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Italian export capacity in the long run perspective (1861-2009): a tortuous path to keep the position

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Abstract: The paper focuses on the evolution of the capacity of Italian goods to reach international markets from the Unification (1861) up to now. In so doing we provide a wide range of new series on the topic. On one hand we present the general trends of macroeconomic data related to trade, on the other hand we provide the evolution of Italian foreign trade focusing, in particular, on the characteristics of export flows. The paper illustrates the Italian tortuous path to keep the position amongst the most advanced countries in spite of its peculiar specialisation.

JEL Classification: N70, O11; 024
Keywords: Italian trade, Export capacity, Technological specialization, Economic growth, trade policies.

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1. Introduction

The aim of this paper is to focus on the evolution of Italian capacity to export goods in the long run, starting from Unification in 1861 up to now. In so doing we try to identify the main driving forces of this process which are, of course, determined by the major transformations of world economy. In the period covered by this paper, at least three different phases occurred. First of all the revolution in transportation technology in the late XIX century, which opened the first era of globalization ended with WWI. Secondly, the phase of de-globalisation which took place in the interwar period. Thirdly and finally, a new phase of globalization, starting after WWII, characterized by a wide and growing liberalization of world markets. These phases overlap with the process of industrialization of most countries as well as with the advent of the Second Industrial Revolution technologies, in the late decades of the XIX century, and of the Third Industrial Revolution ones, starting with the 1970s. All these elements, together with the different policies adopted, determined rate of growth and change in specialization of the Italian export. By adopting a long run perspective, we deal with a story of big changes, remarkable success, incomplete transformation and strong declines. This paper focuses exclusively on goods and does not take into account either the export of services or the foreign direct investment of Italian firms. As far as the availability of homogeneous sources was not extensive, the large part of the analysis presented is based on new data collected from several sources. In particular for the period from Unification up to 1939 we have used a new Bankit-FTV dataset on Italian foreign trade[1].

The paper proceeds as follows. In Section 2 we present the long run general trends of some basic macroeconomic data related to trade. Section 3 deals with the evolution of foreign trade structure focusing, in particular, on the basic characteristics of Italian export flows. In Section 4 we further elaborate the issue by providing a comprehensive mapping of Italian export technological specialization in the long run. In Section 5 we analyse the evolution in the destinations of Italian export flows. Section 6 outlines the Italian literature on trade, growth and policies and Section 7 provides some conclusions.

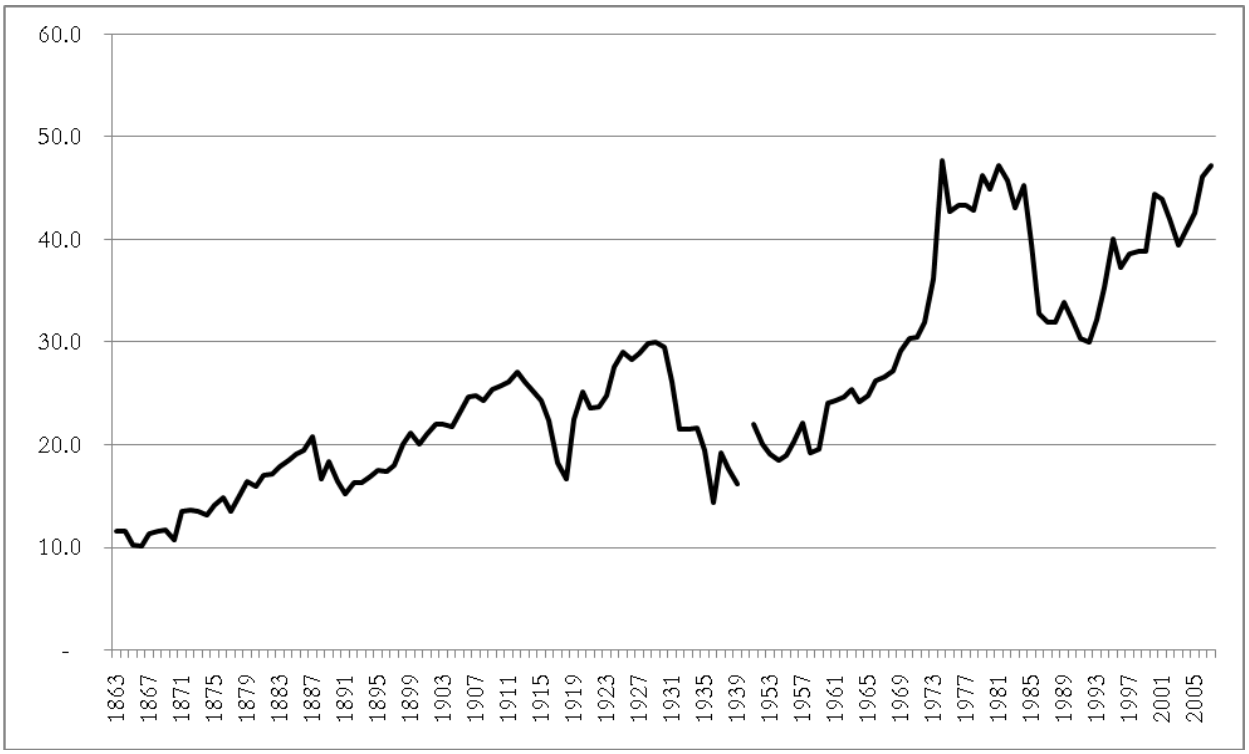
[1] The Bankit-FTV (Federico-Tattara-Vasta) dataset is based on *Movimento commerciale del Regno d'Italia* and now provides a four digits SITC classification for all goods in the period 1863-1939. For the period 1950 up to now the two main sources are: OEEC, *Foreign trade series*, for the years 1951-1961 and United Nations, *UN Comtrade*, for the period 1962 up to now.

2. General trends in the long run

Although Italy is not a small country, the scarcity of natural resources has made crucial the role of trade in its process of growth. Starting from Unification and with the slow beginning of the industrialization process, Italian foreign trade has increased considerably. From 1863 up to 2008 exports and imports have shown a similar rate of growth (respectively 4.7 per cent and 4.3 per cent). Of course, the development of foreign trade was very uneven over time. In particular, in the first years after Unification growth was relatively slow, while becoming more sustained during the early years of the century until the eve of the WWI. The interwar period was marked by a general reduction of trade flows, particularly after the big crisis of the early 1930s. After the WWII, the early 1950s marked a turning point with the start of the phase of larger increase in foreign trade flows. These latter grew intensely up to 1971 at a year growth rate respectively of 12.3 per cent for import and 12.4 per cent for export. After the oil shocks the intensity of Italian trade flows came down consistently, even if they continued to rise at lower rate (at about 6 per cent from 1970 up to the end of the century for both import and export). In the first years of the XXI century trade flows decelerate considerably growing at a rate slightly over 1 per cent.

The long run analysis of the degree of openness (the ratio of the sum of total imports and exports flows to GDP) clarifies the above observed trend (Figure 1).

