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Abstract

Does democracy encourage free trade? It depends. Broadening the franchise involves transferring power from non-elected elites to the wider population, most of whom will be workers. The Hecksher- Ohlin-Stolper-Samuelson logic says that democratization should lead to more liberal trade policies in countries where workers stand to gain from free trade; and to more protectionist policies in countries where workers will benefit from the imposition of tariffs and quotas. We test and confirm these political economy implications of trade theory hypothesis using data on democracy, factor endowments, and protection in the late nineteenth century.

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1. Introduction

Does democracy encourage free trade, or do democratic reforms make it more difficult to achieve the market liberalizations that are necessary for economic growth? While democracy is obviously a non-negotiable moral imperative, this fundamental question is nonetheless one which has been posed periodically by policy makers, and continues to be posed today. There are two positions on the issue, as might be expected. On the one hand, there are those who feel that political and economic openness, or democracy and markets, are inherently complementary. This sunny optimism has been expressed, among others, by former US President William Jefferson Clinton, according to whom "Democracies don't attack each other. They make better trading partners, and partners in diplomacy."[1] On the other hand, there is a darker and more pessimistic tradition which holds that democracy can undermine the political will to keep markets open; or alternatively, that it is only by stifling opposition that governments can impose free trade on an unwilling population.

There are certainly many individual case studies which can be appealed to by advocates of both positions. Most notable, perhaps, has been the embrace in the 1990s of both democracy and free trade by the countries of Eastern Europe, which had been denied both for so long. Other examples suggesting a complementary relationship between the two include mid-nineteenth century Britain, which extended the franchise in 1832 and abolished the Corn Laws soon after; or the descent into dictatorship and autarky of much of Africa following independence in the 1950s and 1960s. But counter-arguments are easy to come by as well. If those same African countries, as well as their counterparts in much of Asia, had been relatively open to trade prior to World War II (or World War I in the case of countries such as China and Japan), this was largely because they had been forced to open up by foreign military pressure, sometimes expressing itself as formal empire, but always denying local people the right to self-determination in this policy domain. Famously, it was the autocratic Napoleon III who pushed the Cobden-Chevalier trade treaty through an unwilling French political system in 1860, while it took a bloody coup and a right-wing dictatorship to institute free market reforms in 1970s Chile. Most recently, a series of

[1] Cited in Bliss and Russett (1998, 1126).

popular referenda in Europe seem to have undermined the drive towards ever-deeper integration in Europe, to the horror of Europe's political class, although whether this should be taken as a rejection of market liberalization or of bureaucratic *dirigisme* is *a priori* hard to say.

In the academic sphere there is no shortage of relevant literature, although systematic quantitative papers of the sort required to sift through the often-conflicting empirical evidence remain scarce. Karl Polanyi is one obvious reference point: for him, "Socialism is, essentially, the tendency inherent in an industrial civilization to transcend the self-regulating market by consciously subordinating it to a democratic society" (Polanyi 1957, 234). And yet the growing social regulation which democracy can give rise to is not necessarily incompatible with open markets: indeed, the opposite seems to have been the case in nineteenth century Europe, where newly-enfranchised workers in countries such as Belgium *supported* free trade in exchange for a variety of labor market regulations and social insurance programs (Huberman forthcoming; Huberman and Lewchuk 2003). More generally, there is a theoretical tension between two opposing forces, as Geoffrey Garrett points out:

> On the one hand, democracy makes leaders more accountable to their citizens, promoting trade liberalization to the extent that this is good for society as a whole. On the other hand, democracy also empowers distributional coalitions with intense interests, making higher levels of protectionism more likely... (Garrett 2000, 973)[2]

[2] Such considerations obviously relate strongly to two closely related, broader debates which are too vast to be adequately summarised here. The first concerns the relationship between democracy and economic growth: see, e.g., Olson (1993) or Przeworski and Limongi (1993) for some of the theoretical arguments. Recent empirical papers include Rigobon and Rodrik (2005), who find a positive relationship between democracy and economic performance, and Rodrik and Wacziarg (2005) who argue that democratic transitions tend to have a positive effect on economic growth, even in the short run. On the other hand, Barro (1996) finds that once variables such as the rule of law, free markets and government size have been controlled for, the effect of democracy on growth is weakly negative. There is also a large empirical literature on whether democracy promotes economic liberalization: for a flavor of this debate, see de Haan and Sturm (2003), and papers cited therein. This literature typically (but not always) finds that democracy promotes economic freedom; more interestingly, perhaps, a recent paper (Persson 2005) argues that the form of democracy matters for the adoption or otherwise of growth-promoting policies. In our view, however, different types of liberalization have different distributional effects, and are thus likely to be affected differently by extending the franchise: it makes sense to look at individual policies separately.

