The Political Economy of Protection in Italy: Some Empirical Evidence *

I. Introduction

Only recently has the political economy of protection, probably as old as protection itself, become the subject of systematic analysis. Preoccupied with the task of showing the "welfare inferiority" of import restrictions, neoclassical and modern trade economists have long failed to address the economic and political reality of protection from the stand-point of the process of choice. This varies among countries, depending on the political framework in which it develops, the institutional framework of trade, and basic economic characteristics.

Although traditionally attention has been paid to the rationales for import protection, typically the level of analysis has been quite abstract. It has been assumed that government objectives (e.g., industrialization) reflect underlying community preferences; proposed policies (e.g., protection of an "infant" sector) have been analyzed in terms of their welfare rationality and/or national development effectiveness. Especially in certain developing countries, other "non-economic" objectives of government have been taken at face value and criticized or defended in political terms, a discussion in which trade economists very often have not participated. The obvious illustration is the issue of "dependency", which has generated substantial literature.

---

* This article summarizes the results of the second phase of a research on world wide protectionist trends sponsored by the World Bank. The research was concluded in the summer of 1982. The Authors, who are now, respectively, Secretary General for Economic Planning and Economist in the Economic Evaluation Unit of the Italian Ministry of Budget and Planning, are solely responsible for the views and interpretations presented in this article which should not be attributed to their past or present employers. The Authors wish to thank Dr. Helen Hughes (World Bank) and Prof. Jean Waelbroeck (Free University of Brussels) for help and comments received in the preparation of this article.

With the development of the theory of public choice, economic analysis has begun to focus on the political processes that lead to decisions on commercial policies.[1] In recent years, a few models have been developed and tested to explain, first, the inter-industry structure of import restrictions, especially tariffs, and, subsequently, that of other forms of government assistance to domestic producers.[2] They assume the existence of a political market for assistance, in which the suppliers and the demanders behave in terms of (net) benefit maximization (re-election benefits for the suppliers and economic benefits for the demanders). The adoption of a bundle of protective measures represents the "price" that clears the market.

In this analysis, rather than specifying and estimating a complete model, the approach was to adopt a specification that emphasizes the demand side of the market and to test it empirically, with clear recognition of its limitations. Protection was addressed in its two basic dimensions: the rate of tariff protection afforded at the EC level, and the rate of subsidy assistance afforded at the national level. The rate of tariff protection was explained by import penetration variables that reflect the degree of the EC countries' exposure to import competition from non-EC sources and therefore by proxy factors that are likely to trigger a common demand for protection. The rate of subsidy assistance (the more endogenous component of industrial protection) was instead explained by variables that reflect more directly domestic demand determinants.

II. The Structure of Protection for the Major Industrial Sectors in Italy

To quantify the structure of industrial protection in Italy, it was necessary to estimate first the nominal and effective rates of tariff protection, as well as the effective rates of subsidy assistance granted to the industrial sectors included in the sample. The effective tariff rate was estimated using the sector breakdown and technical coefficients provided in the 1975 input-output matrix of the Italian economy. The effective rates of subsidy assistance to the same sectors were also

[1] See, for example, BROCK and MAGEE (1974), KRUEGER (1974), PINCUS (1975), CAVES (1976), BALDWIN (1976), ANDERSON (1978) and BROCK and MAGEE (1979).

[2] A most useful comparative analysis of these models can be found in CAVES (1976), which also provides excellent bibliographical references.

estimated, using data on the direct and indirect subsidies (including export subsidies) granted by the government that were contained in the inter-industry table. The effective rates of tariff protection (ERTP) and of subsidy assistance (SUB) were estimated for 35 of the 58 industrial subsectors included in the 1975 table. Among those excluded from the sample were energy and food products.[3]

The effective rates of tariff protection (ERTP) were computed using the standard techniques developed in this field. The simplest version of the ERTP formula was used, after modifying it to allow for a differentiation between exportables and non-traded input.

As to the former, it was assumed that the sectoral output competes abroad at the international "free-trade" prices, since only the internal market is being protected. Italy's membership in the European Communities, however, means not only that tariff protection is no longer being determined at the national level, but also that tariffs are being levied only on imports originating in non-EC countries and, similarly, that exports to EC countries are duty-free. The "internal" market was therefore defined to include the entire Community, so that the concept of exportables becomes applicable to goods sold to non-EC countries and that of importables to goods bought from outside the EC.

