning foreign capital show that apparently foreign investors were not particularly interested in protection. However if industries where intra-industry trade is predominant are excluded, a positive and significant relation is found between the degree of concentration of foreign capital and the level and change of effective tariff, confirming our expectations. An example is the automobile sector which choosed a strategy of overcoming import obstacles and conquering the home market, in this period;

6) As far as users of intermediate goods are concerned, their weak capacity for opposing protection seems to be proven, which confirms the theoretical deductions of the theory of protection demand;

7) The simultaneous interpretation of the result for the variables concerning the expected benefits in the medium term, coupled with the result of the variable measuring comparative advantage, seems to show that producers in Portugal had a static, short term perspective when asking for protection. A similar indication is obtained with the control of factor mobility;

8) The positive and significant sign of the estimate of the elasticity of demand in the tariff-cum-surcharge' and non-tariff protection equations, expresses the purpose of these measures to improve the trade balance. The absence of a significant relation between the penetration of competitive imports in apparent consumption and the surcharge, the tariff plus the surcharge and the indicator of non-tariff protection, confirms the political purpose not to penalize the supply of essential goods;

9) The sign of the estimate of the elasticity of demand in the nominal tariff equation (positive and significant) seems to disagree, at first sight, with the theory. On the one hand, the progressive reduction of the fiscal revenue raising purpose of tariffs is confirmed. On the other hand, this result expresses tariff escalation in safeguard of the country's production structure, i. e., the more protected sectors are those downstream the production structure, which are also, in principle, those with more elastic demand. This hypothesis is confirmed by the fact that the sign of the estimate of the natural resources index is positive and always significant. If this variable were introduced into equation (1) its sign would be negative if the indicator for revealed

125

comparative advantage were also negative, which could equally result from tariff escalation;

10) As far as the influence of traditional duties is concerned, the results suggest that they were important in formulating customs policy, which is an expression of bureaucratic inertia.

The change in the effective tariff in the period under analysis seems to result not from the maintenance of these duties but rather to express the need for compensating the loss of competitiveness;

11) As far as adjustment costs are concerned, we conclude that they were not an important determinant of protection, as the expected result (relating to work) was only confirmed in effective tariff equations. The same conclusion appears to apply to regional dispersion (concentration), which does not seem to have been an influential politico-economic factor;

12) The volume of workers variable has the expected result in almost all equations. This expresses the efficiency of union pressure and or government's intention to protect labour force, thus aiming to influence the public opinion positively and gain votes;

13) Regarding the complementarity between the forms of protection, the possibility cannot be excluded that the industries with the greatest capacity to obtain tariff protection may also have been the ones that benefited most from non-tariff protection. However, as the tariffs relate to Third Countries (which represented about 50 % of Portuguese imports in 1982), we tested the same hypothesis in relation to the surcharge only, and the value obtained for the t statistic is close to zero, which seems to suggest that the «compensation» function of non-tariff protection was more important for industries competing with EEC and EFTA, unprotected as far as tariffs were concerned;

14) The comparative advantage equation does not contradict the results of previous studies.

Finally, regarding the characteristics of each instrument of protection:

1) In the case of protection by duties, global appraisal of these results suggests that the effective tariff was the protection form that was adopted facing factors of a politico-economic nature. The theory is confirmed regarding: interest groups (according to our view of the results); safeguard of traditional interests; costs of labour adjustment; union pressure and or electoralist motives;

2) Surcharge and non-tariff protection adopted to reduce the trade deficit did indeed protect national industry. As far as the surcharge is concerned, this goal was only apparent for less com-

petitive industries. However, the better quality of the adjustment obtained when this variable was added to the remaining m.f.n. duties, suggests that the surcharge was constructed taking into account these duties in the case of Third Countries. As far as non-tariff protection is concerned, the results show that the protection of national industry competing with imports was also the goal, but did serve other politico-economic interests, protecting the public sector and the labour force.

3) The results of the non-tariff equation suggest that the specification of this equation could be improved. We suspect that the introduction of variables measuring the ability of obtaining «favours» (e. g., bribery and similar pratices) by means not directly concerned with the economic structure could be rather interesting, for they were exercised, at least, towards the BRIs aquisition. Unfortunately this is an extremely difficult task.

