What do we really know about protection before the Great Depression: evidence from Italy

What Do We Really Know about Protection before the Great Depression: Evidence from Italy

GIOVANNI FEDERICO AND MICHELANGELO VASTA

The impact of protection on economic growth has enjoyed a revival in recent times, with the publication of a number of comparative quantitative papers. They all share a common weakness: they measure protection as the ratio of custom revenues to import value, which biases results if demand for imports is not perfectly inelastic. In this article, we show that the measure of protection matters. We estimate the James Anderson and Peter Neary (2005) Trade Restrictiveness Index for Italy from unification to the Great Depression. We suggest a different interpretation of some key moments of Italian trade policy and we show that the aggregate welfare losses were small in the long run and mostly related to protection on sugar in the 1880s and 1890s. We document that using different measures of protection affects results of the causal relation between trade policy on economic growth in Italy and in the United States. Accordingly, we argue that a systematic re-estimating of protection in the economic history of trade policy is needed.

Protection of domestic firms against foreign competitors has a long history both in its operation and in its theoretical justifications. Robert C. Allen (2011) sees protection along with investment in human capital, unification of domestic markets, and financial development, as key elements in fostering modern economic growth in Europe and in the United States in the late nineteenth century and early twentieth century. Jeffrey G. Williamson (2011) argues that less developed countries damaged by changes in the relative prices of primary product succeeded in reviving their industrial sectors in the twentieth century, by protecting their manufactures.

Giovanni Federico is Professor, Department of Economics and Management, University of Pisa, Via C. Ridolfi 10, 56124 Pisa (Italy). E-mail: giovanni.federico@unipi.it. Michelangelo Vasta is Professor, Department of Economics and Statistics, University of Siena, Piazza S. Francesco 7, 53100 Siena – Italy. E-mail: michelangelo.vasta@unisi.it.

A previous version of this article was presented at the *Colloque International Les politiques commerciales en Europe 1850–1913,* held in Bordeaux (March 2013). The authors thank all participants for comments and criticism. We also thank Paul Sharp and Jeffrey Williamson for having shared their data with us. Precious and valuable research assistance has been provided by Francesco Calvori and Sara Pecchioli, while Paul Sharp and Annetta Maria Binotti helped us with the cointegrated VAR approach. The usual disclaimer applies.

How protection affects economic growth historically is an empirical issue. Until quite recently, with the notable exception of a seminal paper by Forrest Capie (1983), its effects were simply inferred from a comparison of growth rates between free-trade and protectionist countries (Bairoch 1989). Since 2000, this crude *post hoc propter hoc* reasoning has increasingly been replaced by econometric testing such as by Kevin O'Rourke (2000), who runs a panel growth regression for ten countries. Contrary to his expectations, he found a positive and significant effect of tariffs on economic growth. Using different datasets this "tariff-growth paradox" was confirmed, by Athanasios Vamvakadis (2002), Michael Clemens and Williamson (2004), and David Jacks (2006), but not by Moritz Shularick and Solomos Solomou (2011) in the most comprehensive and technically sophisticated analysis so far.[1] In their work, the tariff variable is either not significant or negative, more in line with the predictions of standard economic theory. More recently, Markus Lampe and Paul Sharp (2013), rather than assuming a common effect of protection on economic growth of all countries, examine country-specific causality relations between tariffs and gross domestic product (GDP) in a two-variable cointegrated VAR model framework for 24 countries from 1870–1913 (and also for 1950–2000). They conclude that "our results show clearly that there is no uniform 'treatment effect' of tariff levels on economic performance for all countries, as regards neither the sign nor the direction of causality" (Lampe and Sharp 2013, p. 221).

In this article, we argue that the measurement of protection used has implications for the results. In this literature, the level of protection is measured by the ratio of custom revenues to the value of imports (nominal protection or NT). However, NT fails to capture the impact of quantitative restrictions and biases downward measures of protection if the import elasticity is not zero (Pritchett and Sethi 1994). To see this, consider a situation where tariff rates are so high as to prohibit imports. In this case NT is zero, implying zero protection for that industry, rather than extremely high protection causing imports to drop to zero. Solving the problem is less easy than pinpointing it. Often scholars have used different weighting schemes in an attempt to get an unbiased measure of protection. More recently, James Anderson and Peter Neary have proposed the Trade Restrictiveness Index (TRI).[2] Their original, general equilibrium, version of the index is data and computationally intense. Robert C. Feenstra (1995) has elaborated a much less data-intensive version (or

[1] Cf. the summary of all results of this literature by Lampe and Sharp (2013, Table 1).
[2] In a number of papers and in a 2005 compendium book.

TRI^P to distinguish it from the original Anderson-Neary version), which yields yearly series of trade protection in addition to estimates of welfare losses. In this article, we compute this Feenstra approximation for Italy from unification in 1861 to the eve of the Great Depression in 1929.[3] In those years, in Italy, as in all major European countries, duties were considered the main tools of industrial policy. Their effects, however, were hugely controversial, and they still are a major issue in the scholarly debate on Italian economic growth.[4]

We begin this article with a short description of Italian trade policy comparing levels of NT in Italy to other countries to argue that Italy was fairly representative of the historical pattern of NT for the Great Powers of Continental Europe (James and O'Rourke 2013). Then we sketch out the method to estimate the TRI^P, discussing the potential biases of the results and providing essential information on sources we use. We find that, for Italy, protection and thus welfare losses were fairly low, other than protection on sugar. In the following, we show that our estimates of TRI are robust to changes in data (e.g., different level of aggregation or different sets of elasticities). We discuss the extent of the bias in NT and its changes over time, for Canada, Italy, and the United States. The outcome is straightforward: the relation between TRI and the NT differs by country and in time and thus it is impossible to infer the former from the latter. Finally, we confirm that using the TRI in place of a more conventional NT measure can lead to significantly different empirical results and a re-evaluation of the role of tariffs as a policy tool.

THE ITALIAN PROTECTION IN COMPARATIVE PERSPECTIVE

The unification of Italy in 1861 took place at a time when world trade was booming (Federico and Tena-Junguito 2015a). The Kingdom of Sardinia (the official name for Piedmont) and Tuscany had liberalized its trade regime earlier and the new country adopted the Piedmontese tariff in 1861. Despite loud protests from industrialists, the new Kingdom further cut import duties three years later in a trade treaty with France.[5]

[3] This Feenstra approximation has been already used in historical perspective by Irwin (2010) for the United States and Beaulieu and Cherniwchan (2014) for Canada. Here, we follow the methodology by Kee, Nicita, and Olarreaga (2008, 2009).

[4] For additional references and information on this debate, see Federico and Tena-Junguito (1999), Cohen and Federico (2001), Federico (2006), and the working paper version of this article (Federico and Vasta 2015), and for outlines of main trends in Italian trade see Vasta (2010) and Federico and Wolf (2013).

[5] There are many accounts of Italian trade policy in Italian (cf. e.g., Corbino 1931–1933; Del Vecchio 1979). English readers may find the basic information in Coppa (1970), Zamagni (1994), and Federico (2006).

In 1878, responding to industrialist protest, Italy became the first major country in Continental Europe to return to protection, but with duties only on some industrial products. The relevance of these 1878 tariffs are often downplayed as they were reduced by the trade treaty with France three years later in 1881. The subsequent fall in prices of cereals on the international market, which threatened the economic conditions for a substantial share of landowners, changed domestic tariff policy. In March 1887, the Italian Parliament approved both a new tariff on industrial goods and a sharp increase in duty on wheat, beginning a period of sharp increase in protection. The duties on some commodities, including wheat, were increased several times, officially to raise revenues. Italy not only entered in a trade war with France, by then its main trading partner, but also tried to find alternative outlets for its goods by signing treaties with Austria-Hungary, Germany, and Switzerland in 1892–1893 and again in 1904–1906. Resulting cuts in duties were extended to all partners (including France after 1898) via the most-favoured nation (MFN) clause. Trade was strictly regulated from WWI until 1920, later a new, and thought to be very protectionist, tariff on industrial goods was finally approved in 1921 (Bachi 1914–1921; De Stefani 1926). The Fascist government re-instated a duty on wheat in 1926 as part of a strategy for self-sufficiency, bombastically called "battle for wheat." Italy, as most European countries, reacted to the Great Depression by raising duties and imposing quantitative restrictions, often in the framework of bilateral clearing agreements (Tattara 1985). Because of the greater complexity of protection after 1929, we end our quantitative analysis at 1929.

To address how representative Italy's pattern of declining and then increasing tariff protection was we have collected series of NT for 33 countries (14 in Europe, 8 in the Americas, 5 in Asia, 4 in Africa, and 2 in Oceania), from work by Clemens and Williamson (2004) and Lampe and Sharp (2013).[6] The countries in the sample account for about 81 percent of world GDP (Maddison project data) and for 89 percent of world exports in 1913 (Federico and Tena-Junguito 2015a). Figure 1 plots NT for these countries showing unweighted and trade-weighted averages.

The two series are highly correlated (0.875), but the level of protection of the unweighted series is about 30 percent higher than the trade-weighted

[6] We have dropped few polities with incomplete series and added (or extended in time) few others with data on imports and custom revenues from the *Statistical Abstract of British Colonies*. See the full list of countries in Appendix 2 (Appendix Tables 3 and 4).

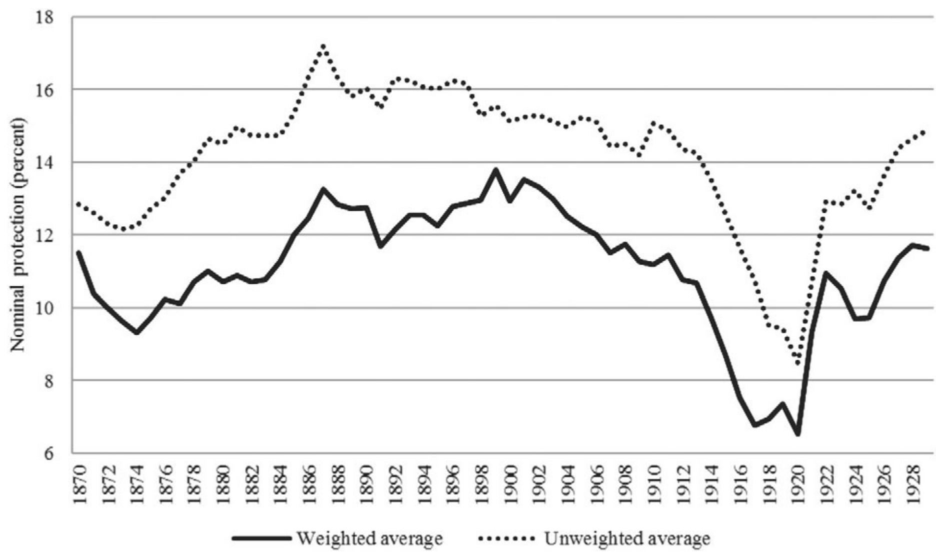

FIGURE 1
WORLD NOMINAL PROTECTION (1870–1929)

Sources: Our own elaborations on series presented in Appendix Table 4.

average (14.1 relative to 11.1 percent). The United Kingdom accounts for two-thirds of the difference.[7] In Figure 2, we show the trade-weighted series by groups of countries.[8] What this shows is that NT was high in Latin America (25.5 percent), United States (23.1 percent), and Australia, Canada, and New Zealand (Western Offshoots with an average of 17.9 percent). It was, low in Africa (12.3 percent) and in mainland Europe (7.8 percent) and Asia (7.2 percent). There appears to be little convergence (divergence) towards (away from) a world level of protection, and very little evidence of common movements. The coefficient of NT variation by country remained constant around 0.7 throughout the period and, out of 528 simple coefficients of correlation, for the period 1870–1913, only one-fifth (118) exceeds 0.5 and less than one-tenth (46) exceeds 0.75. The highest coefficients cluster in a group, featuring Austria-Hungary, France, Germany, Russia, and Italy, which can be considered the Great Powers of Continental Europe. For Italy NT grew along with the other Great Powers until the late 1880s, zoomed ahead in the 1890s, reaching

[7] We obtain the figure as $T=[R_{bas}-R_{nuk}]/[1- R_{bas}]$ where R is the ratio of trade-weighted to unweighted series and the subscripts bas and nuk refer, respectively, to the original series and to a series computed without the United Kingdom.

[8] We group countries, broadly following Clemens and Williamson (2004).