Non-traded goods were treated according to the Balassa method[4] by assuming that the tariffs on output equalled zero. It follows that by decomposing a non-traded input into its value-added, non-traded input and traded input components, only the protection afforded the latter would affect the price of the non-tradables. In other words, only the coefficients of the tradable inputs into non-tradables needs to be corrected according to their relative tariffs. Although this correction should have been iterated through a multi-stage procedure, it was possible to get a good approximation by considering only the first two stages of the computation.

Thus the formula used to calculate the effective rate of tariff protection (ERTP) was:

$$ERTP_j = \frac{1 - \sum_i a_{ij}}{\frac{1-E_j^{NC}}{1+t_j} + E_j^{NC} - \sum_m \frac{a_{mj}}{1+t_m} - \sum_n v_n a_{nj} - \sum_n \sum_{n'} a_{nn'} a_{n'j} - \sum_m \sum_n \frac{a_{mn} a_{nj}}{1+t_m}} - 1 \quad (1)$$

[3] In addition, in calculating the effective rates of protection for the 35 sectors considered here, the nominal tariffs on imports of petroleum products and gas were put at zero because the Italian tariff legislation provides domestic industrial users with a great many exemptions. More precise treatment was impossible because of the complexity of the legislation.

[4] See BALASSA (1971).

where: a_{ij} = input-output coefficient;[5]
E_j^{NC} = share of production exported to non-EC countries;
t_j = nominal tariff on the jth product;
m = traded inputs;
v = value-added coefficient;
n,n′ = non-traded inputs.

Of the non-tariff protective devices used by Italy, of which the most important are quantitative restrictions and subsidies, only the latter were considered directly. Because of the lack of suitable price data, the "tariff-equivalent" implicit in the quantitative restrictions in force in 1975 outside the agricultural sector could not be calculated. However, to gain at least a qualitative appreciation of the importance of the quantitative restrictions in the 35 industrial sectors considered here, a computation of the percentage shares of the items included in each sector covered by a quantitative restriction was made.[6]

The results are shown in Table 1, which also contains the nominal tariff rates. A clear shortcoming of these coverage indicators is that they do not take into account the importance and effectiveness of the restrictions. On the whole, however, quantitative import restrictions outside the textile, clothing and motor vehicle industries do not seem to have been particularly important in Italy in the mid-1970s.

Government subsidies to all the 35 industrial sectors included in the sample were taken into account instead and their effective importance estimated. The data on the subsidies, derived from the 1975 inter-industry table, included public contributions to production as well as to exports. The formula used to quantify the effective rate of subsidy assistance (SUB) to industry was analogous to the previous one:

$$SUB_j = \frac{s_j}{\frac{1-E_j^{NC}}{1+t_j} + E_j^{NC} - \sum_m \frac{a_{mj}}{1+t_m} - \sum_n v_n a_{nj} - \sum_n \sum_{n'} a_{nn'} a_{n'j} - \sum_m \sum_n \frac{a_{mn} a_{nj}}{1+t_m}} \quad (2)$$

[5] The a_{ij} coefficients were computed from the 84 sectors of the 1975 Italian inter-sectoral table which is available only at producers' prices. The inter-industry flows, therefore, include taxes but exclude subsidies. The implicit assumption made in using this formula was that the tax structure did not affect the "free trade" coefficients $\frac{(a_{ij})}{1+t_i}$.

[6] More specifically, this procedure was applied to the more than 7,000 products included in the Italian version of the NIMEXE classification.

where: s_j = the ratio of subsidies to production;
E_j^{NC} = share of production exported to non-EC countries;
t_j = nominal tariff on the jth product;
m = traded inputs;
v = value-added coefficient;
n,n′ = non-traded inputs.

Before analyzing in some detail the sectoral structure of the ERTP, it is worth commenting briefly on the tariff averaging method used to aggregate the nominal tariffs of the more than 7,000 items (corresponding to the Italian version of the NIMEXE classification) of relevance to the 35 industrial sectors considered here. Because import data were available at the same level of detail as that of the nominal tariffs, it was possible to choose between two methods of averaging: simple or weighted, in which the weights would be the relative imports.[7] Either of these averaging methods, however, still introduces some bias in the aggregation.[8]

Simple averaging is preferable where the correlation between the height of nominal tariffs and the value of the imports is negative. In such a case, weighing the nominal rates by import shares would seriously bias the estimates. On the other hand, if economic operators react to the effective and not to the nominal rates of tariff protection, the sign of the correlation between the height of nominal tariffs and import values should not be systematically negative.