Figure. 1. Italian degree of openness (1863-2007)

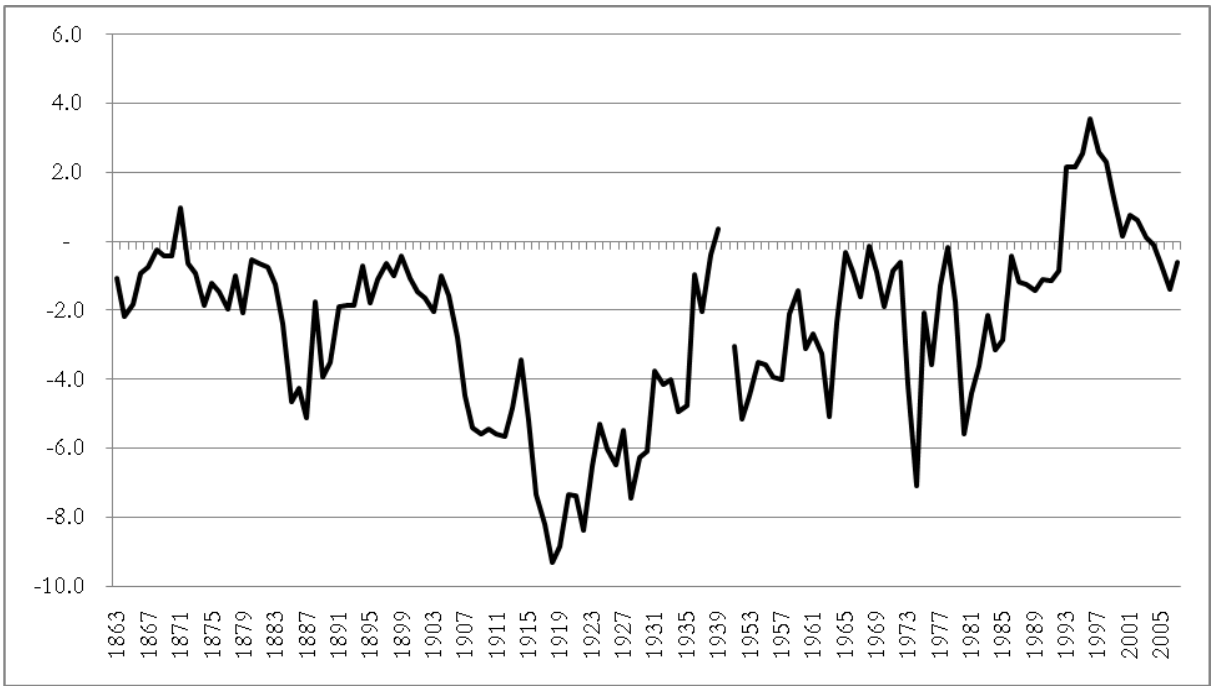


Sources: Bankit-FTV dataset; Ercolani (1969); Fenoaltea (2005), Istat, *Annuario Statistico Italiano*, *ad annum*.

Italian degree of openness shows the general trend of world economy with the succession of different phases (Foreman-Peck 1995). It is apparent how the phases marked by a higher increase in the degree of openness are generally characterized by better performance of the Italian economic growth. Nevertheless, there is no clear evidence of the causality direction of this phenomenon and, anyway, these data are not sufficient to face such an issue. However, it must be said that, since it is characterized by a reduced amount of natural endowment, Italy takes advantage from an easier access to these resources. The possibility to take advantage from the goods exchange is of course related to the terms of trade and it depends on the change in the goods composition. For example, according to some new estimates, Italian terms of trade seem to remain stable along the period 1863-1939, but improved considerably after Unification up to the 1880s. Moreover, the process of industrialization seems to have remarkably improved Italian terms of trade by a gain of about 20 per cent (Federico and Vasta 2009). Italian terms of trade got better significantly in the years of the *miracolo economico*, worsened since the early 1970s and improve again starting in the mid 1990s.

Being Italy characterized by a scarcity in natural endowment, trade balance often represented one of the main hindrance in its growth process. The analysis of trade flows in the long run stresses that the level of imports exceeds the level of exports, thus systematically causing a trade deficit (Figure 2).

Figure 2. Italian trade balance on GDP (1863-2007)



Source: as for Figure 1.

The latter stood under 2 per cent of the GDP until the end of the XIX and then it rose again during the WWI years, when it arrived at more than 10 per cent of the GDP. This deficit remained high even after the WWII, until the beginning of the 1990s when, for the first time since the Unification, trade balance presented a surplus which diminished in the last few years.

Notwithstanding a certain increase in the Italian export and the industrialization process faced by the country, the Italian shares of world manufactured and total goods did not improve up to the WWII, but they remained stable (Figure 3). This means that Italian export rose at the same rate of that of world trade. Being Italy a country with scarce natural endowments, export share for manufactured goods is always greater than for total ones. After WWII, the share of Italian exports started to grow constantly and the share of manufactured goods reached its apex at the end of the 1970s (6.2 per cent). In the last phase of globalization, following the emergence in the world trade of new developed countries, the Italian weight considerably decreased and in 2007 amounted at about 4 per cent, almost 40 per cent less than fifteen years before.

Figure 3. Italian export share on world trade (1861-2007) – current prices

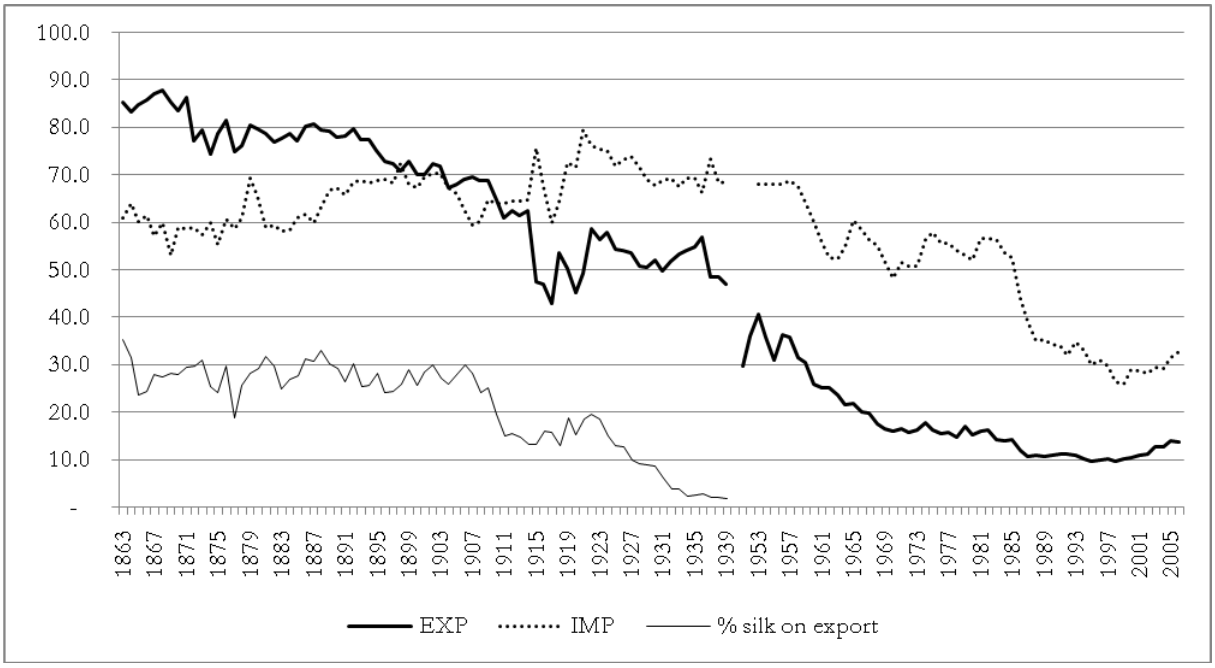
Sources: Maizels (1963); Lewis (1981); Guerrieri-Milana (1990); Unctad (2001); Istat *Annuario Statistico Italiano*, ad annum.