Empirical work testing for an impact of democracy on the adoption of free trade policies has largely used the "gravity" framework to explore whether pairs of democratic countries trade more than would be expected if one or both were non-democratic (Bliss and Russett 1998; Morrow, Siverson and Taberes 1998; Mansfield, Milner and Rosendorff 2000). Such papers explore the determinants of the level of trade between country pairs; the real question however is whether democracies have more open trading policies than other countries, *ceteris paribus*. Furthermore, as the Garrett quotation above suggests, the impact of democratization on trade policies may not be the same in all countries: a one-size-fits-all regression coefficient in an equation explaining trade policies as a function of democracy, as well as other control variables, is almost by definition going to give the wrong result. We need to do better than that.

There is another, well-developed literature on the political economy of trade policy, whose central purpose is to ask what determines countries' trade policies. The answer is that it all depends: on a country's relative endowments, which determine its comparative advantage *vis-à-vis* the rest of the world; and on the relative strength of the winning and losing sectors (e.g., Gourevitch 1986) or factors of production (e.g., Rogowski 1989). These studies typically do not focus on the question posed by this paper, namely what affect does democratization have on trade policy. Indeed, such models, as well as more formal ones of the type associated with Mayer (1984), Findlay and Wellisz (1984) or Grossman and Helpman (2001), tend to take political institutions as given in their analysis. The argument in this paper, however, is that it is only by looking at our question through the lens of this political economy literature that a satisfactory answer to the question can be formulated.

Our hypothesis is simple. Broadening the franchise involves transferring power from non-elected elites to the wider population, most of whom will be workers. Democratization will lead to more liberal trade policies in countries where workers stand to gain from free trade; and to more protectionist policies in countries where workers will benefit from the imposition of tariffs and quotas. According to standard Heckscher-Ohlin theory, therefore, democratization will boost support for free trade in labor-abundant countries, and lower it in labor-scarce economies. While debate still rages about the adequacy of such theory when it comes to explaining international distributional trends today, we know that Heckscher-Ohlin theory does a good job in explaining distributional trends during the late nineteenth century, which was the

epoch which motivated these two Swedish economists in the first place (O'Rourke and Williamson 1994, 1999; O'Rourke, Taylor and Williamson 1996; Williamson 1996, 2002). If our hypothesis is valid, then the late nineteenth century should be a good place to test it; and in subsequent sections of the paper we do precisely this, using the cross-country dataset pieced together by Jeffrey Williamson and his co-authors (Blattman, Clemens and Williamson 2002; Clemens and Williamson 2004; Williamson 2003).

There are two existing papers which are particularly close in spirit to this one. The first one is Dutt and Mitra (2002), which looks at the impact of inequality on trade barriers in capital-abundant and capital-scarce economies. The paper assumes that societies are democratic, that voters are endowed with labor and capital, and that the median voter determines trade policy outcomes. In more unequal societies, the median voter will own less capital, and thus policies will be more tilted towards labor: that is to say, they will be more pro-free-trade in labor-abundant (capital-scarce) societies than in labor-scarce (capital-abundant) societies. Dutt and Mitra find empirical support for this proposition, using cross-national, late twentieth century data.

Our paper can be seen as providing another test of median voter theory that is complementary to theirs and arguably more appropriate, at least in a nineteenth century context. In time series for societies undergoing transformations towards or away from democracy, it is not the *endowments* of the median voter that are changing so much; rather, it is the *identity* of the median voter that is changing, as sections of the population are being enfranchised or disenfranchised. Like Dutt and Mitra, we assume that such shifts will have different impacts on different countries, depending on their factor endowments. Unlike them, however, we broaden the scope away from labor and capital, since in order to understand the political economy of late nineteenth century trade policy we have to consider the interests of land as well.[3]

We have to date been able to find two papers whose arguments anticipate the one made here. The first paper is Sachs and Warner (1995, 32), who titillate their readers by promising (in a later paper) a "detailed model of the timing of liberalization during the postwar period". In the preliminary regression included in the 1995 paper, they show that liberalization was earlier in countries with high labor-to-

[3] As the papers and book cited above make abundantly clear.

land ratios, which they had predicted on the basis that workers in these countries would gain from free trade; earlier, however (Sachs and Warner 1995, 20–21), they speculate that this mechanism would depend on the nature of political institutions in place in each country. This paper tests that proposition explicitly. The second paper is Milner and Kubota (2005), which we became aware of since beginning the project. Their strategy is to run straightforward regressions of late twentieth century trade policy on democracy, but to limit their sample of countries to developing countries, which are by assumption labor-abundant. The HO prediction is then that more democratic countries will be more open, and this prediction is confirmed by the data. Obviously, this finding is consistent with our argument; however, it does not exclude the possibility that more democratic countries are more open in the developed world as well, which would obviously be completely at odds with the median voter mechanism proposed here.