The data allowed for some interesting statistical checks. In most of the 35 industrial sectors included in the sample, no systematic inverse correlation was found between the nominal tariffs and import values (Table 1). There was some evidence, even if not decisive, of a negative correlation in metals and minerals, railway, shipbuilding and aerospace, and paper and printing. This lack of a significant inverse correlation in most sectors led to a preference for weighted as opposed to simple averages in the tariff aggregation. The weights were the import shares from all sources, including those from EC countries to which no tariffs are applicable.

The estimates of the average nominal tariff rates, effective tariff rates and effective rates of subsidy assistance are summarized in Table 2. In addition to textiles and clothing, the sectors that appear to have been

[7] The "optimal" averaging procedure would have involved weighting the mean of the tariffs by domestic consumption. It could not be used because consumption data were not available at the same level of disaggregation as those for the tariffs.

[8] See BASEVI (1971).

TABLE 1

NOMINAL TARIFFS AND PRODUCT COVERAGE OF QUANTITATIVE RESTRICTIONS IN ITALY (1975)

SECTORS	Nominal Tariffs (simple average)	Nominal Tariffs (weighted average)[(a)]	Product Coverage of Quantitative Restrictions	Number of Products in Each Sector	Within Sector Coefficients of Correlation Between Nominal Tariffs and Import Values
		%			
Ferrous Metals (extraction and preliminary processing)	7.07	5.90	21.99	302	–.183
Non-Ferrous Metals (extraction and preliminary processing)	5.18	2.03	4.50	240	–.128
Non-Metalliferous Minerals (extraction and preliminary processing)	2.32	0.56	0.68	117	–.154
Cement and Related Products	6.17	6.90	4.21	38	.104
Clay Products and Ceramics	7.81	8.09	14,40	75	.043
Glass and Glassware	8.65	9.24	5.05	99	.077
Primary Chemicals (excluding fibers)	10.40	10.61	5.92	804	.015
Secondary Chemicals	9.20	10.75	7.08	305	.129
Pharmaceutical Products	9.05	9.19	5.61	57	.010
Man-made Fibers	8.75	9.02	23.05	59	.097
Metal Products (excluding machinery and transport equipment)	7.50	7.90	5.00	392	.078
Agricultural Machinery	6.32	9.44	9.18	61	.394
Machine Tools	6.14	6.40	23.66	584	–.059
Office Machinery (including data processing and instrument engineering)	8.70	8.27	10.04	251	.045
Electronic Machinery	9.99	13.10	15.60	50	.320
Electrical and Telecommunication Machinery	7.60	8.90	11.60	338	.216
Motor Vehicles (including parts and accessories)	12.52	12.54	43.21	56	.001
Cycles and Motor Cycles (including parts and accessories)	8.71	9.92	22.86	28	.206
Railway Equipment	5.65	5.28	0.00	24	–.284
Shipbuilding	1.52	0.77	0.80	25	–.233
Aerospace Equipment	6.75	5.43	9.00	20	–.372
Spinning and Weaving of Textile Fibers (including upholstery and carpets)	11.26	9.81	35.59	562	–.082
Knitting Goods	16.46	15.71	48.61	144	–.139
Clothing	13.81	13.71	42.87	223	–.007
Tanning and Dressing of Leather	3.87	4.55	5.13	39	.133
Leather Products	8.60	9.04	0.00	31	.127
Footwear	12.40	11.55	16.57	35	–.101
Timber and Wooden Products (excluding furniture)	6.66	1.96	2.17	120	–.184
Wooden Furniture	8.33	8.33	0.00	23	.008
Pulp and Paper	9.22	3.78	12.09	91	–.383
Paper and Board Products	12.15	8.51	0.86	70	–.457
Printing and Publishing	5.67	3.59	0.00	23	–.211
Rubber Products	7.62	8.35	13.02	63	.098
Plastic Products	15.57	16.76	9.46	112	.146
Miscellaneous Manufactures	7.98	9.37	2.50	168	.133

(a) Import values used as weights.

protected the most were those producing primary and secondary chemicals, plastics and pulp-paper. The effective rates of subsidy assistance were highest in the shipbuilding and man-made fibers sectors, both of which are largely controlled by state-owned enterprises. On the other hand, as shown in Table 1, non-tariff protection measures appeared to have been most numerous in textiles and clothing, reflecting the effects of the Multifiber Agreements, and in the motor vehicle sector. Imports of ferrous metals, man-made fibers and machine tools were also subject to a fairly high number of quantitative restrictions in the mid-1970s.

