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DID TRADE POLICY FOSTER ITALIAN INDUSTRIALIZATION EVIDENCES FROM THE EFFECTIVE PROTECTION RATES 1870-1930

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Abstract

Trade policy, and its effects of tariffs on structural change and industrialization, is arguably the most contentious topic in Italian economic history. However, so far the discussion has relied almost exclusively on few scattered data and anecdotal evidence. This article builds on a comprehensive data-base of nominal and effective protection rates to test the main hypotheses put forward in the literature. We show that there is little evidence of a deliberate strategy to foster industrialization, or of any consisted strategy at all. So we argue that the actual lay-out of Italian duties was the somewhat haphazard outcome of several causes, notably the need for revenue and the lobbying by sectional interests.

Keywords: Italy, protection, industrialization.

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1) Introduction:

Trade policy has always been a controversial topic, because at least until the 1930s, protectionism was the main tool available to affect the allocation of resources in the economy. Consequently, it has been subject of extensive historical research.. In principle, one could ask four different questions:

- a) how did the trade policy affect welfare?
- b) how did it affect the allocation of resources?
- c) how did it affect the distribution of income among owners of the factors (capital, labor, land)
- d) why was the policy adopted?

The Italian case is no exception: the trade policy is arguably the most contentious topic in Italian economic history. The debate however has focused almost exclusively on the second question, whether protection did or did not contribute to structural change and industrialization. This feature is easy to understand. In fact Italy in the second half of the 19th century was still a backward country, way behind France, Germany or the USA in industrial development. Hence, its industry was supposed to need help from the state: the majority of historians would agree that the government tried to provide at least some support. They however disagree on the outcomes of trade policy. Opinions range from a tentative endorsement to a very stern criticism. Unfortunately, very seldom if ever, these statements are based on any sort of quantitative test. Historians rely mainly on the opinions of contemporary economists, which included some cursory quotation of duties, and, sometimes, on evidence of changes in the trade flows. Even the actual level of protection is largely unknown: there are very few estimates of nominal rates for selected products and one only attempt to compute effective protection rates (¹).

Such a gap in knowledge has to be filled in order to set the debate on a more sound empirical footing, and this is the aim of our research. As a starting point, we have estimated nominal rates of protection for all tradable goods collected in some 400 “products” (roughly corresponding to the 4-digit SITC classification) for five benchmark years (1877, 1889, 1897, 1913 and 1926). In a companion article (Federico-Tena 1998), we have used these data to show that overall protection was not that high, except perhaps for a brief spell of time in the 1890s. We therefore argue that welfare losses could not have been that large. In this article, we deal mainly with effects of trade policy on the allocation of resources and on the structure of the economy, by computing two sets of effective protection rates – a “standard” estimate for some 35 sectors in 1913 (or “intensive”,

¹ Cf. Tattara 1980 (estimates of nominal and effective rates for some class of manufactures in 1913 and 1926) Federico 1984 (nominal duties on wheat from 1861 to 1913) and Zamagni 1990 (nominal duties on chemical products in various years).

Statistical Appendix, tab. B7) and a slightly less conventional estimate of a rate for each “product” (or “extensive”, Statistical Appendix tab.B1-B4) ⁽²⁾. We assume that the relative size of an activity is somehow positively related to the extent of effective protection it receives. A protected activity would grow in relative terms at the expenses of less protected ones, or of the production of exportables or of non-tradables. Though plausible, and well-rehearsed in economics and economic history, this inference is not necessarily true (Corden 1971, Anderson 1994 pp.130-131). For instance, protection would not cause growth if the activity needs some specific input, such as skilled work, whose supply is totally inelastic and cannot be imported. This is admittedly an extreme case, but the mobility of inputs and the substitutability between inputs and raw materials do influence the extent of growth, *ceteris paribus*. These effects can be taken into account in a CGE framework. Unfortunately, most of the historical issues concern specific productions, which are very difficult to consider in a CGE model for lack of data. Effective rates should be seen as a second best, which trades off some theoretical accuracy with greater historical detail.

The next section outlines the history of Italian trade policy and reviews the debate about it. Section three discusses to what extent the historians’ opinions are supported by facts – arguing that their pick of winners and losers is broadly correct, but only within the narrow subset of activities they consider. So section 4 takes into account the whole imports in order to understand if the trade policy consistently aimed at fostering industrialization – a sort of revealed preferences approach. Actually, there is little evidence of any such strategy, or of any consistent strategy at all. So the fifth section argues that the lay-out of Italian duties was the somewhat haphazard outcome of several causes, notably the need for revenue and the lobbying by sectional interests.

2) The Italian trade policy in history and in the literature

The history of the Italian trade policy resembles very much that of the other main European countries ⁽³⁾. Protection had a very long tradition, and in the first half of the 19th century most states of the peninsula levied high duties. Actually the level of protection has been decreasing everywhere since the 1840s, but on the eve of the unification of the country only Piedmont and Tuscany approached free-trade. After 1861, the very liberal Piedmontese tariff was extended to the whole country with a stroke of pen (an almost unbelievable move in the present world of overcautious trade negotiations). Two years later, in 1863, the few remaining duties were abolished by a treaty with

2 Cf. for all the details on the sources and methods Appendix A

³ The literature in Italian is quite large (cf. Corbino 1931-35 Calderoni 1961 Calzavarini 1966 Prodi 1965-66 Pedone 1969). In English some details provided by Coppa 1970 and Zamagni 1993. For the European experience see Capie 1994, Bairoch 1989 and Foreman-Peck 1994

France. Italy officially remained a free-trade country for about fifteen years, though some duties were raised for fiscal purposes. Predictably, the industrialists complained loudly, and their requests were partially accepted in 1878. The Italian tariff preceded the German one, which is usually deemed to have marked the return to protection in Europe. The scope of the new tariff was however limited to textiles only, and so many scholars date the real beginning of Italian protection to 1887. In that year the parliament levied a duty on wheat (which was to be increased three times in the following seven years) and approved a new, openly protective, tariff on manufactures. It granted protection mainly to textiles, then the largest industry by number of employees, and to the steel industry. The tariff caused a disastrous commercial war with France, then Italy's main trading partner (⁴). The war lasted from 1888 to 1892, when Italy was abolished all the additional duties on French products (France followed suit only in 1898). After the defeat, Italy adopted a more conciliatory approach, and lowered its duties in two rounds of treaties with Germany, Austria-Hungary and Switzerland (1892-93 and 1904-06). Besides, the level of protection was decreasing as price increase reduced the ad valorem equivalent of the (specific) duties. A new tariff was being drafted just when World War began. During the war some duties were suspended, including that on wheat. The new tariff was enacted in 1921 by royal decree and definitively approved by the Parliament (with reductions) in 1923. It increased the duties on manufactures such as engineering goods. The duty on wheat was re-established three years later, in 1925, and this move heralded a massive increase in duties as response to the Great Crisis. Since 1935-36, the trade policy aimed explicitly at rendering Italy self-sufficient ("politica autarchica"), and tariffs were supplemented by quotas and other restriction to trade, often agreed upon in the framework of clearing arrangements. The trade was somewhat liberalized in the late 1940s, and the protection went down (rather slowly) in the 1950s-1960s as Italy joined the EEC. Shortly, Italy remained officially committed to protection throughout all the first, very long, stage of its economic growth.

As said, the trade policy has been always very controversial. The debate has focused (albeit somewhat confusedly) on the three main questions:

- was the strategic choice of protection correct?
- was the choice of industries correct?
- did the duty on wheat harm industrialization?

The wisdom of protection was almost unanimously criticized by economists, at least before the 1920s (when dissent from the official trade policy became increasingly dangerous). They held that Italy would have better exploited its comparative advantage in agriculture ("Italy's coal is our sun")

⁴ The war increased protection by slightly more than a percentage point (Federico-Tena 1998 fn.10), because its

or in "natural" industries, if any ⁽⁵⁾. However, such an uncompromising free-trade stance is no longer common among historians. Scholars such as Sapelli (1992) and Zamagni (1981, 1994) stress that protected industries did grow in the long-run, and assume that in most cases this growth would not have been achieved without protection. They also deem these industries as essential for the long-term Italian growth. Therefore they conclude that the advantages of industrial protection outweighed whatever short-term losses.

