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ABSTRACT

Italy's Comparative Advantage: A Long-Run Perspective

The growth of the Italian economy over the past 150 years since unification was accompanied by a dramatic increase in the country's integration with European and global commodity markets: foreign trade in the long run grew on average faster than the overall economy. Behind the dynamics of aggregate trade, Italy's comparative advantage changed fundamentally over the last 150 years. The composition of trade, in terms of both commodities imported and exported and in terms of trading partners, developed from a high concentration of a few trading partners and a handful of rather simple commodities into a wide diversification of trading partners and more sophisticated commodities. In this paper we exploit a new long-term database on Italian foreign trade at a high level of disaggregation to document and analyze these changes. We conclude with an assessment of Italy's growth prospects from a historical perspective.

JEL Classification: F14, N73 and N74

Keywords: 19th and 20th century, comparative advantage, international trade and Italy

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2. Exports and Economic Growth in Italy

The nexus between trade and growth has been a prominent topic in Italian economic thinking and policy over the last 150 years. Throughout the period, Italian scholars and policy-makers have shown limited optimism about the role of exports as an engine of economic growth. For most of the first one hundred years of Italy's history as a unified country, Italian elites nurtured a sort of ideological antipathy for trade. It was typically admitted that exports were necessary to pay for the essential imports of raw materials, but little more than this. Exports were deemed to have spurred growth only in the 1860s and 1870s, and to some extent during the "boom giolittiano" – the 20 years before the outbreak of WWI (Einaudi 1900). This hostility to trade peaked during the 1930s when the fascist regime regarded independence from foreign trade (autarky) as one of its key economic goals. Optimism gained ground again during the golden years of the European economy after WWII when Italy achieved unprecedented rates of GDP growth. Exports were regarded as an essential source of aggregate demand and as a strong stimulus to increase the competitiveness of Italian industry (Ciocca 2007). The change in the composition of Italian exports was heralded as evidence of convergence with the more "advanced" European countries such as Germany and France (Cao Pinna 1965; Miurin and Santini 1971; Conti 1973; Onida 1978). Since the late 1970s, however, growth has slowed and pessimism has returned. Few asked for protectionism and many still continued to consider exports as a main catalyst for growth. Regardless, several scholars argued that Italy's long-term prospects for trade-led growth were poor. In fact, the country still exported mainly low-tech, "traditional" goods, which were subject to increasing competition from emerging markets (Conti 1978; Guerrieri and Milana 1990). Indeed, in the 1980s and 1990s, Italy's specialization changed fairly little and thus the difference with the advanced European countries persisted (Bugamelli 2001; De Benedictis 2005; Di Maio and Tamagni 2005). An alternative, more positive, view of Italy's export performance in the 1980s and 1990s argues that the aggregate data is misleading. In fact, Italy succeeded in positioning itself on the top of the market for "traditional" goods, exporting high quality and high value added traditional goods, and enjoyed some degree of market power in these goods (Fortis 2005; De Nardis and Traù 2005; Lanza and Quintieri 2007). Given Italy's rather poor

economic performance since 2000, export pessimism has again emerged as an important component of the prevailing narrative about Italy's long-term stagnation and relative decline.

This literature suffers from a two-fold problem. First, most analyses focus on short- to medium-term trends. Many of the works on the post-war period consider only benchmark years rather than yearly series and none extend the analysis beyond periods of 23 years. There is only one exception: a very recent article by Vasta (2010) who covers the whole period 1862-2010, but has to rely on a survey of the literature for the post-war years. Second, the quantitative evidence is insufficient for the interpretation. The works on more recent years, which can rely on the United Nations data on world trade, use an array of different measures with different levels of product disaggregation. The historical literature on the pre-1939 period is based on anecdotal evidence, with very few data and almost no international comparisons, even though Italy has published fairly reliable trade statistics since its unification (*Movimento Commerciale*). However, the sheer size of these statistics - up to 3000 products in the 1930s - and the repeated changes in classification of products have so far prevented any systematic exploitation of this source.

This paper addresses both these shortcomings. It provides a long-term view of Italian trade and specialization from unification to the present, with a consistent analytical framework. For the period before 1939, we rely on the results of a massive research project, funded by the Banca d'Italia (Federico et al., forthcoming), which has copied the whole set of Italian trade statistics from 1862 to 1949 and reclassified them according to the SITC classification (Rev. 2) - the data will soon be available on the Banca website. From 1950 onwards, we use the United Nations data as published in their annual Yearbook of Trade Statistics. For the period through 1961 we have to rely on printed summaries (United Nations), while afterwards the data is available in a number of databases. We use the NBER-UN world trade data for the period 1962 - 2000 (see Feenstra, et al. (2005) for a description of the data set) and complement this with the UN Comtrade data for the period 2000-2009.

3. A First Look at Macro-Trends: 1862-2009

Let us start with the degree of trade openness, the ratio of total merchandise trade (imports plus exports) to GDP. Graph 1a compares Italy with the two powerhouses of the European continent and Italy's main trading partners (Germany and France), as well as with Spain, a smaller and, for most of the period, more backward country than Italy ¹.

[Graph 1a about here]

Before the Great Depression, differences between countries were substantial. Italy remained less open than France and Germany - although not less than Spain - throughout all its first 50 years as a unified state. The degree of openness remained roughly constant around 0.20 until the 1890s and then increased to 0.25 on the eve of the war – five points less than France and almost 13 less than Germany. It remained on that level during the 1920s and, as everywhere, collapsed during the Great Depression. Since the 1950s, the degree of openness has continuously increased in all four countries. In Italy, the growth was fairly steady until the early 1980s, exceeding the 1913 level around 1970, stalled in the 1980s, and then resumed up to a maximum around 0.55 in the mid-2000s. Nowadays, the Italian economy is as open as France's and Spain's, but still less than the German economy. This growing openness is a key factor that has shaped the economic history of the Italian (and European) economy. Italy has almost always exported less than it imported (see Graph 1b).

[Graph 1b about here]

¹ The data on trade at current prices for France, Germany, and Spain for 1862-1939 are from *Annuaire Statistique* (1951), Hoffmann (1965, tab 125) and Tena (2007, tab 3), for 1945-1961 from United Nations (1962), for 1972-2000 from Feenstra, et al. (2005), and for 2001-2009 from the Comtrade database. Italian GDP at current prices for 1862-2009 has been kindly provided by Alberto Baffigi. For French and German GDP through 1939 we used the series by Toutain (1991, series V41) and Hoffman (1965, tab 248), for Spain through 1969 we used Prados de la Escosura (2004, cuadros A.6.6 and A.12.1). The data for 1950-2002 are from Mitchell (2005) and 2003-2010 from the OECD.

The trade balance was heavily negative after the unification and improved in the 1870s, but stayed negative for over a century with wide fluctuations between 1% and 8% of GDP. Exports only exceeded imports during the “economic miracle” of the late 1950s and early 1960s and for a few years in the early 1990s. The balance turned negative again in recent years. When compared with the three other countries, Italy’s share in world markets at current prices was remarkably stable over this period (See Graph 2a).²

[Graph 2a about here]

It declined in the late 1880s, from around 3-3.5% to about 2.5%, and remained at this level until the early 1950s. Then it began to rise, as Italy, as well as other European countries, benefitted from its membership in the European Union and from trade liberalization under the GATT and successor agreements, which did not extend to countries still under socialist regimes. The share peaked around 1990, well above 4.5%, before it came down to 3.5% in the 2000s as new competitors, most notably China, entered the world market. This fall has raised some concern about Italy’s competitiveness, but it can be viewed more optimistically as a return to its long-run average.

Before 1939, trends of the share in world markets differ remarkably between Italy and the other countries, most notably France, whose share plummeted from 15% in the 1860s to less than 5% during the Great Depression. Since 1950, however, the movements are very similar: the coefficient of correlation is 0.75 for France and 0.78 for Germany. One can object that a comparison between economies of widely different size is misleading. Thus, in Graph 2b we correct by normalizing with the country’s share of world GDP, as measured by Maddison (2009). His estimates are available for 1870, 1900, 1913 and 1940, and continuously since 1950.

[Graph 2b about here]

² For the sources of country data cf. footnote 1. The series of world trade in current dollars for 1862-1913 is obtained by linking the data from Lewis (1981) for 1862-1913, from the United Nations (1962) for 1913-1939 and from the IMF for 1948-2009. The country data, in national currencies, have been converted into dollars with exchange rates from www.globalfinance.com.

The Italian ratio remained below one until the 1950s, with a clear downward trend in the first half of the 20th century (0.76 in 1870, 0.82 in 1900, 0.74 in 1913 and 0.70 in 1939). In other words, Italy exported substantially less than it should have, given its GDP. With this metric, its performance is decidedly disappointing. The ratio for France and Germany declined before 1939, but their starting point was much higher (1.75 and 1.5, respectively). Spain's normalized share was lower than the Italian one in 1870, but much higher in 1900 and 1913. As expected, the post-war trade boom featured a sharp increase in the ratios. By 2008, in all four countries, the ratios were at their post-war maximum: the Italian ratio was at 1.6, as high as France's and Spain's, but well below the German one (2.15). In other words, Germany was the outlier and Italy was in the European norm. Furthermore, the recent fall in the Italian share in world trade (Graph 2a) reflects the relative decline of its economy rather than a pure loss of competitiveness.