Nominal and effective rates of protection were found to be fairly strongly correlated (with a rank correlation coefficient of 0.853). In 23 of the 35 industrial sectors considered here, the effective rates of tariff protection turned out to be higher than the corresponding nominal rates, thus revealing that the tariffs had the typical "escalation" effect: final goods were more protected than intermediate products (Table 2). This difference is most evident in building materials, chemicals, textiles and clothing, and in some other final products such as furniture, paper and board products and plastic manufactures.

In only two cases — shipbuilding and leather tanning and dressing — was there significant "negative protection". Shipbuilding, as previously observed, has been subsidized strongly in Italy, while the output of the leather tanning and dressing sector represents an intermediate input into the leather products and footwear sectors, which exhibit a relatively high degree of effective tariff protection. A negative, if weak, protection effect was evident in the case of man-made fibers, a sector that is dominated by state-owned or state-controlled enterprises and for which effective rates of subsidy assistance have been very high.

In the machine tool sector, the effective rates of protection appear to have been significantly lower than the nominal rate. In general, then, for all the sectors that produced capital goods, the effective rates of protection were either lower or only marginally higher than the nominal rates. This outcome is not unusual. A similar pattern of results had been obtained from earlier calculations of the effective rates of protection in the investment goods industries of Great Britain and the Federal Republic of Germany.[9] The interpretation of these last results is not

[9] See CORDEN and FELS (1976). In the case of Great Britain, this phenomenon has been particularly evident when the ERTP formula has been modified to take exportables into account, according to the method adopted here.

TABLE 2

NOMINAL RATE OF PROTECTION (NT), EFFECTIVE RATE OF TARIFF PROTECTION (ERTP) AND OF SUBSIDY ASSISTANCE (SUB) IN ITALY, 1975
(%)

SECTORS	NT(a)	ERTP	SUB
Ferrous Metals (extraction and preliminary processing)	5.90	9.30	0.43
Non-Ferrous Metals (extraction and preliminary processing)	2.03	3.61	1.00
Non-Metalliferous Minerals (extraction and preliminary processing)	0.56	- 0.30	0.46
Cement and Related Products	6.90	14.31	0.90
Clay Products and Ceramics	8.09	13.09	0.72
Glass and Glassware	9.24	14.86	0.77
Primary Chemicals (excluding fibers)	10.61	20.96	2.61
Secondary Chemicals	10.75	16.87	0.51
Pharmaceutical Products	9.19	10.66	0.53
Man-made Fibers	9.02	8.59	34.79
Metal Products (excluding machinery and transport equipment)	7.90	9.30	1.05
Agricultural Machinery	9.44	9.73	1.77
Machine Tools	6.40	2.39	0.89
Office Machinery (including data processing and instrument engineering)	8.27	7.12	1.57
Electronic Machinery	13.10	14.83	0.53
Electrical and Telecommunication Machinery	8.90	9.61	0.69
Motor Vehicles (including parts and accessories)	12.54	13.77	0.81
Cycles and Motor Cycles (including parts and accessories)	9.92	12.08	0.75
Railway Equipment	5.28	5.17	0.02
Shipbuilding	0.77	- 6.39	16.18
Aerospace Equipment	5.43	1.86	0.01
Spinning and Weaving of Textile Fibers (including upholstery and carpets)	9.81	11.88	1.05
Knitting Goods	15.71	22.57	0.31
Clothing	13.71	19.86	0.91
Tanning and Dressing of Leather	4.55	- 9.06	1.94
Leather Products	9.04	7.70	1.48
Footwear	11.55	13.83	1.82
Timber and Wooden Products (excluding furniture)	1.96	0.89	0.90
Wooden Furniture	8.33	12.04	1.00
Pulp and Paper	3.78	4.98	4.55
Paper and Board Products	8.51	16.73	0.73
Printing and Publishing	3.59	3.34	0.29
Rubber Products	8.35	7.92	0.23
Plastic Products	16.76	28.44	0.36
Miscellaneous Manufactures	9.32	13.03	2.91

(a) Nominal tariff weighted by import values.

straightforward, however. The relatively low degree of price competitiveness in these sectors can provide a partial explanation. Further, if it can be assumed that there is a relatively high degree of non-homogeneity of products and of vertical integration of production processes in these sectors, it follows that entrepreneurs might have relatively little concern for the tariff structure. In the case of non-homogenous products, non-price factors could *per se* protect domestic production from similar, but qualitatively different, foreign goods. In addition, the likely existence of "'breaking-up costs' resulting from separating vertically related processes" should reduce, to some extent, the production costs in an integrated industry relative to the cost of processing imported inputs.[10]

