

Classical Trade Protectionism 1815–1914

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6 Assessing the protectionist intensity of tariffs in nineteenth-century European trade policy¹

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The relation between trade policy and growth is a fundamental question that requires an answer based on empirical evidence. Measuring the level of protection in an economy through time and across countries is the main problem with which researchers have been struggling when trying to answer this question. Economic historians and development economists still depend on the traditional and theoretically poorly based measures of protection as the best available instruments to study empirically the relation between trade and growth in the long run.³ The trade-weighted average tariff is the most widely known measure to isolate the effect of tariff policies from that of other policies and provides a very convenient index of protection across time because it is easily calculated as the ratio of tariff revenues over import values.⁴

The motivation of the present work is the abundant recent empirical research using *ad valorem* tariffs rates as a single measure to establish a correlation between growth and trade policy in the long run (Clemens and Williamson, 2001; Irwin, 2002; Vamvakidis, 2002; Dejong-Ripoll, 2005; O'Rourke, this volume, Chapter 7).⁵ Positive cross-country correlations found between tariffs average and growth during the years of 'the return to protection' (1880–1913) strengthened the traditional good reputation between protection and growth.⁶ This chapter discusses some faults that make the use of average tariff to establish a causal relationship between tariff and growth especially vulnerable, as well as the implications for nineteenth-century European commercial policy.

First, there are a number of luxury consumer products which has represented a substantial share of total trade since the sixteenth century, most of them traded from tropical countries and heavily taxed, especially in Europe, for fiscal reasons and mainly because their low elasticity of demand allowed for increases in tariffs and more revenue.⁷ The inclusion of this kind of product in protection measures for the nineteenth century hinges on the specification of demand and, in particular, on how these 'exotic' products should be treated. The revenue tariff impacts mainly on consumer income and government revenue, and its economic effect is similar to that of a 'sales tax' over certain luxury products such as tobacco

or gasoline. The prevalence of the so-called fiscal products and their changing weight over time makes this point important in the analysis of the comparative evolution of international trade policies, especially in Europe.

Second, the well-known 'index number problem' of the tariff import weighted average usually biases downwards the weight of the most protected importables. The extent of the bias depends on the height of the current tariff rate and on the elasticity of imports of the most heavily taxed goods.⁸ From the first it follows that a country, which imposed prohibitive tariffs on all goods but one (imported free) would appear less protectionist than another, which raised a uniform 5 per cent duty. The generally more elastic demand for manufactures implies a systematic downward bias, in tariffs averaging, for industrial goods vis-à-vis agricultural and fiscal commodities. This bias is especially conspicuous for those periods and countries in which revenue products reduced or increased their share in total imports at the expense of manufactures. For instance, a tariff increase on manufactured goods introduces a downward bias in the Spanish average index of protection, and an increase in revenue tariffs biases the Italian tariff average index upwards so much as to radically change the respective trade policy as well as tariff growth correlations for both countries.

This chapter puts the various criticisms of the use of tariff average to the test with regard to the tariff growth debate or the qualification of European commercial policies in the nineteenth century. The first section discusses Nye's provocative statement of French commercial policy being more free trade than the UK's prior to 1880, and points out the implications of some assumptions on the influence of exotic products in computing the tariff average for both countries. The second section estimates the level and changing share of fiscal products in other European countries, and their relevance for a comparative evaluation of commercial policy in the last quarter of the nineteenth century. The third section tackles the index number problem in the averaging operations of conventional tariffs and attempts to measure the import contraction effect of the Spanish and Italian tariffs and its influence during the years of the 'Return to protection'. Concluding remarks emphasise the importance of taking account of the changing weight of the so-called fiscal products for an evaluation of trade policy, of scrutinising the index number problem for periods and countries with both high levels of protection and a sizeable share of manufactured imports. All the evidence at hand advises caution in the use of the conventional average tariffs and suggests the estimation of alternative manufacture, agrarian and fiscal tariff rates by countries as a necessary contribution for a better understanding of the tariff growth debate.

A 'cautionary tale': fiscal Britain versus protectionist France

A revenue tariff mainly affects consumer income and government revenue, while its general economic effect is more similar to a 'sales tax' over certain 'luxury' goods. In theory, there are no pure fiscal tariffs, neither are there pure protective ones. However, those which have a small elasticity of demand (so-called fiscal goods) have a much more limited impact on welfare and import substitution than those with high elasticity.⁹ Generally, fiscal commodities are those with no direct domestic substitutes.¹⁰ The assumption is that a low elasticity of demand is a consequence of the absence of clear domestic substitutes (elasticity of substitution close to zero), even if this also depends on the size of the home market and its stage of development (see Krueger, 1997; O'Rourke, 1997; Irwin, 1998). In the absence of specification on demand elasticity, we will make the assumption that fiscal products are the commodities that yield the highest revenue and have no obvious domestic substitutes.

The share of revenue products in the nominal protection average index is part of a recent debate about the comparative trade policy experience in France and the United Kingdom during the nineteenth century (see the debate between Irwin and Nye above, Chapters 1–3). Nye's main proposition is that the comparative examination of the average nominal protection index of both countries supports the argument of a freer trade policy in France relative to the UK, especially between 1840 and 1880. This observation is reinforced when applying the tariff rates by commodity class to the import distribution of another period close to free trade as a way to test the average tariff index. After examining some other qualifications on the robustness of tariff rates for Britain and France, Nye refuses to accept that there is an economic argument in distinguishing between the protectionist effect of fiscal tariffs in the United Kingdom and that of tariffs on manufactures which accounted for most of French protectionism. In either case, in Britain as in France, the tariff was designed so as to offset imports in which both countries suffered a comparative disadvantage. Irwin argues that the large share of revenue tariffs during this period is responsible for an upward bias in the British tariff rate. In the United Kingdom, fiscal tariffs bore proportionately more on exotic products not produced at home: customs duties constituted 'an extension of the domestic excise system, levied only on a select number of commodities to raise fiscal revenue without discriminating against foreign goods in favor of domestic goods'.¹¹ This would apply to brandies or even beer, for which a dutiable excise was designed to offset wine duties. Nevertheless, we ignore by how much the difference between the French and British average tariff is due to the presence of revenue products. In his reply, Irwin puts forward convincing qualitative arguments but no consistent quantitative evidence. As a result, the share of the revenue tariffs in the average index emerges as the main point of contention resolving the Nye–Irwin debate.