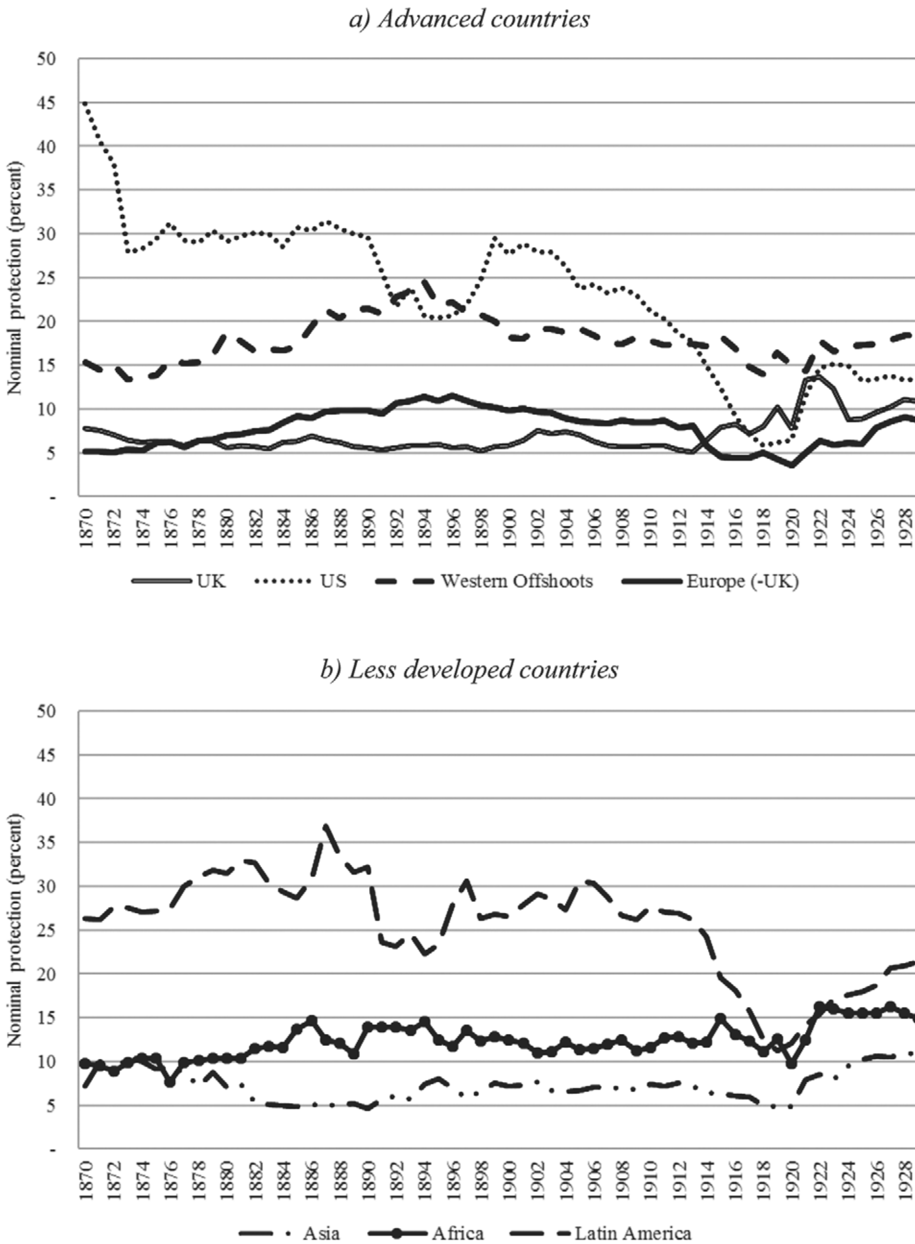

FIGURE 2
NOMINAL PROTECTION BY GROUPS OF COUNTRIES (1870–1929)

Sources: Our own elaborations on data presented in Appendix Table 4.

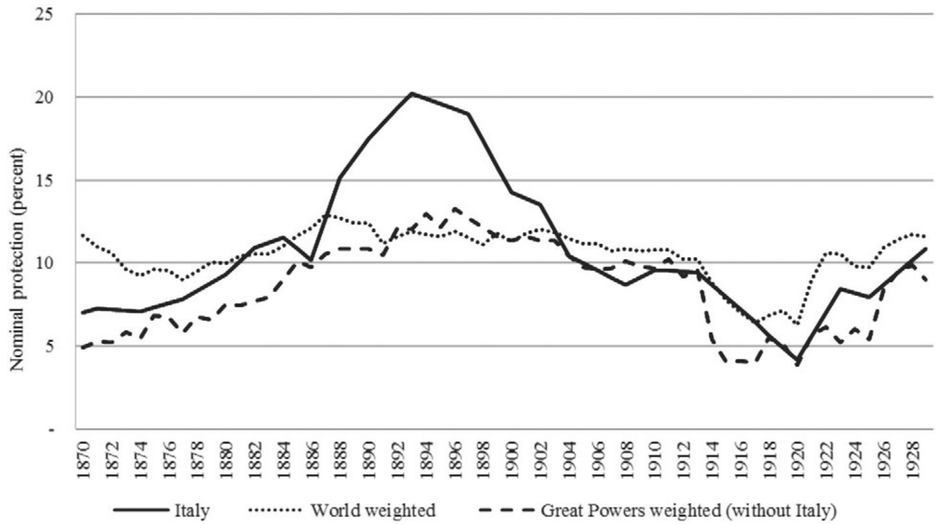

FIGURE 3
NOMINAL PROTECTION: ITALY, THE OTHER GREAT POWERS AND THE WORLD (1870–1929)

Sources: Our own elaborations on series presented in Appendix Table 4.

a peak of 20.2 percent in 1893, and returned in the group at the end of the century (Figure 3). Then NT fell by one-half to 9.5 percent on the eve of WWI—still higher than France or Germany, but decidedly lower than Russia. We can only speculate on the causes of this common pattern. It may reflect the imitation between similar countries, or the waves of trade treaties, or the autonomous strategic interaction between trading partners, strengthened by the MFN clauses (Clemens and Williamson 2004). Regardless, Italy appears representative, at least in terms of timing, of the evolution of protection on the European continent. Of course, relative to some of the other powers, Italy was too small to affect world prices: on average it accounted for 3.5 percent of world imports; Italian imports of wheat, cotton, and coal accounted for less than one-sixth of world trade of these goods. However, sugar did account for 32 percent of world sugar trade in 1870, but fell in the subsequent years.[9]

[9] The shares on world trade of cotton, coal, and wheat were, respectively, 6.9 percent, 10.8 percent, and 8.9 percent in 1913, and 12.1 percent, 12.2 percent, and 8.8 percent in1929. The share on world exports of sugar declined to 14.9 percent in 1890, to 6.2 percent in 1900 and plunged to 0.4 percent in 1913. Data on Italian imports are from Italian trade statistics, on world trade of cotton, coal, and wheat from Yates (1959, Tab. A17), on trade of sugar from Federico and Tena-Junguito (2015b).

THE TRI: SOURCES AND METHODS

As noted earlier, unlike NT, the TRI takes into account the general equilibrium effects of protection. Anderson (1995, p. 160) defines the TRI as "the uniform tariff factor (domestic price) deflator, which, applied to the new tariff factors, permits the initial level of utility of the representative consumer to be supported in general equilibrium" or, more simply, "the uniform tariff that if applied to imports instead of the current structure of protection would leave home welfare at its current level" (Kee, Nicita, and Olarreaga 2009, p. 179). His general equilibrium version is data-intensive, needing detailed data on production and consumption by product in each year and elasticities of substitution in consumption and production. It has been estimated in historical perspective by Giovanni Federico and Antonio Tena-Junguito (1998, 1999) for Italy and by Tena-Junguito (1999) for Spain, but only for few benchmark years and with simply assumed elasticities. In contrast, in this article we make two distinct contributions: first, we compute yearly series of TRI and second we estimate a new set of time variant product specific elasticities.

To this aim, we use the much less data-intensive Feenstra (1995) approximation:

$$TRI^{P} = [\Sigma S_n \varepsilon_n \tau_n^{\,2} / \Sigma S_n \varepsilon_n]^{0.5} \qquad (1)$$

where ε is the own-price elasticity of imports, S is the share of imports on GDP, τ is the *ad valorem* duty and subscript n refers to a tradable good. Hiau Looi Kee, Alessandro Nicita, and Marcelo Olarreaga (2008, 2009, 2010) show that, under the Armington assumption of imperfect substitutability between imports and domestic production, elasticities can be computed with coefficients from the regression:

$$S_n = a_{0n} + a_{nn} \ln P_n / P_{-n} + \Sigma\, c_{nm} \ln v_m / v_l \qquad (2)$$

where P_n is the price of the n-th good, P_{-n} is a product-specific price index (–n = "all the rest") and v_m/v_l is the ratio of the endowment of capital and labour to endowment of land (i.e., capital/land and labour/land). The own-price elasticity ε_{nn} can then be computed as:

$$\varepsilon_{nn} = a_{nn} / S_n + S_n - 1 \qquad (3)$$

Tariff protection will generally decrease imports and the quantity supplied in the market with a resulting increase in price to the consumer. In this framework, deadweight loss associated with protection (DWL/ GDP) can be computed by substituting TRI to NT in the formula for the Haberger triangles:

$$DWL / GDP = 0.5\ TRI^{2*}\ \Sigma S_n \varepsilon_n \quad (4)$$

The deadweight loss informs us about the loss in a given year or a given period. But when examining the impact of protection over time, we are interested in the effects of specific trade policy measures on the level of protection. To this aim, we use the Overall Trade Restrictiveness Index (OTRI).[10]

$$OTRI= [\Sigma S_n \varepsilon_n \tau_n / \Sigma S_n \varepsilon_n] \quad (5)$$

Thus, the change in OTRI from one year to another (Var-OTRI) measures the change in tariffs which would have maintained imports at their actual level in both years—that is a measure of the pure change in tariffs (Kee, Nicita, and Olarreaga 2010).

The Feenstra approximation of TRI is bound to understate the true level of protection relative to the Anderson-Neary general equilibrium version of TRI. It neglects the effects on consumption of other goods (via the substitution effects) and the effects on production costs of protection on inputs. Peter Lloyd and Donald MacLaren (2010) show that the TRI^P underestimates TRI if effective protection rates are lower than nominal ones and/or if more products are substitutes than complements (and own price elasticities exceed cross-product ones). Furthermore the TRI^P neglects the general equilibrium effects on factor markets. By definition, protection is aimed at increasing the returns to factors used in import-competing sectors either because they are scarce or because sector-specific (e.g., skilled labour). Thus, the general equilibrium TRI would be higher than any partial equilibrium version, unless factors are perfectly

[10] The index, also known as Mercantilist Trade Restrictiveness Index (MTRI), is defined as "uniform tariff that if imposed on home imports instead of the existing structure of protection would leave aggregate imports at their current level" (Kee, Nicita, and Olarreaga 2009, pp. 179–80). They put forward a third measure, MA-OTRI, which in a nutshell is an average of the OTRIs of trading partners, weighted with the share of exports from the i-th country on their total imports. It is obviously impossible to compute for only one country.

substitutable and perfectly mobile across sectors. Additionally, the TRI does not take into account the welfare effect of changes in the variety of imported goods, which have been substantial in the final decades of the twentieth century (Broda and Weinstein 2006; Chen and Ma 2012).[11]

We obtain yearly data on values and quantities of imports from the Italian trade statistics (*Movimento Commerciale del Regno d'Italia*) for the period 1862–1929.[12] In addition, we have collected, from the same source, data on custom revenues by product for 24 benchmark years.[13] The revenues were collected in gold liras. Thus, when necessary, we adjust the figures to make them comparable to import values, expressed in paper liras.[14] We then compute nominal tariffs (τ) by product for the 24 years and we fill the gaps between benchmark years with linear interpolation. Finally, we have re-classified products according to the SITC Revision 2.0 at four-digit level and computed unit values and tariff rates for each of them. The number of these four-digit "products" vary across time from a minimum of 208 in 1863 to 433 in 1924.

We use the nominal GDP estimates by Alberto Baffigi et al. (2013) while we estimate the product specific domestic prices for the indexes P_n and P_{-n} by adding the tariff rates to import prices. The series for labor and capital endowments come from Stephen Broadberry, Claire Giordano, and Francesco Zollino (2013), while the series of land is estimated by Federico from official sources. We run equation (2) for 21 years rolling windows, as well as for the whole period 1862–1929, separately for nine SITC-1 and 59 SITC 2-digit categories. We obtain yearly series of elasticities from 1873 to 1919, which we extend backwards to 1862 and forward to 1929 by assuming the parameters to have remained constant—that is, we use the average for 1873–1875 for all years before 1873 and the average for 1917–1919 for the period 1919–1929.