TABLE NO. 1 (Equation no. 1)

Equation no. 1	NT (¹)		SC (¹)		CPR (¹)		ET (¹)		DNT (²)		DET (²)		NTP (³)	
	β	t	β	t	β	t	β	t	β	t	β	t	β	t
CONST	13.31	1.99	55.40	4.73	68.66	5.13	2.24	.12	— 21.04	— 1.24	12.27	.74	— 5.42	— 1.61
	—	(1.65)	—	(3.20)	—	(3.53)	—	(.15)	—	(— 1.82)	—	(1.20)	—	—
RCA	— .80	— 1.45	— .20	— 1.91	— .28	— 2.38	.22	1.39	—	—	—	—	— 4.37	— 1.93
	—	(— 1.50)	—	(— 2.94)	—	(— 3.35)	—	(2.20)	—	—	—	—	—	—
DRCA	—	—	—	—	—	—	—	—	— .84	— 5.71	.49	— 3.39	—	—
	—	—	—	—	—	—	—	—	—	(— 8.63)	—	(— 7.50)	—	—
CONC	— .01	— .28	— .07	— .78	— .08	— .82	— .33	— 2.31	.14	.93	— .44	— 3.05	3.95	1.12
	—	(— .30)	—	(— .78)	—	(— .92)	—	(— 2.53)	—	(1.21)	—	(— 3.96)	—	—
FK1	— .07	— 1.21	.15	1.51	.08	.71	— .16	— 1.03	.13	.62	.04	.19	—	—
	—	(— 1.01)	—	(1.31)	—	(.55)	—	(— .83)	—	(1.10)	—	(.23)	—	—
FK2	11.94	1.15	— 6.62	— .36	5.57	.27	38.34	1.32	— 10.84	— .36	24.91	.85	4.71	1.03
	—	(1.22)	—	(— .70)	—	(.38)	—	(1.77)	—	(— .67)	—	(1.70)	—	—
PS (⁴)	— .63	— .19	— 9.37	— 1.63	— 9.96	— 1.51	50.71	5.60	15.10	1.67	44.25	5.19	2.40	1.85
	—	(— .16)	—	(— 1.68)	—	(— 1.43)	—	(4.29)	—	(2.65)	—	(4.75)	—	—
MP	— 3.90	— .60	— 8.88	— .79	— 12.84	— .99	36.58	2.11	79.83	2.06	88.58	2.44	— 1.49	— .66
	—	(— .58)	—	(— .71)	—	(— 1.06)	—	(1.85)	—	(3.14)	—	(3.43)	—	—
ELAS	8.97	4.34	— .96	— .26	8.01	1.93	10.53	1.84	— 3.07	— .44	— 4.60	— .69	2.05	1.41
	—	(3.50)	—	(— .33)	—	(2.62)	—	(1.56)	—	(— .40)	—	(— 1.20)	—	—
BO	2.63	.35	— 8.99	— .68	— 6.11	— .41	— 22.19	— 1.07	— 27.69	— 1.16	— 17.73	— .77	—	—
	—	(.33)	—	(— .80)	—	(— .48)	—	(— 1.21)	—	(— 1.55)	—	(— 1.56)	—	—
MOB	— .17	— 2.41	— .33	— 2.60	— .50	— 3.49	— .24	— 1.13	— .04	— .17	.16	— .82	—	—
	—	(— 1.81)	—	(— 2.72)	—	(— 3.16)	—	(— 1.31)	—	(— .22)	—	(— 1.27)	—	—
HO	.76	3.74	— .26	— .74	.50	1.21	.63	3.47	1.53	2.54	— .57	— 2.98	—	—
	—	(3.26)	—	(— .99)	—	(1.56)	—	(3.06)	—	(3.03)	—	(— 5.75)	—	—
RD	.06	2.37	— .03	— .68	.03	.59	— .03	— .43	.04	.57	— .04	— .68	—	—
	—	(1.93)	—	(— .73)	—	(.56)	—	(— .49)	—	(.83)	—	(— .94)	—	—
DL	.04	1.13	.05	.76	.10	1.23	— .16	— 1.51	— .07	— .69	.08	— .79	—	—
	—	(1.24)	—	(.56)	—	(.98)	—	(— 1.88)	—	(— 1.06)	—	(— 1.74)	—	—
LUC	— .94	— .67	— 1.84	— .75	— 2.77	— .99	8.68	2.14	4.17	1.03	8.41	2.12	—	—
	—	(— .59)	—	(— .80)	—	(— .90)	—	(2.86)	—	(2.07)	—	(2.84)	—	—