The majority of historians concedes that some protection might have been useful, but object to the selection of industries. Are (1974) argues that the state should not have made any choice: every industry deserved support and should have been given the same (effective) rate. Gerschenkron (1962), possibly the most influential author in Italian economic history, states that protecting cotton industry (an "old industry with limited possibility of technical progress") was pointless and protecting the steel industry positively harmful, because it raised the cost of steel, an essential input for engineering. He reckons, however, that protection to engineering and chemicals might have been sensible. Fenoaltea goes as far as to argue that, without duties on steel, Italian engineering could have started an export-led industrialization sixty years before it did so. In a path-breaking article, which unfortunately has not been imitated, Toniolo (1977) raises some doubts upon the relevance of protection to steel. Letting imports free (and subsidizing the domestic industry, the only politically feasible alternative to protection) would have doubled the engineering Value Added in 1908 and increased by 40% in 1913, but this would have raised the total GDP by a mere 1-1.5% (while the subsidy would have cost a 4% of state revenues). The author reckons that "such a policy would not have significantly altered the course of Italy's growth" (1977:671)

The duty on wheat is less easy to defend. Many historians have pointed out that wheat growing was wholly unsuited to Italian resource endowment, and its protection was particularly harmful to industrialization, because it supplied a basic wage good ⁽⁶⁾. So at best it can be defended as a useful short-run device to avoid a potentially devastating crisis in face of the grain invasion (Zamagni 1993, Federico 1984).

3) A quantitative review of the historical debate

impact was muted by the substitution of other suppliers to French ones.

⁵ Cf. Cardini 1981. The definition of "natural industries" was quite vague. Most people thought to the industries which used domestic raw materials, such as silk weaving; some extended the category to industries which could balance the disadvantages of foreign raw material with the low cost of labour (like cotton).

⁶ Cf. Gerschenkron (1962), Sylos-Labini 1973, Cohen 1979. On top of it, Fenoaltea (1993) argues that the ensuing loss of potential jobs prevented industry to absorb the increase in agricultural population, who was forced to emigrate. In other words, the duty on wheat was the ultimate cause of emigration.

As the previous outline shows, the discussion among historians focuses on a handful of products – the “protected” ones - wheat, sugar, steel goods, textiles (mainly cotton manufactures), and the “worthy losers”, engineering goods and chemicals. The implicit ranking within this set of goods is by and large confirmed by the quantitative analysis. According to the “intensive” set of rates (tab. B7 in the Appendix), in 1913 the effective protection was very high on sugar (126%), high on steel-making (74%), substantial for wheat (30%) and textiles (27%). The protection on engineering goods was probably about zero, as the sum of a negative protection on rolling stock and ships and a marginally positive one on other engineering goods. The only departure from the conventional wisdom is the case of chemicals, which in 1913 enjoyed a protection not much inferior to textiles. Tab.1 reports the “extensive” set of rates computed as ratios to the average protection rates for the five benchmark years

Tab. 1
Relative effective protection on selected goods

	1877	1889	1897	1913	1926
Sugar	4.1	17.5	24.4	37.0°	3.0
Sugar (a)	3.7	4.8	5.3	6.5°	2.5
Pig iron	Na.	3.1	1.5	3.7	5.0
Other steel goods	Na.	2.3	4.6	5.2	3.4
Total steel manufactures	1.6	2.0	2.8	3.9	3.5
Grain	0.5	1.6	2.5	2.6	1.5
Cotton manufactures	2.7	3.7	3.6	2.3	0.9
Wool manufactures	-1.3	2.1	2.9	1.8	2.2
Linen/hemp manufactures	0.4	-0.3	0.0	0.5	0.7
Rubber manufactures	0.0	0.3	0.3	0.2	1.6
Chemicals	0.0	-0.1	-0.2	1.1	1.9
Machinery	0.1	0.3	0.3	0.5	1.3

(a) protection net of excise ° on sugar for internal consumption (the figure for all imports, included those subject to a drawback, was 13.2)

Source: Statistical Appendix tab. B8 (weighted averages); excise and duties on sugar Bianchi Tonizzi 1988 tab. 3

The historical perspective adds some interesting facts. The change in regime of 1887 seems to have benefited much more sugar and wheat, i.e. the agricultural products, than steel. The protection on sugar was unbelievably high: in 1897 the nominal rate was a staggering 314% and the effective one 466%. Unsurprisingly, Italy had the lowest consumption of sugar in Europe (with Greece) a mere 3.9 kg., less than a tenth of UK (Bianchi Tonizzi 1988 tab.2) . Actually, part of the rents was confiscated by the state, which levied a substantial excise. Row a) reports the protection rate net of excise. Actually, the figures may understate the level of protection in the first years, as there is evidence that the excise was largely eluded before 1900. Anyway, even if it was paid in full, the remaining protection would have been comfortably high. Yet, the domestic production of sugar beet started only at the turn of the century. So imports dominated the market until the late 1890s and

disappeared only after the 1902 Brussels agreement with other European producing countries. Also steel industry was not an instant success, in spite of the substantial protection. The production of pig iron did not start before 1902, fifteen years after the first duty, and the production of steel even as late as 1913 was small in comparison with the Austrian or Russian one. On top of it, imports, especially of high Value Added goods, were still large: the balance for steel goods was still heavily passive in the 1920s. On the contrary, in the case of wheat a rather modest protection was sufficient to prop up the domestic output. Imports fell in the 1890s, and grew in the 1900s and 1910s, but so did domestic output. The case of textiles is less clear-cut. As suggested by the common wisdom, cotton goods were indeed protected more than the average (even more than steel in 1889 and 1897). And, unlike steel, the national producers succeeded in conquering almost entirely the domestic market in the late 1880s, and to supply a substantial flow of exports since the 1890s. In the 1920s, cotton manufactures became Italy's main export item. Thus the cotton industry might seem a good example of successful import substitution strategy - a well-developed infant industry. This very success, however, made protection useless. At least in theory, as a competitive industry, the cotton firms should have sold their wares at world market price, and therefore, their effective protection should have been negative. The remaining protection in 1913 and 1926 refer to a small subset of import-competing products (⁷). The case of wool is broadly similar, even if the industry was less successful. On the contrary, linen and manufactures, the most traditional ones in Italy, were hardly protected at all.

As said in the Introduction, chemicals and engineering were neglected in the 1887 tariff and had to wait the 1921 one to be protected (slightly) more than the average. Shipbuilding, and the production of rolling stock and weapons might have been compensated by the profits on public procurements, but the rest of engineering had to stand foreign competition without the state support. Yet many companies survived, and thrived during the booming 1900s. The performance of the chemical industry was much less brilliant, with the possible exception of the production of fertilizers, which anyway were so bulky as to be almost non-tradables. Zamagni blames the lack of protection for attribute this dismal performance, and stresses the "consistency between the protection and the growth in output" after the 1921 tariff (1990 p.131). She assumes that high-tech industry as the modern chemical one could not have developed without protection. There is however a counterexample, the rubber industry. It was surely as technically challenging as most chemical productions, and before 1913, protection on it was at best non-existent if not negative (tab 1), in

⁷ If imports were really negligible, protection (so called watered) would have been negligible as well from an economic point of view. However, imports of cotton manufactures were not totally negligible, accounting for about 15% of exports in 1926.

spite of the industries' pleas. Yet it was an outstanding success-story (Bigazzi 1981, Confalonieri 1982). "Pirelli" was set up in 1872, and soon became a relevant player in the world market for cables, and later for tires. On the eve of Italy was a net exporter of rubber manufactures

This first, impressionistic, review of the quantitative evidence confirms the conventional wisdom about the levels of protection, but not (or perhaps not entirely) on its effects, even in the most rough post hoc propter hoc framework. Industrial growth and the level of protection were indeed related, but not so closely: protection helped some activities, but was not a recipe for success - nor the lack of it made growth impossible. Shortly, trade policy may have been important for the performance, but not as much as usually assumed.

