Who Protected and Why? Tariffs the World Around 1870-1938

by

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This paper is part of Williamson's tariff project that has thus far accounted for this and three other papers that are (or will soon be) available at my web site **www.economics.harvard.edu/~jwilliam/**

J. H. Coatsworth and J. G. Williamson, "The Roots of Latin American Protectionism: Looking Before the Great Depression," *NBER Working Paper 8999*, National Bureau of Economic Research (June 2002).
M. Clemens and J. G. Williamson, "Closed Jaguar, Open Dragon: Comparing Tariffs in Latin America and Asia before World War II." Presented to the *LACEA Conference*, Madrid (October 10-13, 2002).
M. Clemens, K. H. O'Rourke and J. G. Williamson, "Why Were Tariffs So High in the European Periphery in the Century Before the 1930s?" (ongoing).

Abstract

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This paper uses a new database to establish a set of tariff facts that have not been well appreciated: tariff rates in Latin America were far higher than anywhere else in the century before the Great Depression; while lower than Latin America, tariffs were far higher in the European periphery and the English-speaking new world than they were in the European core; tariff rates rose everywhere in the periphery up to 1900, and then moderated a bit up to WWI; and the great anti-global leap during the 1930s in Latin American and the European periphery was not new policy territory since these two regions had plenty of previous experience with very high tariffs. These world tariff facts need an explanation, especially since economic historians have pretty much ignored them while devoting so much attention to Europe. As we search for the explanations, we find that modern endogenous tariff theory isn't quite up to the task. The paper uses this world wide sample of 35 countries as a panel to explore competing hypotheses as to what drove policy in the century before WWII: revenue motivation; optimal tariffs; strategic tariffs; de-industrialization fears; Stolper-Samueson forces; and many more. The world environment mattered. Trading partners mattered. Domestic geography, factor endowments, institutions and politics mattered.

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"[T]he links between the empirical and theoretical work have never been too strong in this area (Rodrik 1995: p. 1480)"

1. World Tariff Experience in the Century Before World War II

A well-developed literature makes it clear that trade shares are very poor measures of openness since they are endogenous and can be driven by demand and supply factors within countries which are completely independent of trade policy (e.g., Anderson and Neary 1994; Sachs and Warner 1995; Anderson 1998).[1] Among the explicit policy measures of openness available, the average tariff rate is by far the most homogenous protection measure and the easiest to collect across countries and over time.[2] This paper uses the computed average tariff rate to explore the policy experience of 35 countries the world around between the 1860s and World War II: the United States; 3 members of the European industrial core (France, Germany, United Kingdom); 3 non-Latin European offshoots (Australia, Canada, New Zealand); 10 from the European periphery (Austria-Hungary, Denmark, Greece, Italy, Norway, Portugal, Russia, Serbia, Spain, Sweden); 10 from Asia and the Mideast (Burma, Ceylon, China, Egypt, India, Indonesia, Japan, the Philippines, Siam, Turkey) and 8 from Latin America (Argentina, Brazil, Chile, Cuba, Colombia, Mexico, Peru, Uruguay). Standard tariff histories focus on only eight of these – Denmark, France, Germany, Italy, Sweden, the United Kingdom and the United States. We think this big world imbalance needs to be redressed, so what follows will focus on the other twenty-nine countries in our sample.

Figure 1 plots average world tariffs from the 1860s to the 1990s, and Figure 2 plots it up to 1950

[1] Indeed, it appears that fully two-thirds of the late 20th century trade boom involving the OECD can be explained by unusually fast income growth, not by the decline in trade barriers (Baier and Bergstrand 2001). To cite another example, it also appears that two-thirds of the European overseas trade boom in the three centuries following 1492 were also driven by income growth, rather than by any decline in trade barriers (O'Rourke and Williamson 2002).

[2] The average tariff rate is measured here as customs revenues (import duties only) as a share of total import values.

for some regional clubs.[3] There are six regions plotted in Figure 2 – the US, the European industrial core, the European periphery, the European non-Latin offshoots, Asia and Latin America – the country members of which have already been identified above.

Note first the powerful role played by inflations and deflations at key points in the past. Import duties were typically specific until modern times, quoted as pesos per bale, yen per yard, or dollars per bag. Under a regime of specific duties, abrupt changes in price levels can change import values in the denominator, but not the legislated duty in the numerator, thus producing big percentage point changes in equivalent *ad valorem* tariff rates. The impact of inflation during World War I was quite spectacular, and it had nothing to do with policy. Thus, tariff rates in all six regions fell sharply between 1914 and 1919, and part of the rise in tariffs immediately after the war was also due to post-war deflation and the partial resumption of prewar price levels. The price deflation after 1929 was even more spectacular, and it too served to raise tariffs rates at least on duties that were still specific (import values now declining). This paper will explore the specific-duty-inflation impact more systematically, including whether it is less true of inflation-prone regions like Latin America (where, presumably, legislators would have preferred *ad valorem* tariffs to make sure the rates stuck). It turns out that while the impact certainly played a role world wide, it was a very minor actor in the play.

Second, the well-known surge to world protection in the 1920s and 1930s is certainly captured in Figure 1. What is less well known, however, is the pronounced protectionist drift worldwide between 1865 and about 1900. And what looks in Figure 1 like a modest pre-World War I anti-globalization backlash -- a retreat from the liberal pro-global trade positions in mid-century (Williamson 1998; 2002) -- is *far* more dramatic when the world averages are disaggregated in Figure 2. Indeed, there is a very

[3] We have also calculated (but do not report) weighted tariff averages for the regional clubs in Figure 2, where weights are the country's total export share in regional exports or its GDP share. However, we prefer to treat countries as independent policy units regardless of size. The complete data base used in this paper is described at length in the Appendix.

pronounced rise in tariffs across Latin America, across the non-Latin European offshoots (with the major exception of the United States) and across the European periphery. This steep rise in the periphery levels off in the 1890s, and then actually moderates up to World War I. Note also that the rise in tariff rates in the periphery *far* exceeds that of the European core, a notable fact given that so much has been written on globalization backlash on the European continent, while almost nothing has been written on the periphery.

Third, note the enormous variance in levels of protection between the regional club averages. The richer new world European offshoots had levels of protection almost three times that of the European core around the turn of the last century. When the US is shifted to the rich European offshoot club, the ratio of European offshoot tariffs to that of the core is more than three. To take another example, in 1925 the European periphery had tariffs 2.4 times higher than those in the European part of the industrial core. To take yet another example, in 1885 the poor but independent parts of Latin America (Brazil, Colombia, Mexico and Peru) had tariffs 4.6 times higher than those in the poor and dependent parts of Asia (Burma, Ceylon, China, Egypt, India, Indonesia and the Philippines), while the poor but independent parts of Asia (Siam, Turkey and Japan) had tariff rates about the same as the poor but dependent parts of Asia.

Fourth, there was great variance *within* these regional clubs. In 1905, tariffs in Uruguay (the most protectionist land-abundant and labor-scarce country) were about two and a half times those in Canada (the least protectionist land-abundant and labor-scarce country). In the same year, tariffs in Brazil and Colombia (the most protectionist poor countries in the periphery) were almost ten times those in China and India (the least). The same high-low range appeared among the industrial core countries (the US five times the UK) and the European periphery (Russia six times Austria-Hungary). Table 1 summarizes the variance over the full 35-country panel: between 1865 and 1914, the tariff variance between countries was more than twice that of the tariff variance over time (within countries); and between 1919 and 1938,

the tariff variance between countries was about the same as tariff variance over time. Thus, explaining differences between countries before World War II will be at least as challenging as explaining changes in tariff policy over the eight decades after the 1860s, perhaps more so.

The empirical analysis later in this paper will treat countries as the unit of observation, but for now let us linger a little longer on the regional clubs. Prior to World War I, tariffs were much higher in the rich European offshoots than anywhere else. Furthermore, and as we have already mentioned, they would have been even higher had we allocated to this club one of the most protectionist, the US (which is allocated instead to the core).[4] The European members of the industrial core (France, Germany, UK) had the lowest tariffs, although the US serves to raise the club average. Most members of the poor periphery were colonies or quasi-colonies of the industrial core (Burma, Ceylon, Egypt, India, Indonesia, the Philippines), or were forced to sign free trade agreements with the core since the latter had naval guns trained on their potential trading partners (China, Japan), or viewed nearby gunboats as a sufficient threat to go open on their own (Siam). Thus, the tariff rates in Asia were pretty much like those of the core early on, but they started drifting towards protection after the 1880s, long before the independence movement after World War II.

In 1865, Asia had the lowest tariffs, while in 1914 it was approaching that of the rich European offshoots. The European periphery leaped to high levels of protection after the 1870s, with Russian protectionist policy leading the way (along with Greece and, to a lesser extent, Serbia). There is plenty of evidence of rising world protection before World War I (the unweighted average in the full sample rising from about 12% in 1865 to about 17% in 1910), and this drift towards more protection appeared everywhere except in an industrial core that includes the US. The industrial core plotted in Figure 2

[4] The US has always presented a problem to historians and economists alike. The canonical frontier economy with scarce labor and abundant resources, by 1900 it was the world's industrial leader (Wright 1990) and a central market for the exports from the rest of the world, especially Latin America. So, while the US was certainly a rich European offshoot, we allocate it to the industrial core.

excludes the US, but the much-studied continental backlash looks pretty modest in Figure 2 where it can be compared with the rest of the world. Still, the pre-1914 global backlash took place mainly in the rich European offshoots (excluding the US, which retreated from its enormous Civil War tariffs) and the European periphery. We also know who was leading the backlash early in the period 1870-1890: Columbia and Russia were way ahead of the pack, with tariff rate increases of 20 percentage points or more; other backlash leaders with 5 to 12 percentage point increases were Argentina, Canada, Chile, New Zealand and Uruguay – all rich European offshoots, plus a regional mixture containing Egypt, Greece, and Peru, as well as some European continentals who just barely make it over the 5 percentage-point-increase bar -- France, Germany, Italy, Portugal and Spain; fifteen other countries had modest or no increases in their rates. Only six countries lowered their rates between 1870 and 1890 – China, Cuba, Denmark, Mexico, the UK and the USA. There is also evidence of a worldwide reversal in the pre-war drift towards protection after about 1900, but big parts of the periphery bucked the liberal tide (e. g. Brazil, Colombia, Japan and the Philippines).

There are some surprises in these tariff data that have not been noticed by those scholars who have concentrated on one region or even on just one country. For example, the traditional literature written by European economic historians has made much of the tariff backlash on the continent after the 1870s (Gerschenkron 1943; Kindleberger 1951; Bairoch 1989). Yet, the rise in the average tariff rate between the 1870s and the 1890s was only 5.7 percentage points in France (4.4 to 10.1 percent) and only 5.3 percentage points in Germany (3.8 to 9.1 percent). This heavily-researched continental move to protection is small potatoes when compared with the rise to much higher levels over the same period in the European periphery (up 4.2 percentage points to 16.8 percent) or in our four poor Latin countries (up 6.9 percentage points to 34 percent). We are also taught that the Latin American reluctance to go open in the late 20th century was the product of the Great Depression and the import substitution strategies that arose from it (Diaz-Alejandro 1984; Corbo 1992; Taylor 1998). Yet, Latin America already had by far

the highest tariffs in the world in the 19th century. Thus, whatever explanation is offered for the Latin American commitment to protection, it must search for origins in the *belle epoque*, well before the Great Depression (Coatsworth and Williamson 2002). Finally, it is not true that Asia waited for post World War II independence to switch to protectionist policies. We have already noted that there was a protectionist drift afoot in Asia after the 1880s and early 1890s, illustrated best by Burma, India, the Philippines, Siam and Turkey. With the exception of Egypt and Japan, all of the Asian countries underwent a surge to high tariffs in the 1930s, and most of these countries stuck with these higher tariffs into the 1940s and beyond.

In the interwar decades, tariffs took two big leaps upward, and these took place world wide. The first leap was in the 1920s, which might be interpreted as a policy effort to return to 1914 levels. The second was in the 1930s, with aggressive beggar-my-neighbor policies reinforced by the specific-duty-deflation effect. In the industrial core, the biggest interwar tariff hikes were Germany and the UK, but France and the US were not far behind. While Scandinavia showed some restraint, the rest of the European periphery did not. With the exception of protectionist Australia, the English-speaking rich European offshoots showed restraint. Tariffs rose everywhere in Latin America, except two that had the highest pre-war tariffs, Colombia and Uruguay. Tariffs rose across the interwar decades in Asia and the Middle East, and the rise was especially dramatic in Burma, Ceylon, China, Egypt, India, Siam and Turkey. To give some sense of the large rise in tariff barriers around an Asian periphery dominated by allegedly passive and free-trading colonies, the tariff rate rise in India from 1920 to 1939 was 22 percentage points (from 5.5 to 27.5 percent), in Egypt from 1920 to 1939 the rise was 36.7 percentage points, in Siam from 1918 to 1936 the rise was 26.9 percentage points, and in Turkey from 1923 to 1937 it was 34.1 percentage points. So much for a free-trading colonial periphery before Independence!

While tariffs shot up everywhere, the rank order of the six regional clubs by level of protection changed considerably. In 1914, and from high protection levels to low, the rank order was Latin

America, the US, the non-Latin European offshoots, the European periphery, Asia and the European industrial core. By 1939, regional tariff rates had converged, but the rank order was the core, Asia and Latin America tied, the non-Latin European offshoots, the US and the European periphery. This rank order made another even more important change after World War II: Asia and Latin America rose to the top of the heap and the non-Latin European offshoots dropped below both of them and the Core.

It should be clear that history offers exactly the policy variance we need to learn more about the political economy of tariffs.[5] Furthermore, we already noted that Table 1 showed that there was at least as much tariff rate variance between countries as over time within countries. Indeed, before 1914 the variance in the cross section was twice the variance in the time series, although it was about the same thereafter. This suggests that we might want to explore determinants of the two separately.

So, what determined who protected and when they protected in the century before World War II?

2. Did the Colonies Mimic Their Masters?

Perhaps this is a good place to confront the colony issue. There are five in our sample: Burma, Ceylon, India, Indonesia and the Philippines, although foreign influence was strong enough (including occupation) to make Egypt behave like a colony (Owen 1993: p. 122). To what extent did these six mimic their colonial masters?