[11] Our data are not detailed enough to replicate the Broda and Weinstein (2006) method to estimate welfare gains from growing varieties and anyway it would be impossible to distinguish the effect of trade policy, which may entail a loss or a gain of varieties, from other causes of changes.

[12] This database was developed by Federico, Tattara, and Vasta in a project supported by Banca d'Italia, and is available online at the website of the Banca d'Italia (Bankit-FTV). For details see Federico et al. (2012). Data on tariffs are from a new dataset that we call FTVplus. All the new series of protection in Italy are reported in the Appendix 2 (Appendix Table 5).

[13] The years are 1862, 1863, 1866, 1871, 1874, 1877, 1880, 1882, 1884, 1886, 1888, 1890, 1893, 1897, 1900, 1902, 1904, 1908, 1910, 1913, 1920, 1923, 1925, and 1929.

[14] The difference was particularly large in the early 1920s, when paper lira was about one-fifth of the gold lira (Federico and Tena-Junguito 1998, p. 81). The well-known database by Mitchell (2007) does not adjust the series of custom revenues and thus the NT underestimates Italian protection in the 1920s by four-fifths.

A NEW QUANTITATIVE HISTORY OF ITALIAN PROTECTION

Much of the literature on Italian protection assumes that changes in protection was the result of policy decisions, notably the tariffs of 1878, 1887, and 1921 and the trade treaties of 1863 and 1904–1906. Indeed, the Var-OTRI shown in Figure 4 peaks at these dates but also shows a near continuous stream of changes.[15] Some of these changes reflect minor changes in duties, but many others are the result of changes in prices. Italy, as most countries of continental Europe, preferred to set duties in terms of physical units (specific duties), rather than as a proportion of the value of the good (*ad valorem*). With specific duties, any decline (increase) in prices cause, *ceteris paribus,* protection to rise (fall).[16] To disentangle this price effect from the effect of main policy decisions, we estimate the change in OTRI as a function of prices and a set of dummies X for major policy changes:

$$\Delta\text{OTRI} = a + b\Delta P_M + c\,\mathbf{X}\,, \qquad (6)$$

where P_M is the index of import prices from Federico and Michelangelo Vasta (2010) and **X** is a set of dummies for major policy changes. This latter includes the three tariffs and a dummy for war years, while dummies for the 1906 treaties are not significant. The results are reported in Table 1. The impact of each major tariff change is significant, but, contrary to the conventional wisdom, the difference between their coefficients is very small and not significant.[17]

The estimates for our TRI^P measure of Italian protection over the period 1862–1929 are plotted in Figure 5: TRI^P increases almost constantly from about 10 percent to a peak (62 percent) in 1897 and then declines to the late 1900s and then remains fairly stable up to 1929. The levels of protection are considerably higher than those given by the more generally used measure of NT, which shows a more gradual increase and decline. The corresponding welfare losses estimated from TRI^P are given on the right-hand scale as a percentage of GDP.

[15] The OTRI changed by more than 10 percent in 13 years out of 67 years and by more than 5 percent in 29 years, while it remained constant (changing by less than 1 percent) in only five years.

[16] Federico and Tena-Junguito (1998, Tab. A2) estimate that this price effect accounted for about one-tenth of the increase in NT from 1877 to 1889, for about one-half of the decline from 1897 to 1913, and compensated about two-thirds of the increase in protection from 1913 to 1926.

[17] In the full specification, each tariff increased protection by around 1.25 percentage points—that is, by about one-sixth at the long-run average of the tariff. The coefficient of the price variable implies that at the average a 1 percent increase in import prices caused protection to decline by 0.5–1 percent (according to the specification of the regression).

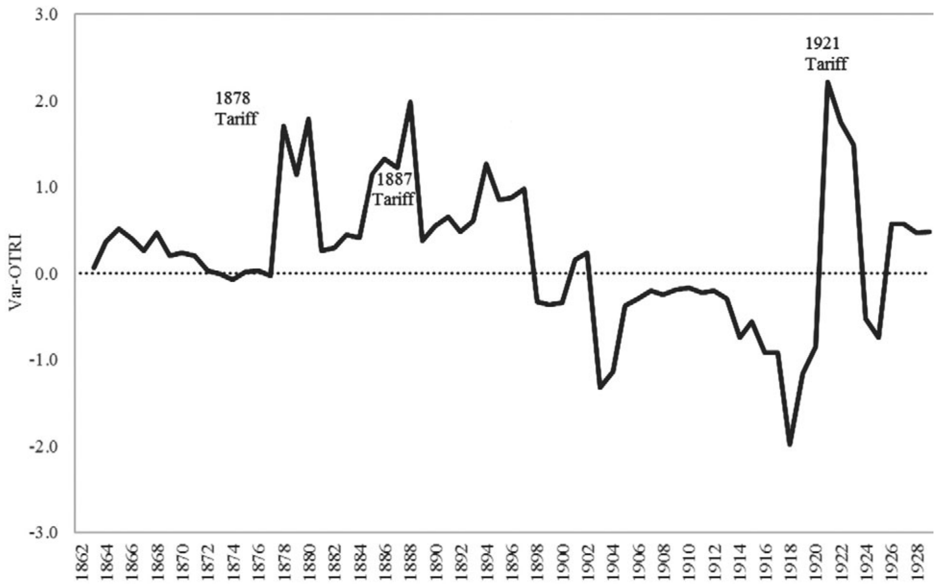

FIGURE 4
VARIATIONS (VAR-OTRI) IN ITALIAN TRADE POLICY (1862–1929)

Sources: Our own elaborations on FTV*plus* dataset.

As already hinted by Federico and Tena-Junguito (1998, 1999), these results suggest that the literature overstates the relevance of protection. The nominal and effective protection remained fairly low, but for the spike of the 1890s, and thus cautiously they suggest that its effects on aggregate welfare and allocation of resources could not be as large as traditionally assumed. Federico and Tena-Junguito (1998) use NT, but the coefficient of correlation between the TRI^P and the (revised) NT series is 0.95. This said, there are some relevant differences. Before discussing the economic implications, we focus on the historical evidence.

As a starting point, we conducted a Jushan Bai and Pierre Perron (2003) test for structural breaks in both series. Both the NT and TRI^P series features breaks at the end of the 1880s (respectively, in 1888 and 1890) and at the turn of the century (in 1898 and 1900), which mark the beginning of the period of fast rise in protection and of its retreat, respectively, and conform to the historical discussion of these dates reflecting important transitions in Italian trade protection. However, the TRI^P has a significant break in 1878, which tallies well with the high and significant coefficient of the dummy (Table 1). This runs counter to the conventional wisdom, which has maintained the limited impact of the 1878 tariff. Furthermore, the timing of the last break in the series differs: 1910

TABLE 1
EFFECT OF TARIFFS POLICIES ON PROTECTION

Variable	(1)	(2)	(3)
IMPORT_PRICES_FV	–0.002** (0.0010)	–0.003*** (0.0010)	
DUMMY1878	1.156*** (0.4493)	1.163** (0.4586)	1.180*** (0.4651)
DUMMY1888	1.240*** (0.4503)	1.268*** (0.4603)	1.245*** (0.4667)
DUMMY1921	1.307*** (0.4996)	1.210** (0.5064)	1.793*** (0.4727)
DUMMYWAR		–0.771** (0.3853)	–0.513 (0.4063)
AR(1)	0.664*** (0.0996)	0.577*** (0.1108)	0.626*** (0.1050)
Constant	0.180 (0.1987)	0.242 (0.1583)	0.210 (0.1813)
Log likelihood	–48.7106	–46.8722	–51.4872
Observations	65	65	67

Notes: Least Squares (dependent variable is VAROTRI), standard errors in parentheses. *** p < 0.01; ** p < 0.05; * p < 0.1.
Sources: Our own elaborations on FTV*plus* dataset.

in the TRI^P series and 1919 for NT. If the break is in 1919, this suggests that protection fell during the war and its aftermath, and rebounded in the 1920s, with the combined effect of the 1921 tariff and the duty on wheat. On the eve of the Great Depression, the NT measure was more than double its 1919 level. In contrast, the TRI^P implies that protection remained constant from the end of the 1900s to the Great Depression. In other words, the effect of the 1921 tariff was transitory and that of the duty on wheat limited (cf. Figure 4).

Consistent with the low level of protection, the welfare losses from protection were generally small. They remained below 2 percent of GDP and exceeded 1 percent only for a few years in the 1890s: the total losses from protection from 1862 to 1929 were equivalent to 22 percent of the GDP, but two-thirds was concentrated in the period from 1890 to 1902.

It is also possible to estimate the level of aggregate protection (and thus the total welfare losses) from duties on a particular product or group of products, by assuming that all other goods were imported free of duty. The welfare costs could then be compared with the dynamic benefits of the development of the protected activity. Following Sybille Lehmann and O'Rourke (2011), Figure 6 distinguished manufactures (i.e., the counterfactual is zero duties on primary products and exotics), primary products (zero duties on manufactures and exotics), and exotics (assuming zero duties on all other goods).

Duties on manufactures correspond to a uniform protection below 10 percent throughout the whole period; duties on exotics (mostly on coffee) were barely higher and similarly stable, with small peaks in 1885,

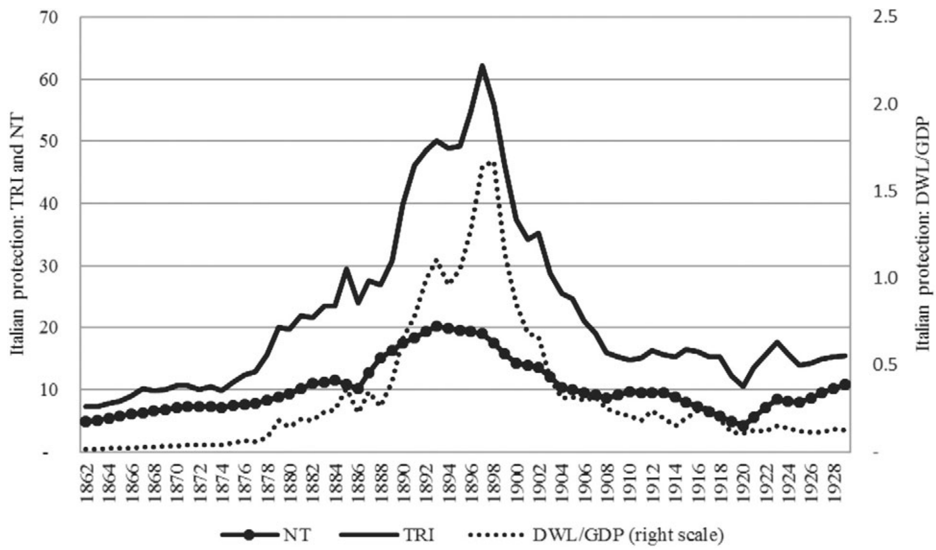

FIGURE 5
ITALIAN PROTECTION: TRI^{P}, NT AND DWL (1862–1929)

Sources: Our own elaborations on FTV*plus* dataset.

1905, and 1923. Thus, changes in aggregate TRI^{P} reflect mostly trends in protection of primary products—that is, on wheat and above all of sugar. The sugar industry was tiny and sugar imports never exceeded 10 percent of total imports, but, as Figure 7 shows, it accounted for most of the losses from protection in the late nineteenth century.[18]

The losses from the duty on sugar in the whole period 1862 to 1929 account for about one-half the total losses from trade protection. Almost all these losses were cumulated in the 25 years from the first sharp increase in sugar duties in 1877 to the Brussels convention (1902), when bounties on export of sugar were ended.[19] Losses from wheat duties were relevant only in a short period of time around the turn of the twentieth century, while those from the protection on manufactures were below 0.1 percent of GDP in all years but 1917. In a famous book published in 1903, the free trader polemist, Edoardo Giretti (1903) called wheat growers, iron

[18] The combined value of domestic gross output of sugar beet (Federico 2002, Tab. 1A) and Value Added in sugar refining (Fenoaltea 1992, Tab. 3.1; Fenoaltea and Bardini 2002, Tab. 2.02) accounted for 0.005 percent of GDP in 1891 and for 0.37 percent in 1911.