This conclusion, however, is not only theoretically questionable. It is also too hasty, as it refers to a rather small sample of goods, which accounted for at most a fifth of the total output of tradables in 1911, and for less than a quarter of imports ⁽⁸⁾. What did happen to the other four-fifths of tradable output, which included most of agriculture, and well above two thirds of industrial VA? In principle, one cannot rule out that trade policy favored some other industry. And indeed the list of the ten most protected "products" (Statistical Appendix tab.B6) provides a lot of surprises. Sugar (gross of excise) was at the top in 1897 and third in 1889, but in net terms it was third in 1897 and drop out of the top then in 1889. Wheat never makes it into the list, and few steel products appear randomly in the second-tier positions. As whole the list is a surprising rag-bag of apparently unrelated goods. It includes chemical products, such as explosives in 1877, glucose in 1889 and alcohol (another product subject to excise) in 1913-1926, textiles such as jute cloths in 1897 and several primary products such as raw tobacco (at the top in 1877), fermented beverages and tea. Some of these goods were not produced in Italy, or were exported, and therefore one might be tempted to dismiss this list as an irrelevant statistical oddity. Yet, the exercise shows the need to take into account the whole range of tradable goods, in order to pinpoint the strategy behind the Italian trade policy. If, of course, such a strategy did exist.

4) The trade policy: a strategy for industrialization?

Such a vague word as "strategy" can encompass very many features. Here we will deal with three questions:

- was trade policy consistent in through time, or did the relative levels of effective protection change? And in this latter case, when did they?

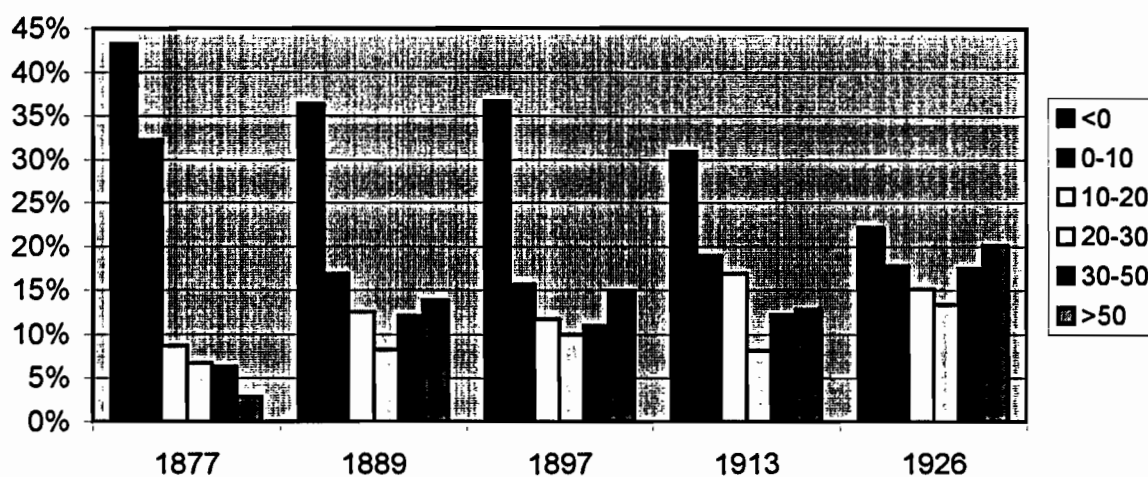
⁸ Wheat, sugar, steel wool cotton accounted for 12.6% of total VA; adding chemicals engineering and rubber the figure would rise to 20.5% (data from Federico 1992 and Fenoaltea 1992).

- did trade policy foster industrialization by favoring manufactures over other products?
- did trade policy favor a given category of manufactures (e.g. consumer goods or labor-intensive..)?

4.1

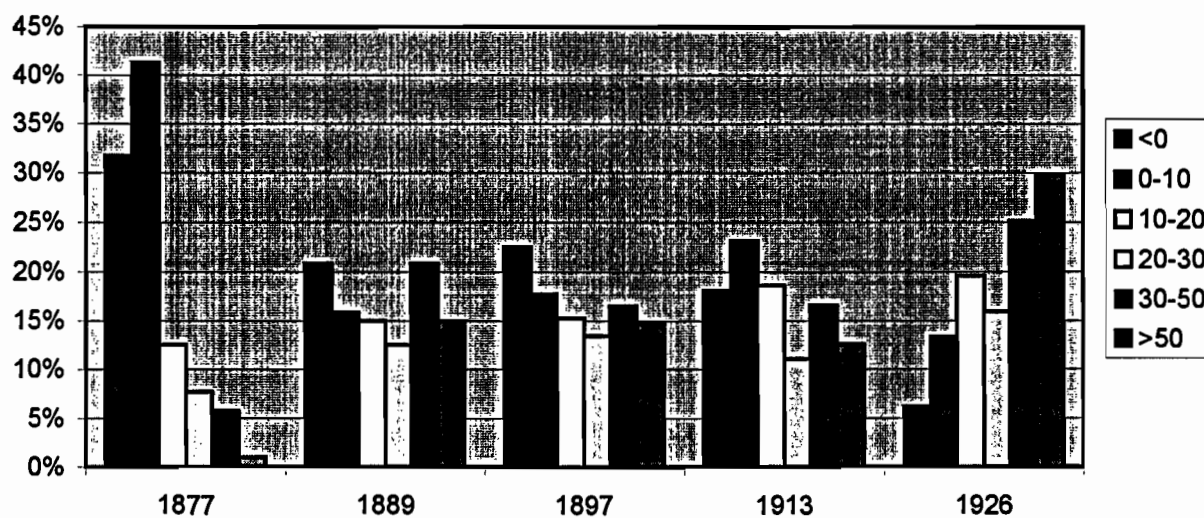
Graph 1
Frequency of effective protection distribution rates by number of products. Italy 1877-1926

A) All products



Graph 1
Frequency distribution of the effective protection rates by number of products, Italy 1877-1926

B) Manufactures only



Graph 1 (and Statistical Appendix tab. B5) reports the frequency distribution of effective protection rates by number of “products”, for the whole trade and for manufactures only ⁽⁹⁾.

They show some substantial changes in the long run. Perhaps the most impressive one is the fall in the number of products with negative effective protection, those with zero nominal protection and protected inputs. In 1877, they accounted for more than two fifths of the total. In 1926 this figure halved, and the instances of very negative protection (beyond -20%) , quite frequent in 1889 and 1897, had almost disappeared. On the other tail of the distribution, the number of products with a rate in excess of 50% was increasing. On the whole, the distribution has become much more flat, as protection was being extended to a wider range of goods. Yet, chi-square tests fail to find significant differences at the conventional 5% level between adjoining years, both for all trade and manufactures only (with the exception of 1877-1889) ⁽¹⁰⁾. The distribution did differ in the long run, between 1877 and 1926, for manufactures, but not for all trade. So one can hypothesize that changes did occur, but mainly in a incremental way. This interpretation is confirmed by the coefficients of correlation by product

Tab.2
Correlation coefficients

	Manufactures		Total	
	Effective	nominal	Effective	nominal
1877-1889	0.50	0.53	0.48	0.54
1889-1897	0.68	0.69	0.69	0.69
1897-1913	0.44	0.48	0.53	0.75
1913-1926	0.60	0.58	0.61	0.63
1877-1926	0.09	0.17	0.32	0.51

As all the rates have been computed with the same input-output tables, all changes in effective protection rates reflected changes in nominal rates, caused by trade policy or by movements in relative prices – the Italian duties being specific ones (Federico-Tena 1998). We have shown in the companion article that most of the change in aggregate protection was driven by the modification in duties on few primary commodities (sugar, coffee etc.). These changes cannot account for the low coefficients of tab., which are computed on a very large number of “products”. In fact the

9 The distribution by share of total value of trade in each year (Statistical Appendix tab. ??) is quite similar, and a chi-square test fails to reject the null of the same distribution.