Figures 6.1 and 6.2 visualise the quantitative evidence at hand to cast some light on the relative weight of fiscal duties in British and French protectionism. Nye argues that exotic foodstuffs and alcoholic beverages in the British tariff were used as an important source of revenue, but the tariffs levied on these commodities necessarily induced some form of protection for direct and indirect substitutes. Fiscal tariffs must have distorted domestic production and consumer welfare in Britain, as the protection of textiles manufactures did in France. On the basis of this observation, Nye insists that Figure 6.1 represents acceptable quantitative evidence of the relative protectionist stance of both countries and supports the provocative argument that France enjoyed freer trade than Britain between the repeal of the Corn Laws in the 1840s and the turn to protection in France in the 1880s.

Figure 6.2, by contrast, illustrates the conventional and widely accepted argument put forward recently by Irwin that British protection from the 1840s onwards was mainly of a fiscal character. When leaving aside the main fiscal products in dispute (tea, tobacco, sugar, coffee, wine and spirits), there is no question that Britain emerges as the country enjoying comparatively freer trade – as the traditional view would have it. Irwin insists that British tariffs on wine and spirits were ‘carefully constructed to avoid protecting domestic producers’.¹² Tariffs on wine and foreign spirits were required to allow British domestic producers of beer and spirits, who were taxed with an excise, to compete, on equal terms, with these imported foreign beverages. As a result, tariffs on brandies and even on wines did not have a protective effect on domestically produced beverages and should be treated as fiscal products like colonial imports such as tea, sugar, tobacco and coffee.

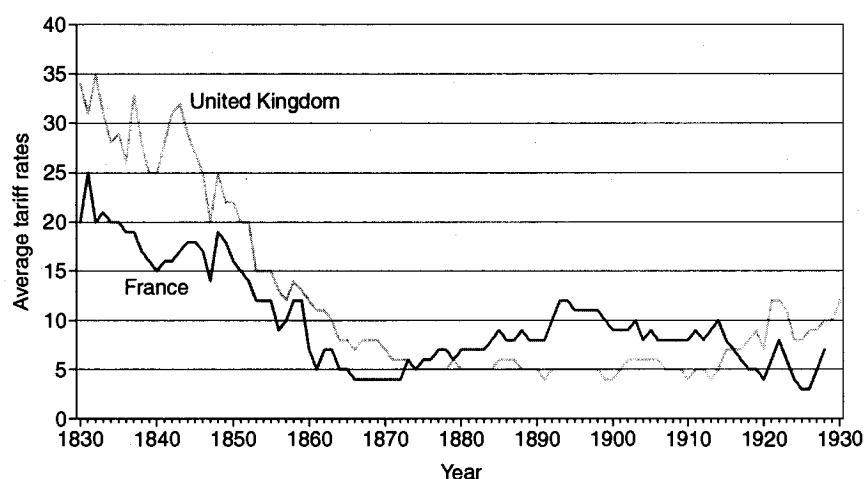


Figure 6.1 Average tariff rates in Britain and France, 1830–1930.

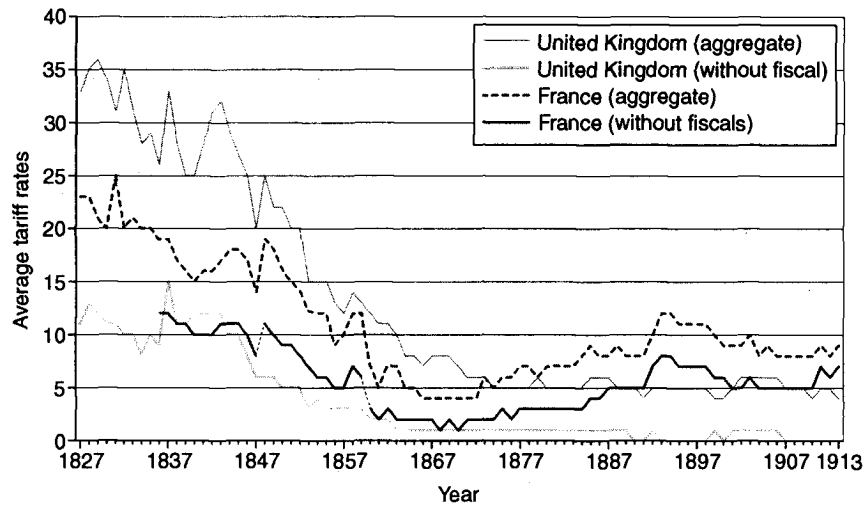


Figure 6.2 Average tariff rates in France and the United Kingdom (aggregate and without main fiscal duties).

Neither Irwin nor Nye pay much attention to the growing share of fiscal products in French tariff revenues during the period in question. The share of colonial imports such as cocoa, coffee and sugar represented in France over 40 per cent of the average tariff rate index in the second half of the 1840s and surged to 60 and 70 per cent in the 1860s and 1870s. France's trend of nominal protection was therefore strongly influenced by fiscal tariffs as well. To be meaningful, a comparison requires taking account of the incidence of revenue products in the averaging operation of French tariffs.

Figure 6.3 charts this compromise in which spirits are excluded on account of the excise tax offsetting protection of domestic brandies production (as suggested by Irwin), but wine is included and considered a protected good, because the excise beer did not fully compensate for the wine duty (as Nye insists). With this new British rate of protection, we repair to familiar ground: Britain appears to have been more protectionist than France before the 1840s but this decade represents a complete turnaround in the country's commercial history – reducing protection by half in the space of a mere six years, when her main partner, France, was holding the line. This shows that, while earlier moves towards freer trade had been conditioned by an insistence on reciprocity, from the 1840s onwards British trade policy tended to be unilaterally determined. The 1846 repeal of the Corn Laws appears to have been instrumental in the fall of the index, even if tariff reductions were introduced in the early 1840s. French tariff reductions gathered momentum only at the turn of

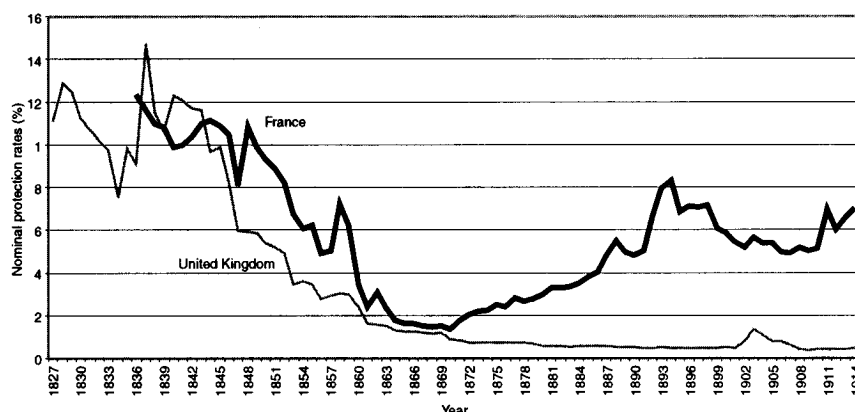


Figure 6.3 A compromise aggregate tariff rate for Britain and France excluding fiscal goods, 1827–1913.

the decade, and were less dramatic than in Britain. During the 1850s, the average French tariff level was almost double the British one, and converged only significantly after the 1860s, a trend which persisted to the 1870s. The French backlash against liberalisation built up in the 1870s and culminated in the early 1890s with the passing of the Méline tariff.