3.1 Italy's Foreign Trade

Let us now turn to the structure of Italy's foreign trade. To start with, we can distinguish between primary products and manufactures. As they sum up to 100, Graph 3 reports only the share of the latter, defined as the sum of SITC (Rev. 2) 1-digit categories 5 to 9, excluding raw silk before 1939.³

[Graph 3a about here]

Trends on the import side do not tally with the view of a typical backward country that imported mostly manufactures. Its poor resource endowment forced Italy to import a lot of

³ Silk (raw and thrown) is classified in SITC 2 alongside cotton and other industrial yarns. Yet, most of its value (around 80-85% for the raw silk and about 70-75% for the thrown one) consisted in cocoons – a purely agricultural raw material – and for a number of technical reasons processing of cocoons settled close to the production areas. The case is thus more similar to wine production or smelting of copper than to cotton production. The classification of silk is very important, as it was Italy's main export from the unification to the 1920s: considering it as an industrial product would give the misleading impression that Italy exported manufactures. Category 9 ("commodities and transactions not elsewhere included") is added to manufactures as it consists mostly of gold and weapons.

primary products in the 1860s and 1870s: manufactures accounted for almost 40% of imports and their share on total imports fluctuated around this level for more than a century, which clearly contributed early on to the country's negative trade balance. It started to rise in the 1980s to about three quarters as a consequence of a significant increase in intra-industry trade. As expected, given its (low) level of development, after its unification, Italy exported very few industrial products. The differences with France and Germany were huge, especially on the export side. Manufactures accounted for 50-60% of all French exports in the 1860s and for 70% of German exports in the 1880s, and for 10% and 30% of imports, respectively.⁴ Italy was closer to Spain, where industrial products accounted for about half the imports and a mere 12% of exports in 1877 (Tena 2007). However, while the composition of Spanish trade did not change much until 1951, Italian exports of manufactures grew decidedly faster than total trade. On the eve of World War I, their share on exports rose to almost 40% and increased further in the 1920s. In fact, during the war, exports of primary products declined steadily to about one third of their pre-war maximum in 1918. In contrast, exports of manufactures increased in the early years of the war and collapsed only in 1917-1918. The divergence continued even after 1918. The exports of primary products recovered slowly and they only exceeded their pre-war levels briefly in the late 1920s by less than a fifth. In contrast, exports of industrial products grew fairly fast in the 1920s. Before the Great Depression, they exceeded their pre-war level by about 80% and Italy's share on world exports of manufactures reached 3% for the first time. The Depression hit all exports to the same extent, but exports of manufactures were boosted by the conquest of Ethiopia in 1936. In fact, in 1936-1939, industrial products accounted for 49.6% of total exports including colonial trade and only 43.7% without it. Thus, on the eve of World War II, in spite of its progress, Italy still had not yet caught up with France and Germany. After the war, the change in composition of exports resumed, and continued steadily up to the early years of the 21st century, when manufactures exceeded nine-tenths of total exports. This share is roughly as high as in Germany and decidedly above that of Spain and France.

⁴ See footnote 1 for sources. The figures after 1950 include East Germany.

3.2 Composition of Italian Exports

The change in composition came along with a significant increase in the level of diversification of Italian exports. Consider a Herfindahl index of product shares of (4-digit SITC Rev 2), defined as

$$HFI_t = \alpha \sum_{i \in I} a_{it}^2$$

where a_{it} is the share of 4-digit SITC (Rev 2) product i in total exports at t . In the 1860s, this index was above 0.15, because the five most important products (silk, olive oil, sulphur, silk cocoons and wine) accounted for 65% of total exports. Italy's dependence on a handful of products steadily declined to the mid-1900s, when the index was about 0.08 (the five most important products, including cotton and silk cloth, accounted for no more than 39% of total exports). Then the Herfindahl index collapsed to about 0.03 in the last years before the first world war and declined further to 0.016 in the late 1930s, when the five top products accounted for just 18.3% of exports. The index declined further after the war, down to a minimum around the 1980s. In spite of a small rebound in the late 1990s, export concentration remained low at around 0.013. The five most important (4-digit) products, all industrial, accounted for 16% of total exports.

[Graph 3b about here]

While the overall performance of manufacturing exports and their diversification suggests a strengthening position on world markets, most of the doubts about the long-term prospects of Italian exports, in the past and also currently, are related to an allegedly excessive share of “traditional” manufactures. Are these concerns justified? As Graph 4 shows, the 1-digit SITC groups 6 (“Manufactured goods classified chiefly by material”) and 8 (“Miscellaneous manufactured articles”) together account for about 40% of total exports of manufactures, while the share of chemicals (group 5) hovers around 10%. The most “traditional” four industries, textiles and yarns (65 in the 2-digit SITC classification), clothing and apparel (84),

footwear (85), and furniture (82) still supply between a sixth and a fifth of Italian industrial exports. However, the key change is the rise of the share of SITC group 7 (“Machinery and transport equipment”). It became the second largest group, after textiles, in the 1930s, although largely thanks to exports to the colonial captive market, and the largest group in the 1960s. In the last fifty years, this group has contributed about two-fifths to total Italian exports.

[Graph 4 about here]

On a more general issue, one could question whether aggregate data at the 1- or 2-digit SITC category level are adequately representative, as most of them hide large differences in terms of sophistication and skill-content of exports. Scholars have put forward a number of alternative classifications of goods along these lines, using 3- or 4-digit categories (Peneder, 2003). Pavitt (1984) has suggested distinguishing between science-based, scale-intensive, supplier-oriented, and traditional industries, while the OECD (1996) and Lall (2000) classify goods according to their technology level. Here, we follow the classification scheme of Lall (2000) and distinguish between low, medium, and high technology industrial products.⁵ The classification, as all the others, is tailored to the situation of the late 20th century and thus is less suitable to capture the earlier technological levels. For this reason, Graph 5 covers the period only from the 1920s onwards.

[Graph 5 about here]

For the period through 1939 we report series of low technology manufactures both with (LTS) and without (LTNS) raw silk, but we deem the latter more representative for the nature of that product (cf. footnote 4). The share of low technology manufactures in total Italian

⁵ Low technology products are characterized by stable, well-diffused technologies, mostly embodied in capital equipment. These include leather and textile products such as cotton fabrics, footwear, glassware, or furniture. Medium technology products encompass most capital goods and the production of intermediate goods and are typically based on complex technologies such as cars and engines, but also most products of the chemical industries. The production of high technology goods require high R&D investments, interaction with research institutions, and highly specialized technical skills, such as optical instruments, and electrical and electronic equipment such as computers, aircraft, or medical products.

exports has remained fairly stable in the long run at around a third, with a hump in the 1980s. In contrast, the share of medium technology goods has been rising throughout the entirety of the period. The growth has been very fast during the interwar years, but it has continued also after 1950, increasing to 40% in 2009. The share of high-tech products was very low in the 1920s, which is of little surprise given that most of the relevant technologies were only in an early stage. However, the share of these products in all Italian exports has increased fairly little in the last decades. As we will detail in the following section, the differences between these groups extend from their shares of exports to the trade balance.

3.3 Geographical Reorientation of Trade

The change in composition towards manufactures and to ever more diverse and sophisticated manufactures was associated with some quite dramatic geographical reorientation of trade (See Graph 6).

[Graph 6 about here]

At the beginning of the period, about 90% of Italian exports headed towards Europe – one-third of these went to France, one-sixth each to the United Kingdom and Switzerland (probably including a lot of disguised exports to Central Europe), and the rest to other countries. The overall share of Europe declined steadily thereafter, and on the eve of World War I, European countries accounted for about 60% and the EU-15 (plus Switzerland) for about a half. However, this movement conceals a massive shock caused by the outbreak of the trade war with France in 1888. Until 1887, France had absorbed almost a half of Italian exports and afterwards its share dropped to less than a fifth. Germany became Italy's best client and is still the main single destination for Italian exports. The trend towards a greater geographical diversification continued into the 1920s and was boosted in the latter years of the 1930s by the conquest of Ethiopia. Colonies, which previously had been almost irrelevant, accounted for about one-quarter of Italian exports on the eve of World War II. This situation was indeed exceptional, and after the war and the subsequent loss of the colonial empire, the share of Europe rebounded to about two-thirds, and remained by and

large constant until today. Trade with non-European OECD countries (i.e. the USA and Japan) only once reached 15% and has recently declined to below 10%, while trade with developing and emerging markets recently increased above 25% of total exports.

4. Italy's Comparative Advantage

There are many ways to measure comparative advantages (Laursen 1998), but the workhorse of the empirical work is still the index of Revealed Comparative Advantage (RCA) by Balassa (1965) and various modifications thereof. Here, we propose to use a (simplified) version of the index suggested by Lafay (1992), which uses commodity-specific net exports as a measure of comparative advantage. In a nutshell, the index is the difference between the normalized net-balance for the i^{th} product and the total normalized net-balance weighted with the share of the product on total trade. Formally, this can be written as

$$LFI_i = 100 * \left[\left(\frac{x - m}{x + m} \right) - \left(\frac{X - M}{X + M} \right) \right] \left(\frac{x + m}{X + M} \right),$$

where x refers to exports and m to imports. Lower case letters denote commodity-specific trade, while capital letters denote total trade (i.e., $X = \sum x$)⁶. Thus, a positive value implies a specialization in the i^{th} good. All indexes sum up to zero, with a maximum range from 200 to -200 in the extreme case of complete specialization of both exports and imports in one single good with balanced trade.⁷ The Lafay index offers three distinct advantages over the traditional RCA:

- a) It controls for distortions from an overall net deficit (which was the most common case in Italy) and, above all, it takes the level of imports into account. This is a particularly appealing feature for the analysis of recent trends when outsourcing and intra-industry trade have become increasingly relevant. As a general rule, the

⁶ The original Lafay index also includes an adjustment for the size of the economy (as proxied by the current GDP), which has been omitted, following Bugamelli (2001) and Zaghini (2003).

⁷ This appealing property comes with a price, as the index can be falsely positive if $(x-m) < (X-M)$.

distortion from neglect of the import side is potentially greater the higher the level of aggregation. For instance, Italy in 1998 was a net importer of iron and steel products (a two-digit category), but its RCA was 1.05 (De Benedictis 2005) – i.e., Italy would appear to be specialized in these goods.