10 In both cases the coefficient is significant because in 1877 only one industrial product (explosives) had an effective protection above 50%. The chi-square statistics are

	1877-1889	1889-1897	1897-1913	1913-1926	1877-1926
All products	0.58	0.01	0.05	0.38	1.51
Manufactures	352.22	0.35	0.14	0.91	263.34

coefficients for manufactures only are similar or even lower than the total ones. Nor can changes in time be accounted for – at least entirely- by the tariffs of 1887 and 1921-23. The coefficients of correlation between 1877 and 1889 are indeed quite low, but, at least for manufactures, higher than those 1897-1913. And, according to this standard, the impact of the 1921-23 tariff was decidedly rather small. Contrary to the common wisdom, the Italian trade policy was featured more by continuous change than by dramatic discontinuities.

4.2 In 1913, the VA-weighted average of effective protection rates on manufactures was a mere 16.9% (Statistical Appendix tab. B7). The implicit level of protection is substantially lower than the one granted by the LDC to their industries in the 1950s and 1960s, at the heyday of the ISI (import-substituting industrialization). The comparable figures in Balassa's classic study (1971 tab. 3.1) range from a minimum of 26% in Mexico to a maximum of 271% in Pakistan. Unfortunately, there are very few comprehensive data for the 19th century. The only comparable set refers to Spain, where protection for manufactures in 1913 was about 40% (Prados-Tena 1994). A less precise, but still instructive comparison can be made with the United States in 1904. Hawke (1975) reports estimates of effective protection for 37 main industrial sectors: in 27 of them (i.e. in three cases out of four), protection exceeded 30%, with a maximum of 556% for tin andterne plate. In Italy in 1913, only 5 out of (somewhat bigger) 30 industries had an effective protection over 30%, with a "mere" 136.3% as a maximum (for coal and oil refining). And there were six cases of negative protection, versus 2 only in the United States. To be sure, in Italy in 1913 the nominal protection (total and on manufactures) was at an historical low. But still, even if it were double (as in 1897), the difference with the other countries would be large.

These data on protection rates supply a very first approximation only, as the allocation of resources depends on the relative protection each activity enjoys. By definition, every protected activity would attract resources from the production of non tradables and of exportables. But there is a competition for resources between protected activities. A consistent strategy of industrialization would imply either no protection on agriculture (and hence a negative effective protection), as in the United States in the 19th century, or at least a substantial bias towards protection on manufactures. In the LDC in the 1960s the ratio of effective protection on manufactures to primary products ranged from a minimum of 2.2 in Brasil to 26 in Mexico, and in Pakistan and the Philippines the protection to primary products was negative (Balassa 1971). The same ratio in Italy in 1913 (computed with the "intensive" set) was a mere 1.45. The bias towards manufactures is not only relatively small: it depends crucially on the definition of "industry". The above mentioned figure is computed according to the standard national accounts, which include food and tobacco processing and coal and oil

refining in manufacturing. If we follow the GATT classification of trade statistics, and include these sectors among primary products, the ratio drops to 0.8. In other words, agriculture was more protected than industry. Any classification is arbitrary by definition, but the latter option makes more sense in a backward country like Italy in 1913, where peasants processed a great share of their products.

Tab. 4 reports the ratios, computed according to the GATT classification, for all the five benchmark years. As said before, in this case, we have to resort to the 400-odd data by product ("extensive" set). The two columns refer to two alternative methods of aggregating them, as a unweighted arithmetic average (UEP) or as a import-weighted average (WEP)¹¹.

Tab.4

Relative protection, industrial goods/primary products 1877-1926

	WEP	UEP
1877	1.17	0.93
1889	1.40	1.43
1897	0.67	1.27
1913	1.26	1.16
1926	1.72	2.07

Source: Statistical Appendix, tab. B4

The results confirm that trade policy was not consistently geared to favoring industry. An unmistakable preference for manufactures appears in 1889 and 1926, in all likelihood as a result of the tariff laws of 1887 and 1921-23. But and in 1877 and (possibly) 1913, the trade policy was roughly neutral, and at the heyday of Italian protectionism in 1897, industry was protected less than the primary sector. The figures of tab.4 (computed with the "extensive" data-set) may overstate the preference towards manufacturing, as the 1913 ratio is about 50% higher than the comparable figure obtained with the "intensive" rates (0.8). In principle, the bias might have been as large in other years, and there would not have been any preference at all for manufactures in the Italian trade policy before the 1920s. Unfortunately there is no way to test this hypothesis, as we can compute "intensive" rates for 1913 only.

4.3 Last but not least, let's consider whether trade policy did favor consistently some broad category of manufactures. Tab. 5 reports the ratios of effective rates ("extensive" data) for three pairs of goods - investment goods over consumer goods, finished products over semi-manufactures or labor intensive goods over capital-intensive ones

Tab. 5

¹¹ Cf for a discussion on the optimal weighting methods Federico-Tena 1998

Relative protection, industrial goods, 1877-1926

	Semi-manufactures/ Finished		Consumer/Investment*		Capital intensive /labor intensive	
	WEP	UEP	WEP	UEP	WEP	UEP
1877	0.92	1.33	3.57	1.61	2.68	1.25
1889	1.03	1.4	2.34	1.18	1.47	1.42
1897	0.7	0.85	2.47	2.21	0.64	0.76
1913	1.65	1.53	2.77	1.75	1.00	1.40
1926	0.57	1.20	2.79	1.04	1.42	1.19

*on finished products

Source: Statistical Appendix tab. B4.

Italian trade policy was consistent in protecting consumer goods more than investment goods – just because that latter category consisted of mainly engineering goods. The strategy on the two other pairs is not so clear, even if there is some preference for capital intensive goods over labor intensive ones. This choice is inconsistent with a well designed infant-industry strategy, which should target the industries most suited to the input endowment of the country, and there is little doubt that in Italy the abundant inputs was (unskilled) labor. The same perverse “principle” was applied in agriculture, by protecting the land-intensive wheat-growing.

4.4 Summing up, the data shows that i) the trade policy was not very consistent in time; ii) protection for manufactures was low and sometimes inferior to that on agricultural products; and iii) the policy towards industrial goods was not inspired by any consistent principle (such as a preference for consumer goods, or finished products or labor intensive goods). Shortly, the data do not suggest any clear strategy for Italian protection; a fortiori trade policy did not aim consistently at fostering industrialization. This conclusion is supported by the results of a CGE model for 1911 (Federico and O'Rourke 1998). Free trade would have caused the gross output of “military-industrial complex” (steel-making, shipbuilding etc.) to fall, but by 15% only – much less than one would have expected. And it would have caused the production of all other industries to grow. Textiles would have enjoyed a export boom, and increased its output by a third, and the overall manufacturing output would have grown by 5%.

5) Why protection ?

The causes of trade policy have inspired a debate at least as lively as that on its effects. A burgeoning “theoretical” literature, coming from different disciplines – economics, sociology, political science etc. (Riezman-Wilson 1995) – provides a lot of suggestions and hypotheses, which have been picked up by historians such as Rogowski (1989). The literature on Italy is indeed sizable,

even if on the whole the issue is much less controversial than the effects of trade policy. However, the available historical accounts (Sereni 1966, Pegorari 1989, Del Vecchio 1978) are seldom, if ever, inspired by any sort of theoretical framework. Therefore they provide raw material for a still-to-be-written history of the Italian trade policy. Such a task cannot be tackled here: we will only put forward some very general statements, relying mainly on the actual lay-outs of duties— a sort of revealed preference approach.