One can hope to disentangle the fiscal from the protective impact of tariffs, first, by excluding the respective four main revenue products in each country and, second, by removing spirits and wine, the two controversial British excisable goods. The outcome of the first operation exhibits a similarity in both levels and trend between the two countries since the 1840s. France appears to have been more liberal than Britain before the abolition of the Corn Laws. The much-praised British liberalising measures resulted in an average tariff rate slightly lower than that of French, its rival by the 1860s; by the early 1880s, however, both countries exhibited almost identical levels of protection. Following the Cobden–Chevalier Treaty, France’s liberalising efforts resulted in an even lower rate of protection than that observed across the Channel.

Excluding wine and spirits duties takes us back to the conventional wisdom defended by Irwin. Here, the controversial wine and spirits and their adjacent duties are removed from the computation of the average tariff rate. Prime Minister Peel’s reforms of the 1840s caused a steep reduction in the British tariff rate, both in absolute terms and in relation to the French rate. France followed in the footsteps of Britain during the 1850s, and the Cobden–Chevalier 1860s triggered faster liberalisation in France; meanwhile the UK remained ahead in the free-trade league for the rest of the nineteenth century.

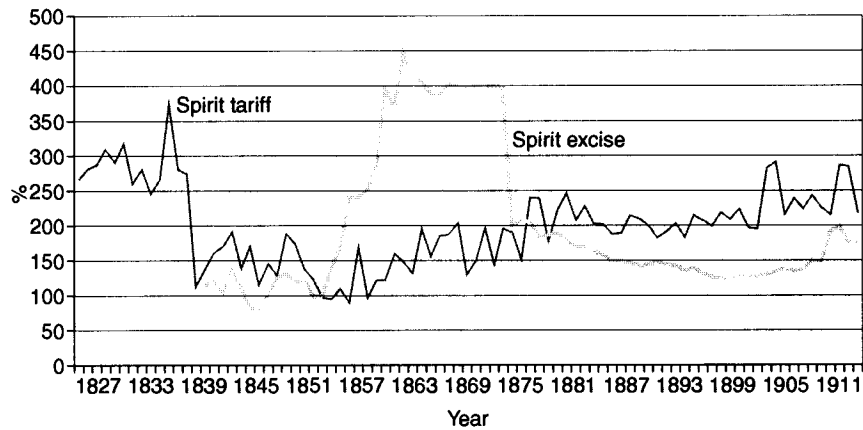


Figure 6.4 (a) Rate of excise and *ad valorem* tariff on spirits 1827–1913.

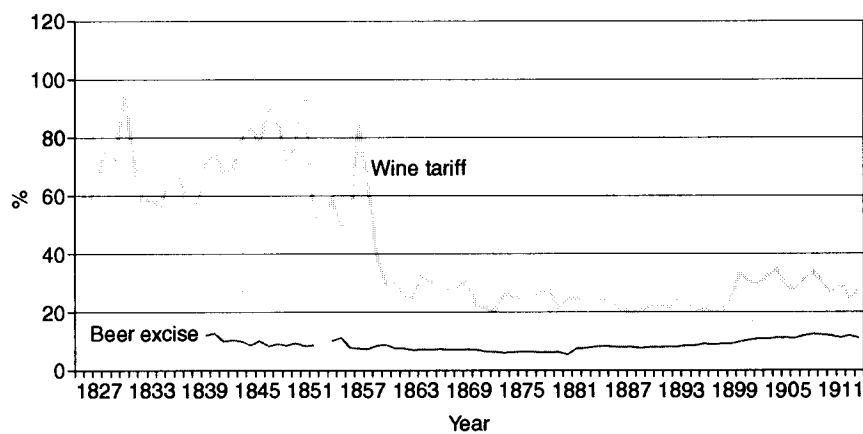


Figure 6.4 (b) Rate of excise on beer *ad valorem* tariff on wine 1827–1913.

As a result, the wine, rum and brandy tariffs, and the excise on their domestic substitutes, beer and spirits, appear crucial in this debate. Figure 6.4a provides some additional evidence charting the *ad valorem* spirit duty and its respective *ad valorem* rate of excise over the period 1840 to 1913. The spirit tariff fell by half from the 1830s to the 1840s, and hovered during the 1840s a cut above the excise ratio. Only in the second half of the 1850s did this trend undergo an upturn, resulting in the rate of excise being at least twice as high as the tariff rate during the next two decades.

Figure 6.4b offers a graphic representation of the relation between the wine tariff and the beer excise ratios over time. Before 1850, the wine duty stood more than four-times higher than the rate of excise on beer (its main substitute produced in the United Kingdom).

In the second half of the 1850s, the excise was reduced steeply in accordance with the Cobden–Chevalier negotiations. From the 1860s the wine duty always appears close to double the beer excise. As a result, the evidence assembled here encourages the adoption of a reasonable compromise between Nye’s and Irwin’s positions. The wine duty seems to have been independent of beer excise and may have influenced domestic beer production, and could therefore be regarded as protective; by contrast, the spirit excise seems to have consistently offset its tariff duty on imported spirits and could be regarded as purely fiscal.

With the use of a CGE model, O’Rourke reached a similar conclusion on the Nye–Irving debate: ‘If wine, rum and brandy are not treated as exotic, but are assumed to be as substitutable with British goods as imported wheat or timber, then Nye is spectacularly right’ (see O’Rourke in Chapter 4, p. 63). O’Rourke, however, did not consider the special case of excisable exotic goods. With evidence on fiscal duties and rates of excise, we should retain Nye’s contention of the protectionist effect of the British wine duty but push its significance on overall protection back in time (before the 1840s); on the whole, this scenario is reconcilable with the mainstream view of British trade policy.¹³ Furthermore, his provocative claim should encourage the use of caution when dealing with overall tariff rates and calls for more attention to be paid to the fiscal products when evaluating average protection rates on the basis of customs revenues.