3. The structure of the Italian trade in the long run

The analysis of the long run composition of the Italian foreign trade allows us to shed light on the process of structural change, as well as to understand the main

characteristics of Italian economic growth. At the moment of Unification, Italy had a trade structure which showed some peculiarities (Figure 4). On the export side, primary products were largely dominant and they represented about 85 per cent of the total flows[2]. Instead, on the import side, primary products had a high weight because, being Italy very poor in natural resources, it was obliged to import high amounts of raw material such as wheat, coal and wood.

Figure 4. Share of primary products on Italian trade (1863-2006)



Source: our own elaboration on, for 1863-1939, Bankit-FTV dataset; for 1951-1961 OEEC (various years); for 1962-2006 UN *Comtrade* database.

The trade structure of the country was not that of a typical latecomer country. Although the weight of primary products on the total export is consistent with the weight of a laggard country, we may see a peak of higher weight of raw silk which amounted, up to the first years of the XX century, to about a third of the total export flows[3]. Moreover, Italian import was characterized by a not so large amount of manufactured products, as happens in less developed countries. It amounted to about 40 per cent of the total import, while usually in less developed countries this share was around 60-80 per cent of the total.

[2] According to SITC classification, primary products are usually considered as digit 0-4. In the Italian case, we have to consider, particularly up to the 1920s, the great relevance of silk which is classified as 6511 and thus included in manufactured products. In reality, the latter SITC category includes raw silk which must be classified as a primary product, since a large part of its value (80-90 per cent) is due to agricultural treatment (Federico 1997). Coherently with the latter consideration, we have classified in all our elaboration 6511 category as part of primary products.
[3] On the role of silk in the Italian economic growth, see Federico (1997).

The Italian trade structure moved quite slowly up to the WWI: the share of primary products on the import side remained more or less the same, while, as for exports, the weight of primary products declined with a reduction, at the eve of the War, of about 20 points. This marks the starting point of the process of industrialization of the country, which increased at the beginning of the XX century. Italian manufactures reached 38 per cent of the total export in 1911, when France achieved 58 per cent, and Germany and UK got around 75 per cent of the total (Maizels 1963: 58).

After WWI we can see a further reduction of the share of primary products on export, which, at the eve of WWII, reached almost half of the total. As for import, we can notice a slight increase of the share of primary products, which was over 65 per cent of the total.

WWII traced a real cut off in the long run trend. On the export side, there was a strong slowdown of the primary products and in few years manufactured products became a 4/5 of the total share. Starting from the 1980s, the share of primary products remained quite stable, amounting around 10 per cent of the total. At the mean time, the share of primary products on total import decreased more slowly in the first decades, but then, starting by the mid 1980s, it moved down rapidly. This is a sign of the increasing importance of that intra-industry trade which characterized all more advanced countries.

Let's now concentrate the attention on the evolution of the export structure from Unification up to the eve of WWII. In the first years after Unification there was a strong prevalence of both raw vegetable products and agriculture products which all together represented about 70 per cent of the total (Table 1).

Table 1. Export share distribution by one digit SITC (1863-2005)

	1863-67	1909-13	1935-39	1951-55	1971-75	2001-05
0 - Food and live animals	22.6	24.0	28.2	16.5	6.4	4.6
1 - Beverages and tobacco	2.7	4.1	4.7	2.2	1.8	1.5
2 - Crude materials	19.1	14.9	13.6	7.1	1.9	0.9
3 - Mineral fuels	0.0	0.1	0.7	8.3	5.8	2.3
4 - Animal and vegetable oils,	12.1	2.4	1.5	0.5	0.3	0.4
5 – Chemicals	6.5	3.8	4.8	6.6	7.8	10.0
6 - Various manufactured goods	33.9	39.8	29.6	32.3	22.6	20.8
6 - (except raw silk)	*5.2*	*21.6*	*27.2*			
Raw silk	*28.7*	*18.2*	*2.4*			
7 - Machinery and transport equipment	0.0	2.8	11.1	19.8	34.6	37.3
8 - Miscellaneous manufactured articles	3.0	8.0	5.2	6.6	18.5	19.6
9 - Commodities n.e.c.	0.0	0.0	0.5	0.0	0.3	2.4
Primary	**85.2**	**63.7**	**51.2**	**34.6**	**16.3**	**9.8**
Manufactures	**14.8**	**36.3**	**48.8**	**65.4**	**83.7**	**90.2**

Sources: as for Figure 4.

Looking at the top five export products, there is some further evidence emerging (Table 2). In the first period raw silk had a strong role amounting to more

than a quarter of the total Italian export. Other important products were olive oil, sulfur and fresh fruits. For what concerns manufactured products, if considered all together (15 per cent of the total), they summed less than the first product. The main products were dyeing and tanning materials, silk fabrics and essential oils, which represented the first internal resource-based manufactured activities of the country.

Table 2. Share of top 5 products by four digits SITC (1863-1939)

1863-67		1909-13		1935-39	
Product	per cent	Product	per cent	Product	per cent
raw silk	28.7	raw silk	18.3	*cotton fabrics*	4.6
olive oil	12.1	*silk fabrics*	3.8	edible nuts and dried fruit	4.3
Sulphur	5.3	*cotton fabrics*	3.5	artificial fibres	4.1
fresh fruits and citrus	4.7	cheese	2.7	citrus	2.9
dyeing and tanning materials	3.2	silk waste	2.5	other dried fruit	2.6
Total TOP 5	53.9	Total TOP 5	30.8	Total TOP 5	18.6

Source: our own elaboration on Bankit-FTV dataset. Note: in italics manufactured products.

At the eve of the WWI, although raw silk was still the top product, its weight decreased considerably (18.3 per cent). Amongst the main products occurred some textile manufactured goods such as silk and cotton ones. The structure of Italian export evolved but it did not present revolutionary changes: in general all primary products lost their weight, while seeing the rise of some manufactured products linked to the characteristics of the Italian industrialization process, mainly based on the sectors of the First Industrial Revolution (Federico 2006; Vasta 2006).

In the late 1930s, the Italian export composition was remarkably changed. For the first time, the share of manufactures reached that of primary products. At the mean time, there was a reduction in concentration (Table 2), with the top five products covering less than one fifth of the total value of exports. The top product became a manufactured one, cotton fabrics, which amounted only to 5 per cent of the total. Raw silk disappeared amongst the top exported products and its weight decreased until around 2 per cent of the total. Amongst primary products came out agriculture specialized crops, such as vegetables, citrus and dried fruits. As for manufactured products, beside the role of textile goods, which slightly fostered their share, there emerged some mechanical products, vehicles and some chemical goods. Of course we have to take into consideration that during this period Italian export included even goods directed towards Colonies which did not actually represent the real capacity of Italian products to compete within international markets.