[19] The duties on sugar were increased by a series of laws from about 40 percent of the border price in 1876 to 575 percent in 1895. In the same period, the excise on domestic production increased from one-third of the border price to 275 percent (cf. Corbino 1931–1938 II, p. 213; Parravicini 1958, pp. 322–23). Cf. on the Brussels convention and its further extensions, Chalmin (1984).

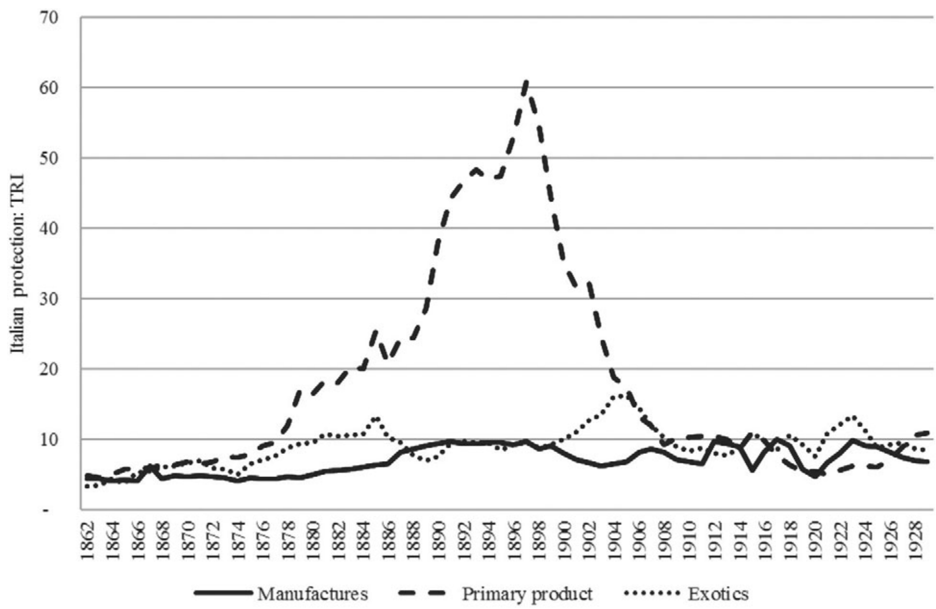

FIGURE 6
TRI^{P}, BY MAIN CATEGORY OF PRODUCTS (1862–1929)

Sources: Our own elaborations on FTV*plus* dataset.

industrialists, and sugar producers *I trivellatori* (parasites) of the Italian economy. He was wrong: sugar producers were in a class of their own.

HOW ROBUST IS THE FEENSTRA APPROXIMATION?

As said earlier, the Feenstra's approximation (TRI^{P}) might underestimate the level of protection relative to the general equilibrium TRI. Unfortunately, the necessary data for a comprehensive comparison are not available in this case. However, we present some rather partial evidence on this underestimation in Appendix 1. In this section, we focus on the robustness of the Feenstra's approximation to the level of disaggregation of the product categories and to different methods of estimating elasticities.

As a starting point, Kee, Nicita, and Olarreaga (2008) show that the Feenstra approximation can be written as:

$$TRI^{P} = [NT^{2} + \sigma^{2} + \rho]^{0.5}, \tag{7}$$

where NT is the import-weighted (with shares s) nominal tariff, σ^2 the import-weighted variance of tariff rates and $\rho=cov(\varepsilon_n/\varepsilon, \tau_n^2)$, where ε is

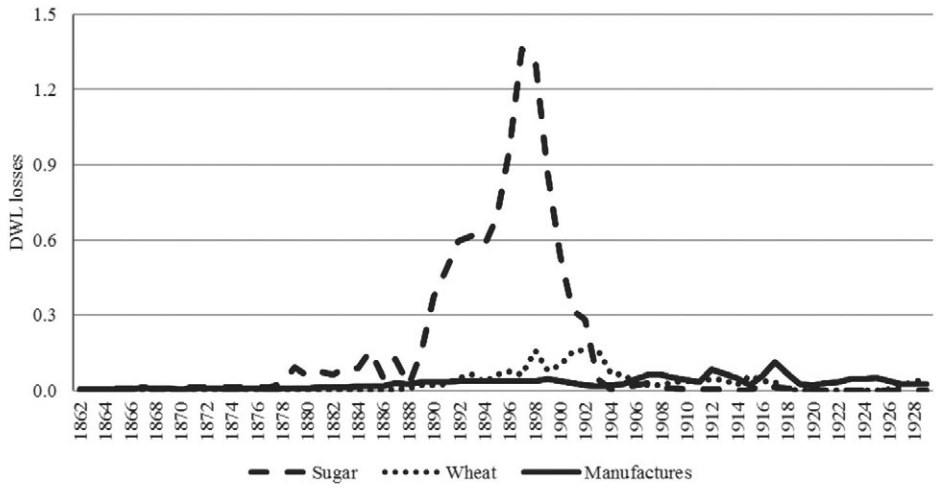

FIGURE 7
DWL LOSSES: COUNTERFACTUAL ESTIMATES (1862–1929)

Sources: Our own elaborations on FTV*plus* dataset.

the (import-weighted) average elasticity of the value of imports to relative prices. Thus, TRI^P is positively related to the variance of tariff rates (σ^2) and to the covariance between tariffs and elasticities (ρ). As a first approximation, one would surmise that higher SITC codes correspond to a higher dispersion of rates, and thus cause the TRI^P to be higher as well. However, this is by no means certain, as the variance must be weighted with shares on imports. Likewise, it is impossible to assess the effect of different elasticities on the parameter ρ. We thus adopt a pragmatic approach and we compute five alternative series: (1) aggregate series, at one-digit Standard International Trade Classification (SITC) —that is, ten products; (2) very detailed series, at four-digit SITC, featuring a maximum of 586 categories;[20] (3) time-invariant elasticities (same elasticity throughout the whole period for each two-digit category); (4) product-invariant elasticity (same coefficient for all two-digit category in each year); and (5) “Off-the-shelf” elasticities for 17 categories (Stern, Francis, and Schumacher 1976)—the same set used by Irwin (2010).

A visual inspection of trends (Figure 8) shows that most differences between the estimates are relatively small and Table 2 confirms this impression with some pairwise comparisons between the baseline and each alternative series.

[20] The maximum is not reached in any year. For each product we use the shares S and the elasticity ε of the two-digit SITC “product” to which it belonged.

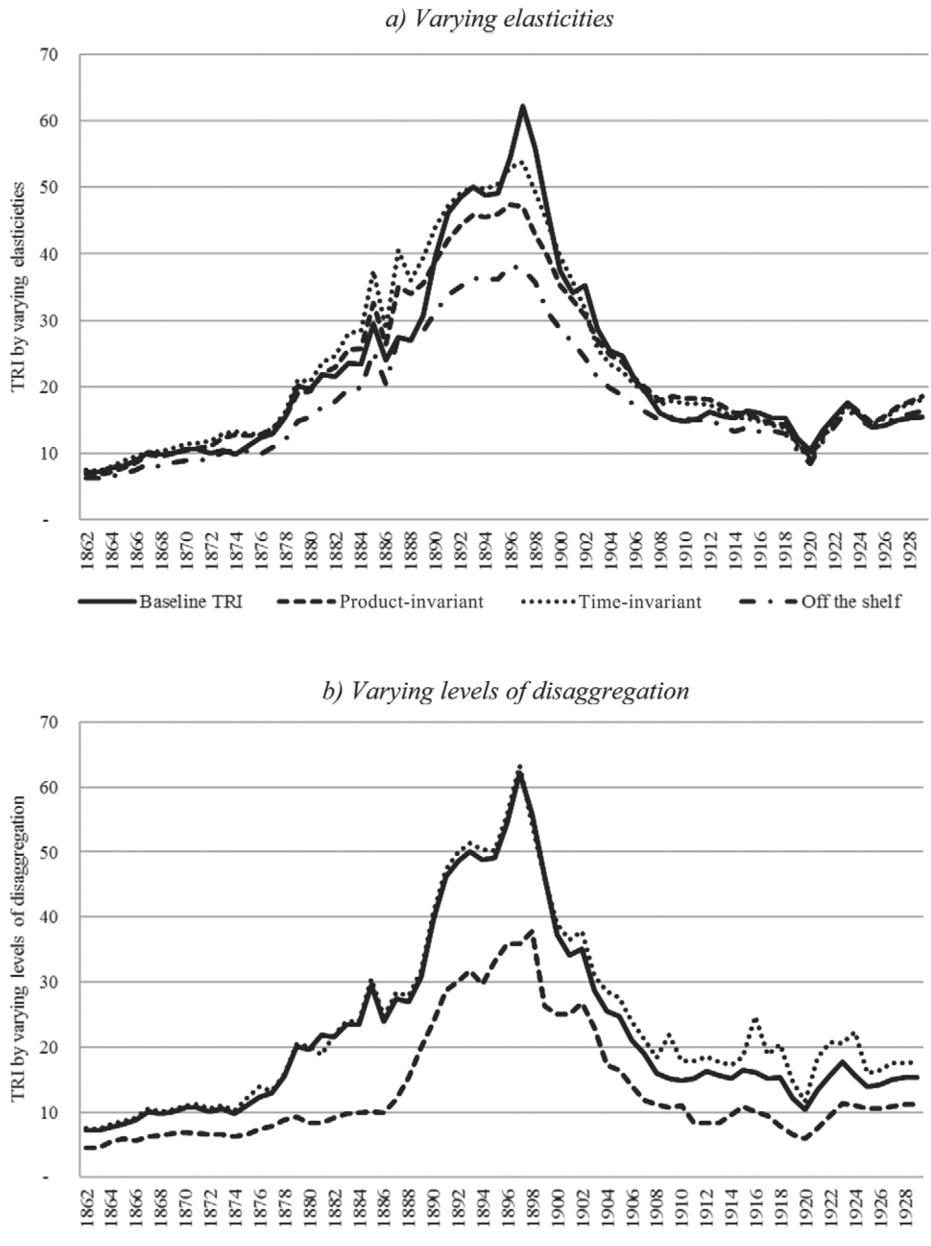

FIGURE 8
THE SENSITIVITY OF ESTIMATES OF TRI^p

Sources: Our own elaborations on FTV*plus* dataset.

TABLE 2
ESTIMATES OF TRI^p (1862–1929): ROBUSTNESS TESTS

	(a)	(b)	(c)	(d)
Elasticity				
"Off the shelf"	0.812	5%	0.975	–0.648
Time fixed	0.989	5%	0.973	–0.449
Product fixed	1.046	1%	0.973	–0.194
Detail goods				
1 digit SITC	0.611	5%	0.964	–0.033
4 digit SITC	1.077	No	0.991	–0.332

Notes: (a) average ratio of the alternative series to the baseline TRI^p; (b) cointegration of alternative series with the baseline TRI^p; (c) coefficient of correlation between each alternative measure and the baseline TRI^p; (d) coefficient of correlation between the ratio of each alternative measure (column (a)) to the baseline TRI^p.
Sources: Our own elaborations on FTV*plus* dataset.

Column (a) reports the average ratio of the alternative series to the baseline over the whole period 1862–1929. As expected, the TRI^p is positively related to the level of disaggregation, as measured by SITC, but the difference is substantially greater between one- and two-digit SITC (almost 40 percent) than between two- and four-digits (about 8 percentage points). In the baseline estimate, the parameter ρ is negative on average and in 38 years out of 68 years. In other words, Italy protected low-elasticity goods (such as vegetable oils (43), dyeing tanning and colouring materials (53), and petroleum (33)) more. The "Off the shelf" TRI is lower than the baseline because these elasticities are even more negatively correlated with tariffs than in our baseline set (the covariance is negative in 52 years and its absolute value is about double). The "product fixed" TRI^p is bound to be higher than the baseline because in this case ρ is zero by definition. It is impossible to predict the differences between the baseline and the "time fixed" as TRI^p is independently computed each year.

If levels differ, trends are fairly similar: all alternative estimates but one are co-integrated with the baseline TRI (column (b)) and the pairwise correlations (column (c)) are very high. In column (d), we report the coefficient of correlation between the ratio of each alternative measure to the baseline TRI^p (i.e., column (a)) and the level of protection, as measured by our baseline TRI^p. The coefficient is fairly low in most cases and always negative. This implies that the difference between estimates is proportionally greater when protection is low.