The role of revenue and protective tariffs in nineteenth-century trade policy

The previous section discussed the absence of a clear economic criterion to isolate purely fiscal tariffs from protective and discriminatory ones, but suggests that tariff rates excluding exotic products would probably provide a better indicator of trade restrictiveness than the commitments negotiated at the multilateral and bilateral level among Europe’s main trading partners. In this section we offer additional evidence on how exotic products without obvious substitutes, such as sugar, cocoa, tea or coffee, represented a significant fraction of European imports and try to assess the relevance of this distinction for evaluating nineteenth-century trade policies.

A general impression

Figure 6.5 documents the changing impact of fiscal products on the overall tariff rate in some core European countries during the nineteenth century.¹⁴ For the United Kingdom, fiscal revenues in a context of falling protection accounted for between 40 to 80 per cent of the total, the trend exhibiting a growing cyclical pattern from the 1820s to the First World War.

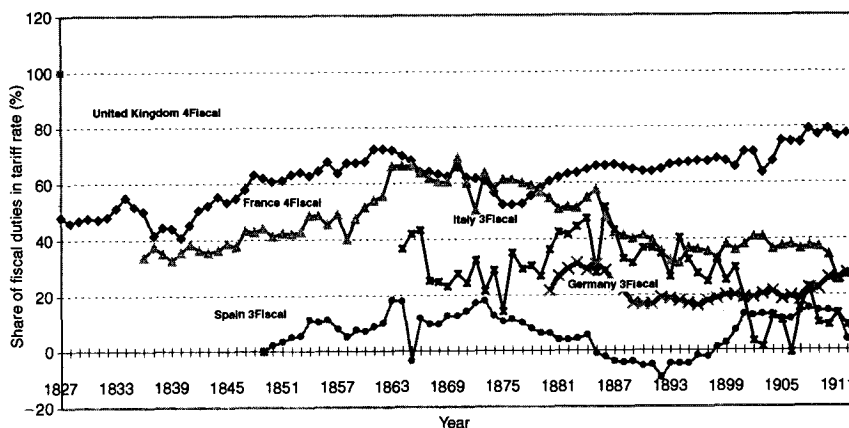


Figure 6.5 Share of fiscal in total tariff revenue for main European countries, 1827–1913.

In the case of France, this share increased from 35 per cent in the 1830s to 70 per cent at the end of the 1870s, before falling again to about 40 per cent at the turn of the twentieth century, when general protection spread across the trade classification. Germany, by contrast, exhibits a more moderate and constant influence of exotic products in its tariff rate with a cyclical pattern undulating in the 20–30 per cent range. The share of exotic goods in the overall tariff rates of Spain and Italy experienced a trend reversal around 1870. Fiscal products became more prevalent in Italy's tariff revenue while Spain experienced the reverse during the years of return to protection between 1875–1900 (they ranged from –5 (below average) to 20 per cent for the former, to 20–60 per cent for the latter).

Was Germany first?

On the basis of these observations we are led to amend our perception of the comparative history of European protectionism. As Figure 6.6 illustrates, Germany's overall tariff rate over the period 1880–1914 does not seem to match the received account of German trade policy, as presented by Bairoch (1989), especially with respect to France's own during the same period.

On the basis of the tariff rate charted in Figure 6.6, it seems indisputable that Germany was not the forerunner in the return to protection in Continental Europe as the early adoption of the July 1879 Bismarck tariff would have us believe. The French backlash against globalisation materialised at least as early and more dramatically than the

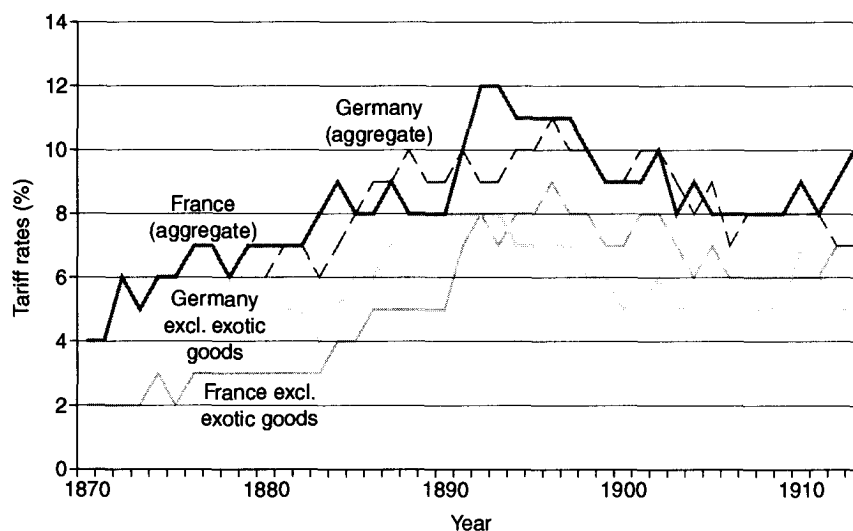


Figure 6.6 French and German average tariff rates with and without fiscal goods, 1870–1913 (sources: own database).

German one, reaching a significantly higher level during the first half of the 1890s. Afterwards, both countries exhibited a similar decreasing protection level until the First World War, reflecting the incidence of the general price increase on *ad valorem* equivalents of unchanged (specific) duties.

Once exotic products are excluded from the average tariff, however, an alternative history appears, as Figure 6.6 illustrates. Here, Germany's precocity in introducing protection in the 1880s is clearly identifiable, showing levels almost twice as high as the French equivalents at the end of decade. Only for a short time span of two years after the passing of the Méline tariff in 1892 and apparently more steadily after the tariff revision of March 1910, was the French average tariff above the German. Between the two dates, the German average was steadily above its French counterpart, a scenario more in tune with the standard narrative of the Return to protection.