The period between the end of WWII and the beginning of the 1970s is a period of big change in the composition of the Italian export. First of all we can notice a strong reduction in primary products, which passed from a third of the total in the early 1950s to less than a fifth in the 1970s (Table 1). This phenomenon

is accompanied with a big change even within manufactured products. On one hand there was a decline traditional products, with a strong reduction in textile and clothing, which however continued to amount to one fifth of the total; on the other hand there was a strong increase in the export of mechanical products, in particular of machinery and transport equipment.

The last thirty years show a substantial stability in the Italian export composition. Looking at the main products we may see a strong increase of the diversification, if considering that the top 5 products reduced considerably their weight.

Tab. 3. Top 5 products by three digits SITC (1951-2005)

1951-55		1971-75		2001-05	
Product	per cent	Product	per cent	Product	per cent
Other textile fabrics, standard type	8.2	*Road motor vehicles*	8.5	*Medicinal. pharmaceutical products*	3.4
Petroleum products	8.1	*Machinery non electrical parts*	6.5	*Furniture*	3.4
Textile yarn and thread	6.5	*Petroleum products*	6.4	*Parts of motor vehicles*	3.3
Industrial machinery n.e.s.	5.2	*Clothing*	5.7	*Other machinery for particular industries*	3.1
Fruits and nuts fresh	5.2	*Footwear*	4.6	*Non-electric parts of machinery*	2.6
Total TOP 5	33.2	Total TOP 5	31.7	Total TOP 5	15.8

Source: OEEC (various years) and UN Comtrade database. Note: in italics manufactured products.

Of course, this change in the composition of Italian export not only reflects the transformation of the capability to produce different goods, but it is also due to the evolution of world demand. In order to provide a better proxy of the Italian specialization in the long run, we can refer to an index of comparative advantage such as the Revealed Comparative Advantage (RCA)[4]. Unfortunately, as for world trade, there are only few sources available for what concerns the first half of the XX century and almost nothing for the XIX century. In order to obtain a first overview of Italian specialization, we used the pioneering work by Tyszinski (1951)[5]. We thus calculated, by jointly using Tyszinski's data and Bankit-FTV dataset, a RCA index disaggregated for sixteen manufactured sectors, from the end of the XIX century up to 1950 (Table 4). Sectors with a market share higher than the country's overall share are emphasized in the table, in order to show where existed a revealed comparative advantage.

[4] RCA is a relative advantage or disadvantage of a certain country in a certain products. It has been introduced by Balassa (1965) and is computed as: $RCA = (E_{ij} / E_{it}) / (E_{wj} / E_{wt})$, where E_{ij} is the export of commodity j of the country i and E_{it} is the total export of the country i. E_{wj} is the world export (w) of commodity j and E_{wt} is the total world export.

[5] Tyszynski's work yielded trade data for sixteen sectors for five benchmark years and for eleven countries which would have accounted for about 80-85 per cent of total world trade manufactured products. Other data are available by the seminal work of Maizels (1963), but they presented less disaggregation and are mainly based on Tyszynski's data. Similar distribution can be found even in Baldwin (1958).

Tab. 4. RCA indexes for manufactured products (1899-1950)

	1899	1913	1929	1937	1950
Iron and steel	0.10	0.05	0.05	0.22	0.39
Non-ferrous metals	0.37	0.14	0.08	0.05	0.34
Chemicals	**1.29**	**1.11**	0.98	0.92	0.45
Ceramics, glass and bricks	**2.16**	**1.73**	**2.50**	**1.83**	0.86
Wood, leather, rubber and paper	**1.08**	**1.32**	0.76	0.86	0.30
Industrial equipment	0.10	0.22	0.26	0.32	0.87
Electricals goods	0.82	0.60	0.35	0.43	0.73
Agricultural equipment	0.80	0.95	0.04	0.08	0.34
Railways, ships	0.26	0.20	0.51	0.30	**1.06**
Motor-cars, aircrafts	0.43	0.99	0.57	**1.53**	0.58
Spirits and tobacco	**4.60**	**4.04**	**2.11**	**3.07**	**1.36**
Textiles	**1.01**	**1.53**	**2.37**	**2.41**	**2.60**
Apparel	**1.12**	0.98	**1.67**	**1.32**	**1.88**
Metal manufactures n.e.s.	0.14	0.21	0.20	0.36	0.52
Books, films and camera	-	0.28	0.03	0.10	0.86
Finished goods n.e.s.	**2.68**	**2.18**	1.00	**1.77**	**1.15**

Sources: Our own elaboration: data on world share of different groups of commodities on total trade (denominator) are taken from Tyszinski (1951), while data on Italian share of different groups of commodities on total export (numerator) are calculated by Bankit-FTV dataset up to 1937 and from Tyszinski for 1950. Since we have not included raw silk in manufactured goods (see footnote 2), we have adjusted the world textile's commodities value by Tyszinski, while deducting the estimated value of raw silk by using data by Maizels (1963: 88) and Federico (1997: 197-200).

Although all these data must be taken with some cautions, they seem to be useful to better clarify the Italian specialization profile by adopting a long run perspective. First of all we can see a high persistence in the RCA: five branches (ceramics, glass and bricks; spirits and tobacco; textiles; apparel and finished goods) presented, at least for four years on five, a noticeable advantage, another one (chemicals) had a declined and slight advantage for the first two benchmark years. On the other hand, in seven branches there was a marked and persistent disadvantage for the entire period.

Consistently with Italian industrial specialization, there was a persistent and clear advantage in the traditional labor intensive sectors (apparel, textiles, finished goods, ceramics). Moreover we can observe a high advantage, particularly in the first part of the period, in a sector linked to the exploitation of a natural resource such as vine. The slight specialization in chemical goods during the first part of the period is due to those traditional goods, such as fats, perfumes and organic compounds, which characterized the Italian industrial production of the period (Zamagni 1990).

Let's now move to analyze Italian revealed advantage in the following years (Table 5). For this aim we can use data provided by Guerrieri and Milana (1990) which, although not perfectly homogeneous with those of the previous period, confirmed some characteristics of the Italian specialization but, at the same time, present some new elements. If on one hand we can observe the traditional specialization in textile, apparels and non metallic mineral manufactures (ceramics,

glass and bricks), on the other hand new branches of specialization became visible. It is the case of metal products, of agricultural and industrial machinery and electrical machinery. This result is in fact coherent with the increase of the share of mechanical products in the Italian export (Table 1). The use of a synthetic index of intra-country structural change, the Michaely index (1962), confirms, for the two decades following 1950, the existence of a high discontinuity in the specialization of the Italian export, which resulted more accentuated in the 1950s (Gomellini and Pianta 2007).

Tab. 5. RCA indexes for manufactured products (1970-1987)

	1970	1982	1987
Food	0.37	0.53	0.66
Textile, clothing, footwear	**2.25**	**2.17**	**2.09**
Wood and furniture	0.55	0.90	0.92
Chemical, pharmaceutical, rubber	0.95	0.86	0.87
Oil	**1.41**	**1.02**	0.71
Non-metallic mineral manufactures	**1.85**	**2.28**	**2.46**
Basic metal	0.38	0.78	0.73
Metal product	**1.25**	**1.62**	**1.69**
Agricultural and industrial machinery	**1.50**	**1.38**	**1.78**
Mechanical and electromechanical	**1.32**	**1.32**	**1.62**
Office machinery	**1.47**	0.74	0.57
Telecommunication and electronics	0.66	0.39	0.38
Electrical machinery	**1.52**	**1.16**	**1.05**
Car	**1.04**	0.63	0.66
Ship, railway, aircrafts	0.33	0.49	0.54
Optical products and precision mechanics	0.62	0.48	0.57
Other manufactured goods	0.68	**1.06**	0.70

Source: own our elaboration on Guerrieri and Milana (1990).