In this paper, we do not pre-assign countries to any particular category (e.g. labor-abundant or labor-scarce); rather, we let the data do this for us. This allows us to test our hypothesis for both rich and poor countries. It also lets us be more confident that what we are testing is indeed our preferred HO median voter theory linking democracy to policy, rather than some entirely different theory yielding a "one-size-fits-all" relationship applying to all countries. Moreover, we will explore the impact of both capital-labor and land-labor ratios on the democracy-policy link. According to Rogowski (1989), although both ratios could matter in principle, in practice it was the land-labor ratio that determined whether workers were in favor of free trade or protection. That is, in countries where land-labor ratios were high, workers should have been protectionist, and democracy should have been associated with higher tariffs, no matter what the capital-labor ratio; while the opposite should have been true in countries where land-labor ratios were low. It turns out that these predictions can be tested using the data at our disposal.

2. Democracy, the median voter and protection in a three-factor world

The literature we have reviewed conveys some mixed messages concerning the impact of increased democracy on the degree of protectionism. Can economic theory provide any clarification? In this section of the paper we review perhaps the most relevant benchmark model of the political economy of trade policy.

A Simple Median Voter Model

We start with the simple textbook 2x2 Heckscher-Ohlin framework, where the two factors are labor and land. To introduce political economy we employ the familiar median voter model. Individuals each own one unit of labor but they differ in their endowments of land. This inequality in endowments leads not only to inequality in incomes, but also to different preferences on trade policy among individuals (Mayer 1984; Dutt and Mitra 2002; Feenstra 2004, chapter 9).

We now adopt an assumption about the extension of the franchise that is broadly consistent with historical experience. The population is assumed to consist of a large set of individuals $i = 1, \quad ,L$, where the individuals are ordered according to decreasing levels of land endowment R^i, so that R^i is decreasing in i. Policy is decided by a majority of the popular vote among a subset of enfranchised individuals $i = 1, \quad ,2M$. Here, $D = 2M/L < 1$ serves as an index of democracy (or the extent of the franchise) in the society, and we are restricting attention to cases where the franchise is the exclusive preserve of the richest fraction D of the landowners. In this setting, the median voter is individual M, and this voter owns R^M units of land.

Since voters differ on only one dimension—their land ownership— the median voter theorem can be applied, and the lessons of the venerable Stolper-Samuelson theorem supply all the necessary intuition. So we must ask, when it comes to trade policy, what does individual M want? Individuals poorly endowed with land would vote in line with the preferences of a pure owner of labor—they will favor higher tariffs when labor is a scarce factor in the country relative to the rest of the world. Individuals richly endowed with land would tend to vote more in line with the preferences of a pure owner of land —they will favor higher tariffs when land is a scarce factor in the country relative to the rest of the world.

As the franchise is extended, M increases, and the median voter looks less like a landowner and more like a laborer. The implications are clear, when the median voter's preferences determine trade policy in this setting: *in a land-abundant country, democracy increases protectionism; in a land-scarce country, democracy reduces protectionism*.

Formally, the result is derived as follows (adapted from Feenstra 2004, chapter 9). Suppose each individual i has a quasi-linear utility function given by $c_0^i + U(c^i)$, where c_0^i is consumption of a *numéraire* export good, and c^i is the consumption of

the import good. Consumers all have the same optimal consumption $c^i = d(p)$, with $d'(p) < 0$ and with any remaining income spent on the *numéraire* good, $c_0^i = I^i - pd(p)$. Then individual utility is

$$V(p, I^i) = I^i - pd(p) + U[d(p)] \ . \tag{1}$$

Both the export and import goods are produced using labor and land. The total endowments of labor and land are L and R, respectively. The fixed world price of the import is denoted by p^*, and this good has a specific tariff of *t*, so the domestic price is $p = p^* + t$. Let $y(p)$ denote the supply of the import-competing good, with $y'(p) > 0$. Imports are then $m(p) = d(p)L - y(p)$. Tariff revenue is equal to $T = tm(p)$, which we assume is redistributed via a poll subsidy. Let the wage be *w* and the rental price of land be *q*, so that individual income is $I^i = w + qR^i + (T/L)$, or