Spanish versus Italian protectionism

The last cautionary tale about the influence of fiscal products on tariff rates is illustrated by the commercial history of two peripheral countries: Spain and Italy. Italy during the twenty years after its unification remained a virtually free-trade country; meanwhile, in Spain, a shorter and more

doubtful free-trade period started in the mid-1860s to be cut short by the adoption of the July 1877 tariff which displayed for the first time the double tariff (general and conventional) that was to be adopted by many other European countries in the following years. Subsequently, the Italian tariff, passed in 1878, while still relatively moderate, preceded the 1879 German tariff. Most scholars concur that it was not before the 1887 tariff that Italy adopted a decisively protectionist policy and, for Spain, not before the Canovas Law of 1892. The Italian 1887 tariff brought into force a new duty on wheat and some manufactured goods that caused an open trade war with France, then Italy's main trading partner. The 1887 tariff lasted officially more than three decades, although it underwent some minor amendments. From the mid-1890s, the country's overall level of protection fell as price inflation reduced the incidence of specific duties on the tariff rate. Spain's 1892 protectionist tariff also caused a tariff war with France and Germany. In addition, the loss of her remaining colonies (Cuba, the Philippines and Puerto Rico) in 1898 amputated her export markets and induced, in both government and the public, a pessimism which, in turn, led to calls for increased protectionism that materialised in the new 1906 tariff.¹⁵

On the basis of this qualitative evidence, historians have assumed that both countries conducted broadly similar trade policies. A look at the respective tariff rates partially confirms this conventional wisdom, at least for the years of the return of protection. Protection appears to have been on the ascendant in Italy from the late 1870s onwards, but it is not until the late 1880s that its overall tariff rate caught up and overtook the Spanish level which was itself on an upward slope. Likewise, the downturn in both Italy and Spain occurred in the mid-1890s while the overall rate hovered around the 12 per cent mark during the first decade of the twentieth century. As a result, the Spanish protection index does not seem to fit with the idea of a temporary return to protection as the Italian one does; it appears to be more of a structural feature of the Spanish economy from the second half of the 1870s onwards. However, from the mid-1880s to the early 1900s, Italy exhibited a superior average tariff level than Spain.

During the years of the 'return of protection', three consumer goods (sugar, coffee and oil) yielded around half of total customs revenue in Italy, while in Spain the three main revenue earners (cod, coffee and oil) accounted for only one-fifth of the total (and all colonial goods for a quarter). As Figure 6.7 illustrates, the combined weight of the three main exotic products in the average tariff was much heavier in Italy than in Spain, while the trend of this change was practically the reverse in either country.

Figure 6.7 shows that, in excluding three main exotic products, the Italian free-trade period can easily be extended until the 1887 tariff (its tariff rate culminating at 6 per cent). The upward trend in protection is much less impressive than when fiscal products are included, with peaks

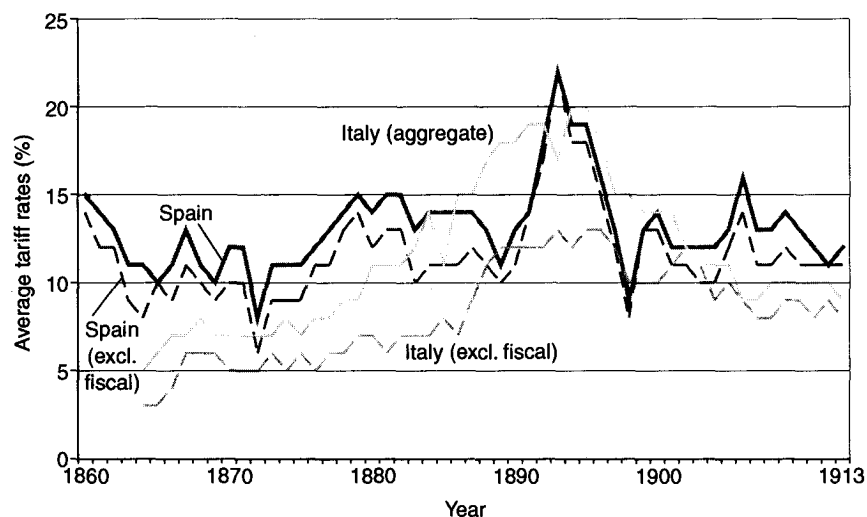


Figure 6.7 Spanish and Italian average tariff rates with and without fiscal goods, 1870–1913 (sources: own database).

over 10 per cent during the 1890s. The direct implication is that one cannot understand the structure of Italian duties without taking into account the fiscal side of the issue. The increased importance of Italian fiscal duties is noticeable from the late 1870s onwards, and buoyed custom revenues significantly in the following years without affecting imports substantially. Fiscal protection accounted for about three-quarters of the rise in total protection from 1877 to 1897 (Federico and Tena, 1998, Table 1). In Spain, the main fiscal duties were imposed after the 1898 Cuban war, following the fiscal reforms of Fernandez Villaverde in 1899, when taxation of colonial goods increased substantially. Nevertheless, while enhanced fiscal tariffs affected the domestic price of these goods, they did not alter significantly the trend and level of Spanish overall protectionism, because of their small share in total imports. Comparing both countries' nominal protection rates for the crucial 1890s reveals an increase in aggregate protection of comparable magnitude. But the increment in Italian protection was mainly due to the taxation of fiscal products, and the Spanish increase was mainly due to the introduction of a higher tariff on manufactured goods (Federico and Tena, 1998; 1999).

Industrial, fiscal tariffs and the classic index problem

A well-known index number problem plagues the computation of an accurate trade-weighted average tariff, which is usually biased downwards by the most protected goods. The extent of the bias depends on the

current tariff level and on the elasticity of demand for the major imports.¹⁶ While the Italian turn to protection is exaggerated by the prevalence of fiscal tariffs, there is a tendency to downplay Spanish protectionism on account of index number problems in measuring the incidence of any increase in the taxation of manufactured goods. The use of alternative indices suggests a much higher level for overall protection in Spain relative to Italy which has implications for the trade-growth relationship in the two economies.

The tariff average index

$$NT_t = \sum_{i=1}^n (Q_i^* T_{it}) / \sum_{i=1}^n (Q_i^* P_{it})$$

is a Paasche index that weights the duty on individual products by their respective share in total imports for any given year. A classic index number problem arises because when T_i increases M_i falls: a relatively small rise in duty collection can generate a relatively large fall in the quantity imported causing a downward bias (or index number problem) in NT overtime. The more elastic the demand for manufactured goods, the larger the downward bias for this class of goods vis-à-vis primary or exotic products in the computation of a tariff average. Off-setting this bias is especially necessary for those periods and countries in which exotic products reduced or increased their share in total imports in relation with manufactured goods.