In the years following the oil shocks of the 1970s, the Italian specialization shows a high stability, polarizing in two categories, the first one pertaining to traditional sectors, while the other one to mechanical productions. This stability is confirmed even by comparing the composition of Italian export in 1970s and in mid-1990s with other advanced countries, where comes out that Italy presents the lowest level of structural change amongst the OECD countries (De Benedictis and Tamberi 2000). This trend is confirmed also looking at the Italian RCA at the end of the century, as shown in Table 6. For a wider level of disaggregation it seems to be even more evident that Italian profile is strongly inclined towards the traditional sectors of the so-called *made in Italy*. At the top of the ranking of the categories showing a relative advantage (Table 6, left column) we may find, marked by high values, the most typical goods of the Italian manufacturing industry.

Tab. 6. RCA indexes for manufactured products (1998)

Comparative advantage	RCA	*Comparative disadvantage*	RCA
Footwear	5.53	Rubber products	0.97
Leather products	4.88	Printing, publishing	0.94
Furniture, fixtures	3.44	Food	0.76
Non-metallic products n.e.c.	3.28	Other chemicals	0.73
Wearing apparel	3.14	Petroleum, refineries products	0.70
Textiles	2.29	Industrial chemicals	0.65
Other manufacturing	1.79	Electrical machinery	0.63
Metal products	1.70	Transport equipment	0.58
Plastic products n.e.c.	1.67	Paper products	0.57
Pottery, china, etc.	1.58	Professional goods	0.57
Beverages	1.25	Non-ferrous metals	0.53
Non-electrical machinery	1.16	Wood products	0.46
Glass products	1.13	Tobacco	0.15
Iron steel	1.05		

Source: De Benedictis (2005).

However, it must be considered that over the last decades there was a large increase in the so-called *horizontal* trade, which is the exchange of a variety of some kind of manufactured products amongst industrialized countries. Thus, in order to better understand the specialization of a country, it is necessary to take into account both export and import sides. The results of some works on Italy, which consider export and import by introducing a normalized trade balance, are consistent with data presented above (Iapadre 1995). It is confirmed the stability of Italian specialization model, which is characterized by a large prevalence of traditional branches (mainly textiles, apparel, glass ceramics and pottery, and furniture) and mechanical machinery.

If we look at the last available data, we observe that Italian specialization did not change in the last few years (Table 7). Even at the beginning of the new century, the sectors for which Italy showed a comparative advantage are the same of the previous decades. We will come back to the profile of Italian foreign trade in the next part of the paper, when we will analyze the Italian technological specialization.

Tab. 7. RCA indexes for manufactured products (2005)

Comparative advantage	RCA	*Comparative disadvantage*	RCA
Leather products	4.00	Paper products	0.83
Footwear	3.76	Other transport equipment	0.77
Furniture, fixtures	2.64	Other manufactured	0.75
Glass and ceramics	2.57	Industrial chemicals and pharmaceuticals	0.75
Jewellery	2.13	Auto-vehicles	0.67
Mechanics	2.08	Medical instruments	0.56
Textiles and apparel	1.99	Wood products	0.48
Plastic and rubber products	1.38	Ict	0.19
Petroleum, refineries products	1.38		
Metal products	1.15		
Food and beverages	1.02		

Source: our own elaboration on Lanza and Quintieri (2007: 14).

4. Technological specialization of Italian export in the long run

The technological characteristics of Italian export reflect the industrial specialization of the country. However, in order to broaden the general framework of the Italian export specialization, we will try to illustrate, through new evidence, Italian technological specialization in the long run. Some of these characteristics have already come out, though indirectly, in the previous part; anyway, the backwardness of Italian technological specialization is also well illustrated by the literature (Giannetti 1998; Vasta 1999; Giannetti and Vasta 2006). Nevertheless, there are not works providing an articulated analysis on the technological characteristics of Italian export. This is due both to the scarce availability of disaggregated data and to a limited attention given to the relation between technology and trade.

In order to fill this gap, we provide a synthetic measure of the sophistication of Italian export goods in the long run, by adopting an updated technological classification proposed by Lall (2000) which, starting from the characteristic of a single good, tries to combine the traditional classification on firms and sectors proposed by Pavitt (1984), with that by the OECD (Hatzichronoglou 1997). Such a classification distinguishes manufactured products into four categories: resource based manufacturers, low technology, medium technology and high technology[6]. According to Lall, the first two categories can be defined as "easy" technologies goods, with the main drivers of competitiveness being natural resources endowment in the former case and low wages in the latter. The last two categories are instead defined "difficult" technologies, which require, in general, high skills and complex learning processes[7].

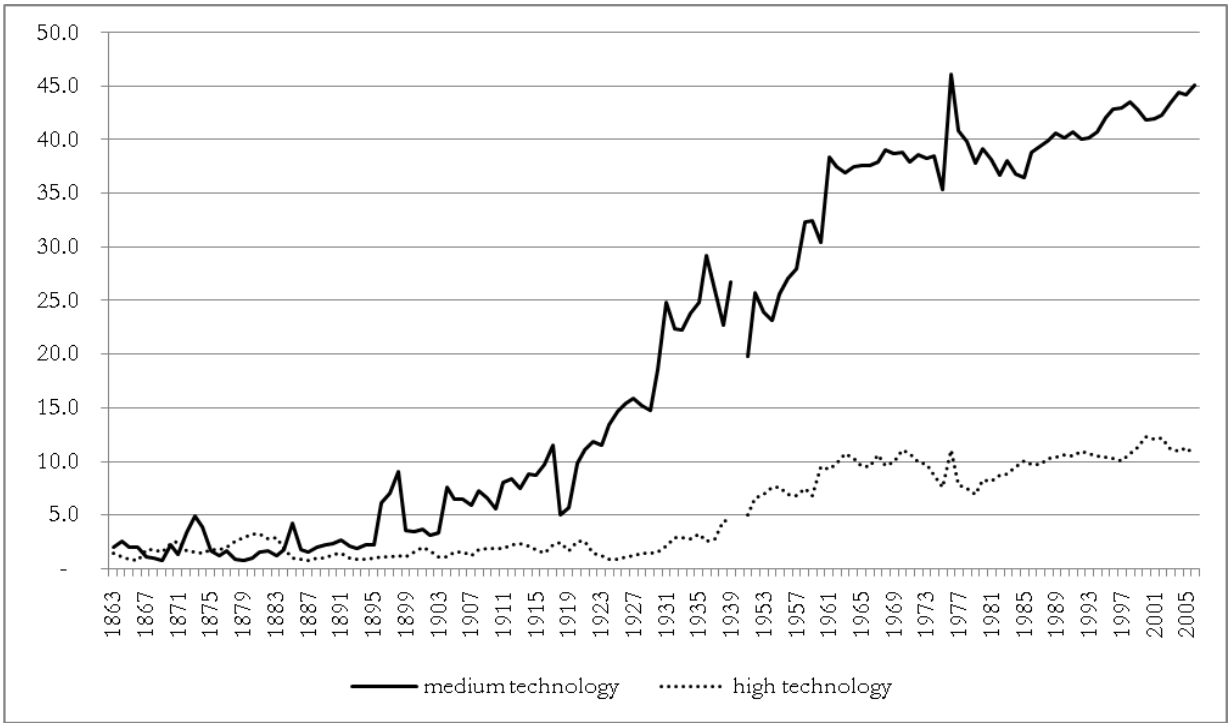
Looking at the share of the two "difficult" categories on total Italian export in the long run, we can observe some interesting outcomes (Figure 5). First of all it clearly comes out how the weight of the high technology products remained, more intensely than we had expected, at a very low level for all the 150 years considered. It varied between 2 and 3 per cent of total manufactured products from the Unification up to the eve of the WWI and, only in the late 1930s, when there was a