$$I^i = \frac{1}{L}\left(wL + qR^iL + T\right) = \frac{1}{L}\left(wL + \theta^i qR + T\right) \tag{2}$$

where $\theta^i = R^i/(R/L)$ is the land/labor ratio for individual *i* relative to the overall land/labor ratio in the economy. Total GDP in the economy is $y_0(p) + py(p) = wL + qR$ where $y_0(p)$ represents the output of the *numéraire* good. Hence:

$$I^h = \frac{1}{L}[(\theta^i - 1)qR + y_0(p) + py(p) + T]. \tag{3}$$

Differentiating individual utility in (1) with respect to the tariff, we obtain

$$\begin{aligned} \frac{dV^i}{dt} &= -d(p) + \frac{dI^i}{dt} \\ &= (\theta^i - 1)\frac{dq}{dp}\frac{R}{L} + \left[\frac{y_0'(p) + py'(p) + y(p)}{L} - d(p)\right] + \frac{1}{L}\frac{dT}{dt} \\ &= (\theta^i - 1)\frac{dq}{dp}\frac{R}{L} + \left[\frac{y(p)}{L} - d(p)\right] + \frac{1}{L}\frac{dT}{dt} \\ &= (\theta^i - 1)\frac{dq}{dp}\frac{R}{L} + \frac{t}{L}m'(p), \end{aligned} \tag{4}$$

where the first line uses Roy's Identity, the second line employs (3), the third line invokes the MRT-equals-price condition $y_0'(p) + py'(p) = 0$, and the fourth line exploits the fact that tariff revenue can be written $T = t\left[d(p)L - y(p)\right] = tm(p)$, implying $dT/dt = m(p) + tm'(p)$.

If the tariff is determined by majority vote, then the tariff prevailing will be that which maximizes the utility of the median voter. This voter's utility is $V^M = V(p, I^M)$, so the tariff will satisfy $dV^M/dt = 0$ (under standard conditions, $d^2V^M/dt^2 < 0$). Setting (4) equal to zero, the median voter's preferred tariff (or import subsidy, if negative) is:

$$t^M = (1 - \theta^M)\frac{dq}{dp}\frac{R}{m'(p)}. \tag{5}$$

We next examine the signs of the terms on the right hand side of this expression.

- Clearly, $m'(p) < 0$, since imports fall as the price of the importable rises.
- Next, $\theta^M = R^M/(R/L)$ is the land/labor ratio for the median voter relative to the overall land/labor endowment of the economy. When democracy is limited, M is small, and θ^M will be well above one, reflecting the privileged position of the voting class as large landowners. When the franchise is fully extended, M is large, and θ^M will be below one, reflecting the fact that the median individual in society owns less than the average amount of land in an unequal society (Alesina and Rodrik 1994).
- Finally, when the import good is labor-intensive (the country is land abundant), the Stolper-Samuelson theorem implies that $dq/dp < 0$; when the import good is land-intensive (the country is land scarce), $dq/dp > 0$.

To sum up these results for empirical purposes, we expect, all else equal,:

- In land scarce countries, tariffs will be high when democracy is limited, but low when democracy is broad.
- In land abundant countries, tariffs will be low when democracy is limited, but high when democracy is broad.

Extending The Model to Three Factors

Of course, the real world is more complicated than such a simple 2x2 model, and thus the political economy of trade policy will be more complicated as well. In our empirical analysis, we will explicitly take account of the fact that there are more than two factors of production. Indeed, we will follow the classical economists of the

period, as well as a great many economic historians, and consider a world in which there are three factors of production: land, labor, and capital. Of course, we could have replaced "land" with "capital" in the preceding analysis and obtained precisely the same predictions; in capital-scarce countries, extending the franchise should favor free trade, while the opposite should be the case in capital-abundant countries (as in Dutt and Mitra 2002).

It would also be a trivial extension of the model if land and capital were everywhere available in the same, fixed proportions, for they could then be analyzed as a single composite factor of production, with precisely the same results obtaining. More generally, one might presume that in economies where both capital-labor and land-labor ratios were high, extending the franchise would lead to greater protection; but that in economies where both capital and land were scarce relative to labor, democratization should lead to more liberal trade policies.

The problem is, however, that capital-land ratios vary greatly across countries. There are thus countries with high capital-labor ratios, but low land-labor ratios; and countries with low capital-labor ratios and high land-labor ratios. What will be the effect of extending the franchise in such "mixed" cases? In a series of papers, Thompson (1985, 1986) has shown that in a three-factor two-good model, raising tariffs can either raise or lower the returns to any factor of production. Indeed, moving to free trade might even have "perverse" effects on factor prices—for example, lowering land rents in countries were they were initially below the world average. In such a setting, therefore, we are unlikely to obtain unambiguous theoretical predictions. Indeed, there is an even more fundamental theoretical problem, since median voter models are difficult to set up in such a three-factor setting (Mayer 1984).