Figure 3 reveals a clear correlation in timing and magnitudes of change in tariff rates between the UK and four (Burma, Ceylon, Egypt and India), and Figure 4 shows the same for the Philippines, first for Spain and then for the US (becoming the imperialist master in 1899). Table 2 reports the master-colony

[5] Most empirical studies in the new endogenous tariff literature appeal to evidence created by the variance across US industries in some given year (e.g. Grossman and Helpman 1994; Goldberg and Maggi 1999) or US time series (e.g. Magee and Young 1987; Magee, Brock and Young 1989).

tariff rate correlations for these four and for the Philippines.[6] Colonial tariff policy did indeed mimic that of the masters: although Spain failed to imprint its tariff rates on the Philippines before 1899 (Figure 4), the US did afterwards, and Britain did so across all four of its Asian colonies documented here (Figure 3). Furthermore, the t-statistics are very large and the slope coefficients are similar across masters and colonies, ranging between about 0.5 and 0.9. But note the variance across these four at any point in time in Figure 3, and note the country-specific variance in the intercepts reported for the five in Table 2: Philippine tariff rates were on average about 2 points below the US after 1898; and compared with Britain, India's were about the same, Burma and Ceylon were 4 or 5 points higher, and Egypt was 10 points higher. Clearly, local conditions mattered even in colonies. Thus, we retain the full sample of 35 in all that follows, although we will take care to control for the tariff policy of the masters.

3. Did Protection Foster Economic Growth in the Periphery Before World War II?

Does protection help or hinder growth? We need to answer this question first to see whether policy makers in the independent periphery could have used this argument with any empirical force to support 19th century tariff policies.[7]

Let's start with the familiar late 20th century evidence. It is unambiguous on the issue, and it can be found in four kinds of studies.[8]

First, the authors of a large National Bureau of Economic Research project assessed trade and exchange-control regimes in the 1960s and 1970s by making partial-equilibrium calculations of

[6] The Netherlands is not part of our sample, and thus we cannot explore the same correlations between it and Indonesia.

[7] Policy makers of that time didn't have the models, methods and evidence that we exploit in Table 3, but they certainly had the intuition.

[8] This section draws on a recent survey paper by Lindert and Williamson (2001) and some new work on Latin America tariffs (Coatsworth and Williamson 2002).

deadweight losses (Bhagwati and Krueger 1973-1976). They concluded that the barriers imposed significant costs in all but one case. However, these standard welfare calculations have been criticized by those who have pointed out that such calculations do not allow protection a chance to lower long-run cost curves, as in the traditional infant-industry case, or to foster industrialization and thus growth, as in those modern growth models where industry is the carrier of technological change and capital deepening.

Second, analysts have contrasted the growth performance of relatively open with relatively closed economies. The World Bank has conducted such studies for 41 countries going back before the first oil shock. The correlation between trade openness and growth is abundantly clear in these studies (Lindert and Williamson 2001: Table 3), but the analysis is vulnerable to the criticism that the effect of trade policies alone cannot be isolated since other policies usually change at the same time. Thus, countries that liberalized their trade also liberalized their domestic factor markets, liberalized their domestic commodity markets, and set up better property-rights enforcement. The appearance of these domestic policies may deserve more credit for raising income while the simultaneous appearance of more liberal trade policies may deserve less.

Third, country event studies have focused on periods when trade policy regimes change dramatically enough to see their effect on growth. For example, Anne Krueger (1983, 1984) looked at trade openings in South Korea around 1960, Brazil and Colombia around 1965, and Tunisia around 1970. Growth improved after trade liberalization in all four cases. More recently, David Dollar and Aart Kraay (2000) examined the reforms and trade liberalizations of 16 countries in the 1980s and 1990s, finding, once again, the positive correlation between freer trade and faster growth. Of course, these reform episodes may have changed more than just global participation, so that an independent trade effect may not have been isolated.

Fourth, macro-econometric analysis has been used in an attempt to resolve the doubts left by simpler historical correlations revealed by the other three kinds of studies. This macro-econometric

literature shows that free trade policies have had a positive effect on growth in the late 20th century, especially with many other relevant influences held constant. The most famous of these is by Jeffrey Sachs and Andrew Warner (1995), but many others have also confirmed the openness-fosters-growth hypothesis for the late 20th century (e.g. Dollar 1992; Edwards 1993; Dollar and Kraay 2000).

If free trade has been good for growth since World War II,[9] why was it bad for growth before? About thirty years ago, Paul Bairoch (1972) argued that protectionist countries grew *faster* in the 19th century, not slower as every economist has found for the late 20th century. Bairoch's sample was mainly from the European industrial core, it looked at pre-1914 experience only, and it invoked unconditional analysis, controlling for no other factors. Like the second group of modern studies listed above, it simply compared growth rates of major European countries in protectionist and free trade episodes. More recently, Kevin O'Rourke (2000) got the Bairoch finding again, this time using macro-econometric conditional analysis on a ten country sample drawn from the pre-1914 Atlantic economy. In short, these two scholars were not able to find *any* evidence before World War I supporting the openness-fosters-growth hypothesis.[10]

These pioneering historical studies suggest that there is a tariff-growth paradox out there which took the form of a regime switch somewhere between the start of World War I and the end of World War II: before the switch, protection fostered growth; after the switch, protection hindered growth. Was the periphery part of this paradox, or was it only an attribute of the industrial core? Recent work by two of the present authors (Clemens and Williamson 2001, 2002) has shown that protection *did* foster growth in the industrial core before World War II, but that it did *not* do so in most of the periphery. Table 3 offers a revised version of the Clemens-Williamson result, where the model estimated is of the convergence

[9] At least it has not harmed growth (Rodriguez and Rodrik 2001).

[10] There are two other studies worth mentioning here. Capie (1983) explored the Bairoch hypothesis with a pre-1914 European sample of four (Germany, Italy, the UK and Russia), using event analysis. Vamvakidis (2002) couldn't find any interwar evidence supporting the openness-fosters-growth hypothesis either, although it was (once again) based on a small, mostly OECD sample.

variety,[11] but it is conditioned only by the country's own tariff rate and regional club dummies. The tariff rate and GDP per capita level are both measured at year *t*, while the subsequent GDP per capita growth rate is measured over the half decade following. Thus, the last pre-World War II observation is 1934, which relates to growth between 1934 and 1939, and the last pre-World War I observation is 1908, which relates to the growth between 1908 and 1913. The two world wars are ignored.

The tariff-growth paradox is stunningly clear in Table 3. In columns (1) and (3), the estimated coefficient on log of the tariff rate is 0.14 for 1875-1908 and 0.36 for 1924-1934. Thus, and in contrast with late 20th century evidence, tariffs were associated with fast growth before 1939. But was this true for all regions, or was there instead an asymmetry between industrial economies in the core and primary-producers in the periphery? Presumably, the protecting country has to have a big domestic market, and has to be ready for industrialization, accumulation, and human capital deepening if the long run tariff-induced dynamic effects are to offset the short run gains from trade given up. Table 3 tests for asymmetry in columns (2) and (4), and the asymmetry hypothesis wins. That is, protection was associated with faster growth in the European core and their English-speaking offshoots (the coefficient on own tariff is 0.56 in 1875-1908 and 1.65 in 1924-1934, both highly significant), but it was *not* associated with fast growth in the pre-World War I European or Latin American periphery, nor was it associated with fast growth in the interwar European periphery or Asia. Indeed, note that before World War I protection in Latin America was associated significantly and powerfully with *slow* growth, as was the case for the European periphery in the interwar.

The moral of the story is that while 19th century policy makers may have been aware of the pro-protectionist infant-industry argument offered for (*zollverein*) Germany by Frederich List and for (newly

[11] Note that the estimation in Table 3 reports negative coefficients on log initial GDP per capita after 1924, thus supporting conditional convergence. However, those big negative and significant coefficients on the Asian dummy throughout, on the European periphery dummy throughout, and on the Latin American dummy in the interwar speak far better to unconditional world divergence ("big time": Pritchett 1997) which took place over most of this century.

independent) United States by Alexander Hamilton, there is absolutely no evidence which would have supported those arguments for the Asian, European or Latin American periphery. We must look elsewhere for plausible explanations for high tariffs anywhere outside the European industrial core and its non-Latin overseas offshoots.

4. What Determined Tariff Rates? Some Preliminaries

Optimal Tariffs for Revenue Maximization

The United States imposed very high Civil War tariffs in the 1860s, primarily to help cover the enormous revenue demands that the conflict with the South created, legislation then feasible without the usual ante bellum resistance from the now-absent free trade southern Senator and Congressman. Were the newly independent Latin American nations -- constantly with armies in the field to battle with neighbors, revolutionaries, or intruding Europeans -- also searching for some optimal tariff to generate revenue? Was revenue maximization a strong motive for high tariffs in the European periphery too? If so, were tariffs in Latin America and the European periphery really all that the market could bear? Maybe, maybe not, but as Douglas Irwin (1997: pp. 8- 12) has pointed out for the United States, the revenue-maximizing tariff hinges crucially on the price elasticity of import demand. After the 1850s and 1860s, tariffs in Latin America started their long rise to the turn of the century. Victor Bulmer-Thomas (1994: 141) thinks that

> These changes were due ... to the growing awareness that a tariff cut could increase revenues if the import price elasticity was greater than one [and as exports] expanded, the volume of imports (the tax base) started to rise sharply in some republics, making possible a cut in the average tariff rate of protection (the tax rate).

Perhaps, but, if so, what kind of tariff would have been optimal? Tariff revenue can be expressed as

$$R = tpM \qquad (1)$$

where R is revenue, $\underline{t}$ is the average ad valorem tariff rate, $\underline{p}$ is the average price of imports and M is the

volume of imports. Totally differentiating (1) with respect to the tariff, and assuming that the typical 19th century Latin American country was a price taker for manufacturing imports, yields

$$dR/dt = pM + (tp)dM/dt \qquad (2)$$

The revenue-maximizing tariff rate, t*, is found by setting dR/dt = 0, in which case

$$t^* = -1/(1 + \eta) \qquad (3)$$

where η is the price elasticity of demand for imports. Irwin (1997: p. 14) estimates the price elasticity to have been about -2.6 for the US between 1869 and 1913. Assuming the Latin American import mix to have been similar to that of the US, the price elasticity for the former would have been about -3. Under those assumptions, the average tariff in Latin America would have been very high indeed, about 50 percent.[12]

Suppose some Latin America government during the *belle epoque* – riding on an export boom before World War I -- had in mind some target revenue share in GDP (R/Y = r) and could not rely on foreign capital inflows to balance the current account (so pM = X), then

$$r = tpM/Y = tX/Y. \qquad (4)$$

Clearly, if foreign exchange earnings from exports (and thus imports) were booming (an event which could be caused by a terms of trade boom, denoted here by a fall in the relative price of imports, p, or by a supply-side expansion which increased export quantities, X/p, the target revenue share, r, could have been achieved at lower tariff rates, t. The bigger the export boom, the higher the resulting export share, the bigger the import share, and the lower the necessary tariff rate.

So, did independent governments in Latin America, the European periphery and Asia act as if they were meeting revenue targets? *Ceteris paribus*, did they lower tariff rates during world primary product booms when export shares were high and rising, and did they raise them during world primary

[12] We should note that for the *ante bellum* United States Irwin (2001) also reports that the optimal export tax would have been about 50 percent at a time when US cotton was King in world markets. In simple trade models, an export tax and an import tariff can be equivalent.

product slumps? Indeed, if they did their tariff-setting perfectly and if they were really committed to target revenue shares, then the elasticity of t with respect to X/Y would have been -1.

Of course, countries in the periphery which were successful in getting external finance from the European core would have had less reason to use high tariffs to augment revenues in the short run and medium term. Since world capital markets became increasingly well integrated up to 1913 (Obstfeld and Taylor 1998, 2002; Clemens and Williamson 2000), high tariffs that were necessary in 1865 would no longer have been necessary in 1913 if revenues were the key motivation. However, there may have been plenty of motivation to raise them again when world capital markets fell apart in the interwar years. Furthermore, countries that developed internal (and less distortionary) tax sources would have had less need for high tariffs, an event that started in late 19th century Europe, accelerating during the interwar rise of the welfare state (Lindert 1994).

Productivity Advance Abroad and De-Industrialization Fears at Home

Did the periphery exhibit de-industrialization fears after the 1860s?

Three things are essential to the survival of domestic industry: the costs of inputs -- like labor, power and raw materials; productivity in the use of those inputs; and the market price of output. Policy makers in the periphery could not do much about the first two, but they could do a great deal about the third by pushing up tariff barriers, excluding foreign imports and thus raising the domestic price of manufactures relative to other products produced for home or foreign markets. When productivity advance in foreign manufacturing was dramatic, world market prices of manufactures would decline relative to other products, and foreign firms would be increasingly competitive in local periphery markets. Thus, policy makers in the periphery who favored industry would have had reason to raise tariffs in response to any sharp decline in the relative price of manufactures, especially relative to prices of the primary products the periphery exported to Europe. And the best place to look for those signals

would have been in the newspapers, gazettes and trade journals coming from Britain, the 'workshop of the world.' In short, if the periphery had de-industrialization fears, it would have raised tariffs in response to falling prices of manufactures in British markets. Did it? If so, did it respond the same way in the European periphery as it did in Latin America or in non-colonial and independent Asia?

Note that a decline in the world price of manufactures is equivalent to a rise in the world price of primary product exports. But to the extent that a rise in the terms of trade facing some primary-product specializing country created an export boom there, we have already controlled for this influence on tariffs through the revenue effect -- booming X/GDP implies booming tariff revenues and less need for high tariff *rates*. Now we have another potential effect driven by de-industrialization fears: an improvement in the periphery's terms of trade implies a decline in the relative price of manufacturing imports, a de-industrialization threat, and thus a protectionist reaction.

The Tariff-Transport Cost Trade Off

Whatever the arguments are for protection, high transport costs on goods imported from one's trading partner are just as effective as high tariffs. When new technologies induce a dramatic fall in transport costs, the winds of competition thus created give powerful incentives to import competing industries to lobby for more protection.

Since there certainly was a transport revolution across the 19th century (O'Rourke and Williamson 1999: Chp. 3; Mohammed and Williamson 2002), clearly there must have been plenty of incentive for manufacturing interests in the periphery to lobby for protection as the natural barriers afforded by transport costs melted away. This connection was confirmed long ago for the 'invasion of grains' into Europe from Russia and the new world (O'Rourke and Williamson 1999: Chp. 6). But what about the 'invasion of manufactures' into the periphery from industrial Europe, and was that transport-revolution-induced invasion the same everywhere in the periphery? We doubt it.

The transport revolution took many forms, but three mattered most: a decline in overseas tramp freight rates; the appearance of major canals, like the Suez and the Panama; and the railroads penetrating interior markets. Tramp freight rates fell everywhere – along the Baltic and Black Sea routes affecting the European periphery, in the Mediterranean, along Europe-Asia routes, on routes within Asia, and on the Atlantic routes connecting Europe to the Americas. Meanwhile, railroads penetrated everywhere, and this fact might have been especially relevant for tariff policy where markets were mainly located in the interior. If railroads exposed previously-isolated interior local manufacturing to increased foreign competition, those interests should have lobbied for more protection, and railroad penetration of the interior was especially important in Latin America, eastern Europe and even India.