[6] The Lall's classification comprised even a category relative to primary products. Moreover the four manufactured categories are divided in some sub-categories.

[7] For what concerns this classification, a caveat must be kept in mind. In fact, the adoption of the same classification for such a long period could cause some problems being the same good classified always in the same category. Instead a single good could be defined as "high-tech" at the moment of its introduction, and become "low-tech" after a certain period of time. However, we decide to use the "original" classification for the entire time-span because the four broad categories are, at least since the Second Industrial Revolution, able to provide a reliable picture of the technological evolution in the long run.

flow of advanced goods towards the Colonies, nearly reached 5 per cent of the total. After the WWII we find a slight increase in the weight of high technology, which, however, remained at very low level moving around the threshold of 10 per cent of the total until the beginning of the XXI century.

Figure 5. Share of "difficult" technologies on total manufactured products (1863-2006)



Source: as for Figure 4.

If the analysis of the weight of the higher technology intensity goods can produce expected results, we can probably have deeper suggestions by looking at the dynamics of medium technology, which provides a better understanding of the different phases in Italian technological specialization. As for what concerns higher technologies, the situation up to the WWI does not present any significant modification. During the 1920s and the 1930s there is a first and significant upwards, and the weight of medium technology reached a quarter of the total export of manufactured goods. Of course we must consider all caveats, previously reported, due to the effect of Colonies on the structure of Italian export. If we come back to the data provided by Tysyzinski, we can have some further elements. By adopting the classification proposed by Gruber, Mehta and Vernon (1967), which ranked the 16 sectors proposed by Tysyzinski according to their R&D intensity, we can have another evidence of Italian technological specialization of the period. For the first half of the XX century, Italy was specialized in those branches that are at the bottom of the Gruber's ranking such as, listing from the

bottom: apparel, wood and leather – at least up to WWI –, finished goods n.e.s., textiles, and spirits and tobacco.

The *miracolo economico* which characterized Italian economy during the Golden Age signed probably the big period of discontinuity regarding Italian technological specialization. The share of the two "difficult" categories reached about a half of the total in the mid 1970s. The situation, as emerged above by an analysis of the comparative advantage, did not change in the last three decades, and the Italian technological specialization seems to become as crystallized.

Trying to sum up, we can identify three main phases in the evolution of the Italian technological specialization. The first one, starting with the Unification, ends with the WWI and shows a substantial stability in the technological level of Italian export. The process of industrialization is largely based on the development of the sectors of the First Industrial Revolution and Italian technological capabilities can be defined, at best, as imitative. The period starting with the WWI up to the oil shocks of the 1970s emerged as a long catching up process in which Italy tends to converge towards the structure of the most advanced countries. In this view, the interwar period can be seen as a prodrome in the Italian process of developing an autonomous technological capacity which, at least partially, took place after the WWII (Petri 2002). On the other side, we can assume that the period was strongly influenced by the "Colonies effect", the phenomenon for which a large part of the Italian export, even in most advanced goods, was directed towards the areas of the Empire. However, as far as both options could be valid, the post WWII period was characterized by a change in technological specialization, with the weight of medium and high technologies goods raising from 30 per cent in the early 1950s to about 50 per cent at the eve of the first oil crisis. It is in this phase that emerged the specialization in mechanical machinery, particularly in domestic appliances, which represented a good example of the upgrade of Italian technological specialization (Gomellini and Pianta 2007).

If the period of the Golden Age, marked by contradictions and inconsistencies, represented a marked discontinuity, the last three decades, according to the Lall classification, showed the existence of a trade puzzle which is simply the other face of the coin of the Italian industrial specialization (Pagano and Schivardi 2001; Federico 2006). First of all, it clearly emerged a highly persistent specialization in labor intensive traditional goods with a general disadvantage in the field of the high-technology (Ferrari et al. 2004). This latter element comes out even looking at the ICT goods, core elements of the Third Industrial Revolution, for which Italy appears to be robustly de-specialized (Table 7) in comparison with all most industrialized countries (ENEA 2007). More in general, these works

confirm a structural weakness of the entire composition of Italian export in the goods with elevated technological contents. This weakness seems to be confirmed for the last decades when the share of high tech products on total export decreased at a rate higher than the European average (Ferrari et al. 1999:97; ENEA 2007:140). Other studies give a less negative interpretation of the Italian export structure over the last thirty years. On one hand, it has showed that the technological specialization of Italian export has slightly changed, particularly regarding its composition, in some areas of the North-West of the country (De Benedictis and Tamberi 2000; De Benedictis 2005). On the other hand, it has detected, looking at a more disaggregated level, a shift towards goods of higher quality within the same sectors of specialization (Lanza and Quinteri 2007).

5. Destination of Italian export in the long run

The distribution of foreign trade by country of destination reflects a wide and complex range of factors and its analysis appears useful in order to fully understand the characteristics of Italian export[8]. Geographical destination and product specialization are in fact strictly interconnected and determined by the comparative advantage of a country.

Tab. 8. Destinations of the Italian export (1863-2006)

	Austria	Benelux	France	Germany	United Kingdom	Switzerland	**Europe**	United States & Canada	Argentina	**America**	**Asia**	**Africa**	**Oceania**
1863	11.1	1.4	37.5	0.2	13.9	18.3	91.9	1.6	-	7.5	0.0	0.6	-
1881	12.6	1.1	46.3	5.7	6.9	11.3	90.2	4.8	2.1	7.5	0.5	1.8	-
1901	9.5	2.8	12.7	17.1	11.0	14.9	75.4	10.3	4.6	17.6	3.1	3.5	0.4
1913	8.8	2.9	9.2	13.7	10.4	9.9	63.2	11.0	7.4	23.1	5.4	7.1	0.5
1939	-	2.9	2.2	17.5	4.8	5.4	55.7	7.5	2.2	14.3	4.6	24.5*	0.5
1951	2.0	4.4	9.0	7.8	13.4	5.6	59.6	7.4	2.5	16.3	11.4	9.2	3.6
1971	1.8	8.4	13.5	22.9	3.9	4.7	70.9	10.9	0.8	15.1	5.9	6.2	1.9
1981	2.2	5.9	13.6	15.7	5.8	4.0	59.2	7.5	0.6	12.1	13.3	13.5	2.0
1991	2.5	6.6	15.2	21.0	6.7	4.2	73.6	7.7	0.3	10.1	10.8	4.4	1.1
2001	2.2	5.7	12.3	14.7	6.8	3.6	69.5	10.6	0.3	14.3	11.2	3.7	1.3
2006	2.5	5.3	11.8	13.2	6.1	3.8	72.2	8.2	0.2	11.2	11.6	3.8	1.3

Source: our own elaboration on Bankit-FTV ; Istat (various years). * 21 per cent is relative to Italian Colonies.