The trade policy of a country can be inspired by four reasons

- international relations
- specific interests
- need for fiscal revenue.
- independent decisions by the government

The first heading includes all the interactions with foreign countries – from the “hegemonic” theories of the general orientation of trade policy to the more down-to-earth effects of international negotiations, which of course could fail and cause trade wars. The specific interests can determine trade policy in two ways, according to the institutional framework (Verdier 1994) and to the mobility of inputs. Trade policy can be the outcome of a logrolling process between different lobbies in a cozy parliamentary environment or can be decided in a clash between big parties representing the owners of factors of productions (workers, capitalists, landowners etc.). The need for fiscal revenue is self evident, while the independent decisions by the governments is a residual category, which includes all the decisions allegedly taken in order to reach any set social and economic goal, such as the increase in per capite income, the equilibrium of the balance of payments, the redistribution of income, the build-up of the military might of the country. Hard line political scientists might doubt of the very existence of such thing as an “independent government”, but the case cannot be dismissed altogether, especially in authoritarian regimes (like Italy during Fascist years).

Neither the international relations nor the independent decisions of governments seem to have mattered a great deal in the Italian experience. Italy was not forced by “unequal” treaties to keep duties low as Japan until 1899. On the contrary, it can be argued that Italy’s pretension to be a great power played a non-negligible role in shaping its aggressive trade policy in the 1880s which led to the trade war with France. Of course, the trade treaties, which usually included the clause of the most favored nation) constrained Italy’s choices. For instance, the treaties with Germany, Austria and Switzerland set the duties on chemicals and engineering goods. These constraints were however accepted by the Italian negotiators, in exchange of concessions on other goods. If the Italian government had really wanted to protect these industries, it could have instructed its

representative to strike a different deal, or to break down negotiations, as Crispi did in 1888. It is really difficult to argue that a "benign" government tried to foster industrialization. As said previously, this hypothesis can be safely ruled out for industry as a whole, and also for promising "infant industries". The only likely instance of such a policy seems the protection of steel products in the early 1880s. At that time, the industry was very small and backward, and unable to organize any serious lobbying, as it did later. But it could put forward a strong political argument for protection: the steel industry was deemed indispensable by the army and navy for Italy's growing imperialistic ambitions. In fact the government very actively supported the growth of "Terni", a firm specialized in the production of high-quality steel (¹²).

The political institution of "liberal" Italy (i.e. before the rise to power of Fascism 1922) seem an ideal hotbed for the compromises among lobbies envisaged by the political economy approach. By law, each single duty had to be approved by the Parliament. For most of the period, the suffrage was restricted to a minority of male population and there were no established political parties until the war (¹³). And indeed since the Unification the industrialists tried hard to put forward their request for protection, against the then prevailing free-trade orthodoxy, which suited well the landowners' interests (Are 1966). The movement was led by textile industry, the most advanced one: the undisputed leader was A. Rossi, owner of the largest Italian wool firm, who set up a network of organizations by industry (Avagliano 1970). The tariff of 1878 was only a partial success. The great opportunity was the agrarian crisis of the 1880s. In contrast with the industry's own apparent interests, Rossi strongly supported the duty on wheat, as he reckoned that a Parliament still dominated by landowners would have approved a tariff on manufactures only within a generalized return to protection. Actually, landowners themselves were far from compact behind the protection to wheat-growing (Musella 1984, Malatesta 1989, Lupo 1990) (¹⁴). Anyway, Rossi's strategy was successful, and the twin decision of 1887 beget an "industrial-agrarian coalition" (Sereni?), similar to the famous German "empire of rye and iron". And later, the strength of sectorial interests grew in parallel with the size of the protected industries. Giretti (1905), the most ardent free trade agitator (and himself owner of a silk-mill), cursed sugar processing and steel-making alongside wheat-growing as the three "trivellatori" (bloodsuckers). In the 1900s the sugar companies set up a well-

¹² The support had its drawbacks as well. The government insisted on locating the plant in Terni – a small city in Umbria, very far from the consumption markets and the sea. The choice was inspired by purely military concerns (Bonelli 1975)

¹³ The male universal suffrage was granted in 1912; the first "modern" political party, the Socialist one, had been established in 1892, but its political collocation kept it out of the power.

¹⁴ Interestingly, the results of the CGE model support the cool-headed approach of the minority against the extravagant statements of the protectionist propaganda. Free-trade in 1911 would not have hit landowners so much, provided that land was mobile across sectors.

organized cartel with good connections abroad (Bianchi Tonizzi 1988), and also the steel industry became large and politically powerful. Its influence peaked during World War One, when it succeeded in steering the conclusions of the official commission for a new tariff towards a very strong increase in duties with limitation to the government freedom of reducing them in trade treaties (Bientinesi, forthcoming). By the way, the post-war crisis of steel-making lessened the power of steel lobby so much that the government and parliament watered down almost entirely the commission's proposals. So, there is a lot of evidence for a political economy approach.

However, this approach is clearly insufficient to account for the lay-out of Italian duties without taking into account the fiscal side of the issue. Import duties have always been an important source of revenues for a state often in a parlous financial conditions. Until the late 1880s, custom revenues accounted for 5% to 8% of total. In the next decade, the custom revenues increased fourfold and their share of total revenues to double. Actually, between a half and two third of total custom revenues were yielded by four products only - wheat, sugar, coffee and oil. The boom in custom receipts in the 1880s was brought about by a series of massive increases in the duties on these goods (the last one being the duty on wheat), which did not affect imports substantially, as – presumably- the demand elasticity for them was quite low. This increase accounted for about three quarters of the rise in total protection from 1877 to 1897 (Federico-Tena 1998 tab.1). At least the duties on oil and coffee (and one might add other colonial goods, such as tea) were undoubtedly fiscal ones. These goods were not produced in Italy, nor they could be substituted by other domestic products. The better substitute for oil was another imported (duty-free) commodity, coal, while local substitutes (firewood, water power) were quite remote. Similarly, the closest local substitute for colonial beverages was the coffee made with barley- hardly a thriving and politically powerful industry. Of course, the case was different for sugar and wheat. Yet the duty on raw sugar was imposed in the 1870s-1880s when the domestic production of sugar-beet was still negligible, even if there was a substantial refining industry, which clamored for protection (Bianchi Tonizzi 1988). Even the duty on wheat had a fiscal component. As early as 1866, when Italy was committed to free-trade, wheat was subject to a “fiscal” duty and “weighting tax”, which jointly amounted to about 3-4% of import price. And the increases, which more than doubled the nominal duty on wheat from 1887 to 1894, were included – some-one might say to disguise them- into fiscal laws (“decreti catenaccio”) aimed at balancing the budget (Marongiu 1995-96 and Parravicini 1958).

6) Conclusion

The results of our work are not totally at odds with the conventional wisdom.

Protectionism did favor few industries, such as steel-making and harmed others, as engineering, and it benefited wheat-growing over the production of agricultural exportables. But these facts regard a very narrow set of goods: they have to be framed into the wider picture of the whole trade not to give a distorted picture of Italian trade policy. The protected sectors were neither the most dynamic nor the largest ones. Looking at the whole lay-out of protection and at its evolution, there is very little, if any, evidence of a policy to support industry as a whole. The total effective protection on manufactures was rather low, and did not exceed substantially that on primary products. Therefore, industry as a whole was not given an artificial advantage over other import-competing activities in the allocation of resources. Duties on each single product varied a lot over time, and there was no consistent strategy to favor any broad category industry over others – apart perhaps from a small preference for consumption goods over investment goods. So, as a first approximation, one would not expect big effects on the overall structure of the economy or on the growth rates of large sectors. It would be very hard as well to infer from the data that trade policy was inspired by the aim at fostering industrialization. In the last section of the paper, we tentatively argue that the lay-out was the outcome of two different causes – the pressure of sectorial interests and the need for revenue. The former inspired mainly the return to protection in the 1880s, when industrialists piggy-backed on the landowners' fear for cheap imported grain. The pressing fiscal needs motivated many piecemeal rises in duties on commodities like oil, sugar and, to some extent even wheat – which provided most of the custom revenue.