L	55.61	2.46	—70.78	—1.80	—15.02	—.33	97.85	1.53	262.71	3.99	130.25	2.06	6.35	1.47
	–	(4.02)	–	(—1.64)	–	(—.35)	–	(2.08)	–	(3.91)	–	(3.86)	–	–
CPR	–	–	–	–	–	–	–	–	–	–	–	–	.10	1.30
R^2	.887	–	.538	–	.798	–	.727	–	.909	–	.898	–	.466	–
R^2 adjust	.881	–	.555	–	.806	–	.737	–	.802	–	.779	–	–	–
Percentage corr. prev	–	–	–	–	–	–	–	–	–	–	–	–	.821	–

(1) Method of estimation: SUR.

(2) Method of estimation: OLS.

(3) Method of estimation: PROBIT.

(4) PS' in NTP regression.

All the estimations were made using the «package» TSP.

t — t-statistics.

Figures in parentheses denote t-statistics suggested by White.

TABLE NO. 1 (Equation no. 2)

Equation no. 2	NT [1]		SC [1]		CPR [1]		ET [1]	
	β	t	β	t	β	t	β	t
CONST	— 1.88	— .50	— 1.75	— .45	— 2.05	— .54	— 1.62	— .42
	—	(— .87)	—	(— .84)	—	(— .96)	—	(— .76)
NR	1.43	6.80	1.41	6.69	1.41	6.69	1.41	6.79
	—	(2.59)	—	(2.51)	—	(2.51)	—	(2.52)
K	— 0.12	— 2.02	— .12	— 1.85	— .12	— 1.96	— .13	— 2.04
	—	(— 1.78)	—	(— 1.60)	—	(— 1.73)	—	(— 1.81)
LU	106.45	1.38	84.81	1.09	87.62	1.13	94.08	1.21
	—	(2.02)	—	(1.65)	—	(1.68)	—	(1.80)
LS	— 57.42	— .50	— 20.67	— .18	— 21.69	— .19	— 28.08	— .24
	—	(— 0.79)	—	(— .32)	—	(— .32)	—	(— .42)
SE	10.79	.79	7.46	.53	9.68	.70	7.99	.58
	—	(1.34)	—	(.96)	—	(1.23)	—	(.98)
PAT	26.17	.63	14.40	.35	17.06	.41	18.19	.44
	—	(1.22)	—	(.73)	—	(.85)	—	(.91)
R^2	.635	—	.636	—	.636	—	.636	—
R^2 adjust	.648	—	.650	—	.650	—	.650	—

[1] Method of estimation: SUR.

All the estimations were made using the «package» TSP.

t — *t*-statistics.

Figures in parentheses denote *t*-statistics suggested by White.

TABLE NO. 2 (Equation no. 1)

Equation no. 1	Expected sign	Observed sign						
		NT	SC	CPR	ET	DNT	DET	NTP
RCA	—	(*) —	(**) —	(**) —	(**) +			(**) —
DRCA	—					(**) —	(**) —	
CONC	+	—	—	—	(**) —	+	(**) —	+
FK1	—	—	+	+	—	+	+	
FK2	+	+	—	+	(*) +	—	(*) +	+
PS [1]	+	—	(*) —	(*) —	(**) +	(**) +	(**) +	(**) +
MP	+	—	—	—	(**) +	(**) +	(**) +	—
ELAS	—	(**) +	—	(**) +	(*) +	—	—	(*) +
BO	—	+	—	—	—	(*) —	(*) —	
MOB	—	(**) —	(**) —	(**) —	—	—	—	
HO	+	(**) +	—	(*) +	(**) +	(**) +	(**) —	
RD	?	(*) +	—	+	+	—	+	—
DL	—	+	+	+	(**) —	—	(*) —	
LUC	—	—	—	—	(**) +	(**) +	(**) +	
L	+	(**) +	(*) —	—	(**) +	(**) +	(**) +	(*) +
CPR	?							+

[1] PS' in NTP regression.