The analysis of the sensitivity of the ERTP to changes in the nominal tariffs revealed another pattern specific to the capital good sectors. The variations of the effective rate of protection in each sector were calculated by assuming a change of one percentage point in the nominal tariff of each of the 35 sectors (Table 3). The results showed that the capital goods sectors would suffer a loss in effective protection when there was a uniform increase in the nominal tariffs: the increases in the costs of the inputs would more than compensate for the higher protection given to the output. The sensitivity analysis also indicated that a uniform reduction in the tariff structure would have a relatively minor effect on the mechanical and engineering industry, but would reduce more strongly the effective protection provided to the other sectors (namely, chemicals and plastics, building materials and the sectors that supply intermediate inputs to the leather, footwear, clothing and printing industries). The opposite result would hold in the case of a uniform increase in the tariff structure.

III. The Determinants of the Inter-Industry Structure of Protection in Italy

The overall rate of protection afforded Italian industry can be thought of as the sum of three components: the effective rate of tariff protection (ERTP), the "rate" of non-tariff protection (RNTP) and the effective rate of subsidy assistance (SUB). Only ERTP and SUB could

[10] See CORDEN (1971).

TABLE 3

CUMULATIVE EFFECT ON SECTOR ERTP OF A UNIFORM ONE PERCENTAGE POINT CHANGE IN THE NOMINAL TARIFF (a)

SECTORS	% Change in Sector ERTP
Ferrous Metals (extraction and preliminary processing)	1.678
Non-Ferrous Metals (extraction and preliminary processing)	1.594
Non-Metalliferous Minerals (extraction and preliminary processing)	1.032
Cement and Related Products	1.712
Clay Products and Ceramics	1.366
Glass and Glassware	1.484
Primary Chemicals (excluding fibers)	1.998
Secondary Chemicals	1.611
Pharmaceutical Products	1.338
Man-made Fibers	0.858
Metal Products (excluding machinery and transport equipment)	0.920
Agricultural Machinery	0.589
Machine Tools	0.449
Office Machinery (including data Processing and instrument engineering)	0.869
Electronic Machinery	0.923
Electrical and Telecommunication Machinery	0.882
Motor Vehicles (including parts and accessories)	0.568
Cycles and Motor Cycles (including parts and accessories)	0.691
Railway Equipment	1.103
Shipbuilding	1.075
Aerospace Equipment	0.524
Spinning and Weaving of Textile Fibers (including upholstery and carpets)	1.331
Knitting Goods	0.918
Clothing	1.163
Tanning and Dressing of Leather	2.255
Leather Products	0.799
Footwear	1.541
Timber and Wooden Products (excluding furniture)	1.340
Wooden Furniture	1.083
Pulp and Paper	1.793
Paper and Board Products	1.187
Printing and Publishing	1.209
Rubber Products	1.072
Plastic Products	1.245
Miscellaneous Manufactures	0.672

(a) Nominal tariff weighted by import values.

be quantified; their summation is the only available proxy for the inter-industry structure of effective assistance. On the whole, however, the evidence suggests that the distortions that would result from the lack of RNTP information should not be too great, particularly since our cross-section analysis of the determinant of the inter-industry rates of effective assistance refers to 1975, at the very beginning of "neo-protectionism".[11]

Of the two basic components of industrial protection, ERTP can be considered as relatively "exogenous". As tariff rates are set at the EC level, the inter-industry structure of tariff protection is in essence given. Italy can resort only to substitute measures, such as non-tariff protection and direct or indirect government assistance to industry. SUB then becomes the "autonomous" component of the total. This key characteristic of protection in a country like Italy, which belongs to an economic union, has to be taken into account in specifying the determinants of the overall structure of effective assistance to industry. These can be thought of as belonging to two different sets: the first related to the EC market (the "enlarged" sale outlet for Italian industrial products), and the second having more to do with the structural traits of the domestic industry.

The effective rate of tariff protection can be assumed to be responsive to both sets of factors only to the extent that there exists a similarity of interest among EC members as to the sectors that need tariff protection, or, more specifically, to the extent that the industrial structures of the various member countries share common characteristics. The community of interests is likely to be stronger wherever imports from non-EC countries "encroached" upon domestic industrial production. From the single country standpoint, the variables that were hypothesized as proxies for this aspect of the demand for protection were the share of domestic production exported to other EC countries (EXEECSH) and the penetration of domestic markets by non-EC exporters (defined as the share of non-EC country exports in domestic consumption). The import penetration variable was in turn split into two components to reflect the degree of processing of imports: intermediate inputs (IMNEECISH) and final goods (IMNEECFSH).