By its nature, a strictly quantitative work cannot address all relevant issues. Ours is no exception. One of the items in the list at the beginning of the paper, the effects on the returns to factors, can be dealt with in a CGE framework (Federico-O' Rourke 1998). The causes of protection should be researched in depth: we still know very little about the lobbying, and the sensitivity of Italian decision-makers to their efforts. Last but not least, one should try to compare Italy with other European countries. Some features, such as the low overall protection, the low protection to industrial goods, and the importance of state needs for revenue, might hold true in other countries as well. But this statement should be tested..

Appendix

A) Sources and methods

The Italian trade data are conveniently reported by the Movimento Commerciale del Regno d'Italia, an yearly statistics published by the Ministero delle Finanze. Its classification has been changing all over the period to include the new products and to adjust itself to the ever-growing complexity of the custom tariffs. The number of items grew from few hundreds in 1877 to nearly 2500 in 1926, and therefore the sheer size of the task has suggested to take into account five benchmarks years - 1877, 1889, 1897, 1913 and 1926. All items have been pooled together in some 400 3- and 4-digit SITC (United nations 1985) aggregates (henceforth "products"), which have been used for all the computations. In this process some information have been lost (e.g. the differences between the protection of different counts of cotton yarns) and some "products" may be not perfectly comparable through time as they may consist of different goods. Moreover, a substantial number of "products" are missing in earlier years, either because they simply did not exist (like cars) or because the classification of trade statistics was still not sophisticated enough. For each "product" the nominal tariff rate is obtained ex-post as a ratio of custom revenues to the total value of imports. The tariff rates on inputs (according to the classification in the I-O tables) are obtained as trade-weighted averages of rates for the products which each input consist of. ⁽¹⁵⁾.

The effective protection is computed as

$$EP = [T_i - \sum a_{ij} T_j] / [1 - \sum a_{ij}]$$

where T is the nominal duty, j refers to inputs and a_{ij} are the technical coefficients of the input-output table. This is the so called Balassa method, which is less precise but also less computational burdensome than the alternative Corden one (Greenaway-Milner 1993). Usually it yields somewhat higher figures, but the difference is small – and anyway the poor quality of the I-O data makes the additional precision illusory.

The only available historical table (Vitali 1992) is unfortunately rather small -a mere 35 sectors, 26 of which in tradables. The corresponding rates of effective protection are reported in table B7 of the Statistical Appendix ("intensive" set). The results are still not detailed enough to address many issues. So as a second (or, better, third) best we will compute a rate for each "product" ("extensive" set, Statistical Appendix tables B1-B3). The product is assumed to share the technical coefficients for the sector to which it belongs, such as "metalworking" for all the thirteen steel "products". We use three different input-output tables, by Vitali (1992), Cao-Pinna (1952) and Thomas (1985).

¹⁵ A test with simple averages shows that the difference was negligible

This latter is the well-known table for the United Kingdom in 1907, which includes 41 sectors (36 tradables, while the V.Cao-Pinna's table considers 56 branches (51 tradables). None of these table is ideal. The 1911 Italian table is the closest in time, and to the actual level of development (both Italy in 1950 and UK in 1907 were much more developed then Italy in any of the five benchmark years (16)), but it is small. The British table is larger, and it recommends itself as being close to the free-trade situation, but it refers to a very differently endowed country (17). Finally, the Italian 1950 table is the largest, but is also quite distant in time, and therefore, the underlying technology may have been substantially different (it relies largely on the technical coefficients of the 1937-39 industrial census). Luckily, the results do not differ very much as shown by tab. A1, which reports the coefficients of correlation among rates in the same year according to the three tables

Tab. A1

Correlation between effective protection rates according to various input-output tables

	1907-11	1911-50	1950-07
1877	0.824	0.783	0.841
1889	0.935	0.866	0.877
1897	0.916	0.707	0.741
1913	0.869	0.838	0.870
1926	0.911	0.766	0.817

Source: see text

Therefore, while in the Statistical Appendix we present a separate table for each input-output table, in the text we use an average of the three. Anyway, we have to warn that statements on the effective protection for any single "product" have to be taken with some caution.

¹⁶ According to the most recent estimates (Maddison 1995 tab.D-1a) the (PPP-adjusted) Italian per-capita GDP was 1461 (1990) US dollars in 1877, 1544 in 1889, 1511 in 1897, 2507 in 1913, 2862 in 1926, and 3423 in 1950 while it was of 4784 dollars in UK in 1907.

¹⁷ The most striking example is the sector "tobacco". Purchases from "agriculture" accounted for 47% of its sales according to the Italian 1911 table, and were nil in the 1907 British one.

B) STATISTICAL APPENDIX

Table B1.
Effective protection, GATT classification, Italy 1950 input-output table

[illegible]

Tab. B3

Effective protection, GATT classification, UK 1907 input-output table

	Unweighted data					Weighted data				
	1877	1889	1897	1913	1926	1877	1889	1897	1913	1926
1 PRIMARY GOODS	7.8	27.4	29.6	19.7	18.9	8.0	24.1	29.1	12.4	14.6
1.1 Foodstuffs	13.9	44.5	47.2	32.4	28.4	14.7	41.6	67.3	33.4	23.6
1.2 Raw materials	7.4	-2.4	-2.3	-1.9	-0.9	-3.3	-3.6	-1.7	-2.4	-1.9
1.3 Minerals	-5.9	-0.4	-3.9	-4.3	-3.5	-5.8	9.5	1.6	0.0	-4.7
1.4 Fuels	30.7	111.3	98.2	52.5	72.5	21.7	29.4	34.6	9.1	35.9
1.5 Non ferrous metals	4.8	22.2	26.6	12.1	14.8	2.9	34.5	13.2	6.0	6.8
2 SEMI-MANUFACTURES	8.9	33.0	27.2	28.1	39.4	11.9	41.1	28.8	25.2	28.8
2.1 Iron and steel	11.1	78.9	91.4	78.4	81.8	16.2	49.6	68.8	53.4	63.4
2.2 Chemicals	16.7	35.6	20.6	28.2	40.4	5.0	11.5	13.4	17.2	34.5
2.3 Others	1.8	18.3	17.8	16.8	26.5	0.2	14.8	12.5	5.8	8.1
3 MANUFACTURES	6.2	26.9	27.3	20.0	32.0	9.4	35.9	26.1	15.2	26.4
3.1 Equipment goods	4.5	26.0	20.3	16.5	33.8	2.3	21.7	14.7	10.5	14.7
3.1.1 Machinery	1.0	10.3	10.4	6.1	23.5	-0.2	10.0	10.4	7.9	23.5
3.1.2 Office equipment			29.7	-4.0	29.8			29.7	-4.0	29.8
3.1.3 Road vehicles		12.8	17.2	18.5	54.5		12.8	16.3	12.5	44.1
3.1.4 Other equipment goods	5.6	31.9	23.3	20.7	39.3	7.3	28.0	19.3	11.8	33.4
3.1.5 Other durable consumer goods		54.9	23.6	22.8	21.5		54.9	6.5	12.6	9.3
3.2 Consumer goods	7.4	27.9	32.9	23.2	30.3	10.3	41.5	32.2	20.5	32.2
3.2.1 Textiles	8.3	27.8	45.0	31.5	34.5	10.6	42.7	38.8	26.4	22.8
3.2.2 Clothing	11.7	54.5	47.9	25.1	32.3	13.4	54.5	33.2	20.3	32.1
3.2.3 Other	4.0	24.7	17.7	14.4	25.7	3.5	23.8	13.1	12.3	27.1
TOTAL	7.8	28.9	28.3	21.9	27.8	8.5	26.9	27.6	13.2	17.4
DS	26.1	61.9	51.4	35.8	39.0					
other foodstuffs*	6.4	10.6	13.4	12.8	9.8	2.1	2.5	7.4	9.2	4.9
other primary products	-0.1	1.9	2.7	0.4	1.7	-2.7	-0.5	-0.8	-1.4	-1.2
industrial products	7.9	30.4	27.2	23.6	35.1	9.2	33.8	24.2	15.0	26.1
DS	24.6	41.0	30.1	31.6	33.0					
non industrial goods	7.8	27.4	29.6	19.7	18.9	8.0	24.1	29.1	12.4	14.6