In addition, there are good reasons to expect that the tariff-overseas-transport-cost trade-off prevailed with less power in Latin America than in the European or Asian periphery. First, while overseas freight rates along the northward or 'homeward' leg to Europe from the west and east coast of Latin America followed world trends by collapsing after the 1840s, they fell much less along the southward or 'outward' leg (Stemmer 1989: p. 24; Mohammed and Williamson 2002). The northward leg was for the bulky Latin American staple exports – like beef, wheat and guano, the high-volume low-value primary-products whose trade gained so much by the transport revolution. The southward leg was for Latin American 'general' imports – like textiles and machines, the high-value low-volume manufactures whose trade gained much less from the transport revolution, or for coal used as ballast. Second, compared with the rest of the periphery, transport costs into the Latin American interior offered much more important protective barriers for local manufacturers -- except for Buenos Aires, Montevideo and Rio, than did overseas transport costs. Belford Hinton Wilson, a close observer of early-mid 19th century Latin America, reported in 1842 the costs of moving a ton of goods from England to the following capital cities (in pounds sterling): Buenos Aires and Montevideo 2; Lima 5.12; Santiago 6.58; Caracas 7.76; Mexico City 17.9; Quito 21.3; Sucre or Chuquisca, 25.56; and Bogata 52.9 (Brading 1969: pp. 243-4).

The variance is huge, with the costs to interior capital cities nine to twenty-seven times that of seaports like Buenos Aires and Montevideo.

Thus, transport revolutions along the sea lanes connecting Latin America to Europe probably had far less to do with tariff responses than did investment in railroads at home. Where railroads integrated the Latin American interior with the world economy, we should see a protectionist response to the extent that import competing industries were successful in lobbying for protection from these new winds of competition. Would we expect the same in the European and Asian peripheries where the interior was much better served by waterways and extensive coasts, and where the overseas declines in transport costs -- aided by the Suez Canal -- were more dramatic? We shall see.

Strategic Trade Policy, the Terms of Trade and Tariffs

A well-developed theoretical literature on strategic trade policy[13] predicts that nations have an incentive to inflate their own terms of trade by raising tariffs, unless, of course, your partner agrees to mutual concessions. According to this kind of thinking, a country's own tariffs will depend at least in part upon the country's external tariff environment.[14] Thus, Figure 5 plots a principal-trading-partners'-tariff index for our six regional clubs. It is calculated like this: first, we identify the major trading partners for each country (up to five); second, we calculate exports going to each major trading partner as a share of total country exports going to all major trading partners; third, we use these shares as weights by which to construct the average tariff faced by each country. Finally, we construct an unweighted average for each region.

Figure 5 tells us that in the two decades before World War I, every region except the industrial core and Latin America faced lower tariff rates in their main export markets than they themselves erected

[13] Exemplified by Dixit (1987) and recently surveyed in Bagwell and Staiger (2000).

[14] Strategic tariff policy can also account for much of the tariff-growth paradox, where the post-WWII open-favors-growth correlation reverses to a open-hurts-growth pre-WWI (Clemens and Williamson 2001).

against competitors in their own markets. The explanation, of course, is that the main export markets were located in the European core, where tariffs were much lower. Thus, most of the periphery faced lower tariffs than did the core, although this was not true of Latin America for whom the US (and each other) was such an important market. During the interwar there was convergence: every regional club faced very similar and high tariff rates in export markets, but those rates were rising very steeply outside the core as the core itself made the biggest policy switch, from free trade to protection.

It might pay to repeat that, according to Figure 5, Latin America faced *far* higher tariffs than anyone else since they traded with heavily protected countries like the US. Indeed, if trade with the US is removed from the partner tariff index over the seven decades before the late 1920s, partner tariffs facing Latin America become almost exactly the same as partner tariff's facing the rest of the world. What the United States was doing with tariff policy must have mattered a great deal to Latin America. So, did this "hostile" policy environment abroad trigger a like response at home? While promising for Latin America, the strategic trade thesis seems less promising for the European periphery, whose exports were sent to free trading United Kingdom and Scandinavia, or to low-tariff Germany and France. Indeed, between 1900 and WWI a decline in partner tariffs took place everywhere in the periphery *except* in the European periphery, suggesting an interesting leader-follower reaction that varied across the periphery depending on who the dominant trading partner was, e.g. protectionist US or free trade Britain.

The Stolper-Samuelson Theorem

Ronald Rogowski (1989) has used the Stolper-Samuelson theorem to suggest that we look to lobbying capitalists to find a political economy explanation for those extraordinarily high Latin American tariffs during the *belle epoque*. Although their economies certainly varied in labor-scarcity, every Latin American country faced relative capital scarcity and relative land abundance. As the Stolper-Samuelson theorem has it, protection benefits (and trade liberalization harms) owners of factors in which that society

is *poorly* endowed (Rogowski 1989: 3). According to this kind of thinking, Latin American capitalists should have been looking to form protectionist coalitions as soon as the *belle epoque* began to threaten them with freer trade. In most cases, they did not have to look far, either because they managed to dominate oligarchic regimes that excluded other interests, or because they readily found coalition partners willing to help, or both.

Why no scarce labor in the Latin American tale? Growth, peace and political stability after 1870 did not necessarily produce democratic inclusion in Latin America. Most countries in the region limited the franchise to a small minority of adult men until well into the 20th century. Literacy and wealth requirements, in addition to lack of secrecy in balloting, excluded most potential voters in virtually every country (Engerman and Sokoloff 2001). Thus, the late 19th century tended to produce oligarchic governments in which urban capitalists -- linked to external trade and finance -- played a dominant role. In countries that specialized in exporting agricultural products, free-trading landowners formed the second dominant part of the governing oligarchy. Free-trading mineral export interests usually had less direct leverage in governmental decision making, despite the size and significance of their investments. Thus, unambiguous protectionist outcomes would hardly have been predicted for all eight countries in our sample.

To the extent that Stolper-Samuelson thinking is useful in accounting for the variance in tariff rates the world around before World War II, we would except plenty of differences, as Rogowski has argued. After all, very different endowments and political participation characterized various parts of the periphery. The land-abundant English-speaking new world were places where scarce labor had a powerful political voice to lobby for protection, joining scarce capital. The European periphery had scarce land and capital lobbying for protection, while the voices of free-trading labor were suppressed. Southeast Asia had scarce labor and capital, but with limited political participation of anyone but free-trading landed interests. The rest of Asia was pretty much labor-abundant: most were colonies with little

political participation, although Japan was an important exception.

The Specific-Duty-Inflation Effect

We noted above that inflations and deflations have had a powerful influence on average tariff rates in the past, at least during war and post-war years. To repeat, import duties were typically *specific* until modern times, quoted as pesos per bale, yen per yard, or dollars per bag. Under specific duty regimes, abrupt changes in price levels change import values in the denominator, but not the legislated duty in the numerator, thus producing big equivalent *ad valorem* or percentage rate changes. *Ad valorem* rates are more common today,[15] so that equivalent tariff rates are less affected by inflation and deflation. The impact of inflation during World War I was quite spectacular, and it had nothing to do with policy (Figure 2). Part of the rise in tariffs immediately after World War I was also due to post-war deflation and the partial attainment of prewar price levels. The price deflation after 1929 also served to raise tariff rates at least on duties that were still specific (import values declining).

This specific-duty-inflation effect implies, of course, that debating the tariff structure is politically expensive, and thus is only infrequently changed by new legislation. The specific-duty-inflation effect has been explored more fully for the US (Crucini 1994; Irwin 1998: p. 1017), for Mexico (Marquez 2002: p. 307), and more generally for Latin America (Coatsworth and Williamson 2002). But, as far as we know, the specific-duty-inflation effect has not been explored at a global level nor has an explanation been offered in the literature for the popularity of specific duties in low-income nations. That is unfortunate since specific duties seem to be much more common in poor and non-industrial countries. Why? The answer might be this: Honest and literate customs inspectors are scarce in poor countries, but honest and literate customs inspectors are needed to implement an *ad valorem* tariff where import valuation is so crucial. So, legislators impose specific duties to minimize the "theft" of state tariff

[15] A compound duty refers to one that imposes both specific and *ad valorem* duties on a given import good.

revenues by dishonest and illiterate customs agents. This explanation for the use of specific duties also suggests that the specific-duty-inflation-deflation effect should diminish over time as literate and honest customs inspectors became more abundant, especially in the periphery.

5. Who Protected and Why? Empirical Analysis

Empirical Strategy

The potential tariff policy explanations discussed above need not be competing: each may have played a role between the 1860s and World War II, and the roles may have been specific to regions. Still, we would like to know which played the biggest roles in which periods and which regions.

What follows is an econometric attack on the problem two ways: first, by treating the experience as comparative world economic history 1870-1938 by exploring time series only (TS); and second, by exploring the cross-section variance across these 35 countries using time fixed effects (CS). The cross-section results are transformed to remove serial correlation (using the AR(1) Cochrane-Orcutt correction), and the time series are estimated using random effects (RE) after likewise correcting for AR(1) serial correlation (with a Baltagi-Wu estimator). We use RE since tariffs must have been subject to period-specific shocks, as RE allows. RE is best used when the estimated effects are based on a randomly drawn sample from a large population, a reasonable assumption here since our 35 countries cover the majority of the world's population and GDP. RE is typically more efficient and unbiased when the unobserved explanatory variables are uncorrelated with the observed explanatory variables in the regression model.[1]

The right-hand side variables suggested by the previous section and used throughout the empirical analysis are the following (all but dummies in logs):

[1] The Hausman test [to be added].

Export share. This export/GDP ratio is a measure of export boom, where we expect booms in the previous year to diminish the need for high tariff rates this year -- if government revenues are the goal -- thus yielding negative coefficients in the regression;[2]

GDP per capita, and **Schooling**, the latter the primary school enrollment rate. These variables are taken as proxies for skill endowments, with the expectation that the more abundant the skills, the more competitive the industrial sector, and the less the need for protection, thus yielding a negative coefficient in the regression;

Population. Large countries have bigger domestic markets in which it is easier for local firms to find a spatial niche. Alternatively, larger populations also imply higher density, a fact which makes domestic tax collection easier and tariff revenues less necessary. In either case, the demand for protection should be lower in such countries, and the regression should produce a negative coefficient;

Partner Tariffs, measured as a weighted average of the tariff rates in the trading countries' markets, the weight being trade volumes, lagged. Strategic tariff policy suggests that countries should have imposed higher tariffs this year if they faced higher tariffs in their main markets abroad last year;

Effective Distance. The distance from each country to either the US or the UK (depending on trade volume), that distance adjusted by seaborne freight rates specific to that route. If protection was the goal, effective distance should have served as a substitute for tariffs, so the regression should yield a negative coefficient;

[2] In related paper on Latin America involving one of the present authors (Coatsworth and Williamson 2002), capital inflows from Britain were added to the analysis for the years 1870-1913. This variable measured annual British capital exports to potential borrowing countries. Countries favored by British lending were shown to have had less need for tariff revenues and thus had lower tariffs. We do not add the variable here, since our source does not report the period 1914-1938.

Railway Mileage added in kilometers. Poor overland transport connections to interior markets serves as a protective device. Railroads reduce that protection, requiring higher tariffs to offset the effect. Thus, the regression should yield a positive coefficient;

Inflation and inflation-squared, the rates in home markets. To the extent that countries used specific duties, we expect inflation to lower tariff rates, thus yielding a negative coefficient. However, very rapid inflation might well have triggered a speedier legislative reaction with increases in specific duties, thus yielding a positive and offsetting coefficient on the squared term in the regression;

Federal System, a dummy variable; if a federal system = 1, if centralized = 0. Federal governments had a stronger need for customs duties (since their members retain their tax authority), while centralized governments could better exploit internal revenue sources. Thus, the regression should report a positive coefficient;

Colony, a dummy variable; if a "colony" = 1, 0 otherwise. The colonies 1870-1938 are: Burma, Ceylon, India, Indonesia, the Philippines. The others changed their status during our period. The following were colonies, or acted like colonies, during our period: Cuba (1870-1901), Egypt (1882-1938) and Serbia (1870-1920).

Urbanization, taken as share of population in cities and towns greater than 20,000. We take this urbanization statistic to be a Stolper-Samuelson proxy for the lobbying power of urban capitalists and artisans in the periphery, thus yielding a positive coefficient in the periphery regressions;

Terms of Trade Index. In the periphery, this terms of trade variable measures the price of each jth country's primary product exports (Pxj) relative to the price of manufactures (Pm) in world markets. There are two possible results here, and they will help discriminate between two hypotheses: While the export share variable includes the combined effect of both price and quantity booms, the added terms of trade variable could also have a separate influence if the revenue motivation was dominant. This implies a negative coefficient since a boom in Pxj implies a boom in imports and in tariff revenues, thus

diminishing the need for high tariff rates. Alternatively if de-industrialization fears were dominant, a positive coefficient should appear. That is, as productivity growth achieved by industrial trading partners lowered the relative cost of manufactures in the long run (thus raising Pxj/Pm), a greater threat to import competing industries in the periphery would be generated (e.g. inviting de-industrialization), encouraging a protective tariff response. In short, price shocks in world markets that were good for the periphery's export sectors were bad for import competing sectors. Thus, the sign on ln (Lagged Px/Pm) should tell us whether revenue motivations dominated de-industrialization fears in the periphery. In the European core and in land scarce Asia (like Japan), exports become manufactures and imports become foodstuffs and raw materials. Here, Px/Pm speaks to "invasion of grains" fears, whether wheat or rice.

Comparative Tariff History Results

Table 4 presents an overview of both the time series and cross section results. Each of these contains five columns, necessitated by the fact that data coverage for inflation and the terms of trade is inferior to that of the other regressors. The first column of each group reports results for the whole sample, while the second column reports results for the same regressors where the sample is restricted to those country-years for which both inflation and terms of trade data are available. The third column adds only inflation (plus that square term to capture non-linearity). The fourth column adds only the terms of trade, and the fifth adds both inflation and the terms of trade. The dependent variable is the natural log of own tariff. Time series regressions include country random effects (for reasons offered above) and use the Baltagi-Wu correction for first-order serially correlated errors. Cross section regressions include year fixed effects and use the Cochrane-Orcutt correction for first-order serially correlated errors.