The escalation characteristic of the tariff structure suggests that IMNEECISH should be negatively related to the ERTP, while

[11] See GRILLI (1980).

IMNEECFSH should be positively related to it. EXEESCH, which reflects the importance of EC markets for Italian producers and, hence, their incentive to ask for tariff protection at the EC level, should also be positively related to the ERTP.

The effective rate of subsidy assistance was assumed to depend on the labor intensity of production, proxied by the labor's share of the value added (LSH), and on the value added share of output (VASH); these variables represent the willingness of workers and entrepreneurs, respectively, to contribute to the lobbying efforts of their industry.[12] Because of the weight of the trade unions in Italy, normally there should be a strong degree of political and social support for workers' demand for assistance, and even more so in those sectors where the importance of labor is greater. LSH was, therefore, hypothesized to be positively related to the level of protection received by a sector. It was further assumed that the lower the share of value added in production, the higher would be the gains that entrepreneurs would receive from a lobbying effort that results in government assistance. As such, VASH was expected to be negatively related to the left-hand side variable of the model.

It was hypothesized that the effective rate of subsidy assistance to industry in Italy depended on some additional factors. Because of the dualistic nature of the Italian economy — with a relatively less developed industrial structure in the southern areas — the regional location of industrial activity was thought to have some influence on the level of protection through subsidy assistance. The variable used as a proxy for the regional distribution of industrial activity was the share of workers employed in the poorer southern regions in each industrial sector (POORREGSH). This variable should account for the additional strength in the demand for protection deriving from the physical location of production in the economically weaker regions.

The results of the cross-section analysis performed using this model are shown in Table 4. The empirical findings seem to conform quite well to the assumptions. All the variables included in the "demand" equation showed the expected sign at acceptable levels of statistical significance, except for IMNEECFSH. The results suggest that, overall, the structure of protection is more directed to ensuring low prices for industrial inputs from non-EC countries than to protect-

[12] See ANDERSON and BALDWIN (1981).

TABLE 4

DETERMINANTS OF THE EFFECTIVE RATE OF ASSISTANCE IN ITALY

Dependent Variable / Explanatory Variables	Constant	IMNEECFSH	IMNEECISH	EXEECSH	LSH	VASH	POORREGSH	Test Statistics $\bar{R}^2$	SEE	F
(ERTP + SUB)	.042	.067	−.365*	.231	.399*	−.306*		.495	.0638	7.67
	(.58)	(1.10)	(−3.09)	(1.68)	(4.20)	(2.50)				
»	.065		−.365*	.224	.387*	−.330*		.491	.0641	9.21
	(.94)		(−3.08)	(1.63)	(4.09)	(−2.72)				
»	.196	.067	−.423*	.297*	.396*	−.284*	.206*	.562	.0595	8.26
	(2.08)	(1.19)	(−3.75)	(2.27)	(4.47)	(−2.47)	(2.32)			
»	.219		−.423*	.290*	.384*	−.307*	.206*	.555	.0599	9.49
	(2.35)		(−3.72)	(2.20)	(4.33)	(−2.70)	(2.31)			

* Significant at the 5% level.
(t values in parentheses).

ing the domestic market from the competition of final goods originating in the same countries. The demand side interpretation of this equation also seems to be confirmed by the good performance of the variables representing the labor intensity and value-added share of the turnover (LSH and VASH). Finally, the structure of protection in Italy seems to have favored production by the southern industries as shown by the significance of the regional concentration variable (POORREGSH).

To test whether the attribution of the two sets of determinants to the two main protective devices considered here — tariffs and government subsidies — are correct, the same model was re-estimated with ERTP and SUB as the separate left-hand side variables. The results (Table 5) seem to confirm the *a priori* hypothesis. More specifically, the two variables that mostly reflect the sectoral structure of the domestic industry (LSH and VASH) do not seem to play any significant role in the explanation of the effective rates of tariff protection granted at the EC level. However, they have a high explanatory power in the equation concerning the effective rates of subsidy assistance granted at the national level. Conversely, the trade and penetration variables (IMNEECISH and EXEECSH) that are most significant in explaining the effective rates of tariff protection do not seem to play the same role in explaining the effective rates of subsidy assistance. Instead, the relative weight of the locational variable was more dubious: POORREGSH consistently showed the expected positive sign, but was never significant in explaining either ERTP or SUB. Its contribution to the explanation of the structure of assistance to Italian industry was statistically significant only at the aggregate level.