As a whole, the results are reassuring. The baseline estimate is fairly robust and because the biases are more likely in times of low protection, errors in measurement are less damaging to historical interpretation. On the other hand, the test suggests that one should be very prudent in endorsing estimates at a low level of disaggregation. This conclusion is buttressed by the results of similar tests by Douglas Irwin (2010) and Eugene Beaulieu and Jevan Cherniwchan (2014). According to the former, an increase in number of products from 15–17 (his baseline estimate) to some thousands increases TRI^P by up to one-third.[21] The number of products ("varieties") in baseline estimate by Beaulieu and Cherniwchan (2014) increases from 255 in 1870 to 964 in 1910. Cutting the number to about 200 (corresponding to three-digit SITC) reduces somewhat the TRI and the one-digit estimate seems to be less than one-half the baseline estimate (Beaulieu and Cherniwchan 2014, Figure 11). Summing up, the Feenstra approximation is reasonably robust but it is likely to undervalue the level of protection relative the "true" TRI. However, it does capture the main historical facts—the peak in protection of the 1890s and the relatively small amount of welfare losses.

HOW BIASED IS A NT MEASURE?

The Feenstra approximation TRI^P is arguably a less biased, or a more precise, measure of protection than the more generally used NT. If the ratio NT/TRI were constant in time, the coefficient of NT in the growth regression (equation 1) would be unbiased. If the two measures were linked by a stable relation, the bias would be less of an issue. In theory, one could look for such a relation by regressing NT on TRI^P for a panel of representative countries. Since we do not have enough data, in Figure 9 we compare the available series of TRI^P and NT for Italy and the United States, adding a series for Canada, which we obtain as linear interpolation between the benchmark estimates by Beaulieu and Cherniwchan (2014, Tab. 2). As expected, NT is always lower than TRI^P—on average by 27 percent for Canada, by 37 percent for the United States, and by 48 percent for Italy. However, these figures are not directly comparable. They each refer to slightly different time periods and different levels of

[21] Irwin (2010, Tab. 3) compares his baseline TRI (17 goods) with more detailed ones in five benchmark years—1880 (1,290 products), increase 18 percent; 1900 (2,390) products + 8 percent; 1928 (5,505 products) – 32 percent; 1932 (5,248 products) + 7 percent; and 1938 (2,882 products) + 35.2 percent. As expected, the TRI comes out higher by 18 percent, 8 percent, and 7 percent. The effect is smaller than in Italy because all TRI^P are computed with the same elasticity (– 2).

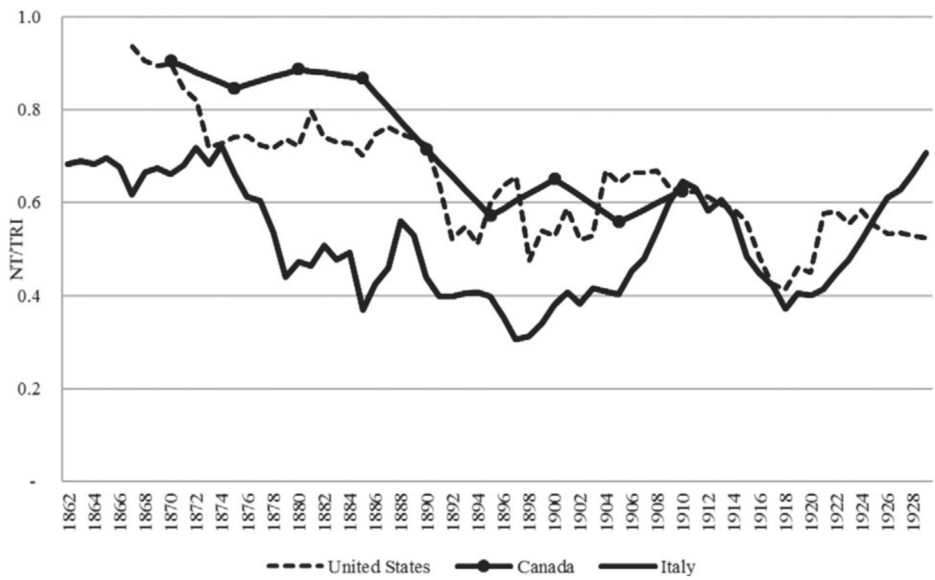

FIGURE 9
THE BIAS FROM NOMINAL PROTECTION: NT/TRI[P] (1862–1929)

Sources: Our own elaborations on, for Canada, Beaulieu and Cherniwchan (2014, Tab. 2), for Italy, FTV*plus* dataset and, for United States, Stern, Francis, and Schumacher (1976).

disaggregation and, above all, the estimates for the United States and Canada use "off-the-shelf" import demand elasticities from the 1970s rather than historical micro-constructed elasticities as in our Italian estimate. In fact, the ratio for Italy would jump to 0.80 if we compute TRI[P] series with the same level of detail (17 groups of goods) and the same set of elasticities, which Irwin (2010) uses.[22]

The key information from Figure 9 is not the difference in levels between NT and TRI[P], but their change in time. The ratio declined fairly steadily in Canada, declined with fluctuations in the United States, while in Italy it decreased in the nineteenth century, rebounded in the early twentieth century and ended up in 1929 almost as high as in the 1870s.[23]

[22] One could quote also the results of two recent multi-country estimates of TRI. The ratio NT/TRI is 0.64 (SD 0.16) for 28 countries in the late 1980s-early 1990s (Anderson 1995, Tab. A2) and the ratio NT/TRI[P] is 0.67 (SD 0.17) for 88 countries in 2002 (Kee, Nicita, and Olarreaga 2004, Tab. 4). This latter estimate differs somewhat from the later version in Kee, Nicita, and Olarreaga (2009).

[23] This description is buttressed by the results of log-linear regression with time. The rate of change is negative and significant at 1 percent for Canada (–1.34) and the United States (–0.67). For Italy, it is positive and not significant from 1862 to 1929, negative and highly significant until 1900 (–2.10), positive but not significant in 1900–1929.

Ceteris paribus, one would expect the bias to be inversely related to NT—that is, NT/TRI^p to be positively related to NT. In fact, Kee, Nicita, and Olarreaga (2008) show that:

$$\ln TRI/NT = 0.5 \ln(1 + \sigma^2/ NT^2 + \rho/NT^2), \tag{8}$$

where, as before, σ^2 and ρ are trade-weighted variance and covariance. This expectation is met in the United States and in Italy after 1907, but the ratio is negatively related to NT in Italy before 1907 and it is not related to NT in Canada (Figure 10).

These differences across countries and in time may be explained by changes in the trade-weighted variance and covariance. The variance would increase whenever changes in the tariff (i.e., in the list of products and/or in the duty on each of them) or in prices (for specific duties) causes the dispersion of duties to grow or changes in composition of imports increase the share of goods at the extreme of the distribution (i.e., with very high or very low protection). For instance, in the case of Italy, the change in composition account for about one-eighth of the increase in σ^2 from 1886 to 1897 and for about two-thirds of the decline to 1913.[24] Likewise, the covariance would increase if duties grow more on elastic goods, but the effects on ρ depend on the composition of trade. In short, it is impossible to predict *a priori* the sign of the bias and thus suggest a procedure to correct it. Unfortunately, these biases differ across countries according to the structure of protection and thus their aggregate effect is unpredictable. In a nutshell, there is no easy fix for the problem of the bias in the NT.

PROTECTION AND ECONOMIC GROWTH IN THE NINETEENTH CENTURY: A NEW VIEW?

Our examination of differences in varying measures of trade protection has shown that NT measures and a trade restriction index can generate somewhat differing descriptions of the underlying events. We are also interested in the overarching issues of whether trade protection fosters or hinders economic growth. Because we have only TRI for two countries is not possible to answer this in a growth regression framework. In contrast, it is possible to replicate the co-integrated VAR approach by Lampe and

[24] We estimate this share as $[(\sum s^i_t * Var^i_{t+n} / \sum s^i_t * Var^i_t) - 1] / (\sum s^i_{t+n} * Var^i_{t+n} / \sum s^i_t * Var^i_t)]$ where superscript i refers to the i-th good.

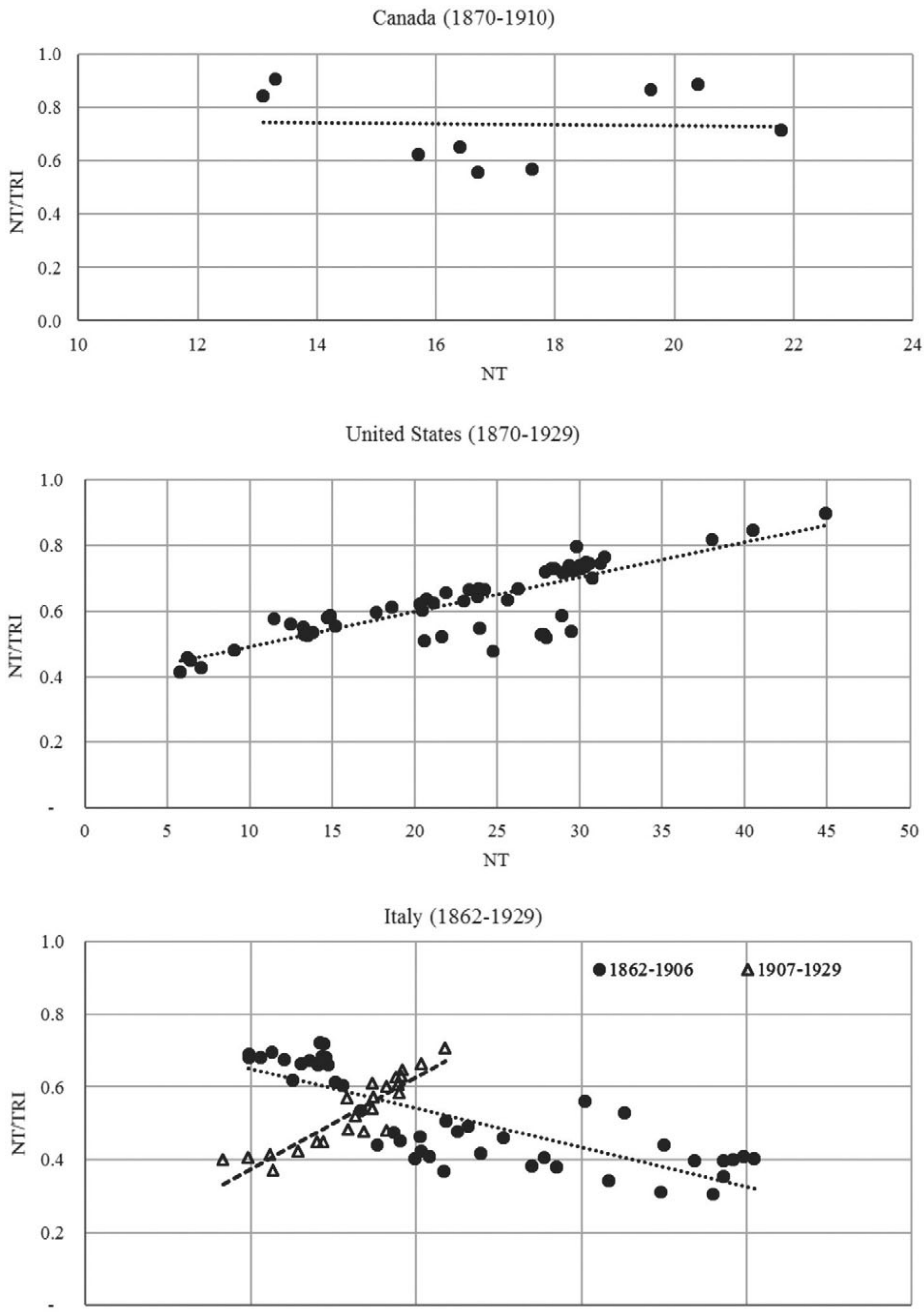

FIGURE 10
THE BIAS IN MEASURING PROTECTION AND THE NT

Sources: Our own elaborations on, for Canada, Beaulieu and Cherniwchan (2014, Tab. 2), for Italy, FTV*plus* dataset and, for United States, Stern, Francis, and Schumacher (1976).