Turning first to the time series, we see that all coefficients have the expected sign with the exception of schooling. Export booms are associated with lower tariffs, as are increases in GDP per capita and the size of the population. Decreases in overseas transportation costs are associated with an

offsetting anti-global rise in tariff barriers, and increases in the length of the domestic rail network are associated with a symmetric rise in tariffs. Also, an improvement in a country's terms of trade in world markets tends to generate a strong anti-global reaction. For the periphery, this took the form of de-industrialization since an improvement in the relative price of their primary product export in world markets implied a fall in the relative price of imported manufactures, inviting a tariff-raising lobbying reaction by industrial interest at home. For the European core, this took the form of "grain invasion," as a rise in the relative price of their manufacturing exports implied a fall in the relative price of their imported foodstuffs, inviting a tariff-raising lobbying reaction by landlords. The results for both schooling and urbanization vary depending on whether we control for inflation or not. Since including inflation reduces the sample size by almost half, however, we do not know if the different results for schooling and urbanization are due to the restricted sample or to the fact of controlling for inflation. In the full sample, an increase in urbanization is associated with an increase in tariffs.

Judging by the estimated elasticities, increases in trading partner tariffs were by far the most important determinant of increases in own tariffs over the full seven decades, at least on the economic margin. Changes in GDP per capita, population, and schooling are all next in importance. The combined influence of geography -- the sum of falling effective sealane distance and rising railway mileage -- is also important in accounting for higher tariffs, but still only half that of partner tariffs. The same is true of the terms of trade index. Much to our surprise, the least important is changes in the export share.

Having analyzed both statistical significance and marginal economic importance, what about *historical* significance? The coefficients of Table 4 tell us the degree to which a given change in, say, partner tariffs was associated with a given change in own tariffs—the importance of partner tariffs on the own-tariff margin. To understand why tariffs changed the way they did during a certain time period or within a certain regional club, we cannot simply restrict the sample and repeat the analysis of Table 4. Even if the economic importance of partner tariffs were low, for example, we could hardly conclude that

changes in partner tariffs were or were not primarily responsible for changes in own tariffs without taking account of *how much* those partner tariffs changed during some given time period or within some regional club.

To see the difference between marginal economic impact and historical significance, suppose that own tariffs were highly responsive to partner tariffs in the European periphery during a certain period, in that a small change in partner tariffs is estimated to be associated with a large change in own tariffs. Suppose we observe that during the period in question, own tariffs rose in the European periphery. Was this anti-global tariff rise due to changes in partner tariffs, changes in geographic conditions, changes in domestic political economy, or some other force? We cannot answer this question without knowing how much partner tariffs changed. To pursue this example further, if partner tariffs barely changed, then we would have to look elsewhere for explanations of the historical rise in own tariffs *despite* the fact that for a *given* change in partner tariffs we see a large change in own tariffs. This case illustrates the difference between big marginal economic impact and big historical significance.

Figures 6-8 carry out a historical significance analysis for the time series results. The strategy is simple. In Figure 6, for example, we wish to determine how much of the observed change in own tariffs during the period 1870-1899 was due to each variable. The height of each column is the observed change in the natural log of the variable in question multiplied by the coefficient estimate from column 4 of Table 4. The coefficient values from this column are used in order to balance the objective of including as many variables as possible against the objective of keeping the sample as large as possible. The y-axis can be thought of as the fraction of the historical variation in own tariffs that is explained by the variable in question. Figure 7 does the same for 1900-1913, and Figure 8 follows suit for the interwar period.

Why were tariffs on the rise nearly everywhere in the decades before 1900? Growing GDP per capita and population size were serving to *lower* tariffs everywhere, but these were overwhelmed by tariff-raising forces. Figure 6 suggests that the push for higher tariffs came mostly from to two sources:

first, domestic political economy forces associated with urbanization and schooling; and second, a protectionist reaction as a compensation to import-competing industries as openness was thrust upon them by advances in transportation technology (both on land and sea). Only in the European periphery do we observe partner tariffs making a major contribution to the anti-global, tariff-raising dynamics during this period. Falling transportation costs certainly did contribute to rising tariff barriers in the European core, in the non-Latin European offshoots and in Asia. But, and as predicted, transport revolutions along the sealanes had little impact on tariffs in Latin America and the European periphery. Very surprisingly, there is *no* evidence of de-industrialization fears in the periphery. Overall, it appears to have beeen rising levels of railway penetration, schooling, and urbanization—and the associated changes in domestic politics—that drove tariffs upwards world wide.

Nearly everywhere tariffs fell from the 1890s to World War I, and Figure 7 repeats the decomposition analysis for this period. Here, those anti-global domestic political economy and (dissipating) transportation forces pushing tariffs upwards were finally overwhelmed by surging pro-global forces: falling tariffs are associated with rising per capita incomes in Europe, their non-Latin offshoots and Latin America, carried in large part by mass migrations and capital exports. Once again, and surprisingly, the terms of trade effect is modest (and of the wrong sign in Latin America and Asia), suggesting that de-industrialization fears were not a significant force in the periphery just prior to World War I.

Figure 8 continues the decomposition analysis for the interwar decades, where massive increases in tariffs were driven almost entirely by increases in partner tariffs, a force that seems to eclipse everything else.

Cross Section Results

Returning for a moment to Table 4, consider the cross-section results. Here we control for two

additional characteristics: colonial status—and thus in some sense for autonomy over tariff policy; and "federal"—an indicator of the decentralization of governance (taken from the Polity III database).

Three variables appear to change sign between time series and cross section. The partner tariffs variable is not significant in cross section and appears to be negative. How can this be consistent with a world in which, as we have seen, *changes* in a country's own tariff is closely associated with *changes* in their trading partners' tariffs? This cross sectional pattern suggests that initial conditions were such that, before reacting to *changes* in their partners' tariffs, countries began from a distribution in which high own tariffs just happened for other reasons to be associated with low partner tariffs and vice versa. This pattern would appear to fit Asia's initial conditions at the dawn of the 20th century: their own tariffs were forced to be low, either as colonies or as victims of gunboat diplomacy, while high tariffs prevailed in their American and European trading partners. The European periphery would appear to fit this characterization too: their backlash before World War 1 left them with high tariffs at a time when their trading partners in the European core had recently moved toward freer trade. The numbers bear out this story: in 1925, average own tariffs and average trading partner tariffs were respectively 6.7% and 10.0% for Ceylon, China, Indonesia, Japan, and the Philippines. In the same year, those two numbers were 12.7% and 6.6% for Greece, Norway, Portugal, Russia, Serbia, Spain, and Sweden. After 1925 all these countries reacted to tariff hikes in their trading partners by raising their own tariffs, so both numbers in these pairs went up. This shows up in time series as a positive coefficient on trading partner tariffs, but the initial distribution of tariffs shows up in cross section as a negative coefficient. Similar initial conditions can explain the negative cross-sectional coefficient on urbanization: agrarian and rural Russia with its high tariffs at one extreme, and industrializing and urban Japan with its low tariffs at the other.

Figures 9 and 10 continue the historical significance analysis for the cross-sectional estimates, in the prewar and interwar periods, respectively. The most striking feature of these two figures is the degree to which they closely resemble each other; the cross-sectional determinants of tariff policy appear to have

remained constant between the two periods despite the time-series fireworks superimposed upon them during the Depression. Why were tariffs so uniformly low before 1914 across Asia, the Middle East, and the European core? The figure suggests that large internal markets in these labor rich and land scarce economies were perhaps most responsible, as well as the industrial competitiveness of the European core as captured by GDP per capita. Perhaps, as we have discussed above, the smaller domestic markets in the Latin and non-Latin European offshoots made it harder for firms to survive in a niche without walls to protect them.

Leaders and Followers

The time series analysis suggests that the European periphery might have been a "follower" before 1900 in that it raised tariffs in response to its trading partners. In the interwar, everyone followed. But who was leading? Tables 5.1-5.9 attempt a lengthy but rigorous time series analysis of this question. We consider three epochs -- 1870-1899, 1900-1913, and 1920-1938, and three follower groups --- the European periphery (plus France), Latin America plus the non-Latin European offshoots, and Asia. Each of the nine tables analyzes one group in one epoch. Three potential "leaders" are considered in each table: the United States, the United Kingdom, and Germany. The dependent variable is change in own tariff from the previous year to the current year. On the right hand side are lagged changes in own tariff as well as lagged changes in the leaders' tariffs. An Anderson-Hsiao estimator is employed with the once-lagged dependent variable instrumented by all the included lag changes as well as one additional lagged change and its corresponding lagged level.

Since we have already identified the European periphery as the only region that followed during 1870-1899 (Figure 6), we would not expect to find any leaders for the other regions, and indeed we do not. But for the European periphery the evidence suggests that lagged changes in German tariffs were a statistically significant determinant of current changes in own tariffs. It appears that the German

"marriage of rye and steel" led the European periphery into a free trade backlash in the closing years of the 19th century.

In all three regions, there is evidence that the UK was the (statistically significant) leader of the 1900-1913 movement towards lower tariffs. Neither the still-protectionist USA nor Germany share Britain's leadership. Lastly, the qualitative evidence assigning tariff leadership to the US during the interwar period is supported unambiguously by our analysis. The Hawley-Smoot Act started the brawl. The UK and Germany were not significant leaders by this time.

An Agenda

A few years ago, Dani Rodrik surveyed the political economy of trade policy in the *Handbook of International Economics* and concluded that the "links between the empirical and theoretical work have never been too strong" (Rodrik 1995: p. 1480). While we are not theorists, we agree with Rodrik: the boom in endogenous tariff theory over the past two decades has far outstripped the evidence brought to bear on it. Our hope is that this paper will help redress the balance, and, in so doing, provoke new thinking on endogenous tariff theory.

We have constructed a data base documenting average tariffs between 1870 and 1938 for thirty-five countries. While tariff policy for industrial Europe and the US has been studied extensively, the rest of the world has not, and of our sample of thirty-five, the majority are from the periphery: ten are from the European periphery; another ten are from Asia and the middle East; and the remaining eight are from Latin America. The advantage of this large panel data base is obvious since it documents an enormous range of tariff policy experience, by period and by country.

There are some major surprises that have lain hidden in these data: the globalization backlash on the European continent after the 1870s was a modest affair compared with the backlash in the periphery

up to 1900; tariffs were immense in Latin America and the European periphery, compared with the European industrial core; the US was the only country that underwent a significant liberal trend after 1865; it was not the Great Depression that triggered protection in Latin America, since the region had been that way for almost a century before; while the colonies certainly did what the their imperialist masters told them to do, tariffs also varied across colonies according to local fundamentals; the colonies shifted to high levels of protection during the interwar, long before postwar independence; and so on.

What accounts for this immense variety in both cross section and time series? What were the underlying fundamentals driving tariff policy the world around? We think these questions should be at the top of the international economist's agenda. After all, even if we see high and rising tariffs out there in history, we need to know why they were high and rising if this history is to be used to understand the future of globalization in the present century. We have learned a fair amount in this paper: de-industrialization was not a major determinant of tariff policy anywhere in the periphery before World War I; revenue needs were an important determinant of tariff rates in the periphery; geography mattered, so that where and when the natural protection of distance and topography was conquered by transport technology, tariffs rose to compensate the import competing industries; and, perhaps most important, there was strategic tariff policy behavior at work everywhere after World War I, and in the European periphery much earlier.

There is much more to be done to uncover the fundamentals driving world tariff policy in the century before World War II. And while economic historians are doing it, one can only hope that economists will do the same for the late 20th century.

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Table 1

Summary of variance in the tariff panel data

Coefficient of Variance of Own Tariff Level

	All	**1865-1914**	**1919-1938**
Overall	0.675	0.719	0.567
Between countries	0.537	0.665	0.404
Within countries	0.424	0.295	0.411
Total observations	2,186	1,540	646
Number of countries	35	35	35
Average years per country	62.5	44.0	18.5

Table 2

Regressions of Colonies' Tariffs on Those of the Colonial Master

Specifiation: OLS

Country's tariff as dependent var.	**Egypt**	**Burma**	**Ceylon**	**India**	**Philippines**	**Philippines**
Time Period	**1865-1945**	**1865-1945**	**1865-1945**	**1865-1945**	**1865-1898**	**1899-1945**
UK Tariffs	0.607 *6.65* **0.587**	0.672 *8.62* **0.685**	0.493 *17.5* **0.886**	0.893 *16.5* **0.874**		
Spain Tariffs					-0.0807 *-0.456* **-0.0791**	
USA Tariffs						0.870 *10.2* **0.839**
Constant	10.0 *7.51*	4.84 *4.25*	4.32 *10.5*	0.198 *0.249*	11.4 *3.49*	-2.16 *-1.47*
N	86	86	86	86	35	46
R^2	0.345	0.469	0.785	0.763	0.00630	0.704

t-statistics are in italics and standardized coefficients are in bold below each coefficient

Table 3
Tariff Impact on GDP per capita Growth by Region

Dependent Variable: 5-Year Overlapping Average Growth Rate

	(1)	(2)	(3)	(4)
Included Countries	ALL	ALL	ALL	ALL
Years per Period	1	1	1	1
Time Interval	1875-1908	1875-1908	1924-1934	1924-1934
ln GDP/capita	0.15	0.10	-0.73	-0.89
	1.14	*0.75*	*-1.77*	*-2.13*
ln Own Tariff	0.14	0.56	0.36	1.65
	1.64	*3.35*	*1.27*	*2.83*
(European Periphery dummy) x (ln tariff rate)		-0.72		-2.45
		-3.32		*-3.18*
(Latin America dummy) x (ln tariff rate)		-0.97		0.58
		-3.15		*0.49*
(Asia dummy) x (ln tariff rate)		-0.19		-1.47
		-0.84		*-2.02*
Euro Periph dummy	-0.21	1.58	-0.04	6.15
	-1.24	*2.77*	*-0.08*	*3.10*
Latin America dummy	0.19	3.01	-0.73	-3.31
	0.94	*3.13*	*-1.31*	*-0.96*
Asia dummy	-0.26	0.30	-1.17	2.39
	-1.09	*0.55*	*-1.52*	*1.24*
Constant	-0.12	-0.76	5.92	3.99
	-0.11	*-0.68*	*1.55*	*1.05*
Country Dummies?	No	No	No	No
Time Dummies?	No	No	No	No
N	1,190	1,190	372	372
R-squared	0.0357	0.0498	0.0227	0.0605
Adj. R-squared	0.0317	0.0433	0.0094	0.0398

t-statistics are in italics. Coatsworth and Williamson (2002), Table 1.