- b) It needs only national trade statistics. This is particularly helpful for an historical work, as data on world exports with a suitable disaggregation are available only after 1962. The figure by Tyzynski (1951) and Yates (1959) are highly aggregated and the implicit classification is quite idiosyncratic and differs markedly from the SITC classification we use for other data.
- c) It measures the contribution of different products to changes in total comparative advantage. From this point of view, the RCA can be seriously misleading, especially for minor products. Assume that a country with a 1% share of world exports has a monopoly on a product accounting for 0.01% of world trade; the RCA for that good would be misleading 100, but the product would still account for only 1% of the country's exports.

The data in Graph 7a shows the changes in Lafay indices for manufactures (defined again as SITC 1-digit categories from 5 to 9). Note that Italy was typically running a trade deficit.

[Graph 7a about here]

The index turns out to be positive throughout the period (except for a few years in the 1860s) only if raw silk is included. If it is excluded, as we believe it should, the picture is rather different: Italy apparently had no comparative advantage in manufacturing products before the turn of the century. The Lafay index was heavily negative after Italian unification but started to grow after the mid-1880s, and reached a positive value for the first time in 1898. It remained around zero until World War I, but with a short dip around 1907. Italy remained a net importer of industrial products until 1910. The index jumped upwards during the war and afterwards, peaking in 1921 when German firms were hampered by defeat and hyperinflation. The return of world markets to more normal conditions caused the index to decline, but it remained positive and high throughout the interwar period. The spike of the late 1930s is, as

argued before, largely spurious because it reflects manufacturing exports to colonies. Regardless, even when we omit these years, the index remains well above zero and fairly high (8.3 for the period 1923-1936). During the golden years of the post-war period and also in the bleak 1970s, the index continued to grow, increasing to values around or even above 20 until the mid-1980s. Then it started a long decline. In the 2000s, the strong increase in imports of industrial products (Graph 3a) drove the aggregate index down to five or below, a level it had not reached since World War I. Graph 7b decomposes the Lafay index by type of manufacturing products at the 1-digit level.

[Graph 7b about here]

Before 1939, the indices for chemicals (5), engineering (7), and miscellaneous manufactures (8) were low in absolute values and changes were fairly modest in spite of the on-going industrialization process. The index for engineering remained almost constantly negative. Indeed, Italy was a net importer for most engineering products (if measured at the 2-digit level) throughout the 1920s and early 1930s. Only road vehicles (group 78) have remained significantly positive from the early 1900s to World War II. Chemicals are an interesting case. Italy had a sizeable positive balance in the 1870s and 1880s, mostly thanks to exports of traditional tanning materials, soap, and perfumes. The overall balance deteriorated during the “boom giolittiano” and remained slightly negative after the war. Thus, the observed dramatic reversal of Italy’s comparative advantage towards manufacturing products reflects changes in group 6 – or more precisely in textiles (65), which here excludes silk. Their index shifted from heavily negative values (around or below -7) until the 1890s into positive ones. On the eve of World War I, textiles, most notably cotton cloth, were already the third largest contribution to net exports, after raw silk and fruits. They became the main Italian export after the late 1920s with index values over 7, but they lost this position after World War II. Their index declined steadily throughout the 1950s, down to 1.5–2 in the 1960s. Meanwhile, Italian exports had diversified with substantial net balances in non-metallic mineral manufactures (66) – i.e., marble, stones, and tiles –, clothing (84), footwear (85), and to a lesser extent furniture (82). But the defining trend during the economic miracle was the boom in engineering products. At the end of the 1960s, all 2-digit SITC categories of engineering

products were positive and five out of ten categories were in the top 11, if ranked by the Lafay coefficients. “Road vehicles” (78) had the highest index of all sectors at the 2-digit level (2.88), ahead of clothing (2.85). This was the moment when Italy came closest to the “European” (i.e. German) pattern in the whole period covered in this paper. However, this was short lived. Textiles enjoyed a revival in the late 1970s and 1980s and the competitive position in the so-called “made in Italy” products (clothing, footwear, furniture) remained quite strong until the late 1980s. Then, their index started to decline, as exports stagnated while imports were growing quite fast. The decline was driven by a combination of factors, including a considerable increase in manufacturing imports of road vehicles from Germany and imports of products such as articles of apparel and clothing from France, jointly with difficulties in exporting these goods. Thus, by the late 1990s specialized machinery for industries (72 and 74) sat at the top of manufactures if ranked according to the Lafay index. In contrast, the trade balance for road vehicles was negative from 1982 onwards, and in the late 1990s, their Lafay index was the second lowest of all 2-digit categories, after oil products. This short description provides some hints about the technological level of Italian comparative advantages, but Lall’s (2000) classification scheme adds some precision:

[Graph 7c about here]

As Graph 7c shows, Italy has always been very competitive in Low-Tech products, and it has managed to consolidate a fairly strong position in Medium-Tech products in the 1960s and 1970s, which it partially lost in the 1990s and 2000s. In contrast, Italy has never been a significant net exporter of High-Tech goods, and its competitive position has been markedly deteriorating since the late 1980s when a rise in exports in these products was more than offset by an increase in imports (also compare graph 5). In terms of Low-Tech products, Italy’s relative strength is driven by textiles and leather products, such as footwear (group 851), which have diminished over the last two decades. The development in Medium- and High-Tech industries is deeply related to Italy’s position in intra-industry trade. The country’s position as a car manufacturer (group 781) weakened in the 1970s but recently started to improve again. However, the country is increasingly exporting intermediate goods for the car industry (group 784), but also other highly-specialized machinery and parts thereof

(728), as well as electrical equipment, which keeps the international position in Medium-Tech industries relatively stable at a Lafay index value around 5. Finally, the difficulties in improving Italy's international position in High-Tech products was driven by a significant decline in the export of office machinery accompanied by a massive rise in imports (group 751), in part offset by a rise in exports of telecommunication equipment and parts thereof (groups 764, 776). Also, exports of medicinal and pharmaceutical products (541) performed quite well, preventing the Lafay index in High-Tech products from falling more sharply.

5. Manufacturing Exports and Geography: Where Did Italy Succeed?

In the previous sections, we highlighted two major trends: first, the increase in the shares of manufacturing exports, which broadly reflect the industrial transformation of Italy, and second, the growing geographical diversification of exports. To what extent are these two trends related? Did exports of industrial products increase across the board, or was their success only concentrated in a few markets? In particular, to what extent did Italy manage to penetrate markets for manufacturing goods in advanced economies such as France, Germany, or other OECD countries, and to what extent was this success in manufacturing exports limited to an expansion into more backward regions of the world? To address this issue, in this section we decompose the change in the share of manufactures in Italian exports between (1) changes in the destination of exports by country and (2) changes in the share of manufactures on exports to different countries. For example, in 1862 nearly one-third of all Italian exports went to France but only below 1% to Germany (Zollverein). In the same year, manufactures (without silk) accounted for 30% of exports to Germany, for 18% of exports to France, and for 14% of total exports. Put differently, France was the larger market, but in the early 1860s Italy was relatively more successful in exporting manufactures to Germany than to France. This changed in the next 25 five years – the period before the outbreak of the trade war with France. Total exports to France grew to 41% in 1887 and exports of manufactures grew more than the total (from 14% to about 25%). In the same period, exports to Germany increased from 1% to 10% of the total. Exports of manufactures did increase in absolute value, but their share on Italian exports to Germany declined to about 20%. Hence, Italy

successfully penetrated the French market with manufacturing products, but less so the German market, which was becoming rapidly more important for Italian exports at the time.

In more formal notation, we calculate the contribution of country j to the change in Italy's manufacturing share in total exports between t and $t+1$ as $CCC_{j,\Delta t}$:

$$CCC_{j,\Delta t} = 100 * \frac{\left[\frac{(CS_{j,t+1}MS_{j,t+1}) - (CS_{j,t}MS_{j,t})}{MS_t} \right]}{\left[\frac{(MS_{t+1} - MS_t)}{MS_t} \right]},$$

where CS_j denotes the share of country j in total exports of Italy and MS_j the share of manufactures in total exports to this country. This gives us the percentage contribution of each destination to the observed change in the total share of manufactures on Italian exports. As mentioned earlier, the latter increased from unification through 2000; hence, in all of these periods a positive sign in Table 1 implies that the exports to the j^{th} country contributed to the overall increase. It thus can be read as a success in market penetration. The interpretation of the results is opposite in the last period (2000-2009) when the share of manufactures on exports declined slightly. In those years, a positive sign reflects a failure and a negative sign a success of Italian exports. Our geographical disaggregation is constrained by the information available in the pre-1939 database. We thus report data on four major countries, the rest of Europe (defined here as sum of Austria-Hungary, Belgium, the Netherlands and Switzerland) and the "Rest of the World", obtained as a residual

[Table 1 about here]

Before World War I, Italian industry was successful in all countries but the United Kingdom (1862-1913) and France (1887-1913) in all likelihood because of the negative effects of the trade war. The interwar years give a mixed picture: the 1920s were still a good period, while in 1938 Italian manufactures were only successful in the German market. The total share of industrial products grew only thanks to the boom of exports to colonies, which in the table belongs to the rest of the world. Unsurprisingly, the export boom during the golden age of the

European economy (i.e., the periods 1938-1962 and 1962-1973) was mostly driven by the European market. Italian products fared well in the American market in the 1950s, but not in the 1960s when both the share of the country in total manufacturing exports and the share of manufacturing exports in trade with the US remained stable. The period 1973-1986 is characterised by stagnation, with a poor performance in German as well as other European markets that could only be partly offset by gains elsewhere. In contrast, from 1986 onwards we observe large differences between Italy's performance in Europe, the US, and the rest of the world; Italy failed to expand its position as a manufacturing exporter in these traditional and advanced markets. While the share of manufactures in total exports to these markets remained unchanged, their share in total Italian manufacturing exports tended to decline. By implication, Italy managed to recoup some of the losses in other parts of the world, notably emerging economies that were growing faster than the old OECD. The last line of Table 1 considers the contribution of the various geographical areas to the evolution for the whole period. The message is clear: most of the increase of the share of manufactures in total exports was driven by Italy's success as a manufacturing exporter in overseas markets. From this point-of-view, the relative increase of manufacturing exports to Europe during the golden age is an exception rather than the rule.