Tab. B4

Effective protection, GATT classification, average of the three input-output tables

	Unweighted data					Weighted data				
	1877	1889	1897	1913	1926	1877	1889	1897	1913	1926
1 PRIMARY GOODS	9.7	20.3	20.7	21.5	17.8	5.0	17.6	24.2	16.3	12.9
1.1 Foodstuffs	17.1	33.4	33.7	36.4	27.1	8.6	29.2	52.3	42.8	26.6
1.2 Raw materials	11.0	-3.8	-4.6	-3.7	-2.5	-1.2	-1.9	-4.4	-4.5	-4.9
1.3 Minerals	-3.0	1.2	-2.2	-1.8	-1.0	-2.0	5.5	3.8	-0.7	-3.1
1.4 Fuels	32.5	106.4	81.9	62.0	77.2	15.2	28.2	32.6	18.1	30.8
1.5 Non ferrous metals	-0.2	9.9	16.5	8.5	9.2	-2.9	17.9	7.5	3.7	0.1
2 SEMI-MANUFACTURES	10.1	31.0	21.9	30.8	40.5	5.9	27.3	20.0	19.1	18.6
2.1 Iron and steel	9.4	69.3	79.5	75.7	77.7	9.4	34.6	51.5	52.4	53.6
2.2 Chemicals	17.2	33.3	12.5	33.9	41.2	-0.2	3.4	-0.2	7.8	23.9
2.3 Others	4.3	18.7	17.4	17.4	29.2	0.5	11.1	12.6	9.0	7.4
3 MANUFACTURES	7.9	23.2	25.9	20.4	33.6	5.5	25.6	27.0	18.0	22.1
3.1 Equipment goods	5.6	21.1	15.7	14.6	33.1	1.9	12.9	12.9	9.0	9.4
3.1.1 Machinery	2.1	5.9	6.4	4.3	21.3	0.3	4.9	6.2	5.8	17.2
3.1.2 Office equipment	0.0	0.0	23.4	-5.0	27.1	0.0	0.0	16.5	4.2	17.7
3.1.3 Road vehicles	0.0	7.8	13.6	17.8	60.8	0.0	5.5	10.3	11.5	33.3
3.1.4 Other equipment goods	6.8	26.8	18.4	18.7	38.3	5.1	18.6	17.8	11.6	24.2
3.1.5 Other durable consumer goods	0.0	49.1	18.1	20.5	21.2	0.0	31.5	19.9	6.4	10.1
3.2 Consumer goods	9.5	25.6	33.9	25.4	34.1	6.0	29.0	33.3	24.3	23.9
3.2.1 Textiles	10.3	22.4	44.8	34.9	38.0	6.2	29.6	36.1	29.9	24.8
3.2.2 Clothing	15.2	62.3	54.7	28.2	39.8	8.0	42.0	46.9	26.2	30.8
3.2.3 Other	5.4	26.7	17.9	15.3	28.8	2.0	17.7	18.5	12.0	22.0
TOTAL	9.5	24.0	22.6	23.5	28.1	5.1	19.6	23.5	16.1	15.0
DS	34.8	65.4	57.2	45.0	43.8					
other foodstuffs*	13.2	8.9	12.2	23.8	12.5	0.9	-1.8	3.2	9.6	9.5
other primary products	-0.6	-0.5	-0.2	-0.7	0.4	-1.4	-0.1	-3.2	-3.7	-4.3
industrial products	9.3	27.7	24.0	24.9	36.5	5.2	24.0	22.1	15.6	21.1
DS	32.2	54.3	35.3	38.8	39.2					
non industrial goods	9.7	20.3	20.7	21.5	17.8	5.0	17.6	24.2	16.3	12.9

Tab. B 5
Frequency distribution of effective protection rates

a) by number of products

Manufactures						All products					
	Share of products with effective protection						Share of products with effective protection				
	1877	1889	1897	1913	1926		1877	1889	1897	1913	1926
<-20		2.5%	1.8%					4.3%	3.6%	0.9%	0.9%
(-20)-(-10)	1.9%	7.5%	4.3%	1.0%	1.0%		2.4%	7.8%	6.0%	0.6%	0.9%
-10-0	29.8%	10.8%	16.5%	17.1%	5.1%		40.9%	24.2%	27.0%	29.4%	20.4%
0-10	41.3%	15.8%	17.7%	23.1%	13.3%		32.2%	16.9%	15.7%	19.0%	17.8%
10-20	12.5%	15.0%	15.2%	18.6%	19.5%		8.7%	12.6%	11.7%	16.9%	15.2%
20-30	7.7%	12.5%	13.4%	11.1%	15.9%		6.7%	8.2%	10.0%	8.2%	13.4%
30-40	4.8%	11.7%	9.1%	12.1%	15.9%		3.8%	7.4%	5.7%	7.9%	11.1%
40-50	1.0%	9.2%	7.3%	4.5%	9.2%		2.4%	4.8%	5.3%	4.4%	6.4%
50-60		4.2%	5.5%	1.5%	14.9%		1.0%	3.0%	4.3%	1.5%	8.7%
60-70		4.2%	2.4%	3.0%	4.6%		0.5%	1.7%	1.4%	2.0%	2.3%
70-80		0.8%	0.6%	0.5%	1.5%		0.5%	2.6%	1.4%	1.2%	0.9%
80-90		1.7%	0.6%	2.0%	2.6%			2.2%	1.1%	1.2%	1.7%
90-100		1.7%	1.8%	2.0%	1.0%			0.9%	2.1%	2.9%	1.2%
>100	1.0%	2.5%	3.7%	3.5%	5.1%		1.0%	3.5%	4.6%	4.1%	5.2%

b) by value

Manufactures						All products					
	Share of products with effective protection						Share of products with effective protection				
	1877	1889	1897	1913	1926		1877	1889	1897	1913	1926
<-20	0.0%	1.8%	5.6%	0.0%	0.0%		0.0%	4.1%	2.7%	0.8%	2.0%
-20/-10	10.7%	5.5%	13.3%	3.6%	0.2%		4.2%	9.5%	14.8%	1.1%	1.4%
-10-0	15.5%	10.7%	17.5%	27.4%	16.8%		39.1%	30.6%	31.3%	50.3%	34.7%
0-10	24.6%	16.0%	18.8%	25.9%	18.5%		23.4%	12.7%	20.7%	15.4%	15.6%
10-20	14.1%	12.6%	10.4%	13.8%	18.2%		7.1%	7.3%	6.2%	6.5%	5.0%
20-30	17.3%	5.6%	7.7%	11.2%	17.6%		6.7%	15.6%	3.4%	4.4%	27.2%
30-40	17.8%	18.7%	6.7%	10.7%	10.2%		14.6%	5.6%	2.2%	14.5%	3.3%
40-50	0.0%	16.2%	5.5%	3.6%	7.3%		2.8%	5.0%	8.7%	2.0%	2.7%
50-60	0.0%	0.4%	8.0%	0.0%	3.0%		0.1%	0.2%	3.0%	0.3%	1.1%
60-70	0.0%	0.3%	0.2%	1.4%	2.3%		2.1%	0.1%	0.1%	1.5%	1.8%
70-80	0.0%	2.5%	2.0%	0.0%	1.0%		0.0%	1.1%	0.7%	0.0%	0.3%
80-90	0.0%	8.6%	0.4%	0.6%	3.0%		0.0%	2.6%	0.4%	0.2%	2.9%
90-100	0.0%	0.8%	3.3%	1.5%	0.5%		0.0%	0.2%	1.2%	0.8%	0.1%
>100	0.0%	0.2%	0.7%	0.3%	1.3%		0.0%	5.3%	4.8%	2.2%	2.0%