TABLE 3
RESULTS OF THE COINTEGRATED VAR MODEL, ITALY AND THE UNITED STATES

	NT		TRI	
	Long run	Short run	Long run	Short run
Italy				
1862–1913	Negative***	NT → y***	Negative***	TRI→ y***
1862–1929	Negative*	NT → y***	Negative**	TRI→ y***
1862–1906	Negative*	NT → y***	Negative	TRI→ y***
1906–1929	Positive***	NT → y***	Positive***	TRI→y* y → TRI***
United States				
1869–1913	Positive***	y → NT*** NT → y*	Negative***	TRI → y***
1869–1929	Positive***	NT ↔ y***	Positive	TRI → y***

* = Significant at the 10 percent level.
** = Significant at the 5 percent level.
*** = Significant at the 1 percent level.
Sources: Our own elaboration on FTV*plus* dataset for Italy and on Irwin (2010) for United States.

Sharp (2013) for Italy and the United States, in order to check whether changing the measure of protection affects the results. Table 3 sums up the results in their compact notation, while we report the full outcome in the Appendix 2 (Appendix Table 6). For both countries, we run the model for the period up to 1913 and for the whole period up to the Great Depression. We test also separately the two periods 1862–1906 and 1906–1929 for Italy, as there is evidence of a different relation (Figure 10).[25]

Substituting TRI^{P} for NT does change the results, and the impact is greater for the United States than for Italy. Using this better measure of protection, TRI^{P}, confirms that the relation between trade policy and economic growth was complex. The relation for the United States is either negative or not significant, rather than consistently positive as suggested by the NT measure. Protection affected GDP negatively in Italy before 1906, subsequently the long-run relation is positive but with income causing protection rather than the other way round. Without overstressing the point, one could observe the broad coincidence in timing between this change and the change in taxation on sugar. In both countries, welfare losses were fairly small. Over the whole period from 1867 to 1929, American consumers lost the equivalent of two-fifths of a year's GDP.

[25] Results differ slightly from those by Lampe and Sharp (2013) for the two countries as we use different GDP series and also different NT series for Italy.

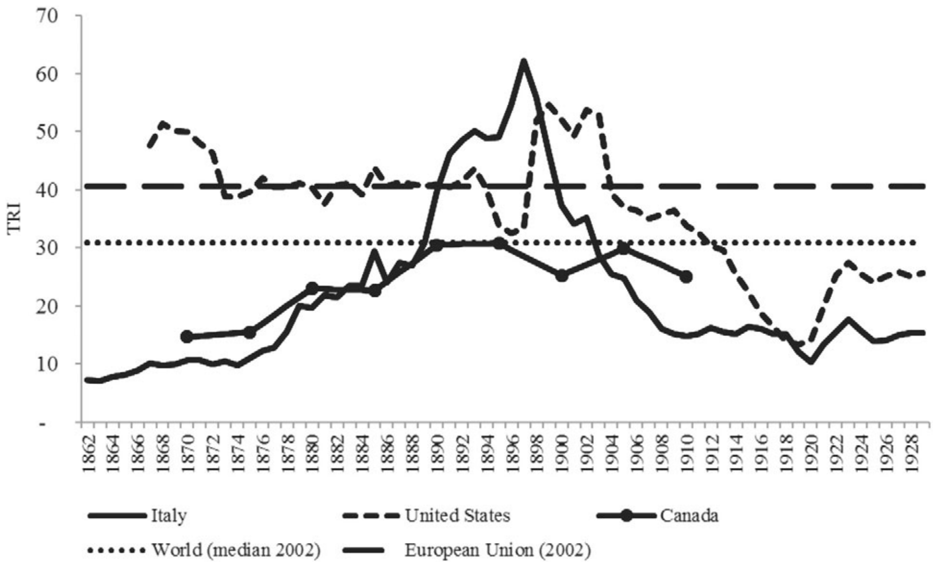

FIGURE 11
COMPARATIVE TRI^{P}

Sources: Our own elaborations on, for Canada, Beaulieu and Cherniwchan (2014, Tab. 2), for Italy, FTV*plus* dataset, for United States, Irwin (2010) and, for European Union and World, Kee, Nicita, and Olarreaga (2009).

Irwin (2010, p. 130) points out that "the cost of protection has been low for the United States because international trade has been a relatively small part of the overall economy." The losses for Italy were lower (Figure 5), even if the country was decidedly more open than the United States.[26]

This conclusion does not hold for the period after 1929. The big rise in overall protection during the Great Depression entailed large welfare losses and probably very little if any dynamic gains. It is widely assumed that the liberalization of exchanges after the war helped the advanced economies to achieve unprecedented rates of growth during the golden age, while the inward-looking strategy of industrialization in less developed countries by and large failed. Unfortunately, it is impossible to buttress this claim with estimates of levels of protection. There are some estimates for the most recent period. The average TRI, according to the (general equilibrium) estimates by Anderson (1995) was 19.5 percent for a sample of 26 countries in the late 1980s and early 1990s, while according to Kee, Nicita, and Olarreaga (2009) the TRI^{P}, inclusive of their estimate of the tariff-equivalent of the Non-Tariff Barriers to trade

[26] The average export/GDP ratio at current prices in 1862–1929 was 10.1 percent in Italy and 6.3 percent in the United States (Federico and Tena-Junguito 2015a).

(NTBs), was 33.2 percent for 76 countries in 2002.[27] The two samples overlap for 21 countries and a comparison shows a 40 percent decline of protection (partly accounted for the different measure of TRI).[28] By the early 2000s liberalization of trade of goods was well advanced, but the level of protection was comparable if not higher than before WWI and in the 1920s (Figure 11).

CONCLUSION

The methodological message of this article is simple: the ratio of custom duties to the value of imports (NT), although simple to compute, is a flawed measure of protection and it should not be relied on. The TRI is better, although also not a perfect measure. The Anderson and Neary (1995) version is too data intensive to be useful for most economic history research. The Feenstra approximation, or TRI^P, needs only data on trade and import elasticities, which could be estimated, as we have done, or obtained from other papers. As we have shown the TRI^P is fairly robust to the details of computation. Admittedly, it still undervalues protection relative to the TRI, but by definition the bias is smaller than for NT.

The historical message of the article is more complex. It focuses on Italy but also tries to draw some implications for the global history of trade policy before the Great Depression. Our results suggest that Italian protection was fairly low, except for very few years in the 1890s, and that this peak reflected mostly the very heavy duties on sugar. The duty on sugar accounted for a sizeable share of total welfare losses from protection, but its benefits for economic growth seem questionable, to say the least. The level of protection on manufactures, which, accordingly to Lehmann and O'Rourke (2011) is positively related to economic growth, was very low. Furthermore, the rates of effective protection on manufacturing (Federico and Tena-Junguito 1999) were quite haphazard and it is extremely difficult to detect any clear strategy for industrialization. In a nutshell, Italy was not very good at implementing the "standard model" at least for protection (Allen 2011).

We tentatively argue that this overall view may hold also outside Italy. The anecdotal evidence about the history of trade policy and, for what they are worth, the series of NT suggest that Italy could be representative

[27] We prefer to use these figures rather those without non-tariff trade barriers because we deem them a better yardstick for comparison with historical data. In fact, before the Great Depression, the states achieved the desired protection with duties because quantitative restrictions were beyond their peacetime administrative capabilities.

[28] This decline is confirmed by estimates for China (Chen and Ma 2012, Tab. 2; Chen, Ma, and Xu 2014) and Australia (Lloyd 2008) as well as by a comparison with the estimates of TRI^P by Kee, Nicita, and Olarreaga (2010).

of a more general pattern for Great Powers of Continental Europe. The series of TRI^P for the United States and Canada confirm that nineteenth century protection was low in comparison with the levels of the early twenty-first century. It is thus highly likely that protection was substantially lower before the Great Depression than in any time after WWII, including the "golden age" of the 1950s and 1960s, which coincided with the period of import-substituting industrialization in many Less Developed Countries (LDCs). In a long-term perspective, this highlights the role of the Great Depression (and WWII) as the long-lasting shock of the twentieth century, while downplaying the impact of WWI on the international economy (Federico and Tena-Junguito 2015a). Inferring the effect of trade policy on economic growth from levels of protection is clearly tricky. However, the cointegrated VAR tests, although somewhat crude, point towards a negative long-run effect. It also shows that results are sensitive to the measure of protection. In other words, the economic history of trade policy needs a systematic re-estimating of protection.

Appendix 1
The Feenstra Approximation (TRI^P) and the General Equilibrium TRI

Lloyd and MacLaren (2010) put forward two conditions for detecting the underestimation of the Feenstra approximation relative to the general equilibrium TRI, but the lack of data prevents to test the first one, about demand elasticities. The second states that TRI^P would undervalue the TRI if effective protection exceeds the nominal one, and Appendix Table 1 shows this was the case in a substantial number of instances.

As an alternative and more comprehensive test, we compare our estimates of TRI^P with the general-equilibrium ones by Federico and Tena-Junguito (1998, Tab. A3). They try a wide range of elasticities of substitution and transformation and Appendix Table 2 reports the maximum and minimum estimate range possible, jointly with their preferred (baseline) estimate.[29] As expected, all estimates of general-equilibrium TRI but one are higher than the TRI^P, on average by 45 percent. The difference is quite small in 1877, but the TRI^P undervalues the growth of protection to 1897 (especially in the first period) and misses the (small) increase in the 1920s. Consequently, the TRI^P underestimates the welfare losses, which, according to the CGE estimate by Federico and O'Rourke (2000), were equivalent to 2.4 percent of GDP in 1911 and possibly to 3.1 percent in 1897.

[29] Their preferred estimate assumes 5 for the elasticity of substitution in final demand and for the elasticity of transformation, and 0.7 for the elasticity of substitution in intermediate demand.

APPENDIX TABLE 1
THE UNDERVALUATION OF TRI^P: A COMPARISON WITH TRI^S

	1877	1889	1897	1913	1926
Number products (SITC 4 digits)	207	230	281	341	343
SITC effective > nominal	76	112	141	188	218
% SITC effective > nominal	36.7	48.7	50.2	55.1	63.6
% trade SITC effective > nominal	38.4	43.8	32.0	35.8	50.3

Notes: We prefer to use the estimates on nominal protection by Federico and Tena-Junguito (1998) rather than the figures from the FTV*plus* data-base for consistency with the data on effective protection.
Source: Federico and Tena-Junguito (1998, 1999).

APPENDIX TABLE 2
THE UNDERVALUATION OF TRI^P: A COMPARISON WITH THE GENERAL EQUILIBRIUM TRI

	TRI				Ratio
	Min	Preferred	Max	TRI^P FV	TRI/ TRI^P
1877	16.9	16.9	24.7	12.9	1.31
1889	51.5	57.1	60.8	30.8	1.85
1897	79.5	86.4	88	62.2	1.39
1913	9.3	16.3	24.6	15.6	1.04
1926	24.0	24	35.5	14.2	1.71

Sources: Our own elaborations on FTV*plus* dataset.

Appendix 2
Statistical Appendix

APPENDIX TABLE 3
LIST OF POLITIES

Polities	Countries
Asia	Ceylon, India, Indonesia, Japan, Philippines
Africa	Egypt, Gold Coast, Sierra Leone, South Africa
Europe (-UK)	Belgium, Denmark, France, Germany, the Netherlands, Switzerland, Austria (Austria-Hungary), Norway, Portugal, Russia (USSR), Spain, Sweden, Italy
Great powers	Austria (Austria-Hungary), France, Germany, Russia (USSR)
Latin America	Argentina, Brazil, Chile, Colombia, Jamaica, Uruguay
Western offshoots	Australia, Canada, New Zealand
World	Argentina, Australia, Austria (Austria-Hungary), Belgium, Brazil, Canada, Ceylon, Chile, Colombia, Denmark, Egypt, France, Germany, Gold Coast, India, Indonesia, Italy, Jamaica, Japan, New Zealand, Norway, Philippines, Portugal, Russia (USSR), Sierra Leone, South Africa, Spain, Sweden, Switzerland, the Netherlands, United Kingdom, United States, Uruguay