In Table 6.1 we offer a comparative test on the robustness of the conventionally weighted (NT) and unweighted (UNT) tariff rates. We should expect the ratios (columns 5 and 6) to be below 1, the wider distance from 1 implying a bigger index number problem for the accuracy of the Nt conventional tariff rates. The evidence presented here reveals that, on the one hand, the Spanish NT/UNT ratio is, for each single year, and for both manufactured goods and total imports, always below 1 and systematically larger than in Italy; on the other hand, the downward bias

Table 6.1 Weighted (NT) and unweighted (UNT) tariff average for Spain and Italy 1877–1926

		<i>NT</i> <i>Spain</i>	<i>NT</i> <i>Italy</i>	<i>UNT</i> <i>Spain</i>	<i>UNT</i> <i>Italy</i>	<i>NT/UNT</i> <i>(Spain)</i>	<i>NT/UNT</i> <i>(Italy)</i>
1877	Total	12.7	7.3	17.7	6.8	0.72	1.07
	Industry	17.6	6.5	22.4	5.4	0.78	1.20
1889	Total	11.0	17.6	16.7	16.9	0.66	1.04
	Industry	13.8	16.9	17.6	15.6	0.78	1.08
1897	Total	14.6	18.5	26.3	16.1	0.55	1.15
	Industry	18.4	13.2	32.4	15.2	0.56	0.87
1913	Total	14.9	9.6	25.2	12.7	0.59	0.75
	Industry	15.5	9.3	23.6	11.9	0.66	0.78
1926	Total	15.5	11.9	26.6	13.7	0.58	0.87

Sources: Spain: Tena (1999); Italy: Federico and Tena (1998).

of the Spanish index looms larger for the years that follow the main tariff reforms (1897, 1913 and 1926); finally, the year with the largest divergence is 1897, which cannot be taken as a simple matter of chance since this year comes after the introduction of the 1892 tariff which stood for the adoption of decisively protectionist policies. Meanwhile, one notices no significant contraction of the ratios in the case of Italy (only for the final year 1913 did it fall below 0.8). Two factors account for the much smaller bias observed in this case relative to Spain during the period 1889–97; first, import substitution played a much bigger role for the most protected products – whether manufactured or primary – after the adoption of the Spanish 1892 tariff compared to the Italian 1887 tariff; second, the larger share of revenue products in the Italian tariff and hysteresis – the lower initial level of Italy's industrial tariffs – are probably responsible for a limited import substitution effect for both manufactured and overall imports.

In an attempt to evaluate the respective import substitution effect, we decompose the changes in tariff rates (NT_t) to measure the demand elasticity of imports as the ratio of quantity decline in relation to tariff and price changes.

Table 6.2 documents the breakdown in the change of the weighted average tariff rate (NT_t) based on the available information for the periods following the adoption of protectionist tariffs in 1887 and 1891. Italy's 'turn to protection', carried out from a situation of virtual free trade, appears more spectacular.

Besides, the comparative breakdown of the NT change with regard to tariffs, price and quantity imports reveals the order of magnitude of the index number problem for the overall and industrial tariff rates. Despite the steep increase in protection between 1877 and 1889, the Italian elasticity of import demand (0.26) was less than half that of Spain (0.53). This

Table 6.2 Decomposition of changes [$NT_t - NT_{t-1}$] in overall tariff rate during the turn to protectionism

<i>Spain 1897 relative to 1889</i>	<i>Tariff (1)</i>	<i>Price (2)</i>	<i>Quantity (3)</i>	<i>Import elasticity (4) = (3)/[(1) + (2)]</i>	<i>NT_t - NT_{t-1}</i>
Total	6.8	0.9	-4.1	-0.53	3.6
Industrial goods	8.5	-0.5	-5.8	-0.72	2.1
Primary goods	5.6	1.8	-2.3	-0.31	5.1
<i>Italy 1889 relative to 1877</i>	<i>Tariff (1)</i>	<i>Price (2)</i>	<i>Quantity (3)</i>	<i>Import elasticity</i>	<i>NT_t - NT_{t-1}</i>
Total	13.1	0.9	-3.7	-0.264	10.3
Industrial goods	15.1	-4.4	-1.3	-0.121	9.4
Primary goods	11.8	6.6	-7.8	-0.438	10.6

Sources: Own database, see Federico and Tena (1998) and Tena (1999).

means that the Spanish return of protection as measured by $NT_t - NT_{t-1}$ is effectively minimised by substantial import contraction (almost half) while, in the case of Italy, the contraction effect was much more limited (0.264), close a quarter, most of the lever provided by primary products. In Spain, the demand behaviour of manufactured imports was even more elastic (0.72), around six times that of Italy (0.12). In this country, by contrast, the demand elasticity of primary products exhibits coefficients only slightly superior to those of Spain. Most of the evidence assembled in Table 6.2 supports the contention that the increase in trade discrimination between 1889 and 1897 is minimised by the use of the crude tariff rate. During this period in Spain, protectionist tariffs were raised from an already high level of protection, and data suggest an especially high elasticity of import substitution for most manufactured goods. As the unweighted tariff average (UNT) displayed in Table 6.1 illustrate, Spanish industrial protection almost doubled between 1889 and 1897, pointing to the apparent moderation of the Spanish industrial tariff having damped substantial import contraction. As could be expected, the elasticity for Spanish manufactured imports was more than double that of primary goods, while in the Italian case it was the reverse. Import contraction also depends on the base year chosen to compute the tariff level. As it happens, the Spanish 1889 tariff was already quite high, higher in any case than that for primary products, exactly the reverse situation as that observed in Italy in 1877.

Table 6.3 documents the contribution of each major class of imports, as well as prominent products to the tariff hike after Spain's and Italy's 'return to protection'. The contribution of every sector is assessed on the basis of the difference between the overall protection (measured by the arithmetic average of NT , UNT and RNT) and the estimated counterfactual rate on the assumption of the stability of tariffs and demand in the sector before and after the introduction of the new tariffs in Spain in 1897 and Italy in 1889. The main contributor to Italy's 'return of protection' was the increase in the taxation of primary products, especially that bearing on a handful of fiscal products. Keeping Italian tariffs on and demand for, sugar, petroleum and coffee at the same levels in 1889 as in 1877 reveals that fiscal products were responsible for more than half of the total protection increment in this period. Conversely, the manufacturing sector emerges as the main beneficiary of Spain's return to protection between 1889 and 1897, as duties on textiles contributed to almost half of the incremental tariff revenue, followed by wheat with less than a quarter of the total. Among protected goods, consumer goods and its largest component, cotton textiles, enjoyed the highest degree of protection, although the steel industry 'got a piece of the pie' (Federico and Tena, 1999). In Italy, by contrast, industrial protection was more moderate; the advantage went to heavy industries such as steel and chemicals, which improved their ranking in the tariff schedule (Federico and Tena, 1998). Protection of agricultural produce in Spain exhibits greater stability than