Table 4. Overview of the Results

Dependent variable: ln Own Tariff

Includes AR(1) Baltagi-Wu (TS) or Cochrane-Orcutt (CS) serial correlation correction

Specification	TS, country RE					CS, year dummies				
Years	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938	1870-1938
Countries	All	All	All	All	All	All	All	All	All	All
ln Export Share	-0.0285	-0.0832	-0.0609	-0.0463	-0.0924	-0.0397	-0.0645	-0.0601	-0.0539	-0.0753
	(-1.36)	(-3.02)	(-2.30)	(-2.07)	(-3.32)	(-1.37)	(-1.67)	(-1.60)	(-1.80)	(-2.02)
ln GDP per capita	-0.1412	-0.2227	-0.1745	-0.1810	-0.2260	-0.1025	-0.1445	-0.1228	-0.1439	-0.1435
	(-2.40)	(-2.86)	(-2.28)	(-2.95)	(-2.90)	(-1.48)	(-1.44)	(-1.24)	(-2.00)	(-1.45)
ln Population	-0.1084	-0.1716	-0.1441	-0.1172	-0.1721	-0.1224	-0.0433	-0.0545	-0.1302	-0.0504
	(-2.50)	(-3.35)	(-2.81)	(-2.58)	(-3.38)	(-2.85)	(-0.84)	(-1.12)	(-3.00)	(-1.00)
ln Partner Tariffs	0.2490	0.2507	0.2992	0.2246	0.2526	-0.0440	-0.0983	-0.0338	-0.0648	-0.0953
	(9.06)	(6.64)	(8.45)	(7.54)	(6.67)	(-1.22)	(-1.82)	(-0.60)	(-1.76)	(-1.73)
ln Effective Distance	-0.0735	-0.1072	-0.1267	-0.0584	-0.1086	-0.0169	-0.0644	-0.0514	-0.0309	-0.0616
	(-4.86)	(-4.95)	(-5.97)	(-3.76)	(-5.02)	(-0.74)	(-1.53)	(-1.28)	(-1.29)	(-1.48)
ln Railway Mileage	0.0354	0.0639	0.0579	0.0347	0.0590	0.0055	0.0212	0.0190	0.0042	0.0219
	(3.38)	(2.25)	(1.98)	(3.41)	(2.08)	(0.80)	(0.93)	(0.84)	(0.56)	(0.94)
ln Schooling	0.1640	-0.0560	-0.0573	0.1719	-0.0416	0.0672	-0.3046	-0.2993	0.0548	-0.3053
	(4.02)	(-0.82)	(-0.84)	(4.30)	(-0.61)	(1.49)	(-2.96)	(-3.01)	(1.22)	(-2.99)
ln Urbanization	0.0478	0.0198	0.0013	0.0462	0.0235	0.0242	-0.0890	-0.0989	0.0211	-0.0787
	(2.13)	(0.30)	(0.02)	(2.10)	(0.36)	(0.99)	(-1.58)	(-1.66)	(0.79)	(-1.41)
Federal						0.0100	0.0524	0.0585	0.0071	0.0509
						(0.35)	(1.45)	(1.55)	(0.25)	(1.35)
Colony						-0.0033	-0.1649	-0.2797	-0.0695	-0.1515
						(-0.05)	(-0.83)	(-1.58)	(-1.50)	(-0.79)
Inflation			-0.0004		-0.0005			-0.0004		-0.0003
			(-1.45)		(-1.46)			(-0.90)		(-0.69)
Inflation Squared			0.0000		0.0000			0.0000		0.0000
			(2.45)		(1.77)			(0.44)		(0.52)
ln Terms of Trade Index				0.0798	0.1219				0.1037	0.1371
				(2.22)	(2.68)				(2.55)	(2.66)
Constant	2.7797	5.8022	5.4237	2.6333	5.1674					
	(4.75)	(7.80)	(7.45)	(4.28)	(6.68)					
N	2,138	1,169	1,300	1,951	1,169	2,067	1,116	1,238	1,889	1,116
Groups	35	30	35	35	30					
Avg. obs / group	61.1	39	37.1	55.7	39					
R-squared overall	0.224	0.271	0.250	0.251	0.266	0.144	0.203	0.195	0.149	0.211
DW original	0.222	0.242	0.251	0.227	0.245	0.083	0.107	0.115	0.083	0.111
DW transformed						1.972	1.979	1.948	1.982	1.987

t-statistics are in parentheses below each coefficient estimate. War years (1914-1918) omitted. Schooling is measured as the number of people per 10,000 below the age of 15 who are enrolled in primary school.

Table 5.1. WHO LEADS?
LATIN AMERICA AND RICH EUROPEAN OFFSHOOTS, 1870-1899
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.731	0.919	0.883	0.875	0.299
	(1.93)	(1.92)	(1.81)	(1.83)	(0.97)
Change in own tariff from (t-3) to (t-2)		0.014	0.009	0.058	0.003
		(0.15)	(0.10)	(0.56)	(0.04)
Change in own tariff from (t-4) to (t-3)			0.019	-0.014	-0.022
			(0.20)	-(0.15)	-(0.29)
Change in own tariff from (t-5) to (t-4)				-0.019	-0.080
				-(0.20)	-(1.04)
Change in own tariff from (t-6) to (t-5)					-0.139
					-(1.83)
Change in USA tariff from (t-2) to (t-1)	0.108	0.943	0.590	0.592	0.429
	(0.29)	(1.18)	(0.75)	(0.73)	(0.62)
Change in USA tariff from (t-3) to (t-2)		-0.736	0.133	0.038	0.236
		-(0.90)	(0.12)	(0.03)	(0.24)
Change in USA tariff from (t-4) to (t-3)			-0.364	-1.496	-1.755
			-(0.38)	-(0.84)	-(0.97)
Change in USA tariff from (t-5) to (t-4)				1.453	0.920
				(1.22)	(0.60)
Change in USA tariff from (t-6) to (t-5)					0.261
					(0.20)
Change in UK tariff from (t-2) to (t-1)	0.702	1.320	0.592	0.959	1.300
	(0.63)	(1.08)	(0.41)	(0.55)	(0.69)
Change in UK tariff from (t-3) to (t-2)		-0.627	-0.550	-0.303	1.166
		-(0.42)	-(0.32)	-(0.16)	(0.57)
Change in UK tariff from (t-4) to (t-3)			-1.374	-1.824	-1.060
			-(0.85)	-(1.06)	-(0.65)
Change in UK tariff from (t-5) to (t-4)				-0.604	-0.699
				-(0.39)	-(0.55)
Change in UK tariff from (t-6) to (t-5)					-0.288
					-(0.15)
Change in Germany tariff from (t-2) to (t-1)	0.590	1.304	1.339	1.229	1.377
	(0.78)	(1.31)	(1.26)	(0.83)	(0.97)
Change in Germany tariff from (t-3) to (t-2)		-0.644	-0.074	-0.070	0.832
		-(0.67)	-(0.06)	-(0.05)	(0.55)
Change in Germany tariff from (t-4) to (t-3)			-1.099	-1.169	-0.370
			-(0.85)	-(0.82)	-(0.22)
Change in Germany tariff from (t-5) to (t-4)				-0.464	-0.093
				-(0.25)	-(0.05)
Change in Germany tariff from (t-6) to (t-5)					0.315
					(0.17)
Change in Germany tariff from (t-7) to (t-6)					
Constant	0.098	-0.135	0.034	0.439	-0.310
	(0.24)	-(0.23)	(0.03)	(0.23)	-(0.11)
N	297	286	275	264	253

t-statistics are in parentheses below each coefficient estimate

Table 5.2. WHO LEADS?
EUROPEAN PERIPHERY AND FRANCE, 1870-1899
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	-0.314 -(2.04)	1.572 (0.46)	-1.090 -(1.53)	-1.642 -(1.50)	-0.684 -(1.69)
Change in own tariff from (t-3) to (t-2)		0.717 (0.55)	-0.258 -(0.93)	-0.473 -(1.07)	-0.135 -(0.79)
Change in own tariff from (t-4) to (t-3)			0.095 (1.20)	0.161 (1.16)	0.063 (0.80)
Change in own tariff from (t-5) to (t-4)				0.086 (0.50)	0.038 (0.44)
Change in own tariff from (t-6) to (t-5)					0.136 (1.76)
Change in USA tariff from (t-2) to (t-1)	0.030 (0.26)	0.865 (0.62)	-0.299 -(0.87)	-0.465 -(0.85)	0.251 (0.79)
Change in USA tariff from (t-3) to (t-2)		-0.725 -(0.68)	0.546 (1.31)	0.391 (0.69)	-0.167 -(0.42)
Change in USA tariff from (t-4) to (t-3)			-0.757 -(1.68)	-0.131 -(0.15)	-1.685 -(2.26)
Change in USA tariff from (t-5) to (t-4)				-0.327 -(0.44)	0.868 (1.40)
Change in USA tariff from (t-6) to (t-5)					-0.400 -(0.59)
Change in UK tariff from (t-2) to (t-1)	0.489 (1.26)	-1.241 -(0.37)	1.241 (1.10)	2.001 (1.16)	1.276 (1.01)
Change in UK tariff from (t-3) to (t-2)		-1.136 -(0.44)	1.010 (1.22)	1.094 (0.89)	1.715 (1.80)
Change in UK tariff from (t-4) to (t-3)			-0.456 -(0.70)	-0.152 -(0.16)	-0.281 -(0.39)
Change in UK tariff from (t-5) to (t-4)				-1.839 -(1.43)	-0.749 -(1.27)
Change in UK tariff from (t-6) to (t-5)					-2.002 -(2.41)
Change in Germany tariff from (t-2) to (t-1)	0.106 (0.43)	0.298 (0.43)	0.271 (0.69)	0.025 (0.03)	0.908 (1.54)
Change in Germany tariff from (t-3) to (t-2)		-0.113 -(0.15)	0.829 (1.92)	1.127 (1.51)	1.426 (2.05)
Change in Germany tariff from (t-4) to (t-3)			-0.036 -(0.05)	0.852 (0.64)	1.183 (1.31)
Change in Germany tariff from (t-5) to (t-4)				-0.443 -(0.48)	0.982 (1.29)
Change in Germany tariff from (t-6) to (t-5)					0.840 (1.00)
Constant	0.278 (2.06)	-0.417 -(0.37)	-0.110 -(0.25)	-0.160 -(0.15)	-1.970 -(1.53)
N	297	286	275	264	253

t-statistics are in parentheses below each coefficient estimate

Table 5.3. WHO LEADS?
ASIA, 1870-1899
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.024 (0.04)	0.753 (0.70)	0.164 (0.39)	2.151 (0.81)	-0.836 -(2.00)
Change in own tariff from (t-3) to (t-2)		0.087 (0.58)	0.049 (0.54)	0.201 (0.65)	-0.065 -(0.63)
Change in own tariff from (t-4) to (t-3)			0.169 (2.16)	0.114 (0.57)	0.150 (1.55)
Change in own tariff from (t-5) to (t-4)				-0.326 -(0.62)	0.248 (1.96)
Change in own tariff from (t-6) to (t-5)					0.187 (1.78)
Change in USA tariff from (t-2) to (t-1)	0.026 (0.43)	0.043 (0.30)	0.033 (0.28)	0.247 (0.62)	-0.114 -(0.69)
Change in USA tariff from (t-3) to (t-2)		0.060 (0.40)	0.095 (0.55)	-0.228 -(0.44)	0.318 (1.29)
Change in USA tariff from (t-4) to (t-3)			-0.180 -(1.22)	0.405 (0.56)	0.304 (0.67)
Change in USA tariff from (t-5) to (t-4)				0.310 (0.62)	-0.014 -(0.04)
Change in USA tariff from (t-6) to (t-5)					0.531 (1.57)
Change in UK tariff from (t-2) to (t-1)	0.050 (0.28)	0.070 (0.29)	0.130 (0.57)	-0.388 -(0.57)	-0.825 -(1.70)
Change in UK tariff from (t-3) to (t-2)		-0.198 -(0.65)	0.011 (0.05)	-0.846 -(0.89)	-0.805 -(1.66)
Change in UK tariff from (t-4) to (t-3)			-0.074 -(0.32)	-0.123 -(0.22)	-0.683 -(1.60)
Change in UK tariff from (t-5) to (t-4)				-0.260 -(0.44)	-0.424 -(1.41)
Change in UK tariff from (t-6) to (t-5)					-0.357 -(0.63)
Change in Germany tariff from (t-2) to (t-1)	-0.041 -(0.33)	0.051 (0.23)	0.099 (0.57)	-0.367 -(0.67)	-0.303 -(0.85)
Change in Germany tariff from (t-3) to (t-2)		-0.213 -(1.30)	-0.055 -(0.33)	-0.552 -(0.86)	-0.715 -(1.92)
Change in Germany tariff from (t-4) to (t-3)			0.269 (1.37)	0.112 (0.23)	-0.449 -(1.12)
Change in Germany tariff from (t-5) to (t-4)				-1.404 -(1.26)	-0.765 -(1.66)
Change in Germany tariff from (t-6) to (t-5)					-1.178 -(2.08)
Constant	0.112 (1.49)	0.125 (0.92)	-0.087 -(0.50)	0.951 (1.02)	1.589 (2.25)
N	216	208	200	192	184

t-statistics are in parentheses below each coefficient estimate

Table 5.4. WHO LEADS?
LATIN AMERICA AND RICH EUROPEAN OFFSHOOTS, 1900-1914
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.527	2.133	-0.812	1.577	0.079
	(0.48)	(0.95)	-(1.80)	(1.38)	(0.21)
Change in own tariff from (t-3) to (t-2)		0.096	-0.130	0.185	0.038
		(0.42)	-(1.36)	(0.89)	(0.46)
Change in own tariff from (t-4) to (t-3)			-0.228	0.007	-0.103
			-(2.81)	(0.04)	-(1.50)
Change in own tariff from (t-5) to (t-4)				0.387	0.176
				(1.77)	(2.25)
Change in own tariff from (t-6) to (t-5)					0.150
					(2.15)
Change in USA tariff from (t-2) to (t-1)	0.024	0.109	0.277	-1.721	-1.566
	(0.11)	(0.13)	(0.52)	-(0.79)	-(1.18)
Change in USA tariff from (t-3) to (t-2)		-0.304	0.208	0.764	0.818
		-(0.33)	(0.44)	(0.61)	(0.98)
Change in USA tariff from (t-4) to (t-3)			-0.367	0.153	0.564
			-(0.60)	(0.09)	(0.50)
Change in USA tariff from (t-5) to (t-4)				2.420	1.938
				(1.61)	(2.16)
Change in USA tariff from (t-6) to (t-5)					-1.837
					-(1.52)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	0.493	1.296	0.038	-3.709	-3.347
	(0.90)	(0.74)	(0.04)	-(0.71)	-(1.14)
Change in UK tariff from (t-3) to (t-2)		-0.417	1.356	-2.390	0.340
		-(0.26)	(2.02)	-(0.79)	(0.27)
Change in UK tariff from (t-4) to (t-3)			0.884	-4.725	(dropped)
			(1.17)	-(1.35)	(0.00)
Change in UK tariff from (t-5) to (t-4)				1.308	2.703
				(0.47)	(1.11)
Change in UK tariff from (t-6) to (t-5)					(dropped)
					(0.00)
Change in Germany tariff from (t-2) to (t-1)	-0.488	-1.790	0.662	-0.146	2.918
	-(0.67)	-(0.86)	(0.98)	-(0.08)	(1.40)
Change in Germany tariff from (t-3) to (t-2)		-0.541	0.239	-0.397	1.241
		-(0.43)	(0.33)	-(0.27)	(1.01)
Change in Germany tariff from (t-4) to (t-3)			-0.283	-0.003	-0.039
			-(0.51)	(0.00)	-(0.06)
Change in Germany tariff from (t-5) to (t-4)				1.313	1.666
				(0.81)	(1.42)
Change in Germany tariff from (t-6) to (t-5)					0.362
					(0.56)
Constant	-0.241	-0.163	-0.269	-0.450	0.204
	-(0.84)	-(0.26)	-(0.63)	-(0.60)	(0.41)
N	154	154	154	154	154