APPENDIX TABLE 4
SOURCES OF DATA ON NOMINAL PROTECTION

Countries	Sources	Years
Australia	Lampe and Sharp (2013)	1870–1929
Austria (Austria–Hungary)	Clemens and Williamson (2004)	1870–1913; 1922–1929 (1923 interpolated)
Belgium	Lampe and Sharp (2013)	1870–1929
Brazil	Lampe and Sharp (2013)	1870–1929
Canada	Lampe and Sharp (2013)	1870–1929
Ceylon	Board of Trade (ad annum)	1870–1929
Chile	Lampe and Sharp (2013)	1870–1929
Colombia	Clemens and Williamson (2004)	1870–1898; 1910–1929
Denmark	Lampe and Sharp (2013)	1870–1929
Egypt	Clemens and Williamson (2004)	1870–1929
France	Lampe and Sharp (2013)	1870–1929
Germany	Lampe and Sharp (2013)	1870–1929
Gold Coast	Board of Trade (ad annum)	1870–1929 (1873–1874 interpolated)
India	Lampe and Sharp (2013)	1870–1929
Indonesia	Clemens and Williamson (2004)	1870–1929
Italy	FTV*plus* dataset	1870–1929
Jamaica	Board of Trade (ad annum)	1870–1929
Japan	Lampe and Sharp (2013)	1870–1929
New Zealand	Board of Trade (ad annum)	1870–1929
Norway	Lampe and Sharp (2013)	1870–1929
Philippines	Clemens and Williamson (2004)	1870–1929
Portugal	Lampe and Sharp (2013)	1870–1929
Russia (USSR)	Clemens and Williamson (2004)	1870–1913; 1924–1928
Sierra Leone	Board of Trade (ad annum)	1870–1929
South Africa	Board of Trade (ad annum)	1870–1929
Spain	Lampe and Sharp (2013)	1870–1929
Sweden	Lampe and Sharp (2013)	1870–1929 (1891 interpolated)
Switzerland	Lampe and Sharp (2013)	1870–1929
the Netherlands	Lampe and Sharp (2013)	1870–1929
United Kingdom	Lampe and Sharp (2013)	1870–1929
United States	Carter et al. (2006, series Ee 429)	1870–1929
Uruguay	Clemens and Williamson (2004)	1870–1929
Argentina	Clemens and Williamson (2004)	1870–1929

APPENDIX TABLE 5
PROTECTION IN ITALY, VARIOUS SERIES (1862–1929)

Years	NT	TRI Baseline	TRI/NT	TRI Manufactures	TRI Primary Product	TRI Primary Product (- Exotics)	TRI Exotics	DWL/GDP	Var OTRI
1862	4.94	7.24	1.46	4.32	5.80	4.74	3.35	0.02	
1863	4.95	7.17	1.45	4.31	5.73	4.58	3.45	0.02	0.06
1864	5.30	7.76	1.46	4.11	6.58	4.92	4.38	0.02	0.37
1865	5.65	8.13	1.44	4.26	6.93	5.78	3.82	0.02	0.51
1866	6.01	8.87	1.48	4.03	7.90	5.85	5.32	0.02	0.40
1867	6.26	10.14	1.62	6.25	7.99	5.82	5.47	0.03	0.27
1868	6.52	9.80	1.50	4.33	8.79	6.40	6.03	0.03	0.47
1869	6.78	10.05	1.48	4.77	8.84	6.36	6.15	0.03	0.20
1870	7.03	10.65	1.51	4.73	9.54	6.81	6.68	0.03	0.24
1871	7.29	10.71	1.47	4.84	9.55	6.51	6.99	0.04	0.21
1872	7.23	10.05	1.39	4.66	8.91	6.72	5.85	0.04	0.03
1873	7.17	10.49	1.46	4.48	9.48	7.51	5.79	0.04	–0.01
1874	7.10	9.84	1.38	4.10	8.94	7.46	4.93	0.04	–0.07
1875	7.34	11.10	1.51	4.46	10.17	7.86	6.45	0.05	0.02
1876	7.57	12.33	1.63	4.38	11.53	9.07	7.11	0.06	0.03
1877	7.80	12.93	1.66	4.35	12.18	9.57	7.54	0.06	–0.03
1878	8.31	15.53	1.87	4.69	14.80	11.91	8.79	0.08	1.70
1879	8.82	20.08	2.28	4.48	19.58	17.16	9.42	0.18	1.15
1880	9.33	19.70	2.11	5.03	19.05	16.52	9.48	0.14	1.79
1881	10.13	21.86	2.16	5.44	21.17	18.28	10.68	0.19	0.26

APPENDIX TABLE 5 (CONTINUED)
PROTECTION IN ITALY, VARIOUS SERIES (1862–1929)

Years	NT	TRI Baseline	TRI/NT	TRI Manufactures	TRI Primary Product	TRI Primary Product (- Exotics)	TRI Exotics	DWL/GDP	Var OTRI
1882	10.93	21.56	1.97	5.59	20.82	18.03	10.41	0.18	0.29
1883	11.24	23.52	2.09	5.70	22.82	20.21	10.60	0.23	0.45
1884	11.56	23.47	2.03	5.96	22.70	20.02	10.71	0.24	0.41
1885	10.86	29.45	2.71	6.34	28.76	25.48	13.34	0.36	1.15
1886	10.16	23.99	2.36	6.43	23.11	20.67	10.34	0.22	1.33
1887	12.63	27.45	2.17	8.20	26.20	24.40	9.55	0.35	1.22
1888	15.11	26.93	1.78	8.64	25.51	24.34	7.64	0.26	1.99
1889	16.31	30.79	1.89	9.00	29.44	28.60	6.98	0.40	0.38
1890	17.50	39.78	2.27	9.31	38.67	37.93	7.55	0.65	0.55
1891	18.41	46.20	2.51	9.62	45.19	44.20	9.40	0.78	0.65
1892	19.32	48.56	2.51	9.38	47.65	46.66	9.66	0.99	0.49
1893	20.22	50.06	2.48	9.41	49.17	48.25	9.48	1.10	0.60
1894	19.91	48.84	2.45	9.53	47.90	46.93	9.59	0.96	1.27
1895	19.60	49.13	2.51	9.46	48.21	47.46	8.45	1.05	0.85
1896	19.29	54.56	2.83	9.22	53.78	52.99	9.16	1.27	0.87
1897	18.98	62.20	3.28	9.70	61.44	60.70	9.54	1.64	0.98
1898	17.40	55.82	3.21	8.64	55.15	54.46	8.72	1.67	–0.33
1899	15.83	46.27	2.92	9.13	45.36	44.43	9.15	1.15	–0.36
1900	14.25	37.37	2.62	7.99	36.51	35.13	9.94	0.85	–0.34
1901	13.87	34.13	2.46	7.10	33.38	31.50	11.05	0.68	0.16

1902	13.49	35.17	2.61	6.63	34.54	32.15	12.62	0.66	0.24
1903	11.94	28.72	2.40	6.14	28.05	24.63	13.42	0.42	–1.33
1904	10.40	25.48	2.45	6.49	24.65	18.77	15.97	0.31	–1.14
1905	9.97	24.70	2.48	6.84	23.74	17.39	16.15	0.31	–0.38
1906	9.53	21.05	2.21	8.16	19.40	13.09	14.32	0.30	–0.29
1907	9.10	18.96	2.08	8.58	16.91	11.94	11.98	0.31	–0.20
1908	8.67	16.02	1.85	8.17	13.77	9.23	10.22	0.25	–0.25
1909	9.13	15.18	1.66	7.09	13.42	10.08	8.86	0.22	–0.19
1910	9.58	14.82	1.55	6.80	13.18	10.24	8.30	0.20	–0.17
1911	9.54	15.12	1.58	6.49	13.65	10.49	8.75	0.18	–0.23
1912	9.50	16.30	1.71	9.65	13.13	10.42	7.98	0.23	–0.20
1913	9.46	15.60	1.65	9.31	12.52	9.91	7.65	0.19	–0.30
1914	8.71	15.24	1.75	8.96	12.32	8.65	8.78	0.15	–0.74
1915	7.95	16.43	2.07	5.55	15.46	11.05	10.81	0.19	–0.57
1916	7.19	16.07	2.23	8.13	13.86	9.85	9.74	0.24	–0.92
1917	6.44	15.26	2.37	10.00	11.52	7.75	8.53	0.26	–0.92
1918	5.68	15.29	2.69	9.03	12.33	6.39	10.55	0.19	–1.98
1919	4.92	12.15	2.47	5.74	10.71	5.49	9.19	0.11	–1.16
1920	4.17	10.42	2.50	4.62	9.34	5.49	7.56	0.10	–0.85
1921	5.58	13.48	2.41	6.58	11.76	4.99	10.65	0.12	2.22
1922	7.00	15.59	2.23	8.05	13.36	5.61	12.12	0.12	1.75
1923	8.41	17.65	2.10	9.88	14.62	6.17	13.26	0.15	1.49
1924	8.17	15.70	1.92	9.05	12.83	6.17	11.24	0.14	–0.52
1925	7.92	13.91	1.76	8.98	10.63	6.02	8.76	0.12	–0.74

APPENDIX TABLE 5 (CONTINUED)
PROTECTION IN ITALY, VARIOUS SERIES (1862–1929)

Years	NT	TRI Baseline	TRI/NT	TRI Manufactures	TRI Primary Product	TRI Primary Product (- Exotics)	TRI Exotics	DWL/GDP	Var OTRI
1926	8.66	14.21	1.64	8.14	11.65	7.14	9.20	0.11	0.57
1927	9.40	14.96	1.59	7.33	13.05	8.97	9.48	0.11	0.58
1928	10.15	15.30	1.51	6.98	13.61	10.51	8.65	0.13	0.47
1929	10.89	15.41	1.42	6.75	13.85	10.91	8.53	0.12	0.48

Note: For years in italic we computed unit values and tariff rates filling gaps in custom revenues between benchmark years (in italics) with linear interpolation.
Sources: Our own elaboration on FTV*plus* dataset.

APPENDIX TABLE 6
COINTEGRATED VAR, FULL RESULTS

ITALY (NT) 1862–1913 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}\mathbf{-0.330} \\ -0.407\end{bmatrix}(y + \mathbf{0.008}NT - \mathbf{0.010}t)_{t-1}$ + short run	AR: **14.658** [0.006] *N*: $\chi^2(4)$ = **223.089** [0.000] *J*: [0.75]
ITALY (TRI) 1862–1913 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}\mathbf{-0.331} \\ -4.758\end{bmatrix}(y + \mathbf{0.002}TRI - \mathbf{0.010}t)_{t-1}$ + short-run	AR: *8.305* [0.081] *N*: $\chi^2(4)$ = **30.015** [0.000] *J*: [0.88]
ITALY (NT) 1862–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}\mathbf{-0.272} \\ -1.525\end{bmatrix}(y + \mathit{0.005NT} - \mathbf{0.009}t)_{t-1}$ + short run	AR: 4.495 [0.343] *N*: $\chi^2(4)$ = **146.498** [0.000] *J*: [0.61]
ITALY (TRI) 1862–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}\mathbf{-0.292} \\ -3.724\end{bmatrix}(y + \mathbf{0.002}TRI - \mathbf{0.009}t)_{t-1}$ + short-run	AR: $\underline{11.130}$ [0.025] *N*: $\chi^2(4)$ = **15.937** [0.003] *J*: [0.77]
ITALY (NT) 1862–1906 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}\mathbf{-0.380} \\ -0.935\end{bmatrix}(y + \mathit{0.005NT} - \mathbf{0.009}t)_{t-1}$ + short run	AR: $\underline{12.077}$ [0.017] *N*: $\chi^2(4)$ = **162.069** [0.000] *J*: [0.82]
ITALY (TRI) 1862–1906 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}\mathbf{-0.380} \\ -6.390\end{bmatrix}(y + 0.001TRI - \mathbf{0.009}t)_{t-1}$ + short-run	AR: 6.991 [0.136] *N*: $\chi^2(4)$ = **20.281** [0.000] *J*: [0.94]
ITALY (NT) 1906–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}\mathbf{-0.956} \\ +5.470\end{bmatrix}(y - \mathbf{0.030}NT - \mathbf{0.011}t)_{t-1}$ + short run	AR: 2.595 [0.628] *N*: $\chi^2(4)$ = **23.065** [0.000] *J*: [0.84]
ITALY (TRI) 1906–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}\underline{-0.048} \\ \mathbf{+3.955}\end{bmatrix}(y - \mathbf{0.127}TRI - \mathbf{0.026}t)_{t-1}$ + short-run	AR: 6.347 [0.175] *N*: $\chi^2(4)$ = 1.783 [0.776] *J*: [0.86]
USA (NT) 1869–1913 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}-0.147 \\ \mathbf{+14.871}\end{bmatrix}(y - \mathbf{0.018}NT - \mathbf{0.023}t)_{t-1}$ + short-run	AR: 3.308 [0.508] *N*: $\chi^2(4)$ = **30.297** [0.000] *J*: [0.29]
USA (TRI) 1869–1913 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}-0.091 \\ \mathbf{-18.671}\end{bmatrix}(y + \mathbf{0.013}TRI - \mathbf{0.016}t)_{t-1}$ + short-run	AR: 4.623 [0.328] *N*: $\chi^2(4)$ = **44.032** [0.000] *J*: [0.37]
USA (NT) 1869–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta NT\end{bmatrix} = \begin{bmatrix}\mathbf{-0.462} \\ \underline{+14.000}\end{bmatrix}(y - \mathbf{0.009}NT - \mathbf{0.021}t)_{t-1}$ + short-run	AR: 4.594 [0.331] *N*: $\chi^2(4)$ = **25.031** [0.000] *J*: [0.19]
USA (TRI) 1869–1929 $\begin{bmatrix}\Delta \ln y \\ \Delta TRI\end{bmatrix} = \begin{bmatrix}\mathbf{-0.482} \\ +0.484\end{bmatrix}(y - 0.002TRI - \mathbf{0.018}t)_{t-1}$ + short-run	AR: 4.417 [0.353] *N*: $\chi^2(4)$ = **242.332** [0.000] *J*: [0.29]

Note: Bold = significant at 1 percent level; underline = significant at 5 percent level; italic = significant at 10 percent level. As for the second column of the table, P value in square bracket. AR 1–2 test is a VEC residual X^2 LM test; *N* is Jarque–Bera normality test; *J* is Johansen cointegration test for r = 1.
Sources: Our own elaboration on FTV*plus* dataset for Italy and on Irwin (2010) for United States.