We can repeat this exercise with a look at Italy's success in exporting goods with various content of technology similar to what we have done in Graph 5, distinguishing between low- (again excluding silk), medium-, and high-technology goods. As in Graph 5, we limit our attention to the period after WWI. Table 2 shows to what extent Italy succeeded in exporting low-, medium-, and high-technology goods to different markets over time, reflecting the geography of Italy's comparative advantage and changes thereof. Italy established its trade position in medium-technology products in the interwar period and proceeded to defend this. In the more recent period, the main driver of this success was exports to emerging economies (captured in the "Rest of the World"), while trade with OECD countries actually made a negative contribution. The same holds for trade in high-technology goods, where the share in total exports stagnated and even slightly declined (from 2001 onwards) – hence, a success in market penetration is reflected by a negative sign on the contribution. Trade with emerging economies helped to prevent that share from falling in the recent period, while trade with

Europe apparently accelerated the decline. The three lines in bold show the changes in the share of various technology classes in total trade since 1913. The long-run expansion of medium- and high-technology exports was initially facilitated by trade with Europe, especially during the “Golden Age of Growth” through 1973. After this we observe that the “Rest of the World” starts to become significantly more important for Italy’s success in exporting medium- to high-technology products.

6. Conclusion

By and large, the results confirm the conventional wisdom about the change in Italy’s specialization, with two important qualifications. First, they highlight the key role of the shock of WWI for the transformation of Italy from a supplier of primary products to an exporter of manufactures, although mostly to “poor” markets of the European periphery and the LDCs (including its colonies after 1936). Second, they show a major discontinuity around 1980. The “economic miracle” had featured a re-orientation of exports towards Europe, and a shift in specialization from traditional textiles and low-tech goods towards medium-technology, most notably engineering products (although definitely not towards high-tech goods). For a while, Italy seemed poised to converge to the German model. Since the 1980s, Italy returned to its pre-war model, although in the context of a much more globalized world. In relative terms, it lost competitiveness in (many) medium-tech products and in European markets, relying on exports of low-tech “made in Italy” products (plus some specialized engineering goods) towards non-European countries. The performance was not bad until the mid-1990s, but the last decade has been even more difficult. Italy’s share on world markets has stagnated, and the trade balance has been consistently negative. The country’s comparative advantage in high-technology goods has declined, but it consolidated the position in many medium-technology markets.

This brief sketch raises three questions: (1) What caused the long-run change in trade patterns? (2) How much can trade explain the long-term growth in the past (or the lack thereof)? (3) What does the past experience tell us about the future? Understanding the causes of specialization is fascinating and rewarding work, but it is well beyond the scope of this paper. We can only make some very general remarks. The long-run trends in trade are bound

to reflect growth at home and abroad and the height of barriers to trade, as determined by transport technology and policies. Empirical studies have found that the income elasticity of exports as well as the (absolute value of the) elasticity of exports to trade costs are typically just below unity (Anderson and van Wincoop 2004). The long-run structure of a country's trade is shaped by its fundamentals in terms of comparative advantage (driven by differences in endowments and productivity, which in turn depends also on institutions) relative to her accessible neighbours. Comparative advantage tends to be "local": competition is more intense the closer the trading partners and hence the relevant comparison group for an assessment of comparative advantage are a country's accessible neighbours rather than the world economy (Deardorff 2004, Harrigan-Deng 2008).

Our sketch of long-term trends shows a strong coincidence between periods of economic growth, both at home and abroad, and of good export performance, most notably during the "boom giolittiano" and the "economic miracle". Such a coincidence is not really surprising, but the causation is more difficult to establish. Most economists believe that an increase in openness seems to be generally beneficial for economic growth (Krueger, 1998; Berg and Krueger, 2003; Frankel and Romer, 1999; Irwin and Tervio, 2002; Yanikkawa, 2003; Alcalá and Ciccone, 2004; Feyrer, 2009). However, the mechanisms at work, welfare effects of trade, and policy implications are still under discussion (e.g., Rodríguez and Rodrik, 1999). In the case of Italy, nobody seriously argues that openness has not been beneficial, but there are some doubts about the country's capacity to extract all possible benefits from its openness because of its comparative advantage. Economists in the 1950s and 1960s, regarded a specialization in primary products as a dead end, to be abandoned as soon as possible. This argument has been revived more recently as a "curse of primary products" (Sachs and Warner, 2001). As mentioned earlier, Italy succeeded to move away from specialization in primary products at a relatively early stage in its modern economic growth. A recent paper has suggested that this change did not much affect trends and/or volatility of the terms of trade – i.e., that the "curse" was not that great when Italy specialized in primary products (Federico and Vasta, 2010). However, much of the Italian debate deals with its comparative advantages in manufacturing. One can relate the composition of exports, rather than their aggregate level, which mattered for economic growth, to the theory of biased technical

change (e.g. Acemoglu 2002). An opening to trade can clearly affect the incentives to invest in capital-intensive or research-intensive sectors with possibly large dynamic effects. Recently, Hausman, et al. (2007) provided a simple framework where factor endowments (most notably of capital and human capital) interact with development costs for new products, such that a country's specialization pattern might be incompletely determined. Empirically they found a positive relation between an index of export sophistication, which captures the quality of exported goods, and the rate of GDP growth. Along this line, one can decry Italy's specialization in low-tech goods as a major problem for long-term growth. As mentioned in Section 2, this view was widely held in the 1970s and early 1980s. Thus, Italy tried to foster the growth of allegedly advanced sectors, but it ended in a string of expensive failures (Roccas, 1977; Federico, 1999). This is not the spirit of the Hausmann, et al. (2007) work, which would suggest investments in human capital to change the country competitive advantages. Similar concerns have resurfaced in the last years, although with little appetite for a pro-active industrial policy. However, the past performance of Italian exports shows that so much pessimism may not be justified. While it has been worse than the German performance, it is still in line with the European average. In the long run, Italy has succeeded to prove pessimists wrong time and again. It may well succeed this time again.

7. References

Data: the data used in this paper are available at

http://www.bancaditalia.it/pubblicazioni/pubsto/quastoeco/qes_9/QSEn_09.pdf.

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Table 1: Percentage contribution of various countries to the change in the share of manufactures (excluding silk) on total exports

	Share of manufactures (Initial year)	Total Period Change (in %)	Percentage-Contribution to Total Change by...					
			France	Germany	UK	“Rest of Europe”	USA	Rest of the World
1862-1887	0.17	53	75.5	14.8	-24.6	12.3	10.0	11.8
1887-1913	0.27	52	-65.3	12.2	21.8	14.4	2.8	113.8
1913-1929	0.40	22	2.9	-15.1	6.2	-34.4	27.6	112.7
1929-1938	0.49	4	-97.9	43.0	-160.3	-45.9	-67.7	429.0
1938-1962	0.51	41	29,0	42,9	7,4	34,2	22,6	-36,1
1962-1973	0.74	12	64.3	71.1	1.9	17.1	-11.0	-43.4
1973-1986	0.83	7	23.6	-36.1	39.1	-4.1	57.7	19.8
1986-2000	0.88	2	-138.7	-147.1	-23.7	-23.9	2.7	430.7
2000-2009	0.92	-3	54.3	110.4	181.7	-28.7	83	-300.7
1862-2009		420	7,8	14,3	0,4	9,7	5,1	63,1

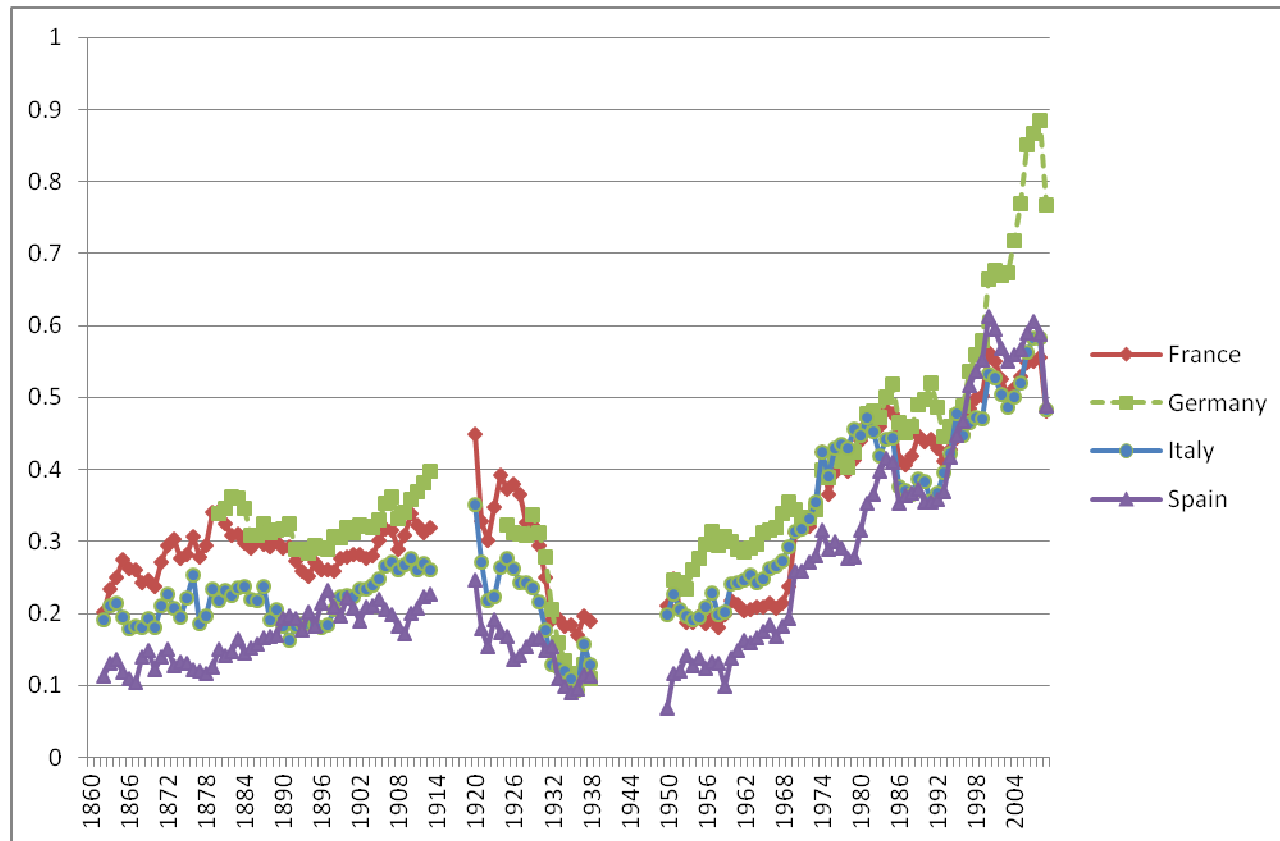
Source: own calculations.