Table 6.3 Major components of the 'Return to protection' in Spain and Italy (total protection as NT, UNT and RNT arithmetic average)

	Primary goods (%)	Wheat (%)	Sugar (%)	Sugar/petrol/coffee (%)	Semi-manufacturers (%)	Iron/steel (%)	Manufactures (%)	Textiles (%)
1877-97 Spain	34	23	-14	7	11	16	55	45
1877-89 Italy	62	9	23	53	17	7	21	13

Sources: Spain (see Tena (1999), Italy: Federico and Tena (1998). (*) Italy 1889 average of NT and UNT because absence of data to compute RNT for 1877.

that displayed by manufactured goods. It is generally admitted that when the overall protection index is moderate, agriculture improves its position vis-à-vis industry, and the reverse is true when protection is on the rise. Spanish fiscal tariffs jacked up at the turn of the century, but this did not affect this general shape of trade policy (Federico and Tena, 1999).

Evidence provided in this section confirms that, because manufactures tend to have higher demand elasticity and fiscal products the lower, this introduces a downward bias in estimating a tariff's protectionist impact. This defect is especially damaging for periods during which the share of revenue items in total imports was large in relation to manufactured goods. The prominence of this phenomenon stands out when comparing changes in the Spanish and Italian cases. The significant increase in Spanish protection on manufactures cannot be detected by using the overall weighted tariff rate, while the steep increase in fiscal tariffs is reflected completely by the Italian index. Thus the industrial tariff hike tended to bias the Spanish index of protection downwards, while revenue tariffs biased the Italian tariff index upwards to the extent that it could radically change the assessment of the reality of each country's trade policy.

Conclusion

This study recommends caution in the use of average tariff rates for the study of comparative European commercial history. We acknowledge that it is, in theory, not possible to exclude exotic products from average tariff rates because there is no such thing as a purely fiscal nor a purely protective tariff. This chapter takes up the challenge while examining the differences induced by the inclusion or exclusion of exotic tariffs on welfare impact. Fiscal products with a low elasticity of demand typically have much less impact on welfare than those with high elasticity. Thus the Nye–Irwin debate on nineteenth-century Britain and France brings forth the implications of not taking into account the changing share of topical products in the evaluation of average tariff barrier for the analysis of nineteenth-century European trade policy. We offer some evidence on how the separate treatment of fiscal tariffs can enlighten our understanding of nineteenth-century trade policy.

Furthermore, it has been shown how standard measures of the average tariff rate may entail a significant bias in assessing the degree of tariff protection because of the multi-faceted nature of a classic index number problem. Since manufactures usually have the most elastic demand, primary products and foodstuff the least, a systematic downward bias is introduced for those periods of the rapidly changing share of revenue products in total imports relative to manufactures. Evidence suggests the need to use cross-country comparisons to assess trade protection for industrial, primary and fiscal goods more accurately and as a prerequisite for clarifying the tariff growth debate.

In a contribution mentioned earlier, O'Rourke recognised that 'the average tariff measure which [he was] using is extremely crude, and [could] in some cases be misleading. . . . The construction of a superior index of protection, on an uniform basis, for as many countries as possible during the late 19th century should be a major research priority' (O'Rourke, this volume: 146). This chapter has been stimulated by O'Rourke's observation and it is hoped it will contribute to clarify the main variables that influence the accuracy of the tariff measures and the different implications this has for investigating the mechanism between trade policies and economic growth.

Appendix

Sources and methods on tariff revenues and fiscal products

United Kingdom: data on import value and customs revenue

Total import value and total custom revenue from 1827 to 1913: Imlah (1958).

Fiscal products import value and customs revenue for: coffee, tea, sugar, tobacco, spirits and wine:

- Quantities and revenues from: House of Commons (1898), 'Customs tariffs of the United Kingdom from 1800–1897', 85, London; Board of Trade, British Parliamentary Papers 1890–1913, yearly.
- Prices for coffee, tea, sugar, tobacco, spirits and wine before 1854, using declared values from the official trade statistics of 1854 and the Sauerbeck's price index (1886) 'import price index omitting cotton and wool'.
- Quantities, prices and revenues 1890–1913: Board of Trade (various years) and Annual Statement of Trade of the United Kingdom, British Parliamentary Papers (various years).

UK Fiscal data on Excise revenue and Production, 1841–1913 for Spirits and Beer & Ale from House of Commons (1898).

Prices: spirits and beer export prices from Board of Trade (various years).

France: data on import value and customs revenue

Total import value and total customs revenue from 1827 to 1913, from Levy-Leboyer and Bourguignon (1990). Imported values and tariff revenues for cocoa, sugar, coffee, petroleum (1827–95), *Tableau Général du Commerce de la France* (1896–1913), *Tableau Général du Commerce de la France et de la Navigation* (Commerce Special).

Germany: data on import value and customs revenue

Total import value and total customs revenue from 1880 to 1913, from Mitchell (1981).

Data on customs revenue of coffee, tobacco (Fiscal 2) from *Statistisches Jahrbuch für das Deutsche Reich* (1880–1913).

Data on import values of coffee and tobacco from *Der auswärtige Handel Deutschlands in den Jahren . . .* (various years).

Italy: data on import value and customs revenue

Italy total revenue from 1864–72: *Ragioneria Generale dello Stato* 1969 table 12 (*Riscossioni complessive delle dogane*, 1873–1913: R. Repaci (1962), pp. 84–5 and 208.

Total import value and tariff revenue from sugar and coffee from *Movimento Commerciale dall'Italia* (yearly).

Spain: data on import value and customs revenue

Total import value between 1850–1913: new series by Prados de la Escosura (1986). Total revenue from *Estadísticas del Comercio Exterior* (yearly). The revenue of a tax imposed on foreign sugar and paid at the border between 1882–98 is also included. Import value and tariff revenue between 1850–1913 of sugar, coffee, cacao and brandies from *Estadísticas del Comercio Exterior*. Sugar revenue 1882–98, Martín (1982), Cuadro c.3, p. 349.