(*) Statistically significant at 90 % level of confidence.

(**) Statistically significant at 95 % level of confidence.

Equation no. 2	Expected sign	Observed sign			
		NT	SC	CPR	ET
NR	+	(**) +	(**) +	(**) +	(**) +
K	—	(**) —	(*) —	(**) —	(**) —
LU	+	(**) +	(*) +	(*) +	(**) +
LS	—	—	—	—	—
SE	?	+	+	+	+
PAT	?	+	+	+	+

(*) Statistically significant at 90 % level of confidence.
(**) Statistically significant at 95 % level of confidence.

APPENDIX

The statistical industrial category used is basically that of the Portuguese 1974 input-output table (sectors 15 to 45), with some modifications introduced in sectors 29, 30 and 33, for the purposes of compatibility with data for industrial production (based on the CAE disaggregation). Due to the way the NTP indicator was calculated, it was necessary to remove sectors 24, 31 and 34. In the customs duties regressions we also removed sector 30 for reasons of compatibility with data collected according to the original input-output table classification.

1 — Definition of variables

1 — NT — nominal tariff (simple average) against Third Countries (m. f. n.), second half of 1980.

2 — SC — import surcharge in the second half of 1981. Calculated by simple average in pyramid (see Silva, 1981, for details about this method).

3 — CPR — customs protection rate (nominal tariff plus the surcharge).

4 — ET — effective tariff in the second half of 1980. Calculated by Basevi's method.

5 — DNT — absolute change in the nominal tariff between 1974 and 1982.

6 — DET — the same as 5, but relating to the effective tariff.

7 — NTP — non-tariff protection indicator: binary variable with value of one in the following industries of the input-output table: leather and products; wood; furniture and upholstery; paper, cardboard and products; printing and publishing; iron and steel; non-ferrous metals; shipping repairs and construction; transport equipment.

8 — RCA — ratio between Portuguese exports and world exports, 1982.

9 — DRCA — absolute change in the ratio between Portuguese exports and imports (amended of the influence of customs duties), between 1977 and 1982.

10 — CONC — ratio between the value added (VA) of the private sector enterprises classified, according to the *Expresso* newspaper, amongst the 1,000 biggest enterprises (excepting foreign capital), and the VA of industry (percentage), 1982.

11 — FK1 — the same ratio as in 10, but for foreign capital enterprises refered in the same source.

12 — FK2 — FK1 multiplied by a binary variable with a value of zero for industries with an intra-industry trade indication.

13 — PS — the same as 11, but for public sector enterprises.

14 — PS' — binary variable for the public sector with a value of one for the following industries of the input-output table: basic chemicals, cement, iron and steel, non-ferrous metals, shipping repairs and construction.

15 — MP — ratio between the value of competitive imports and apparent consumption, 1977. In the case of the equations for the duties change, it is the absolute change in MP between 1970 and 1977.

16 — ELAS — price elasticity of domestic demand (absolute value).

17 — BO — indicator of concentration of sales to the remaining industries (if they are higher than 5 % of seller's production), weighted up with the degree of concentration of the purchasing industries, 1977.

18 — MOB — dispersion index of interactivities: dispersion index of average monthly earnings in relation to the simple average, after eliminating sex and qualification differences, 1982.

19 — HD — 1974 tariff (nominal or effective, according to the equation).

20 — RD — index of regional (district) dispersion of production (standard deviation as a percentage of the arithmetic mean), 1979.

21 — DL — rate of change of labour between 1972 and 1976.

22 — LUC — «vulnerability» index: ratio between real profit and normal profit, 1979.

23 — L — total volume of labour, 1982.

24 — NR — index of the use of natural resources, obtained by adding the national technical coefficients of the six first sectors of the input-output table (percentage), 1977.

25 — K — capital stock (normalized by total stock), 1982.

26 — LU — volume of unskilled labour (normalized by total labour), 1982.

27 — LS — the same as 26, for skilled labour, 1982.

28 — SE — elasticity of the size of enterprises.

29 — PAT — number of patents (normalized by the total number of patents), 1982.