Table 2: Contribution of various countries to the change in the share of low-, medium- and high-tech goods on total exports

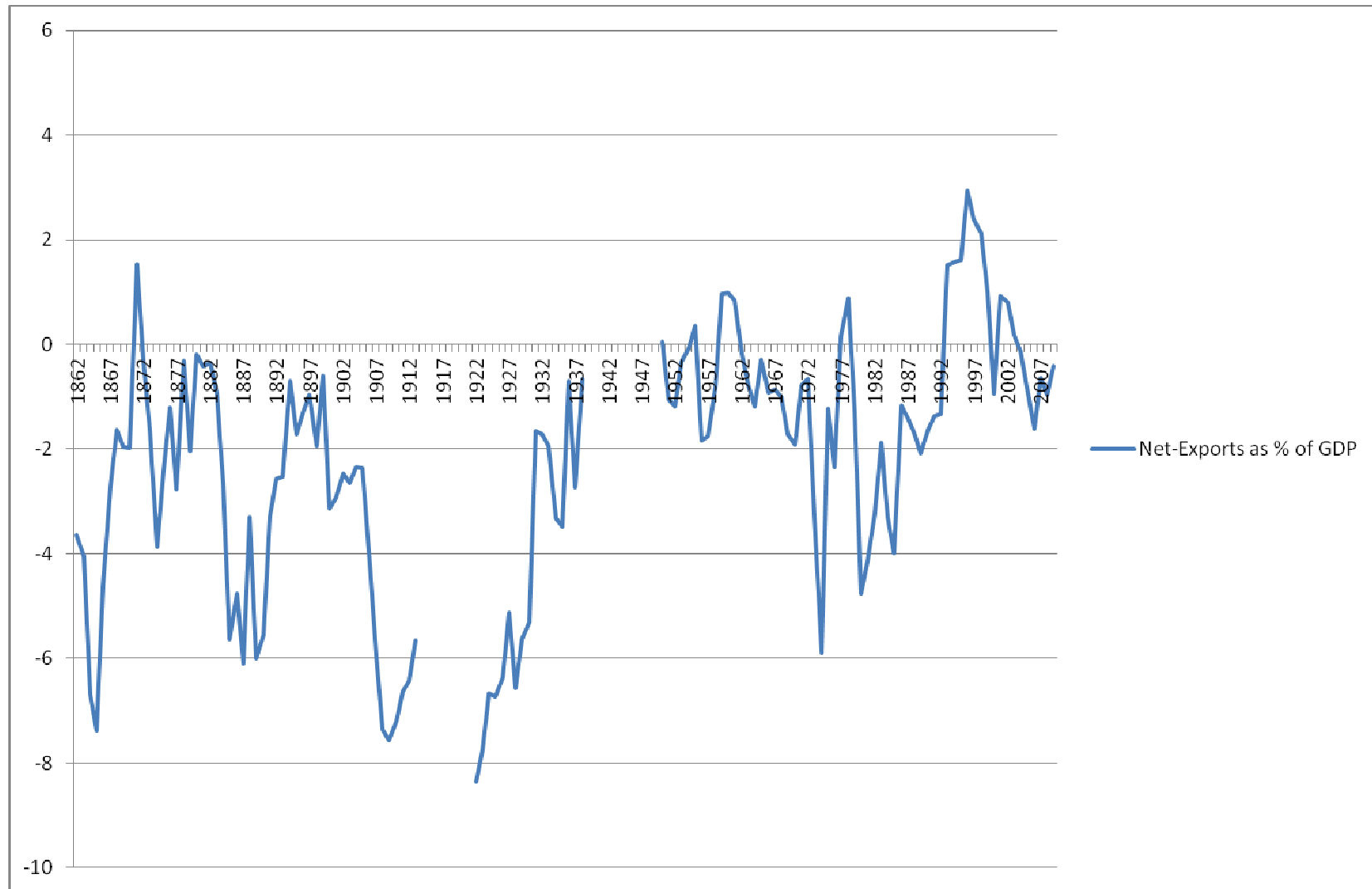
Technology Classification (following Lall, 2000)	Period	Share of technology-class in total exports (Initial year)	Total Change (in %)	Percentage-Contribution to Total Change by...					
				France	Germany	UK	“Rest of Europe”	“Rest of OECD”	Rest of the World
Low technology (excl. Silk)	1913-1929	0.23	42	7.3	-4.1	8-3	-6.2	24.6	70.2
	1929-1938	0.33	-18	19.4	2.4	42.5	11	21.4	3.3
	1962-1973	0.30	2.2	329	485.8	-140.9	-2.2	-91.5	-480.2
	1973-1986	0.31	22	29.9	-13.9	21.7	18.9	28.1	15.1
	1986-2000	0.38	-17.4	41.4	51.1	12.9	9	13.8	-28.2
	2000-2009	0.32	-15.4	5,4	35.3	50.7	19.5	22.9	-33.8
	1913-2009			14.7	79.5	63.9	-52.1	77.6	92.2
Medium technology	1913-1929	0.02	346	2	10.7	-0.9	6.6	5	76.6
	1929-1938	0.11	52	-2.6	20.6	-0.9	3.7	5.1	74.2
	1962-1973	0.32	11.4	64	37.8	24.4	40.2	27.3	-93.8
	1973-1986	0.36	-2	21.3	93.5	-77.4	52.9	-109.7	119.2
	1986-2000	0.35	10.6	-10.1	8.8	-2.1	36.3	13.2	53.9
	2000-2009	0.39	3.4	-62.5	-49.6	-53.7	-107.1	-73	445
	1913-2009			1551	10.4	12.5	4.5	17.5	12.4
High technology	1913-1929	0.01	9	-71.9	-17.1	21.5	-53.8	-8.8	230
	1929-1938	0.01	239	5.4	2.7	0.1	3.5	0	88.4
	1962-1973	0.06	18.3	24.8	21.6	17.9	47.1	-13.1	1.7
	1973-1986	0.07	18.9	6.7	20.1	13.9	-7.2	42.5	23.9
	1986-2000	0.09	29.8	2.4	-9.3	12.5	32.3	17.4	44.7
	2000-2009	0.11	-10.8	40.5	14.6	54.6	22.2	-23.4	-8.5
	1913-2009			951	10.8	12.5	8.9	23	20.4

Source: own calculations. Rest of Europe pre-1945 is limited to Austria-Hungary, Belgium, the Netherlands and Switzerland. After 1945 this is the EU15 without France, Germany, and the UK. “Rest of OECD” pre-1945 is the USA only, after 1945 it is the OECD as of 1974 excluding Europe.

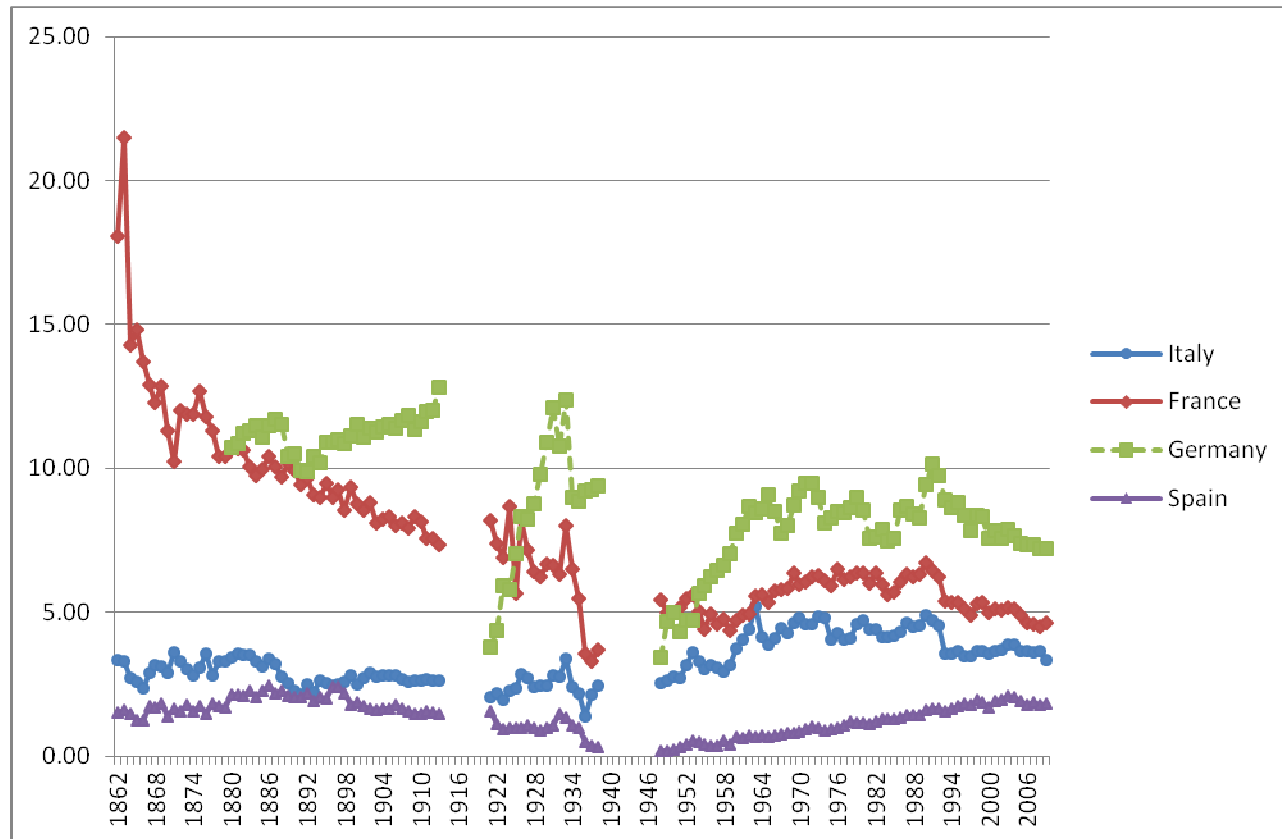
Graph 1a: Openness Ratios (Trade/ GDP), Italy, France, Germany and Spain 1862-2009