REFERENCES

Allen, Robert C. *Global Economic History. A Very Short Introduction*. Oxford: Oxford University Press, 2011.

Anderson, James. "Tariff-Index Theory." *Review of International Economics* 3, no. 2 (1995): 156–73.

Anderson, James, and Peter Neary. *Measuring the Restrictiveness of International Trade Policy*. Cambridge, MA: MIT Press, 2005.

Bachi, Riccardo. *L'Italia economica nel* ... Milano-Roma-Napoli: Società Dante Alighieri, 1914–1922.

Baffigi, Alberto, Broadberry Stephen, Claire Giordano, et al. "Data Appendix – Italy's National Accounts (1861–2010)." In *The Oxford Handbook of the Italian Economy Since the Unification*, edited by Gianni Toniolo, 631–712. Oxford: Oxford University Press, 2013.

Bai, Jushan, and Pierre Perron. "Computation and Analysis of Multiple Structural Change Models." *Journal of Applied Econometrics* 18, no. 1 (2003): 1–22.

Bairoch, Paul. "European Trade Policy 1815–1915." In *The Cambridge Economic History of Europe*. Vol. 8. *The Industrial Economies: The Development of Economic and Social Policies*, edited by Peter Mathias and Sidney Pollard, 1–160. Cambridge: Cambridge University Press, 1989.

Beaulieu, Eugene, and Jevan Cherniwchan. "Tariff Structure, Trade Expansion and Canadian Protectionism, 1870–19102." *Canadian Journal of Economics/Revue Canadienne d'economique* 47, no. 1 (2014): 147–72.

Board of Trade (ad annum). *Statistical Abstract for the Several Colonial and Other Possessions*…. Later *Statistical Abstract for the British Empire. Trade and Commerce Section*. London: His Majesty Stationery Office.

Broadberry, Stephen, Claire Giordano, and Francesco Zollino. "Productivity." In *The Oxford Handbook of the Italian Economy Since the Unification*, edited by Gianni Toniolo, 187–226. Oxford: Oxford University Press, 2013.

Broda, Christian, and David E. Weinstein. "Globalization and the Gains from Variety." *The Quarterly Journal of Economics* 121, no. 2 (2006): 541–85.

Capie, Forrest. "Tariff Protection and Economic Performance in the Nineteenth Century." In *Policy and Performance in International Trade*, edited by John Black and Alan Winters, 1–24. Basingstoke: Macmillan, 1983.

Carter, Susan B., Scott Sigmund Gartner, Michael R. Haines, et al. *Historical Statistics of the United States: Millennial Edition.* Cambridge: Cambridge University Press, 2006.

Chalmin, Philippe G. "The Important Trends in Sugar Diplomacy before 1914." In *Crisis and Change in the International Sugar Economy 1860–1914*, edited by Bill Albert and Adrian Graves, 9–19. Norwich and Edinburg: ISC Press, 1984.

Chen, Bo, and Hong Ma. "Trade Restrictiveness and Deadweight Loss in China's Imports." *Frontiers of Economics in China* 7, no. 3 (2012): 478–94.

Chen, Bo, Hong Ma, and Yuan Xu. "Measuring China's Trade Liberalization: A Generalized Measure of Trade Restrictiveness Index." *Journal of Comparative Economics* 42, no. 4 (2014): 994–1006.

Clemens, Michael, and Jeffrey G. Williamson. "Why Did the Tariff-Growth Correlation Change after 1950?" *Journal of Economic Growth* 9, no. 1 (2004): 5–46.

Cohen, Jon, and Giovanni Federico. *The Economic Development of Italy*. Cambridge: Cambridge University Press, 2001.

Coppa, Frank J. "The Italian Tariff and the Conflict between Agriculture and Industry: The Commercial Policy of Liberal Italy, 1860–1922." *Journal of Economic History* 30, no. 4 (1970): 742–69.

Corbino, Epicarmo. *Annali dell'economia italiana*. 5 vols. Città di Castello, 1931–1938.

De Stefani, Alberto. *La legislazione economica della Guerra*. Bari: Laterza, 1926.

Del Vecchio, Edoardo. *La via italiana al protezionismo*. Roma: Camera dei Deputati, 1979.

Federico, Giovanni. "Una stima del valore aggiunto dell'agricoltura italiana." In *I conti economici dell'Italia. 3** Il valore aggiunto 1891, 1938 e 1951*, edited by Guido M. Rey, 4–112. Bari: Laterza, 2002.

———. "Protection and Italian Economic Development: Much Ado about Nothing?" In *Classical Trade Protectionism 1815–1914*, edited by Jean-Pierre Dormois and Pedro Lains, 193–218. London and New York: Routledge, 2006.

Federico, Giovanni, Sandra Natoli, Giuseppe Tattara, et al. *Il commercio estero italiano 1861–1939*. Bari: Laterza, 2012.

Federico, Giovanni, and Kevin O'Rourke. "Much Ado about Nothing? The Italian Trade Policy in the 19th Century." In *The Mediterranean Response to Globalisation before 1950*, edited by Jeffrey G. Williamson and Sevket Pamuk, 269–96. London: Routledge, 2000.

Federico, Giovanni, and Antonio Tena-Junguito. "Was Italy a Protectionist Country?" *European Review of Economic History* 2, no. 1 (1998): 73–97.

———. "Did Trade Policy Foster Italian Industrialisation? Evidences from Effective Protection Rates, 1870–1830." *Research in Economic History* 19 (1999): 111–30.

———. "A Tale of Two Globalizations: World Trade and Openness, 1800–2010." Mimeo, 2015a.

———. "Lewis Revisited: Tropical Polities Competing on the World Market, 1830–1938." Mimeo, 2015b.

Federico, Giovanni, and Michelangelo Vasta. "Was Industrialization an Escape for the Commodity Lottery? Evidence from Italy 1861–1939." *Explorations in Economic History* 47, no. 2 (2010): 228–43.

———. "What Do We Really Know about Protection before the Great Depression: Evidence from Italy." CEPR Discussion Paper No. 10522, 2015.

Federico, Giovanni, and Nicholaus Wolf. "Comparative Advantage: A Long-Run Perspective." In *Handbook of Italian Economic History Since the Unification*, edited by Gianni Toniolo, 327–50. Oxford: Oxford University Press, 2013.

Feenstra, Robert C. "Estimating the Effects of Trade Policy." In *Handbook of International Economics*. Vol. 3, edited by Gene Grossman and Kenneth S. Rogoff, 1553–95. Amsterdam: Elsevier, 1995.

Fenoaltea, Stefano. "Il valore aggiunto dell'industria italiana nel 1911." In *I conti economici dell'Italia. 2 Una stima del valore aggiunto nel 1911*, edited by Guido M. Rey, 105–90. Bari: Laterza, 1992.

Fenoaltea, Stefano, and Carlo Bardini. "Il valore aggiunto dell'industria." In *I conti economici dell'Italia. 3** Il valore aggiunto 1891, 1938 e 1951*, edited by Guido M. Rey, 114–228. Bari: Laterza, 2002.

Giretti, Edoardo. *I trivellatori della nazione italiana*. Roma: Libreria politica moderna, 1903.

Irwin, Douglas. “Trade Restrictiveness and Deadweight Losses from U.S. tariffs.” *American Economic Journal: Economic Policy* 2, no. 3 (2010): 111–33.

Jacks, David. “New Results on the Tariff-Growth Paradox.” *European Review of Economic History* 10, no. 2 (2006): 205–30.

James, Harold, and Kevin O’Rourke. “Italy and the First Age of Globalization 1861–1940.” In *The Oxford Handbook of the Italian Economy Since the Unification*, edited by Toniolo Gianni, 37–68. Oxford: Oxford University Press, 2013.

Kee, Hiau Looi, Alessandro Nicita, and Marcelo Olarreaga. “Import Demand Elasticities and Trade Distortions.” Policy, Research Working Paper WPS No. 3452, Washington, DC: World Bank, 2004.

———. “Import Demand Elasticities and Trade Distortions.” *Review of Economics and Statistics* 90, no. 4 (2008): 666–82.

———. “Estimating Trade Restrictiveness Indices.” *Economic Journal* 119, no. 534 (2009): 172–99.

———. “Is Protectionism on the Rise? Assessing National Trade Policies during the Crisis of 2008.” World Bank Policy Research Paper No. 5274, online database (2010). http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:22574446~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html (accessed 11 November 2011).

Lampe, Markus, and Paul Sharp. “Tariffs and Income: A Time Series Analysis for 24 Countries.” *Cliometrica* 7, no. 3 (2013): 207–35.

Lehmann, Sybille, and Kevin O’Rourke. “The Structure of Protection and Growth in the Late 19th Century.” *Review of Economics and Statistics* 93, no. 2 (2011): 606–16.

Lloyd, Peter. “100 Years of Tariff Protection in Australia.” *Australian Economic History Review* 48, no. 2 (2008): 99–145.

Lloyd, Peter, and Donald MacLaren. “Partial and General-Equilibrium Measures of Trade Restrictiveness.” *Review of International Economics* 18, no. 5 (2010): 1044–57.

Mitchell, Brian R. *International Historical Statistics: Europe 1750–2005*. London: Palgrave, 2007.

Movimento Commerciale del Regno d’Italia. Rome: Ministero delle Finanze, *ad annum*.

O’Rourke, Kevin. “Tariffs and Growth in the Late 19th Century.” *Economic Journal* 110, no. 463 (2000): 456–83.

Parravicini, Giannino. *La politica fiscale e le entrate effettive del Regno d’Italia 1860-1890*. Torino: ILTE, 1958.

Pritchett, Lant, and Geeta Sethi. “Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts.” *World Bank Economic Review* 8, no. 1 (1994): 1–16.

Schularick, Moritz, and Solomos Solomou. “Tariffs and Economic Growth in the First Era of Globalization.” *Journal of Economic Growth* 16, no. 1 (2011): 33–70.

Stern, Robert, Jonathan Francis, and Bruce Schumacher. *Price Elasticities in International Trade*. London: Macmillan, 1976.

Tattara, Giuseppe. “An Example of Countertrade: The Anglo-Italian Clearing.” *Rivista di storia economica* 2, International issue (1985): 115–54.

Tena-Junguito, Antonio. "Un nuevo perfil del proteccionismo español durante la Restauración 1875–1930." *Revista de Historia Económica/Journal of Iberian and Latin American Economic History* (Second Series) 17 (1999): 579–620.
Vamvakadis, Athanasios. "How Robust Is the Growth-Openness Connection? Historical Evidence." *Journal of Economic Growth* 7, no. 1 (2002): 57–80.
Vasta, Michelangelo. "Italian Export Capacity in a Long Run Perspective (1861–2009): A Tortuous Path to Stay in Place." *Journal of Modern Italian Studies* 15, no. 1 (2010): 133–56.
Williamson, Jeffrey G. *Trade and Poverty. When the Third World Fell Behind*. Cambridge, MA: MIT Press, 2011.
Yates, Paul L. *Forty Years of Foreign Trade*. London: George Allen and Unwin, 1959.
Zamagni, Vera. *An Economic History of Italy*. Oxford: Oxford University Press, 1994.