2 — Sources used for the construction of the variables

The sources were the following, for the variables:

1, 3, 4, 5 and 6 — Rendeiro, Oliveira, *et al.* (1981), *Competitividade e Especialização perante a CEE*, vol. vi, Ministério da Indústria e Energia (Ministry of Industry and Energy), Porto (1982), for historical duties;

2 — Direcção-Geral das Alfândegas, *Pauta de Serviço* (Customs Tariff);

7 and 8 — OCDE, *Foreign Trade Statistics*;

9 — Idem and also the *Foreign Trade Statistics* from the INE (National Institute of Statistics);

10, 11 and 13 — *Expresso* newspaper, no. 574, 29 October, 1983, supplement «As 1000 maiores empresas portuguesas» (The 1,000 biggest portuguese enterprises);

14 — Martins, M. Belmira, and Rosa, Chaves (1979), *O Grupo Estado, Análise e Listagem Completa das Sociedades do Sector Público Empresarial*, ed. jornal *Expresso;*

15, 17 and 24 — GEBEI, input-output tables;

16 — GEP (Gabinete de Estudos e Planeamento) (1986), *Modelo de Economia Industrial. Bloco Consumo*, Ministério da Indústria e Comércio (Ministry of Industry and Trade), October;

18 — Ministério do Trabalho (Ministry of Labour) (1984), *Relatório de Conjuntura;*

19 — Porto, M. (1982), table II.8;

20 — Cordovil, F., and Santandré, J. (1983), *Séries Regionalizadas do Produto. Remunerações e Excedentes para 1977 e 1979 e do Emprego para 1977*, Lisboa, GEBEI/IACEP, September;

21, 23, 26, 27 and 29 — Industrial Statistics;

22 — World Bank (1982), *Portugal Policies for Industrial Restructuring*, 4, report no. 3804-PO;

25 — GEP (Gabinete de Estudos e Planeamento) (1986), *Stock de Capital*, Ministério da Indústria e Comércio (Ministry of Industry and Trade);

28 — Rendeiro, J. O. (1984), *Estratégia Industrial na Integração Europeia. Contributo para Uma Estratégia Industrial Agressiva em Portugal*, Banco de Fomento Nacional, 21, table A.19.

REFERENCES

BALASSA, B. (1965), «Trade Liberalization and Revealed Comparative Advantage», *The Manchester School of Economic and Social Studies,* vol. 33, no. 2, pp. 93-125.

BALDWIN, R. E. (1982), «The Political Economy of Protectionism», in J. Bhagwati (ed.), *Import Competition and Response,* The University of Chicago Press, The National Bureau of Economic Research, pp. 263-292.

— — (1984), «Trade Policies in Developed Countries», in *Handbook of International Economics,* vol. I, in R. W. Jones and P. B. Kenen (ed.), Elsevier Science Publishers B. V., pp. 572-619.

BHAGWATI, J. N. (1965), «On the Equivalence of Tariffs and Quotas», in Robert E. Baldwin *et al.* (ed.), *Trade, Growth and the Balance of Payments,* Rand McNally, Chicago and North Holland Publishing Company, Amsterdam, pp. 53 and follow.

BRENNAN, G., and PINCUS, J. (1987), «Rational Actor Theory in Politics: A Critical Review of John Quiggin», *The Economic Record,* March, pp. 10-21.

BROCK, W. A., and MAGEE, S. P. (1979), «The Economics of Special-Interest Politics: The Case of the Tariff», *American Economic Review,* 68, no. 2, May, pp. 246-250.

— — (1980), «Tariff Formation in a Democracy», in J. Black and B. Hindley (ed.), *Current Issues in Commercial Policy and Diplomacy,* London, Macmillan, chap. 1.

CAVES, R. E. (1976), «Economic Models of Political Choice: Canada's Tariff Structure», *Canadian Journal of Economics,* 9, no. 2, May, pp. 278-300.

CHEH, J. H. (1974), «United States Concessions in the Kennedy Round and Short-run Adjustment Costs», *Journal of International Economics,* 4, pp. 323-340.

COURAKIS, A., and ROQUE, F. (1984), «An Enquiry into the Determinants of the Net Exports Pattern of Portugal's Trade in Manufactures», *Economia,* vol. 8, pp. 299-331.