Let's thus have a look at the evolution of the destination of Italian export flows in the different phases of the Italian economic history (Table 8). In the decade after Unification, the Italian export flows were highly concentrated: few European countries absorbed almost 90 per cent of the total. The main commercial

[8] Unfortunately in the first years after Unification and, in general, up to 1921 the disaggregation by country of Italian foreign trade statistics is not completely reliable. There was a general tendency to overestimate the weight of closer countries, particularly for goods transported overland, as well as to underestimate the weight of remote countries.

partner was France which, before the Commercial War of the 1887, absorbed more than one third of the total flows of Italian goods. France was largely (about two third of the total) the main destination for raw silk, the most important Italian export good. Other major destinations for Italian goods were, in decreasing order, Switzerland (15.7 per cent), Austria-Hungary (14.8 per cent) and United Kingdom (14 per cent). After the 1887, the situation considerably changes: European countries remained, at the beginning of the XX century, the main destination for Italian products but its total share decreased at 75 per cent of the total. Within European countries, Germany became the main destination (17.1 per cent), particularly for primary goods (citrus, olive oil and fruits), followed by Switzerland (14.9), France (strongly reduced from 46.3 before the Commercial War to 12.1) and United Kingdom (11.0). At the same time, we may see some new destinations in South and North America, following the destiny of the Italian emigrants and their request of typical Italian goods. At the eve of the WWI, the process of diversification of the destination of Italian export was accentuated. Germany remained the main partner and the share of the European countries decreased to less than two third of the total, even because there was a certain increase of the destinations towards America, Africa and Asia.

During the interwar period there was a dramatic change in the destination of Italian goods. At the eve of the WWII, Germany, was still, even through *clearing* deal (Tattara 1993), the first country of destination of Italian goods. At the mean time, Colonies assumed a strong relevance: in the late 1930s, they amounted all together at more than 20 per cent of the total of the Italian export flows. Due to the autarchy policies, destination towards other countries was considerably reduced in comparison with the 1920s.

At the beginning of the 1950s, the diversification of Italian export increased considerably due to the start of a phase of openness in the world economy. UK became the main destination of Italian flows of export (13.4 per cent) while, at the mean time, the weight of Germany was considerable reduced (7.8) and France resumed, at least partially, its traditional role, reaching almost 10 per cent of the total share of Italian export. Twenty years later, at the end of the Golden Age, the structure of Italian export was considerably changed once again and it became more similar at the situation registered before the War. Germany returned to be the most important commercial partner with almost 23 per cent of the total in 1971. In general, all European countries, except for United Kingdom, increased their weight and in particular France (13.5 per cent) and Benelux (8.5 per cent). We may, in fact, see the effects of the process of integration in the European Community and the adhesion to the GATT.

The oil crises of the 1970s and of the early 1980s, associated with the price increase of primary products, moved temporarily Italian export towards new destination in Asia and Africa. The change of the situation in the late 1980s, which caused a worsening of the terms of trade of new developed countries, caused a reduction of the Italian export flows towards these countries. This seems to be a sign of the flexibility of the Italian export in changing market destination following new opportunities which raised even for competitive devaluation of the currency. In the last three decades, the situation is indeed characterized by a certain stability with a sole exception concerning a reduction of the weight of Germany, which however remained the first country of destination of Italian goods. This phenomenon is due to the unification of the Germany and to the opening of Eastern Europe markets. In many cases, Italian goods were probably substituted by the new production of the post communism countries.

6. The Italian historiography: trade, growth and policies

There are not long run interpretations on the relationship between the role of trade and the Italian economic growth[9]. The various analysis proposed are usually concerning the single phases of Italian economic development and have focused on different topics. With particular reference to the period after Unification, it has mainly analyzed the role of tariff policies; for the period of the *miracolo economico* the focus moves to the export led hypothesis and, finally, for the last three decades, to the Italy's peculiar specialization and its anomalies.

A first bulk of literature is obviously focused on the fifty years after Unification and mainly concentrated its attention on the duties policies adopted[10]. One of the main interpretation of the period is the so called Bonelli-Cafagna model, which traced back some explanations of Italian economic growth to the beginning of the XIX century. According to Bonelli (1978) and Cafagna (1989) the Italian export of primary goods, particularly raw silk, was very important in determining the first phase of Italian economic growth. On one hand, the model emphasized the importance of export flows in determining the long agriculture accumulation starting before Unification. On the other hand, it stressed the necessity to increase the capacity to export goods, in order to keep reasonable its trade deficit. In fact, because of its lack of natural resources, Italy was obliged to import a large amount of primary products. As we have seen before, the capacity to export moved slowly, starting in the Giolittian era, from primary to manufactured

[9] Two reviews which focuses on this topic in the long run are provided by Federico (1998) and Roccas (2003).

[10] For a general overview of Italian duty policies, see Federico (2001).

goods. According to the works proposed by Fenoaltea, recently summarized in a general interpretation of Italian economic growth in the liberal era (Fenoaltea 2006), the Italian economic growth must be seen in another perspective. The author proposed a model where inputs (capital and labor) are characterized by a high mobility and Italy, following the international cycles, seems to quickly switch from one equilibrium to another one. This means that the different specialization of Italian economy was, according to this view, due to the high elasticity of its offer and "the past does not matter".

The role of trade policies in determining Italian specialization, particularly in the post Unification period, has been long debated by literature. Some scholars have maintained that a certain degree of protectionism was necessary in order to develop some heavy sectors which otherwise would have had scarce possibility to grow (Sapelli 1992; Zamagni 1993). In general, large part of historiography has not criticized protectionism itself, even because it has been seen as useful to reduce the disequilibrium of trade balance. The criticism, starting from the seminal work of Gerschenkron (1962), regarded the sectors chosen for the protection. It was assumed that Italian government had selected the wrong activities to protect: steel, textile and wheat instead of mechanical engineering and chemicals. Fenoaltea (1973; 2006), for example, has maintained a negative view on the tariffs imposed. In particular, the tariff on wheat restricted in general Italian export flows, while duties on steel gave advantage to the export of low quality cotton fabrics and prevented the development of mechanical industry, which could have become a "real" export-led sector for Italian economy. However, this hypothesis seems too optimistic, because a country could not easily change its specialization which is strictly linked with its technical capabilities, which are not simple inputs available on the market. For example, Italian capabilities in the technology of the Second Industrial Revolution did not allow a fully development of the sectors (Vasta 1999), even because the State did not build, through investment in human capital, the *humus* in which high technology industry could have raised spontaneously (Fenoaltea 2006).