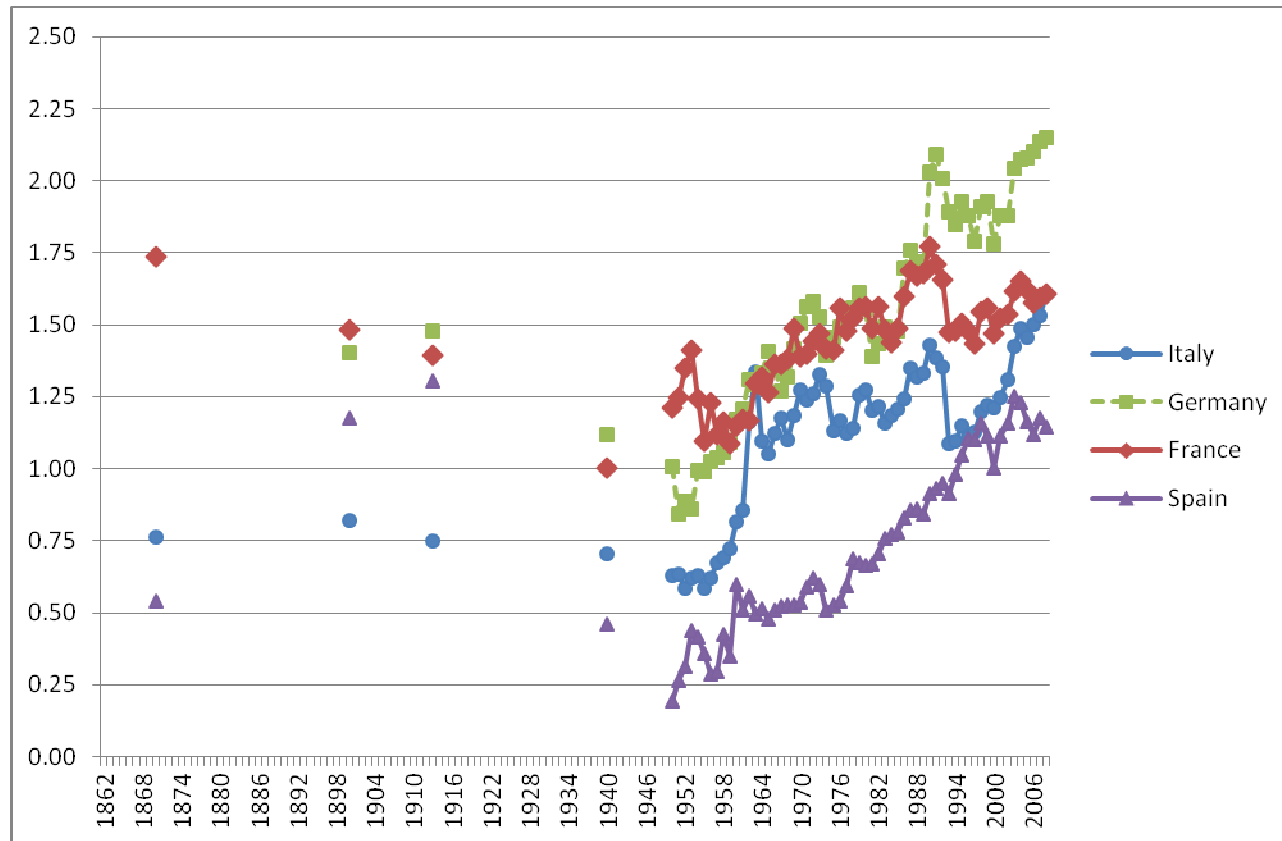
Graph 1b: Italian Balance of Trade as % of GDP, 1862-2009



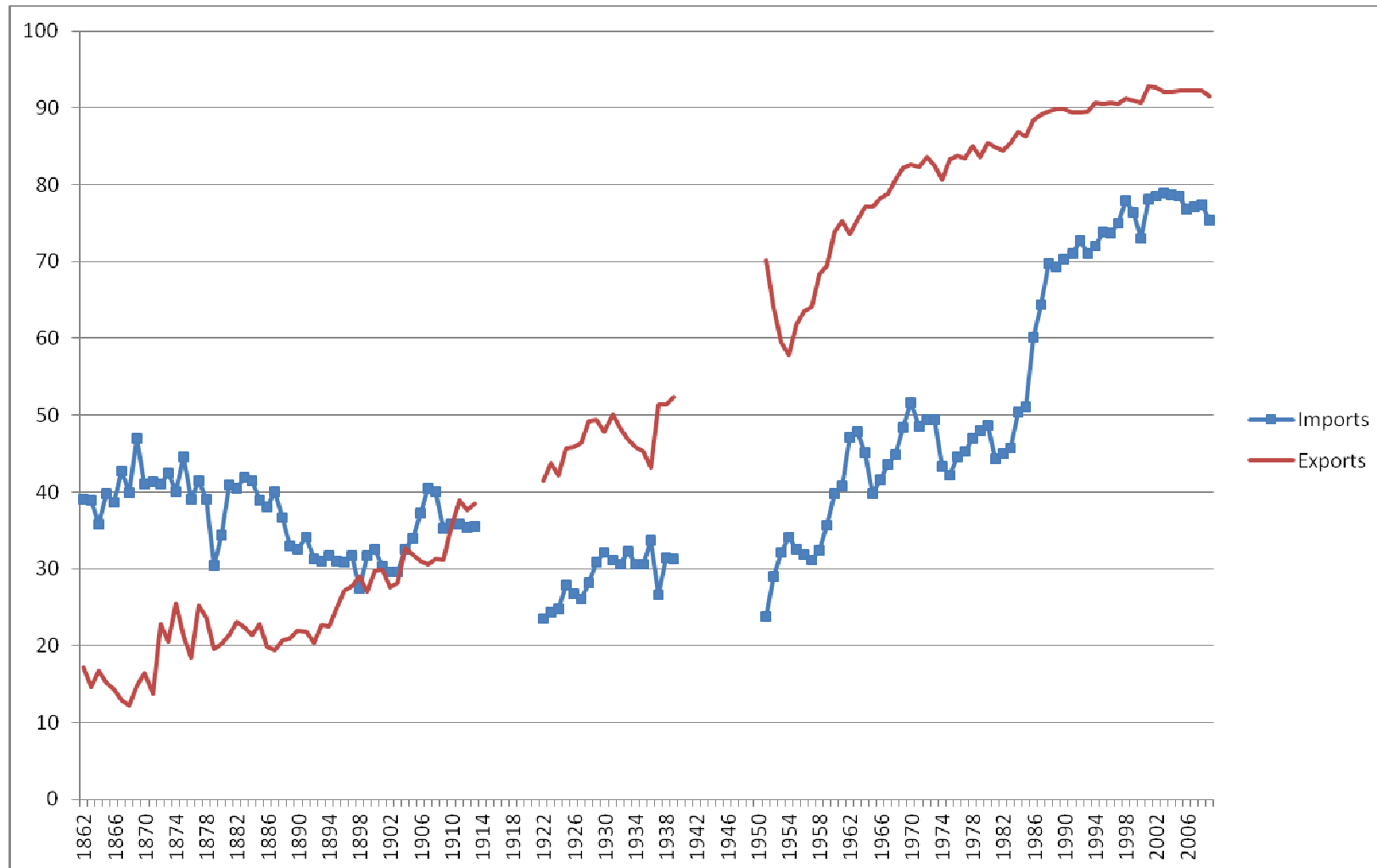
Graph 2a: Shares in World Trade, Italy, France, Germany and Spain 1862-2009