Tab. B 6

Ten most protected products : effective protection (average of the three tables)

1877		1889		1897		1913		1926	
SITC	%	SITC	%	SITC	%	SITC	%	SITC	%
1223	303	0741	519	0610	453	1122	354	5161	256
5721	296	5144	466	3330	339	5161	225	3340	219
0741	74	0610	325	0751	193	5148	199	0711	204
3330	66	3330	253	6545	179	6428	173	6731	182
0751	59	1223	185	0711	179	6747	159	6760	176
1221	58	0711	112	6584	146	0711	148	3341	157
0711	49	5721	111	6842	125	5113	131	6589	151
5417	49	6747	103	8441	125	0751	128	0480	150
0722	48	6793	100	0484	123	6584	118	7852	132
0615	41	6731	95	6731	120	5721	110	6591	131

SITC codes: 0480 Cereal preparations, n.e.s.; 0484 Bread, pastry cakes, biscuits; 0610 Sugar; 0615 Molasses; 0711 Coffee; 0722 Cocoa; 0741 Tea; 0751 Pepper; 1122 Fermented beverages; 1221 Tobacco; 1223 Tobacco, manufactures, n.e.s.; 3330 Petroleum oils; 3440 Refined oils; 3341 Motor gasoline and other light oils; 5113 Petroleum by-products; 5144 Glucose; 5148 Saccharin; 5161 Alcohol; 5417 Alkaloids; 5721 Explosives and powder; 6545 Jute cloths; 6584 Wool carpets and tapestry; 6589 Other wool manufactures n.e.s.; 6591 Lineolium and other floor coverings; 6731 Steel plates; 6747 Tin plates; 6760 Steel bars; 6793 Steel tubes and pipes; 6842 Copper wires; 7852 Bicycles; 8441 Women cloths.

Tab B 7

Nominal and effective protection 1911, 35 sectors,

Sectors	Nominal	Effective	%VA
wheat	29.1	30.7	5.9
other tillage	4.4	4.3	6.9
Mediterranean crops	12.6	12.8	13.7
animal products	7.2	6.1	12.1
mining	2.5	1.4	1.1
sugar beet processing	65.1	126.0	0.3
Other food processing	17.8	30.3	3.8
tobacco	10.8	22.2	0.1
textiles	12.9	26.9	2.1
clothing	13.2	15.3	1.2
leather and fur	5.2	-0.7	1.5
timber, furniture	7.7	6.9	1.9
Steelmaking	28.1	74.2	0.3
Other metals	11.2	28.3	0.1
Foundries	0.1	-10.3	0.1
Shipbuilding	0.3	-24.6	0.4
Production of rolling stock	9.7	7.2	0.5
Gold processing	1.5	-3.4	0.2
Engineering n.o.s.	11.9	8.2	3.0
non ferrous minerals	10.4	12.4	1.3
chemicals	11.0	17.9	0.7
coal and oil products	28.1	136.3	0.0
rubber	4.7	-45.2	0.1
paper	7.7	5.4	0.3
Printing, publishing	1.8	-1.4	0.9
other industries	10.3	12.5	0.1
building	0.0	-10.3	3.4
gas, water, electricity	0.0	-1.4	0.9
trade	0.0	-1.2	12.8
transportation	0.0	-2.2	4.9
communications	0.0	-1.0	0.6
banking and insurance	0.0	-0.2	1.7
other services	0.0	-0.9	5.2
Civil service	0.0	-3.0	5.5
Rents	0.0	-0.1	6.3

Tab. B 8

Effective protection rates, selected products (average of the three input-output tables)

	Unweighted					Weighted				
	1877	1889	1897	1913	1926	1877	1889	1897	1913	1926
Foodstuffs										
Grain	4.3	29.9	48.1	35.1	25.9	4.3	29.9	48.1	35.1	25.9
other cereals	1.3	14.6	23.0	11.3	12.5	2.2	11.7	18.7	11.9	6.6
other cereal products	2.7	17.1	-1.8	88.0	78.1	7.2	-31.0	-153.1	53.4	54.4
sugar	40.5	325.1	466.3	179.9	49.5	40.5	325.1	466.3	179.9	49.5
coffee	50.2	112.2	178.8	151.3	90.1	50.2	112.2	178.8	151.3	90.1
Textiles by fibre										
Cotton										
raw	-1.7	-2.3	1.9	-3.7	-1.0	-1.7	-2.3	1.9	-3.7	-1.0
yarns	14.1	44.6	60.8	11.3	2.9	14.1	44.6	60.8	11.3	2.9
fabrics	31.1	44.9	56.2	22.0	26.1	37.5	72.2	65.3	37.8	22.3
total manufactures	26.8	44.8	57.3	19.3	20.3	28.3	66.4	64.6	32.2	15.6
Wool										
raw	-2.5	-5.6	-7.3	-6.6	-5.5	-2.5	-5.6	-7.3	-6.6	-5.5
yarns	-12.2	10.6	17.0	20.7	89.1	-12.2	10.6	17.0	20.7	89.1
fabrics	0.6	47.0	66.1	25.3	27.2	0.6	47.0	66.1	25.3	27.2
total manufactures	-5.8	28.8	41.5	23.0	58.2	-12.1	41.0	56.8	25.0	36.4
Silk										
raw	0.0	-11.7	-11.8	-8.2	5.8	0.0	-11.7	-11.8	-8.2	5.8
yarns	0.0	-26.0	-25.7	-16.0	-0.8	0.0	-26.0	-25.7	-16.0	-0.8
fabrics	-2.5	17.2	17.1	70.1	7.9	-2.5	17.2	17.1	70.1	7.9
Linen and hemp										
raw	-1.7	-3.6	-4.1	-2.9	-3.2	-1.7	-5.4	-8.6	-5.0	-6.8
yarns	1.2	-8.8	0.3	3.6	6.6	1.2	-8.8	0.3	3.6	6.6
fabrics	6.1	24.8	82.1	43.5	22.8	12.9	13.5	11.8	15.8	20.3
total manufactures	6.6	21.8	82.2	44.7	25.1	4.5	-3.4	2.0	7.7	11.1
Iron and steel										
Scrap	-5.5	13.7	41.8	48.4	51.0	-5.5	13.7	41.8	48.4	51.0
pig iron	0.0	58.6	31.2	47.7	83.4	0.0	58.6	31.2	47.7	83.4
other products	12.7	69.3	83.6	80.9	79.5	16.2	44.9	90.6	68.0	56.6
Total	9.4	69.3	79.5	75.7	77.7	9.4	34.6	51.5	52.4	53.6
Industrial machinery	2.1	5.9	6.4	4.3	21.3	0.3	4.9	6.2	5.8	17.2
Chemical products										
basic chemicals	-0.7	30.2	0.7	41.6	50.4	-1.0	-8.5	-11.0	1.1	35.9
refined chemicals	14.6	25.0	18.1	24.4	24.7	5.7	17.1	13.4	23.5	31.5
Total	17.2	33.3	12.5	33.9	41.2	-0.2	3.4	-0.2	7.8	23.9
Rubber products										
Raw	-8.8	-20.0	-46.1	-27.3	-24.6	-8.8	-20.0	-46.1	-27.3	-24.6
Intermediate	0.5	6.6	3.8	10.1	18.6	0.3	6.4	5.2	8.8	18.0
Tyres	0.0	0.0	0.0	1.2	29.0	0.0	0.0	0.0	1.2	29.0
Total	0.5	6.6	3.8	7.9	23.3	0.3	6.4	5.2	2.5	25.3

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