Decomposition of changes in Total Nominal Protection
[NT_t – NT_{t-1} – 1]¹⁷

$$NT_t = \sum_{i=1}^n (Q_i * T_{it}) / \sum_{i=1}^n (Q_i * P_{it})$$

$$RNT_t = \sum_{i=1}^n (Q_{i,t-1} * T_{it}) / \sum_{i=1}^n (Q_{i,t-1} * P_{i,t-1})$$

$$RNP_t = \sum_{i=1}^n (Q_{i,t-1} * T_{it}) / \sum_{i=1}^n (Q_{i,t-1} * P_{it})$$

$$[NT_t - NT_{t-1} - 1] = [NT_t - RNP_t] + [RNP_t - RNT_t] + [RNT_t - NT_{t-1} - 1]$$

$$[NT_t - NT_{t-1} - 1] = \text{Quantity Eff.} + \text{Price Eff.} + \text{Tariff Eff.}$$

Each component on the right-hand side of the fourth equation measures how much the aggregate protection (*NT*) would have changed *ceteris paribus*. The first term, or quantity effect, estimates the variation that

would be caused by changes in the composition of imports if duties and prices remained constant. The second term, or price effect, computes the change that would be caused by changes in prices *ceteris paribus* when duties and demand structure are constant. The third one, the tariff effect, estimates the variation that would be caused by a change in tariffs with unchanged world prices and composition of imports – i.e. the effects of trade policy.¹⁶

$$\text{Quantity Eff.} = \left[\sum_{i=1}^n (Q_{it} * T_{it}) / \sum_{i=1}^n (Q_{it} * P_{it}) \right] - \left[\sum_{i=1}^n (Q_{it-1} * T_{it}) / \sum_{i=1}^n (Q_{it-1} * P_{it}) \right]$$

Price Eff.

$$= \left[\sum_{i=1}^n (Q_{it-1} * T_{it}) / \sum_{i=1}^n (Q_{it-1} * P_{it}) \right] - \left[\sum_{i=1}^n (Q_{it-1} * T_{it}) / \sum_{i=1}^n (Q_{it-1} * P_{it-1}) \right]$$

Tariff Eff.

$$= \left[\sum_{i=1}^n (Q_{it-1} * T_{it}) / \sum_{i=1}^n (Q_{it-1} * P_{it-1}) \right] - \left[\sum_{i=1}^n (Q_{it-1} * T_{it-1}) / \sum_{i=1}^n (Q_{it-1} * P_{it-1}) \right]$$

Notes

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- 2 Departamento de Historia Económica e Instituciones, Universidad Carlos III de Madrid, Calle Madrid 126. 28903 Getafe (Spain).
- 3 Most of the theoretically founded indices of protection developed recently are impracticable when using time series. Leamer's and other indices of protection based on a Heckscher–Ohlin empirical model or the CGE (Computable General Equilibrium) models require knowledge of the basic production structure; unfortunately when the input–output data is available, it is feasible only for some isolated years. Even the most simplified GCE model, as that used by Anderson's TRI (Trade Restrictiveness Index), which does not require the exact knowledge of the production structure, is based on import and tariff data disaggregated enough to make the index only empirically feasible for benchmark comparisons. For the theoretic of the TRI model, see Anderson and Neary (1996), and Anderson (1998) for a comparative study in 1989–90.
- 4 Edwards (1993) uses import–export to GDP ratios to obtain a classification of the openness of countries for the second half of the twentieth century. The equilibrium ratio of this measure relies on the size and changes in the trade structure and demand-elasticities that make this measure endogenous and unconvincing over the long run. For a review of the empirical studies of the relation between trade policy and economic growth during the post-war years, see Rodríguez and Rodrik (1999).
- 5 There are many reasons that justify the use of the tariff average as a protection

index in the long run. Edwards (1998) runs a regression of total productivity growth on nine alternative indicators of openness, but only three results are statistically significant, the trade tax ratio being the only one not being a complex arbitrary variable constructed by an institution.

- 6 'Although import substitution policies have gradually lost their shine over the postwar period, their reputation has remained intact for the late nineteenth century' (Irwin, 2002: 1). Most notably Bairoch (1976a, 1989, 1996) extols protectionism as instrumental in the development of late-nineteenth-century Continental Europe.
- 7 This is only a general statement, as protective tariffs can also boost tariff revenue. Irwin (1998) measures the import elasticity in the USA at the end of the nineteenth century and shows how higher tariffs in protected products raised additional customs collections. Strictly speaking, it depends on the import demand elasticity and whether the previous level of the tariff was below the revenue-maximising tariff.
- 8 For an extension of the index number problems in tariff averaging see Tumlin and Till (1971) and Federico and Tena (1998).
- 9 O'Rourke (1997) puts forward this argument in the context of the discussion of the applicability of the Anderson TRI CGE model to resolve the Nye–Irwin debate. He concludes that when there is a high proportion of products with a low elasticity of demand of any given country, the specification of the import demand elasticity is crucial to the determination of the impact of the import tariff structure on aggregate welfare.
- 10 Nineteenth-century United States protectionism constitutes a paradigmatic case of government revenue being heavily dependent on tariff revenue. Most US tariffs were levied on commodities, which were also domestically produced. Perhaps it was bound to be so given the spatial extension of the country and its climatic variety, which made them a producer of almost every 'exotic' consumer good (the only exception being cane sugar, only produced in small quantities in Louisiana). Irwin (1998) documents the different behaviour of the general index depending on the inclusion or exclusion of sugar in the general index. Variations were less significant in Europe, as is shown below.
- 11 See Irwin (1993: 147).
- 12 Irwin (1993: 146). This argument reflects the mainstream view on the history of British taxation. For a very recent account, see Martin Daunton (2001). In a summary of its main conclusion, Daunton insists that:

excise duties were 'voluntary', falling on goods such as tobacco or spirits which the tax payers could do without – they might even be morally suspect narcotics. Import duties were limited to commodities which could not be produced at home (such as sugar or tea), so that they did not offer any protection to domestic producers, with the danger of distorting the allocation of resources in the economy.

(Daunton, 2001: 10)
- 13 Surprisingly Nye does not tackle this point in his last article on this topic (Dankhilas and Nye 2004).
- 14 This is the difference between the total tariff average including fiscal duties and that excluding them expressed as a percentage of the latter. It represents the weight of fiscal items in the (conventional) nominal tariff across time and between countries. If the total tariff average including fiscal duties is lower than that excluding them, then the result is negative. This means that the tariff average would be higher if we eliminate fiscal duties.
- 15 See Tena (2001).

16 For an extension of index number problems in tariff averaging, see Tumlrir and Till (1971) and Federico and Tena (1998)

17 The problem has been dealt with recently by Crucini (1994). However, his approach is less accurate in so far as it takes into account the duty and price effects only.