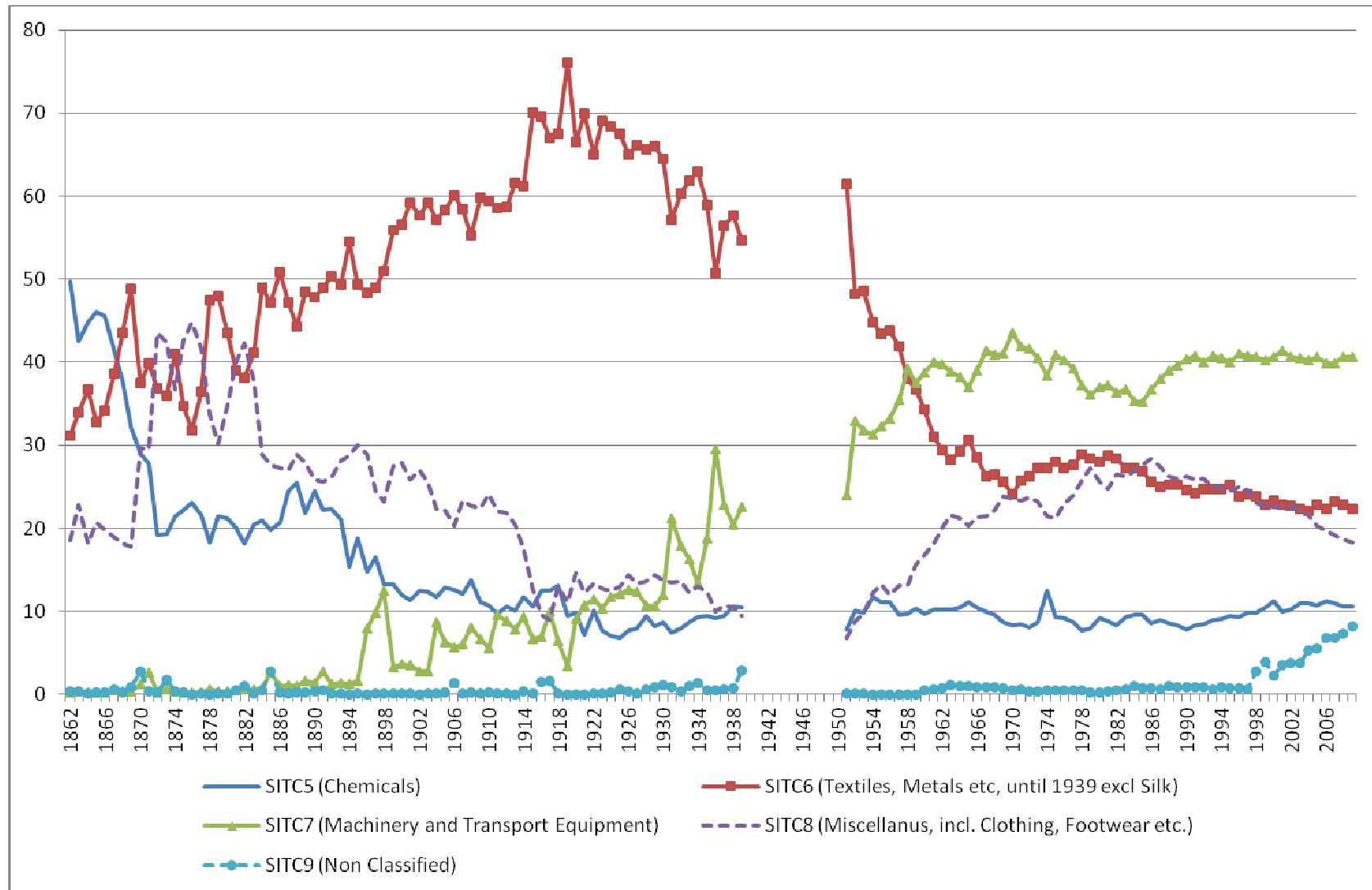
Graph 2b: Share in World Trade relative to share in World GDP, Italy, France, Germany and Spain, 1862-2009



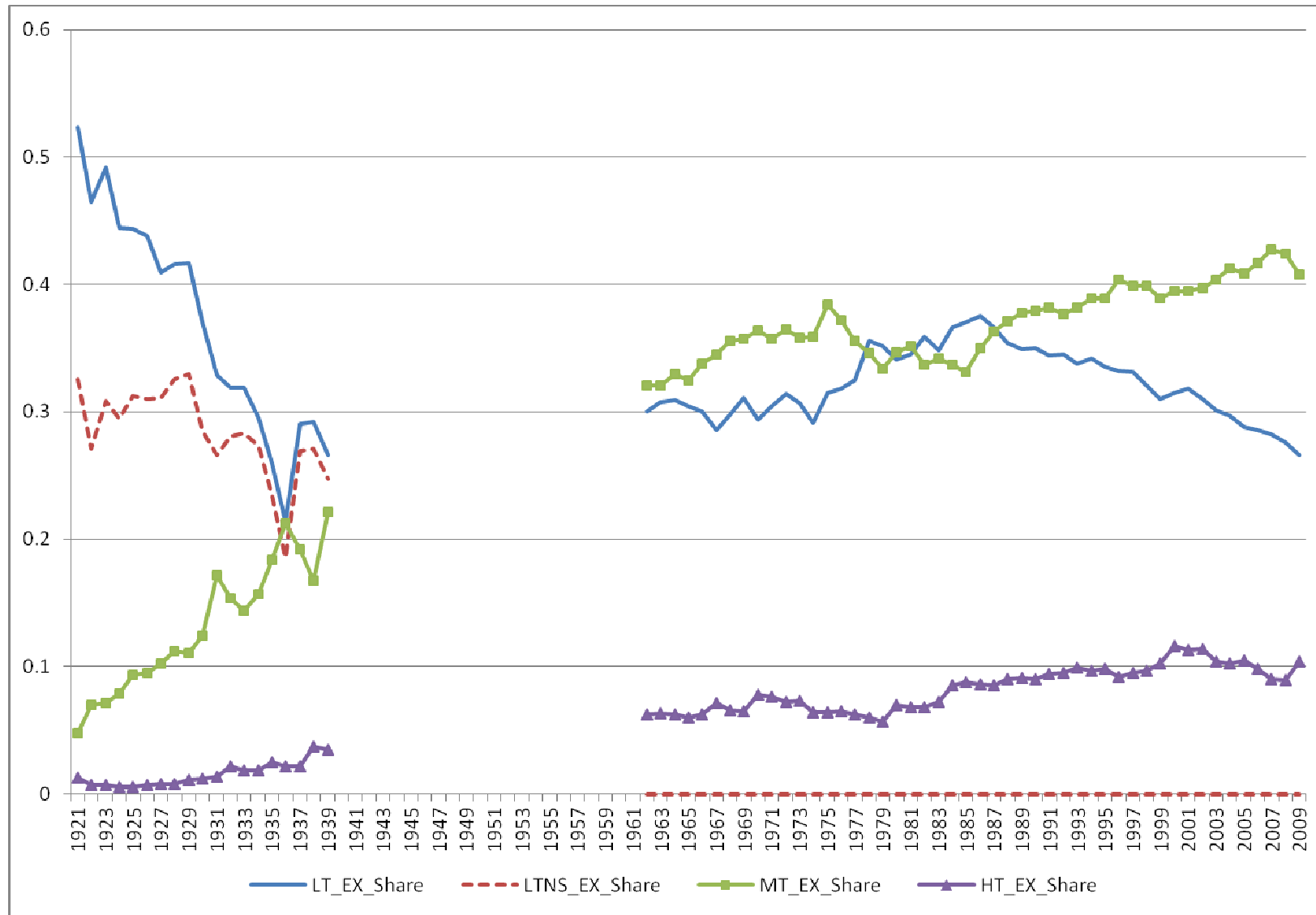
Graph 3a: The composition of Italian Trade: Manufactures as a share of Imports and Exports, 1862-2009



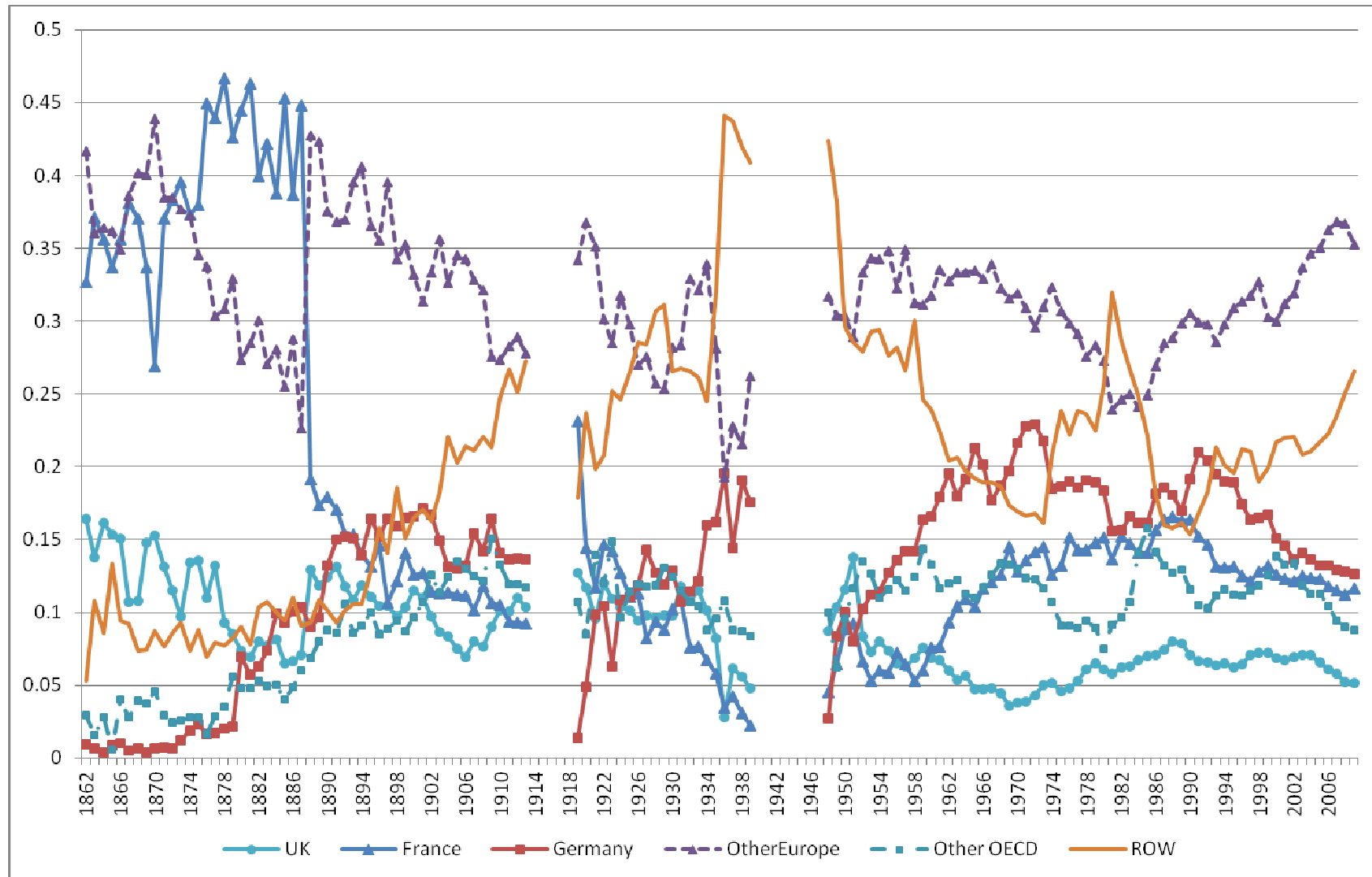
Graph 4: The composition of Italian Manufacturing Exports (% shares of SITC Rev 2, 1 digit), 1862-2009