To test the validity of the assumption that the subsidy component of the overall rate of assistance to industry in Italy was relatively endogenous, a final check was performed by testing a recursive formulation of the model in which ERTP was introduced directly as an explanatory variable of SUB. This is equivalent to subsuming under ERTP the effect of the import penetration and "enlarged" market variables (IMNEECFSH, IMNEECISH and EXEECSH).

The results of this test are shown in Table 6. The effective rates of tariff protection are shown to influence significantly, and in the expected direction, the effective rates of subsidy assistance to industry: the higher the ERTP, the lower the SUB. Moreover, the sign and the values of the coefficients for both the LSH and VASH variables were invariant to the new specification. While the POORREGSH variable continued to exhibit the right sign, the level of statistical significance was weak.

TABLE 5

DETERMINANTS OF THE EFFECTIVE RATE OF TARIFF PROTECTION (ERTP) AND OF THE EFFECTIVE RATE OF SUBSIDIZATION (SUB) IN ITALY

Dependent Variable \ Explanatory Variables	Constant	IMNEECFSH	IMNEECISH	EXEECSH	LSH	VASH	POORREGSH	Test Statistics $\bar{R}^2$	SEE	F
ERTP	.257* (2.27)	.063 (.95)	−.317* (−2.33)	.303** (1.93)	−.027 (−.26)	−.100 (−.73)	.148 (1.38)	.146	.0714	1.97
»	.206* (2.43)	.074 (1.14)	−.319* (−2.43)	.300** (1.99)			.154 (1.48)	.186	.0697	2.94
»	.200* (2.41)	.075 (1.14)	−.274* (−2.11)	.252 (1.68)				.155	.0711	3.07
SUB	−.061 (−1.03)	.004 (1.11)	−.106 (−1.50)	−.006 (−.08)	.424* (7.59)	−.184* (−2.55)	.059 (1.05)	.640	0.374	11.11
»	−.080 (−1.44)				.413* (7.74)	−.183* (−2.60)	.040 (.76)	.649	.0370	21.99
»	−.109* (−2.78)				.413* (7.79)	−.187* (−2.70)		.654	.0367	33.14

* Significant at the 5% level.
** Significant at the 10% level.

TABLE 6

A RECURSIVE SPECIFICATION OF THE EFFECTIVE RATE OF ASSISTANCE MODEL FOR ITALY

Dependent Variable \ Explanatory Variables	Constant	NT	ERTP	LSH	VASH	POORREGSH	Test Statistics $\bar{R}^2$	SEE	F
SUB	-.083* (-2.09)		-.156** (-1.97)	.408* (8.03)	-.207* (-3.08)		.683	.0352	25.40
"	-.080** (-1.91)	-.278** (-1.74)		.415* (8.07)	-.206* (-3.02)		.674	.0356	24.51
"	-.048 (-.87)		-.161* (-2.03)	.408* (8.01)	-.203* (-2.99)	.047 (.92)	.681	.0353	19.17
"	-.060 (-1.07)	-.267 (-1.64)		.415* (7.98)	-.202* (-2.91)	.029 (.56)	.667	.0360	18.06

* Significant at the 5% level.
** Significant at the 10% level.

Finally, when the nominal rate of tariff protection (NT) was used instead of the effective rates (ERTP) as a right-hand side variable, the regression lost some explanatory power. This result seems to lend some empirical support to the hypothesis that economic agents react more to the effective than to the nominal rates of tariff protection.

IV. Conclusions

The results of this analysis support the notion that in Italy the dichotomous nature of the assistance variable, defined as the sum of ERTP and SUB, is of critical importance. Given the rate of tariff protection (which is fixed at the EC level), the demand for subsidy assistance at the national level assumes rather clear-cut autonomous contours.