t-statistics are in parentheses below each coefficient estimate

Table 5.5. WHO LEADS?
EUROPEAN PERIPHERY AND FRANCE, 1900-1914
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.963	-0.060	1.017	0.925	0.626
	(1.18)	-(0.24)	(1.29)	(1.30)	(1.04)
Change in own tariff from (t-3) to (t-2)		-0.192	-0.228	-0.220	-0.211
		-(2.43)	-(2.01)	-(1.92)	-(2.10)
Change in own tariff from (t-4) to (t-3)			0.362	0.342	0.244
			(1.51)	(1.53)	(1.33)
Change in own tariff from (t-5) to (t-4)				0.001	0.010
				(0.01)	(0.11)
Change in own tariff from (t-6) to (t-5)					-0.038
					-(0.38)
Change in USA tariff from (t-2) to (t-1)	-0.144	-0.084	-0.608	0.921	0.683
	-(0.90)	-(0.48)	-(1.57)	(1.26)	(0.87)
Change in USA tariff from (t-3) to (t-2)		0.048	0.260	-0.508	-0.667
		(0.29)	(0.78)	-(1.25)	-(1.37)
Change in USA tariff from (t-4) to (t-3)			0.234	-0.922	-0.416
			(0.71)	-(1.27)	-(0.69)
Change in USA tariff from (t-5) to (t-4)				-0.899	-0.635
				-(1.81)	-(1.20)
Change in USA tariff from (t-6) to (t-5)					0.575
					(0.70)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	0.292	0.133	-0.042	4.024	2.630
	(0.84)	(0.55)	-(0.09)	(1.76)	(1.45)
Change in UK tariff from (t-3) to (t-2)		-0.161	-0.526	1.473	(dropped)
		-(0.74)	-(1.26)	(1.40)	(0.00)
Change in UK tariff from (t-4) to (t-3)			0.290	2.177	0.956
			(0.88)	(2.01)	(1.55)
Change in UK tariff from (t-5) to (t-4)				-2.121	-2.107
				-(1.67)	-(1.25)
Change in UK tariff from (t-6) to (t-5)					(dropped)
					(0.00)
Change in Germany tariff from (t-2) to (t-1)	0.099	-0.090	-0.055	-1.403	-1.527
	(0.53)	-(0.57)	-(0.23)	-(1.91)	-(1.12)
Change in Germany tariff from (t-3) to (t-2)		-0.223	-0.541	-1.369	-1.103
		-(1.25)	-(1.55)	-(2.37)	-(1.58)
Change in Germany tariff from (t-4) to (t-3)			-0.207	-0.849	-0.680
			-(0.66)	-(2.08)	-(1.92)
Change in Germany tariff from (t-5) to (t-4)				-1.156	-0.872
				-(2.09)	-(1.31)
Change in Germany tariff from (t-6) to (t-5)					0.284
					(0.96)
Constant	-0.056	-0.332	-0.292	-0.381	-0.498
	-(0.28)	-(2.84)	-(1.09)	-(1.33)	-(1.52)
N	154	154	154	154	154

t-statistics are in parentheses below each coefficient estimate

Table 5.6. WHO LEADS?
ASIA, 1900-1914
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.902 (0.64)	3.429 (0.60)	-0.205 -(0.52)	0.938 (1.19)	0.463 (0.63)
Change in own tariff from (t-3) to (t-2)		0.021 (0.05)	-0.130 -(1.44)	-0.041 -(0.27)	-0.058 -(0.48)
Change in own tariff from (t-4) to (t-3)			-0.250 -(2.44)	-0.155 -(1.02)	-0.172 -(1.37)
Change in own tariff from (t-5) to (t-4)				0.421 (1.61)	0.273 (1.16)
Change in own tariff from (t-6) to (t-5)					0.118 (0.74)
Change in USA tariff from (t-2) to (t-1)	-0.079 -(0.54)	-0.783 -(0.60)	0.004 (0.02)	-0.101 -(0.17)	-0.209 -(0.33)
Change in USA tariff from (t-3) to (t-2)		0.387 (0.52)	0.063 (0.41)	0.224 (0.62)	0.190 (0.49)
Change in USA tariff from (t-4) to (t-3)			-0.118 -(0.64)	-0.229 -(0.48)	-0.002 (0.00)
Change in USA tariff from (t-5) to (t-4)				0.032 (0.09)	0.102 (0.23)
Change in USA tariff from (t-6) to (t-5)					0.018 (0.03)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	0.096 (0.41)	0.416 (0.50)	0.283 (1.10)	0.433 (0.30)	-0.046 -(0.04)
Change in UK tariff from (t-3) to (t-2)		-0.316 -(0.24)	0.504 (2.33)	0.215 (0.25)	(dropped) (0.00)
Change in UK tariff from (t-4) to (t-3)			0.358 (1.41)	-0.147 -(0.17)	-0.136 -(0.32)
Change in UK tariff from (t-5) to (t-4)				-0.127 -(0.17)	0.120 (0.10)
Change in UK tariff from (t-6) to (t-5)					(dropped) (0.00)
Change in Germany tariff from (t-2) to (t-1)	0.457 (1.22)	0.328 (0.52)	0.051 (0.38)	0.167 (0.32)	0.258 (0.23)
Change in Germany tariff from (t-3) to (t-2)		-1.324 -(0.77)	-0.431 -(2.12)	-0.434 -(1.14)	-0.243 -(0.45)
Change in Germany tariff from (t-4) to (t-3)			-0.247 -(1.18)	0.373 (0.68)	0.259 (0.61)
Change in Germany tariff from (t-5) to (t-4)				0.298 (0.59)	0.405 (0.71)
Change in Germany tariff from (t-6) to (t-5)					0.198 (0.93)
Constant	0.036 (0.14)	-0.818 -(0.51)	0.185 (1.17)	0.001 (0.00)	0.110 (0.46)
N	112	112	112	112	112

t-statistics are in parentheses below each coefficient estimate

Table 5.7. WHO LEADS?
LATIN AMERICA AND RICH EUROPEAN OFFSHOOTS, 1920-1938
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	-0.121 -(0.74)	0.337 (0.69)	0.369 (0.59)	0.571 (0.69)	-0.163 -(0.31)
Change in own tariff from (t-3) to (t-2)		0.284 (1.16)	0.295 (0.85)	0.423 (0.88)	-0.009 -(0.03)
Change in own tariff from (t-4) to (t-3)			0.026 (0.17)	0.075 (0.32)	-0.106 -(0.58)
Change in own tariff from (t-5) to (t-4)				0.029 (0.17)	-0.145 -(0.83)
Change in own tariff from (t-6) to (t-5)					-0.184 -(1.12)
Change in USA tariff from (t-2) to (t-1)	1.537 (2.45)	-0.518 -(0.36)	1.900 (0.51)	-3.547 -(0.75)	(dropped) (0.00)
Change in USA tariff from (t-3) to (t-2)		1.091 (0.87)	2.509 (1.05)	(dropped) (0.00)	(dropped) (0.00)
Change in USA tariff from (t-4) to (t-3)			-1.920 -(1.00)	(dropped) (0.00)	(dropped) (0.00)
Change in USA tariff from (t-5) to (t-4)				3.651 (1.32)	(dropped) (0.00)
Change in USA tariff from (t-6) to (t-5)					(dropped) (0.00)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	-0.757 -(2.42)	-0.288 -(0.36)	0.271 (0.19)	-0.448 -(0.30)	-0.677 -(0.45)
Change in UK tariff from (t-3) to (t-2)		-0.696 -(1.22)	-1.632 -(1.07)	-1.710 -(0.66)	-0.291 -(0.30)
Change in UK tariff from (t-4) to (t-3)			3.391 (1.29)	(dropped) (0.00)	(dropped) (0.00)
Change in UK tariff from (t-5) to (t-4)				-2.371 -(1.33)	-3.839 -(1.44)
Change in UK tariff from (t-6) to (t-5)					(dropped) (0.00)
Change in Germany tariff from (t-2) to (t-1)	0.041 (0.17)	0.286 (0.63)	-1.811 -(1.10)	1.170 (0.82)	0.975 (1.20)
Change in Germany tariff from (t-3) to (t-2)		-0.499 -(1.46)	0.222 (0.24)	0.333 (0.34)	0.731 (0.66)
Change in Germany tariff from (t-4) to (t-3)			-0.995 -(1.13)	-0.619 -(0.50)	-0.174 -(0.29)
Change in Germany tariff from (t-5) to (t-4)				-0.541 -(0.48)	1.133 (0.98)
Change in Germany tariff from (t-6) to (t-5)					1.572 (1.35)
Constant	0.689 (1.05)	1.626 (1.50)	1.543 (0.64)	5.569 (1.65)	-1.365 -(0.37)
N	137	126	115	104	93

t-statistics are in parentheses below each coefficient estimate

Table 5.8. WHO LEADS?
EUROPEAN PERIPHERY AND FRANCE, 1920-1938
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	1.161	1.138	0.892	0.865	0.677
	(1.60)	(1.25)	(1.46)	(1.30)	(1.14)
Change in own tariff from (t-3) to (t-2)		-0.046	0.169	0.180	0.204
		-(0.21)	(0.98)	(0.94)	(1.07)
Change in own tariff from (t-4) to (t-3)			-0.148	-0.101	-0.121
			-(0.76)	-(0.49)	-(0.53)
Change in own tariff from (t-5) to (t-4)				-0.150	-0.116
				-(0.76)	-(0.58)
Change in own tariff from (t-6) to (t-5)					-0.156
					-(0.74)
Change in USA tariff from (t-2) to (t-1)	0.239	0.359	4.311	(dropped)	(dropped)
	(0.46)	(0.48)	(1.98)	(0.00)	(0.00)
Change in USA tariff from (t-3) to (t-2)		0.137	-0.103	(dropped)	(dropped)
		(0.17)	-(0.09)	(0.00)	(0.00)
Change in USA tariff from (t-4) to (t-3)			0.270	(dropped)	(dropped)
			(0.25)	(0.00)	(0.00)
Change in USA tariff from (t-5) to (t-4)				5.508	(dropped)
				(1.95)	(0.00)
Change in USA tariff from (t-6) to (t-5)					(dropped)
					(0.00)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	-0.245	-0.317	-0.518	0.328	0.002
	-(1.01)	-(0.51)	-(0.62)	(0.46)	(0.00)
Change in UK tariff from (t-3) to (t-2)		0.143	-1.209	-2.205	-0.009
		(0.41)	-(1.22)	-(1.51)	-(0.02)
Change in UK tariff from (t-4) to (t-3)			2.279	-4.477	(dropped)
			(1.61)	-(1.72)	(0.00)
Change in UK tariff from (t-5) to (t-4)				-0.226	-0.372
				-(0.32)	-(0.30)
Change in UK tariff from (t-6) to (t-5)					(dropped)
					(0.00)
Change in Germany tariff from (t-2) to (t-1)	-0.248	-0.238	-1.854	1.119	-0.004
	-(1.30)	-(1.00)	-(1.88)	(1.65)	-(0.01)
Change in Germany tariff from (t-3) to (t-2)		-0.125	0.711	-0.943	-0.494
		-(0.51)	(1.06)	-(1.55)	-(0.94)
Change in Germany tariff from (t-4) to (t-3)			-0.104	2.523	0.376
			-(0.25)	(1.69)	(0.98)
Change in Germany tariff from (t-5) to (t-4)				0.214	-0.199
				(0.49)	-(0.41)
Change in Germany tariff from (t-6) to (t-5)					0.114
					(0.23)
Constant	0.509	0.638	0.141	1.954	1.599
	(0.95)	(0.83)	(0.12)	(1.93)	(1.12)
N	120	109	98	88	78

t-statistics are in parentheses below each coefficient estimate

Table 5.9. **WHO LEADS?**
ASIA, 1920-1938
Dependent variable: Change in own tariff from (t-1) to (t)