A more recent series of works by Federico et al. (Federico and Tena 1998; 1999; Federico and O'Rourke 2000), however, proposed a different approach to the effect of tariff policies, by estimating the effective and nominal protectionism. They argued that protectionism was rather low, and even nonexistent for many products. In the absence of protectionist policies, i.e. in the hypothesis of absence of all duties, the quota of industry on GDP would have remained more or less the same, with a reduction in the added value of the steel and of the mechanical sectors and an increase in that of the textiles sector. Obviously these considerations do not

take into account the dynamic effects of protectionism, actually very difficult to estimate, in determining the development of the new industrial sectors which can provide spillovers on entire economic system (Lehmann and O'Rourke 2008).

The debate on the role of trade in the Italian economic growth during the interwar period is not so rich. Until mid 1920s policies did not considerably change, if compared to the previous period. After the big crises, all policies were characterized by the autarky which caused a high degree of closeness (see Figure 1). Thus the role of trade was not emphasized in the analysis of Italian economic development. Nevertheless, as we have seen before, the structure of Italian export, although sensibly reduced in its volume, considerably changed, by moving towards a higher technological specialization. On the one hand, this phenomenon, which is certainly influenced by the Colonies, can be simply seen as a result of the investment made by the State in the heavy sectors; on the other hand, it can be viewed as the beginning of a process of accumulation of those capabilities which will act as spillover for the following phase of growth of Italian export (Petri 2002).

The debate on the role of trade in Italian economic growth is particularly broad for what concerns the Golden Age. One of the main element of this relationship is certainly linked to the process of European integration which, as we have seen before, opened many new opportunities for the export of Italian goods. Some authors have maintained that the Italian economic growth of the period was mainly export-led, at least as a stimulus for the most dynamic part of the Italian industry (Stern 1967; Graziani 1998). Afterwards, other authors have reconsidered this hypothesis by maintaining that the internal demand was the driving force of the economic growth of the period (Ciocca, Filosa and Rey 1973; Zamagni 1993; Battilani and Fauri 2008). If in general the latter view has become widespread, it is true that Italian comparative advantage moved in this period towards higher sophistication goods, which were characterized by an increase of foreign demand. If, in general, all interpretations agreed on the key relevance of the European integration in determining high rates of growth, there is a debate on the structural change of Italian export. On one hand, the integration process allowed to pursue Italian comparative advantage mainly based on prices competition. It is in the traditional sectors that Italy concentrated its capacity to develop its export flows. However, at the mean time, emerged even new specializations in medium, and sometimes even in high, technology sectors by a convergence process towards the structure of main industrialized countries. In this sense, some authors maintained that this was a missed opportunity for the Italian economy and that this "incomplete transformation" had a weight in determining the situation of the

following years when, after the oil shocks, the international situation changed (Gomellini and Pianta 2007).

The literature on the last three decades is mainly focused on the analysis of the features of Italian export goods and, more recently, it is becoming strictly linked with the wide debate on Italian decline of the beginning of the new century[11]. As far as the openness of world trade grows intensely, with the dramatic rise of the weight of new developed countries, the Italian debate has focused on the links between the industrial specialization of the country and its trade specialization. The rapid decrease of Italian share on world export represents, according to some interpretations, one of the element of this decline (Figure 3)[12]. The characteristic of Italian export is of course due to the Italian industrial specialization and the debate on it followed the same path. On the one hand, we can place the well known interpretation which emphasized the success of the Italian small sized, district based, firms specialized in traditional goods which represented a large part of Italian export (Becattini 1998; 2000; Quadrio Curzio and Fortis 2000). This specialization, which particularly increased after the crisis of the Fordist paradigm due to the oil shocks, allowed to enlarge, particularly in the 1980s up to the early 1990s, the share of Italian goods on world export. This interpretation, based on "small is beautiful", underlined the vitality of the Manchesterian part of the Italian industry.

On the other hand there were some isolated voices, which tended to stress as most of the Italian export success of this kind was due to competitive devaluation (de Cecco 2000). At the mean time it was underlined that the specialization was too much oriented towards low-technology traditional goods. In the last few years, after Euro introduction, concerns on Italian specialization have increased and sometimes have become alarms. Various analysis have shown as Italian specialization is both highly concentrated in the sectors with slower rate of growth in the world markets and, at the same time, seems to become always more similar to that of new developed countries (Onida 2004). Moreover, some studies have emphasized as the Italian exports flows present various anomalies. First of all, assuming that the Italian technological specialization diverges from the specialization of the most advanced countries, it comes out that it is more similar to those of some new developed countries such as Taiwan, Thailand and Romania (De Nardis and Traù 1999). Secondly it came out that Italian specialization is very rigid and it is the one

[11] The literature on the topic became wide at the beginning of the XXI century, a survey can be found in Visco *et al.* (2004), see even Gallino (2003).

[12] It must be considered that the Italian export shares on world total is due to several elements such as oil price and rate of changes Euro/Dollar. Both factors could have increased the share of extra-European and reduced Italian weight. For a full discussion of the issue, see Faini (2004).

which less changed amongst all industrialized countries in the last decades (De Nardis and Traù 2005). Other studies confirmed this rigidity and have shown how the sectors of strong Italian specialization, measured by RCA index, are those which loosed importance in the world market (Di Maio e Tamagni 2008). This latter characteristic was calculated by using the new PRODY index - introduced by Hausmann, Hwang and Rodrik (2007) – which allowed to couple each traded sector in terms of income/productivity level. According to the same authors, thus Italy seems to be trapped in an old model based on a specialization which "is now becoming wrong". Other works give a more positive view of Italian anomalies. Although the Italian export specialization model is largely based on traditional goods, it is able to resist competition from emerging countries moving towards higher quality goods. This means that for the Italian export the increased degree of openness would not lead to a change of inter-sector specialization, as expected by theory, but to an intra-sector repositioning towards goods with a higher added value (Lanza and Quinteri 2007). This could be coherent with another optimistic view which has stressed the existence of some recent changes in the Italian industrial structure, with the rise of a bulk of export-oriented medium sized firms (Colli 2002).

7. Conclusions

In this paper we have presented, even through the aid of new data, the evolution of the capacity of Italian goods to reach international markets. This capacity is transformed according with the different phases of world economy which have changed the characteristics of Italian export. This latter was mainly based on primary goods at the Unification, then moved slowly towards manufactured goods, whose weight surpassed that of the primary products only in the 1950s. Then, starting in the 1950s, the sophistication of Italian export goods increased for all the period of the *miracolo economico*. This phase ended with the great crisis of the 1970s, which considerably transformed both the structure of Italian exports and the industrial structure of the country. This led to the current situation which is characterized by an anomaly of Italian export, one of the many anomalies characterizing Italian economy.

It is not the duty of the historian to make predictions about the future. The analysis of the present situation is useful to synthesise two main interpretations on Italian export capacity in the long run. On the one side, those who argued both the relevance of the world market share of Italian export and the capacity to occupy, within traditional sectors, important niches of goods with higher value added. On the other side, those who stressed the attention both on the strong decrease of the

Italian share in the world export and on the "wrong" specialization of Italian export flows which are always more concentrated in those sectors which lose importance in the world market. Italy is still famous in the world for its capacity to produce and export goods of outstanding quality such as ties by Marinella, Arco lamps by Castiglioni brothers or suits by Giorgio Armani. Will be this capacity sufficient to sustain the economic growth of a 60 million people country?

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