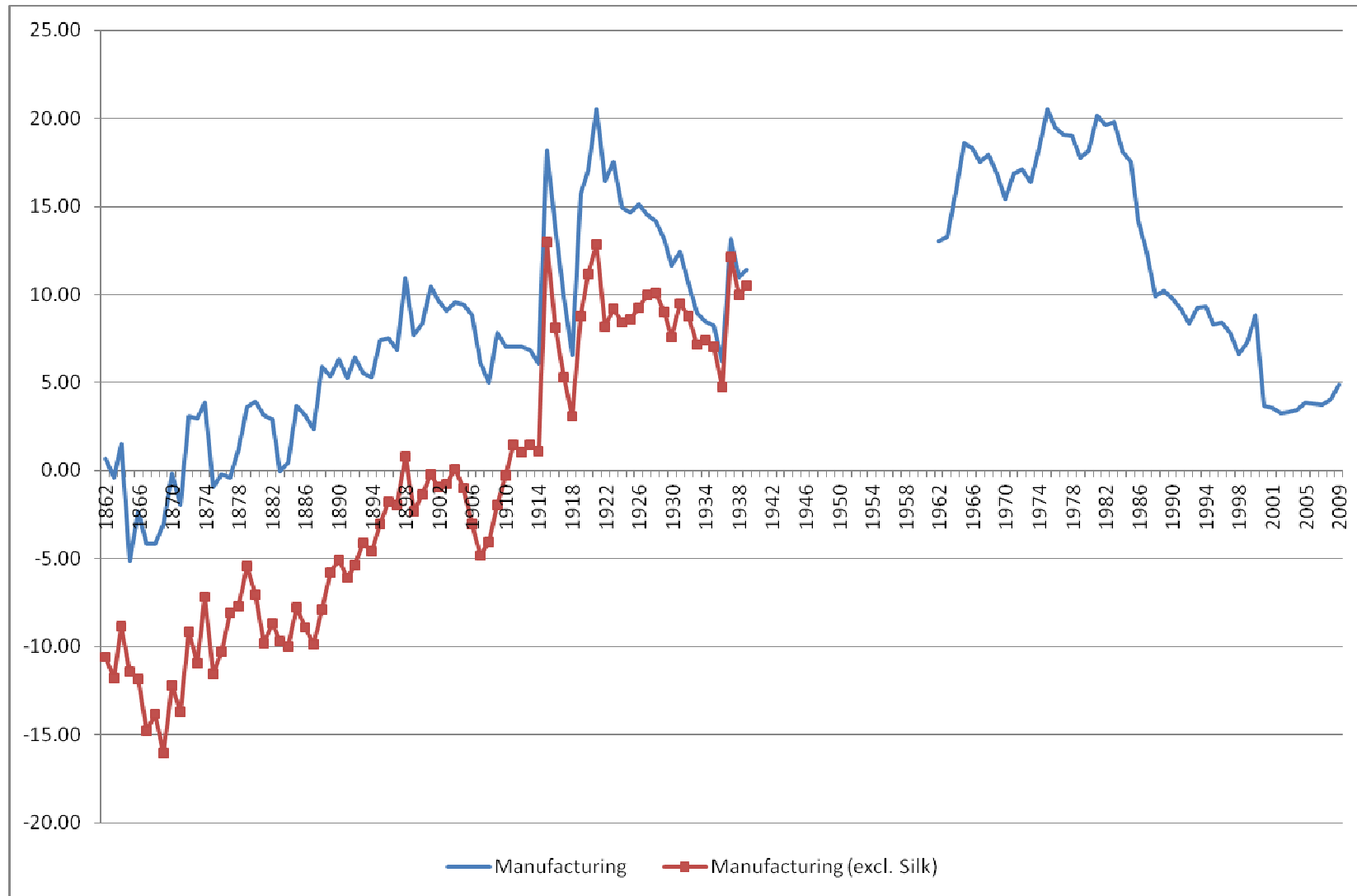
Graph 5: Export Shares of Low-Tech (dotted line excl. Silk), Medium-Tech and High-Tech goods, 1921-2009



Graph 6: The Geography of Italian Exports, 1862-2009

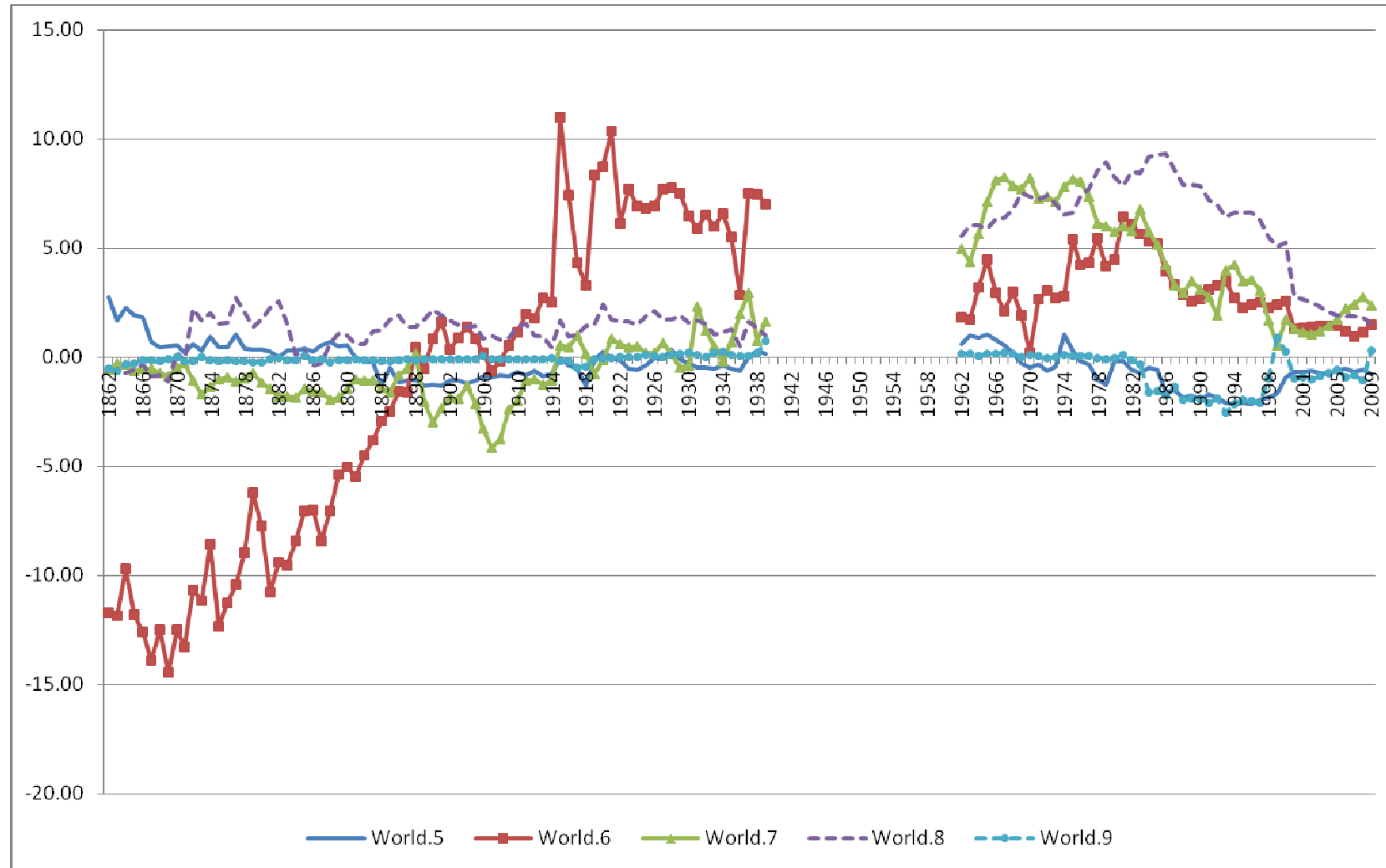


Graph 7a: Lafay-index for Manufacturing Exports (sum over SITC 1-digit categories 5-9), 1862-2009



Graph 7b: Lafay-index for Manufacturing Exports (SITC 1-digit categories 5-9), 1862-2009;

(for 1862-1939 category 6 excl. silk)



Graph 7c: Lafay-index for different technology-classifications, 1921-2009 (LTNS excludes silk)