— — (1987), «Supply Determinants in the Pattern and Evolution of Portugal's Trade in Manufactures», paper presented in the conference «Economic Integration and Trade and Development Strategies: The Experience of the Iberian Countries», Graduate School of European and International Studies, University of Reading.

DEARDORFF, A. V., and STERN, R. M. (1985), *Methods of Measurement of Non-Tariff Barriers,* UNCTAD/ST/MD/28.

DOUGAN, W. (1984), «Tariffs and the Economic Theory of Regulation», *Research in Law and Economics,* 6, pp. 187-210.

FINDLAY, R., and WELLISZ, S. (1983), «Some Aspects of the Political Economy of Administered Protection», *Kyklos,* 36 (fasc. 3), pp. 469-481.

FREY, B. (1984), *International Political Economics,* Basil Blackwell Publisher.

HAMILTON, L., and SVENSSON, L. (1984), «Potential and Realized Trade Patterns: The Case of Sweden», *Scandinavian Journal of Economics,* 86, no. 3, pp. 371-378.

HILL, J. K., and MENDEZ, J. A. (1983), «Factor Mobility and General Equilibrium Model of Production», *Journal of International Economics,* vol. 15, no. 1/2, August, pp. 19-25.

KRUEGER, A. O. (1974), «The Political Economy of the Rent-Seeking Society», *American Economic Review,* 64, June, pp. 291-303.

JOHNSTON, J. (1972), *Econometric Methods,* McGraw-Hill.

LAVERGNE, R. P. (1983), *The Political Economy of US Tariffs: An Empirical Analysis,* Academic Press.

MAYER, W. (1974), «Short-Run and Long-Run Equilibrium for a Small Open Economy», *Journal of Political Economy,* vol. 82, no. 5, pp. 955-967.

— — (1984), «Endogeneous Tariff Formation», *American Economic Review,* 74, no. 5, December, pp. 970-985.

MENDEZ, J. A. (1985), «A Note on the Neoclassical Ambiguity and the Specific Factor Production Model under Variable Returns to Scale», *Journal of International Economics,* vol. 18, no. 3/4, May, pp. 357-363.

OLIVER, P. E., and MARVELL, G. (1988), «The Paradox of Group Size on Collective Action: A Theory of the Critical Mass. II», *American Sociological Review,* vol. 53, no. 1, February, pp. 1-8.

OLSON, M. (1965), *The Logic of Collective Action (Public Goods and the Theory of Groups),* Harvard University Press.

— — (1982), *The Rise and Decline of Nations, Economic Growth, Stagflation and Social Rigidities,* Yale University Press, London.

PINCUS, J. (1975), «Pressure groups and the Pattern of Tariffs», *Journal of Political Economy,* 83, no. 4, pp. 757-778.

PORTO, M. (1982), *Estrutura e Política Alfandegárias — O Caso Português,* Coimbra.

QUIGGIN, J. (1987), «Egoistic Rationality and Public Choice: A Critical Review of Theory and Evidence», *The Economic Record,* March, pp. 10-21.

RAY, E. (1981), «The Determinants of Tariff and Nontariff Trade Restrictions in the United States», *Journal of Political Economy,* 81, no. 1, pp. 105-121.

RODRICK, D. (1986), «Tariffs, Subsidies and Welfare Analysis with Endogeneous Policy», *Journal of International Economics,* 21, pp. 285-299.

SILVA, A. P. (1981), «A indústria transformadora portuguesa e a adesão à CEE», *Estudos de Economia,* vol. 11, no. 1, September/December, pp 61-87.

— — (1986), *An Analysis of the Effects of Preferential Trade Policies through the Estimation of Quantitative Models: The Case of Portugal,* thesis submitted to the Department of Economics in fulfilment of the requirements for the degree of doctor of Philosophy, January.

SUN LEE, Y. (1986), «Changing Export Patterns in Korea, Taiwan and Japan», *Weltwirtschaftliches Archiv,* vol. 122, pp. 150-163.

ZELLNER, A. (1962), «An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias», *Journal of the American Statistical Association,* vol. 57, June, pp. 348-368.