Change in own tariff from (t-2) to (t-1)	0.691 (2.60)	0.467 (1.02)	0.622 (1.24)	1.110 (1.11)	0.827 (1.00)
Change in own tariff from (t-3) to (t-2)		-0.002 -(0.01)	0.020 (0.09)	-0.168 -(0.42)	-0.064 -(0.18)
Change in own tariff from (t-4) to (t-3)			-0.253 -(1.85)	-0.317 -(1.53)	-0.309 -(1.65)
Change in own tariff from (t-5) to (t-4)				0.167 (0.57)	0.165 (0.65)
Change in own tariff from (t-6) to (t-5)					-0.165 -(0.85)
Change in USA tariff from (t-2) to (t-1)	0.776 (1.92)	0.931 (1.50)	3.574 (2.01)	4.055 (1.39)	(dropped) (0.00)
Change in USA tariff from (t-3) to (t-2)		-0.306 -(0.54)	-1.941 -(1.51)	(dropped) (0.00)	(dropped) (0.00)
Change in USA tariff from (t-4) to (t-3)			-0.224 -(0.28)	(dropped) (0.00)	(dropped) (0.00)
Change in USA tariff from (t-5) to (t-4)				1.244 (0.98)	(dropped) (0.00)
Change in USA tariff from (t-6) to (t-5)					(dropped) (0.00)
Change in USA tariff from (t-7) to (t-6)					
Change in UK tariff from (t-2) to (t-1)	-0.363 -(1.94)	0.213 (0.60)	0.862 (1.34)	1.267 (1.34)	1.378 (1.32)
Change in UK tariff from (t-3) to (t-2)		-0.061 -(0.25)	-1.044 -(1.19)	-2.429 -(1.13)	-0.590 -(0.60)
Change in UK tariff from (t-4) to (t-3)			1.463 (1.27)	(dropped) (0.00)	(dropped) (0.00)
Change in UK tariff from (t-5) to (t-4)				1.382 (1.24)	1.658 (1.10)
Change in UK tariff from (t-6) to (t-5)					(dropped) (0.00)
Change in Germany tariff from (t-2) to (t-1)	-0.160 -(1.14)	-0.266 -(1.54)	-1.235 -(1.54)	-1.460 -(1.29)	-0.537 -(0.89)
Change in Germany tariff from (t-3) to (t-2)		-0.340 -(2.22)	0.241 (0.49)	-0.577 -(1.30)	-1.336 -(2.18)
Change in Germany tariff from (t-4) to (t-3)			0.341 (0.85)	1.447 (1.22)	0.529 (0.82)
Change in Germany tariff from (t-5) to (t-4)				0.139 (0.23)	-0.859 -(1.63)
Change in Germany tariff from (t-6) to (t-5)					-0.388 -(0.72)
Constant	0.817 (2.02)	1.438 (2.77)	-0.175 -(0.14)	-0.663 -(0.26)	2.945 (2.03)
N	103	95	87	79	71

t-statistics are in parentheses below each coefficient estimate

Figure 1: Unweighted World Average Own Tariff, 35 Countries, %

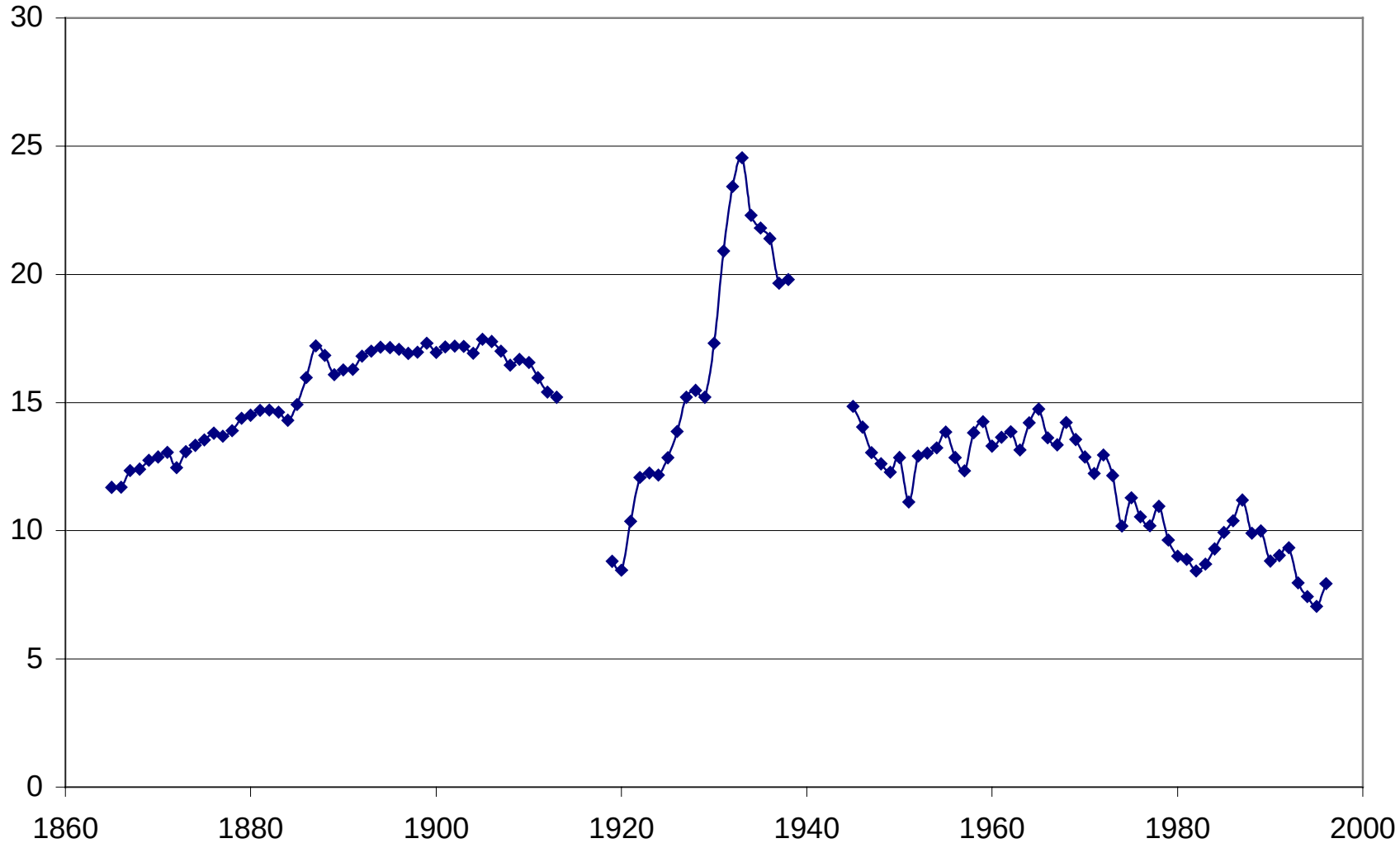
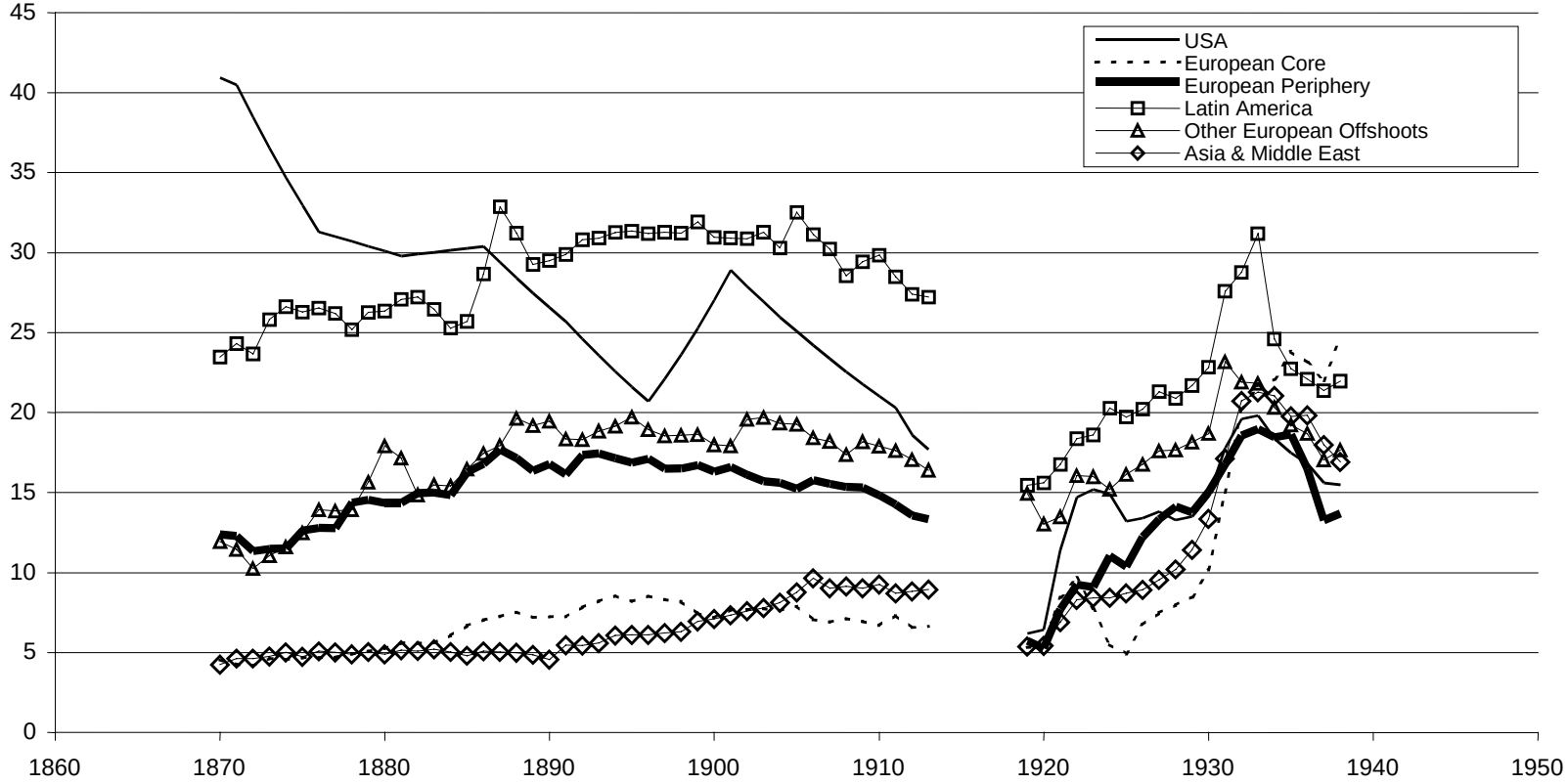


Figure 2. Unweighted Average of Regional Own Tariff



"European Core" is France, Germany, Great Britain.
"European Periphery" is Denmark, Italy, Norway, Portugal, Spain, Sweden, Austria/Austria-Hungary, Greece, Russia, Serbia.
"Latin America" is Argentina, Brazil, Chile, Colombia, Cuba, Mexico, Peru, Uruguay.
"Other Rich Offshoots" is Canada, Australia, New Zealand.
"Asia & Middle East" is Burma, Ceylon, China, Egypt, India, Indonesia, Japan, Philippines, Thailand, Turkey.

Figure 3. Did Britain's Asian Colonial Tariffs Mimic the British Colonial Master?

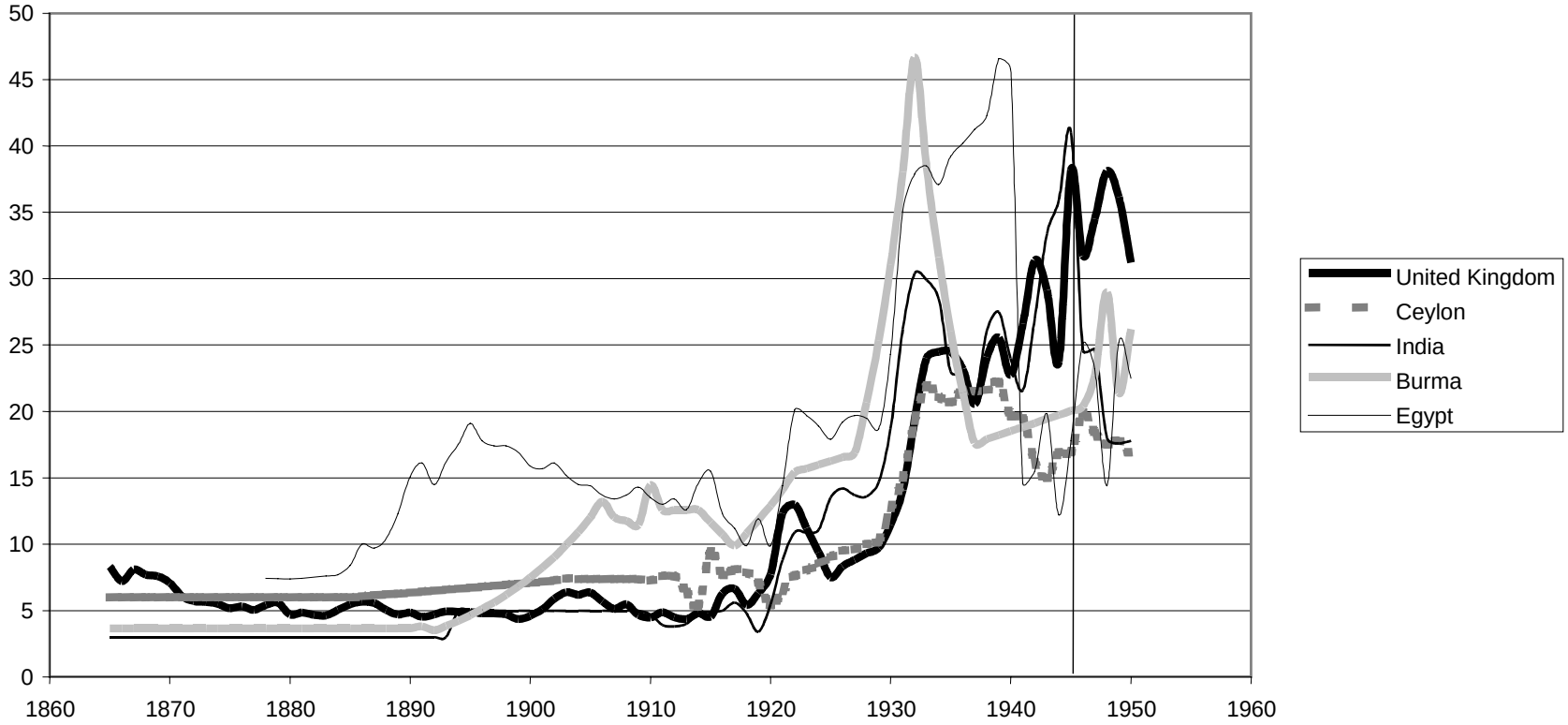


Figure 4. Did Philippine Colonial Tariffs Mimic the Spanish and American Masters?