Two different sets of determinants could be assigned to the two components of overall assistance to industry. Specifically, it was found that the effective tariff rates protect Italian exports in the EC markets and to a lesser extent against the penetration of non-EC exports of final goods into domestic markets. It was also found that the subsidy assistance to industry granted at the national level was significantly influenced by the labor intensity of the production processes, as well as by the size of the value added share of output. Both variables reflect endogenous impulses toward industrial protection. The output of industries located in the less developed regions of the south was found to be protected by both tariffs and subsidies. Yet, the lack of significance of the regional variable (POORREGSH) in explaining the effective rate of subsidy assistance in the recursive version of the model may well be attributable more to its statistical inadequacy than to the protection afforded by tariffs to the industrial sectors that are relatively more concentrated in the southern regions. Without excluding, on the basis of the available evidence, the existence of a bias in the EC tariff structure toward the protection of industrial output located in the weak regions of the Community, it is our opinion that the importance of domestic subsidy assistance to the southern industry of Italy needs further investigation.

Also verified empirically was the substitution relationship between tariff protection determined at the EC level and subsidy assistance

determined at the national level; this relationship was implicit in the definition of the overall assistance variable as the algebraic sum of ERTP and SUB. National authorities can take substitute measures to protect their industries, and indeed have done so. What gets done in Brussels can get undone in Rome. The results confirmed that this substitution has taken place in Italy.[13]

The characterization of the estimated model as a demand model implies that Italy automatically adjusts its supply of assistance to changes in demand. While this assumption may not be untenable on *a priori* grounds, given the institutional features of this market up to the mid-1970s, it is not clearly tenable *ad infinitum*. Even if there were no serious concern over the specification biases exhibited by a demand equation estimated on such a basis, the supply side of market for protection requires more specific attention. The rationale of public intervention in "granting" assistance to industry needs to be made explicit.

As a final point, the lack of complete data series on subsidies to industry made it impossible to analyze changes in the inter-industry structure of assistance in Italy over time. While the results of the static analysis presented here are encouraging and interesting, a dynamic analysis of industrial protection could provide additional insights. It is important to understand, *inter alia*, which factors trigger, over time, the demand for assistance and determine its changes; how important the existing stock of assistance is in determining its modifications; the nature and relative importance of the instruments used to achieve objectives; and, finally, the importance of the different forms of frictions that influence the adjustment of supply to changes in protectionist pressures.

Roma

ENZO GRILLI - MAURO LA NOCE

[13] This phenomenon was also noticed in West Germany. See GLISMANN and WEISS (1980).

REFERENCES

ANDERSON, K., 1978, "The Political Market for Government Assistance to Australian Manufacturing Industries". A paper presented to the VII Conference of Economists, Macquarie University, Sydney, August. (A revised version appears in the *Economic Record*, 56 (153), June, pp. 132-144.)

ANDERSON, K. and R.E. BALDWIN, 1981, "The Political Market for Protection in Industrial Countries: Empirical Evidence". World Bank Staff Working Paper, No. 492, Washington, D.C., October.

BALASSA, B., 1971, *The Structure of Protection in Developing Countries*. Baltimore, The Johns Hopkins University Press.

BALDWIN, R.E., 1976, "The Political Economy of Postwar US Trade Policy". *The Bulletin*, 4, New York University Gratuate School of Business Administration.

BASEVI, G., 1971, "Aggregation Problems in the Measurement of Effective Protection", in *Effective Tariff Protection*, edited by M.C. Grubel and H.G. Johnson, Geneva, Graduate Institute of International Studies.

BROCK, W.A. and S.P. MAGEE, 1979, "The Economics of Special Interest Politics: The Case of the Tariff". *American Economic Review*, 68 (2), May, pp. 246-50.

BROCK, W.A. and S.P. MAGEE, 1974, "An Economic Theory of Politics: The Case of the Tariff". Mimeographed.

CAVES, R.E., 1976, "Economic Models of Political Choice: Canada's Tariff Structure". *Canadian Journal of Economics*, 9 (2), May, pp. 278-300.

CORDEN, W.M., 1971, *The Theory of Protection*. Oxford, Oxford University Press.

CORDEN, W.M. and G. FELS, eds., 1976, *Public Assistance to Industry: Protection and Subsidies in Britain and Germany*. London, Macmillan.

GLISMANN, H.H. and F.D. WEISS, 1980, "Evidence on the Political Economy of Protection in Germany". World Bank Staff Working Paper, No. 427, Washington, D.C., October.

GRILLI, E.R., 1982, "Italian Commercial Policies in the 1970s". *Review of Economic Conditions in Italy*, No. 3, October, pp. 357-404.

KRUEGER, A.O., 1974, "The Political Economy of the Rent-Seeking Society". *American Economic Review*, 64, pp. 291-303.

PINCUS, J.J., 1975, "Pressure Groups and the Patterns of Tariffs". *Journal of Political Economy*, 83, pp. 757-78.