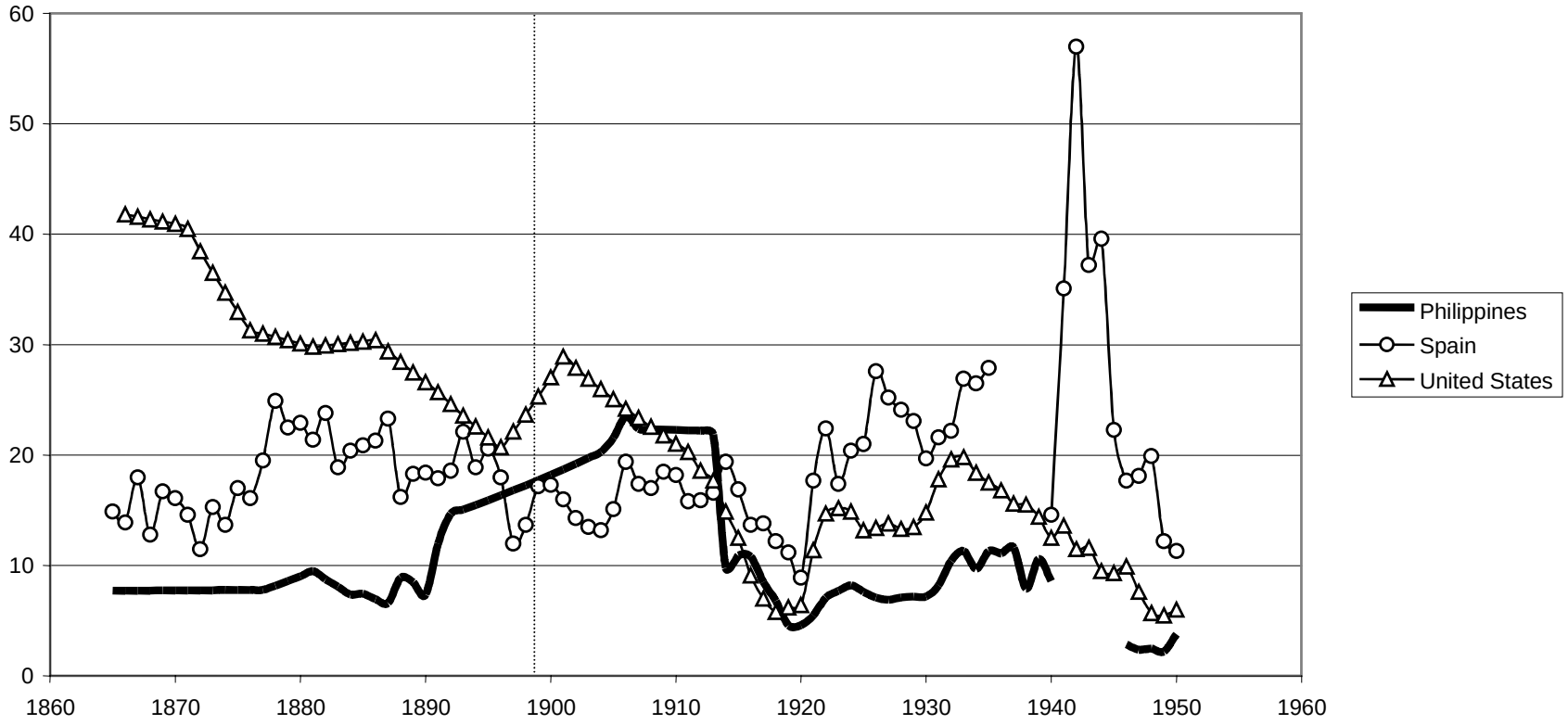


Figure 5: Unweighted Regional Average of Trading Partner Tariff Index, %

Figure 6. Average effects analysis, TS, 1870-1899

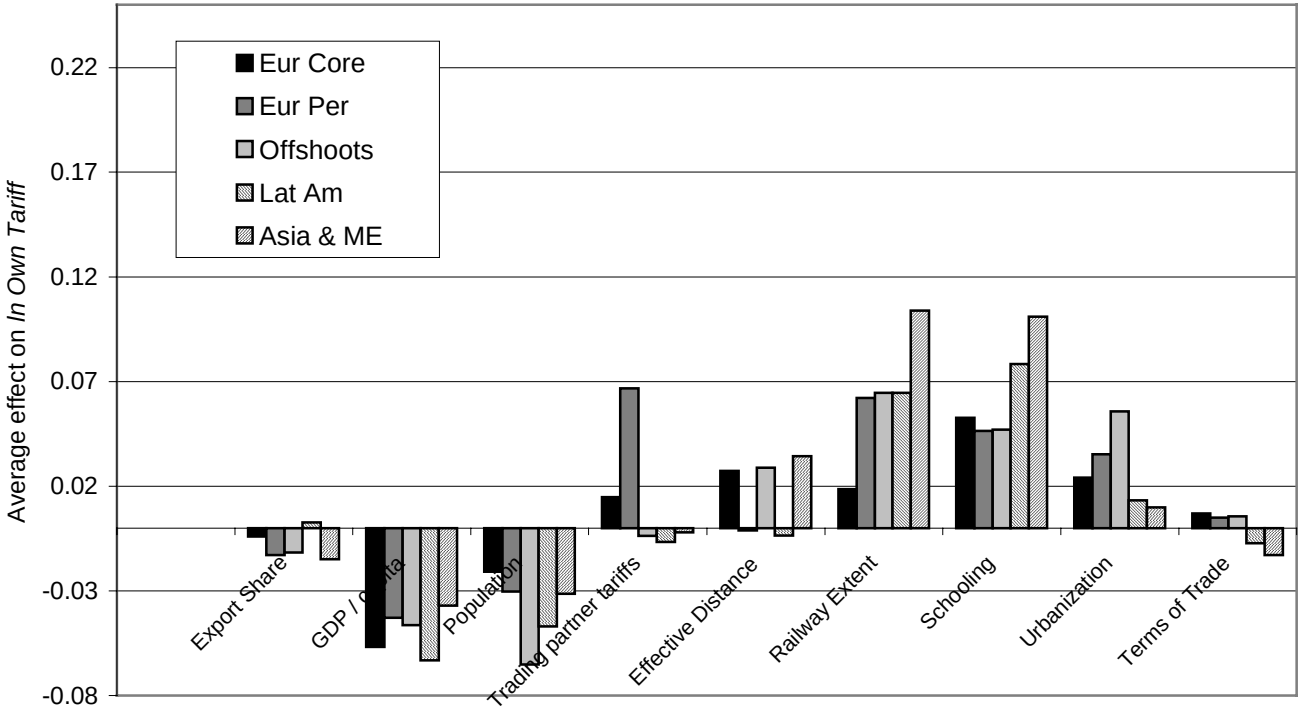


Figure 7. Average effects analysis, TS, 1900-1913

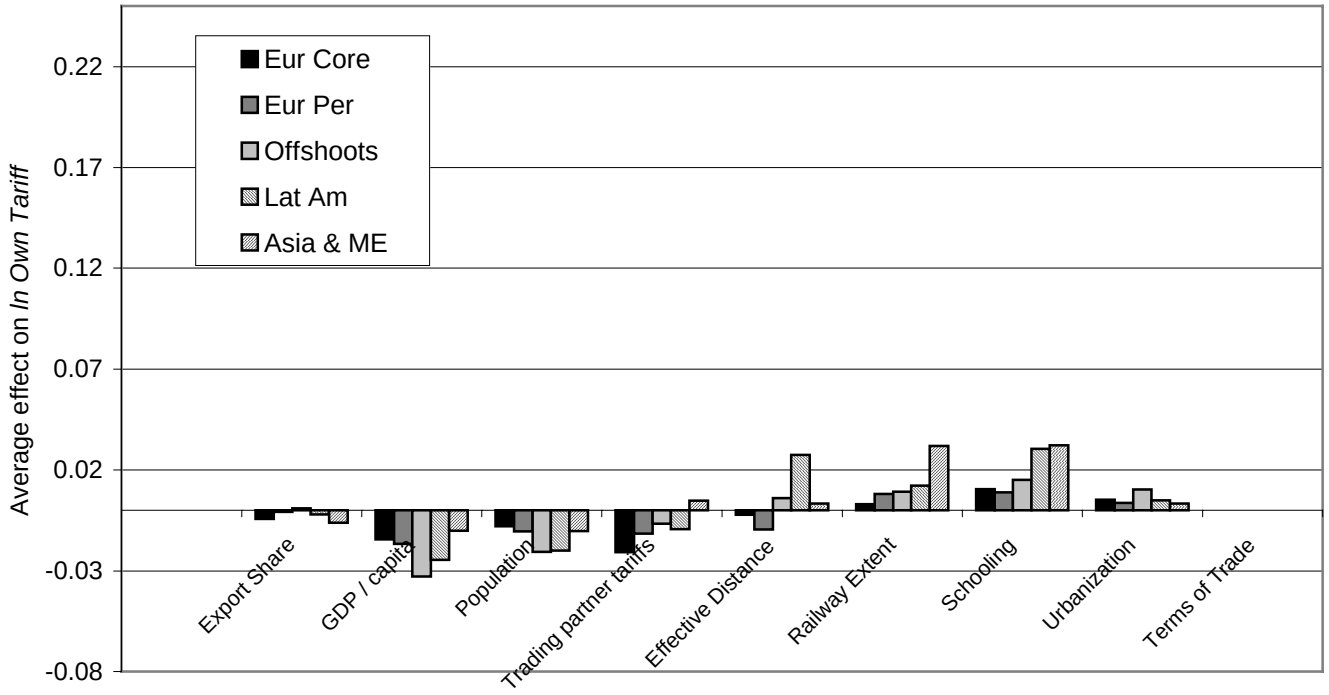


Figure 8. Average effects analysis, TS, 1920-1938

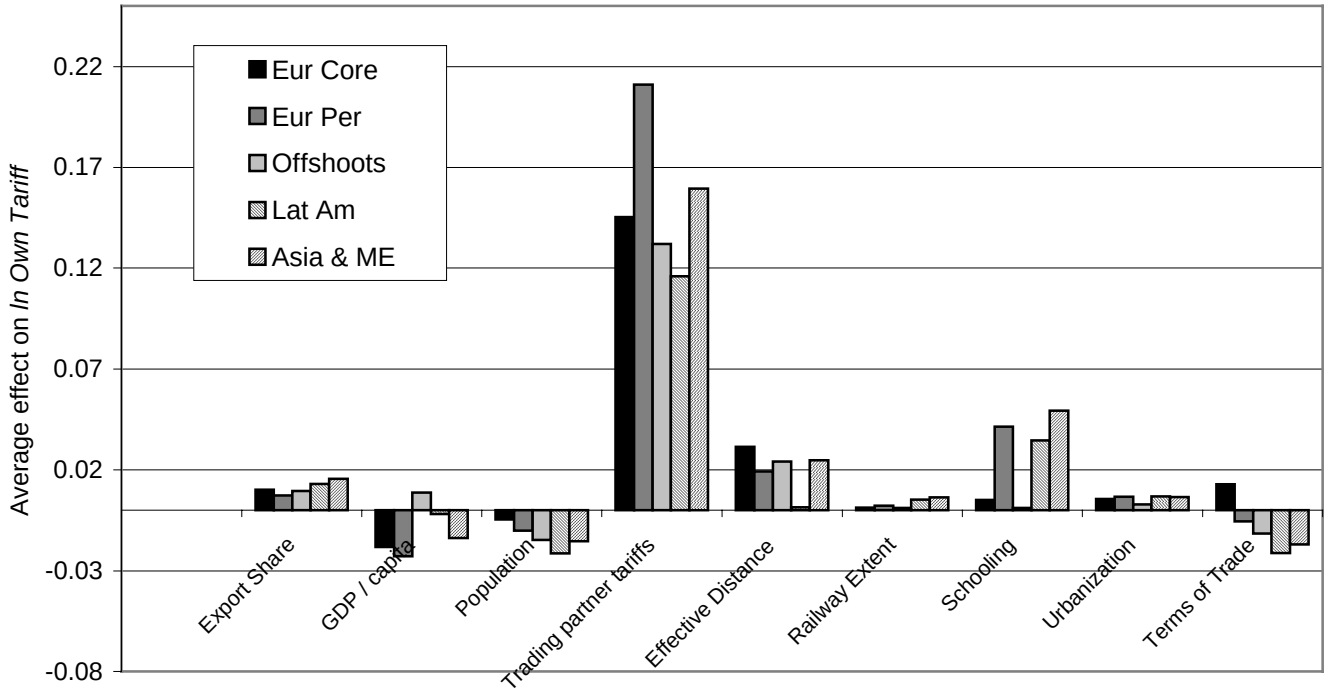


Figure 9. Average effects analysis, CS, 1870-1913

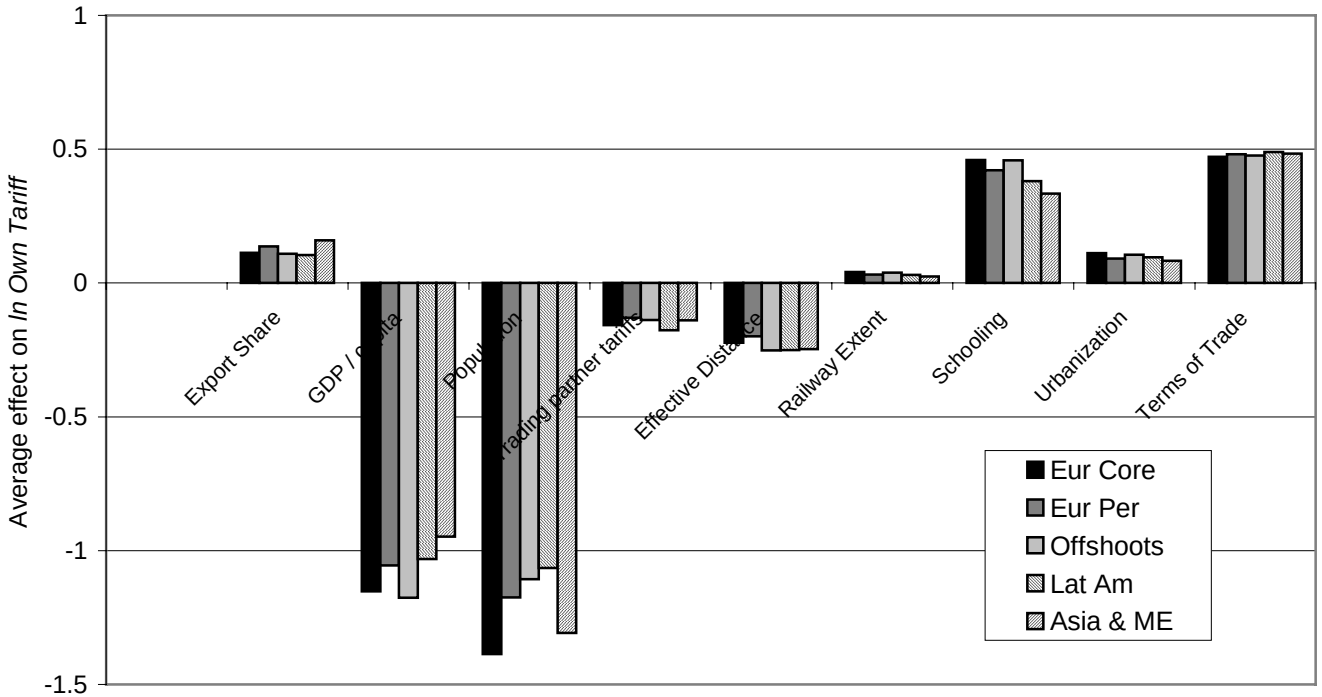


Figure 10. Average effects analysis, CS, 1920-1938