In his classic book, Ronald Rogowski (1989, 6) simplifies, by assuming that "the land-labor ratio informs us fully about any country's endowment of those two factors." That is, in his basic schema he assumes that where land-labor ratios are high, labor is a relatively scarce factor and will thus favor protection, regardless of capital-labor ratios; and that where land-labor ratios are low, labor is relatively abundant, and will thus favor free trade, regardless of capital-labor ratios. (He later relaxes this assumption, and looks at the consequences of assuming that both land and labor are abundant/scarce relative to capital. In this case land and labor will hold similar positions on trade, the result being so-called "red-green" coalitions; the operative

assumption throughout the book is, however, that such cases are relatively rare.) This seems to us to be a testable hypothesis, in that the prediction is that democratization will spur liberalization in all economies with high labor-land ratios, regardless of capital-labor ratios; and that it will spur protection in all economies with low labor-land-ratios, again regardless of capital-labor ratios. In the context of the late nineteenth century, Rogowski's basic assumption implies that democracy should have been associated with higher tariffs everywhere in the land-abundant New World, both in the more advanced societies of North America and Oceania, as well as in the less industrialized countries of Latin America; while it should have been associated with lower tariffs everywhere in land-scarce Europe, as much in capital-abundant core countries such as the United Kingdom and Belgium, as in capital-scarce countries on the southern and eastern peripheries.

3. Data and econometric results

Starting with the assumption that land-labor ratios provide a sufficient statistic for determining the preferences of the median voter, we set out to test our simple model using annual country-level panel data for the period 1870–1914. The sample of countries includes not just countries in Europe and North America, but a total of 35 countries both developed and developing: Argentina, Australia, Austria-Hungary, Brazil, Burma, Canada, Ceylon, Chile, China, Colombia, Cuba, Denmark, Egypt, France, Germany, Greece, India, Indonesia, Italy, Japan, Mexico, New Zealand, Norway, Peru, Philippines, Portugal, Russia, Serbia, Spain, Sweden, Thailand, Turkey, the United Kingdom, the United States, and Uruguay. As already mentioned, the dataset was constructed by Jeffrey Williamson and his co-authors in a series of papers exploring the causes and consequences of protectionism in the late nineteenth and early twentieth centuries (Blattman, Clemens and Williamson 2002; Clemens and Williamson 2004; Williamson 2003).

To test the basic median voter model, with just two factors of production, land and labor, the econometric specification we adopt is as follows:

$$tariff_{it} = \beta_1 democ_{it} + \beta_2[democ_{it} \times \ln(R_{it}/L_{it})] + u_i + \varepsilon_{it}. \quad (6)$$

The variables are defined as follows. The dependent variable $tariff_{it}$ is the measure of protection, and as a proxy for this variable we use the ratio of duties to imports expressed in percent.

The measure of the breadth of the franchise is $democ_{it}$, which ranges over a 0-1 scale and is based on the index of democracy taken from the Polity database. However, we reason that the democratic forces captured in the median voter model can only generate changes in tariff policy if countries are free to set their own tariff policy. Many countries of the time were not allowed to pursue independent tariff policies, even if they were not formal colonies. Some, like India or Indonesia, were run by European colonial powers, who imposed liberal trade policies on their possessions; others, like China or Turkey, while independent, were nevertheless obliged to run virtually free-trade policies as a result of treaties with western powers which were often as not signed at the barrel of a gun. Hence we modify this variable as follows:

$$democ_{it} = \begin{cases} 0 & \text{if tariff autonomy} = 0; \\ (\text{Polity Score})/10 & \text{if tariff autonomy} = 1. \end{cases} \tag{7}$$

Here, the polity score is the measure of democracy on a 0-10 scale, and tariff autonomy is one except for countries that have no policy freedom to set their own tariffs. In our sample the no-autonomy observations are: Burma, Ceylon, China, Egypt, India, Indonesia, Japan (before 1899), Thailand, and Turkey.[4]

The endowment measure is the log land-labor ratio $\ln(R_{it}/L_{it})$, based on the estimated area of arable (food) crops in hectares divided by labor force. These data are taken from Clemens and Williamson (2004) and Blattman, Clemens and Williamson (2002).

The scaling of the right hand side variables in equation (6) is of no great consequence. For convenience, we rescale $democ_{it}$ to take a value between 0 (low) and 1 (high) and we standardize the $\ln(R_{it}/L_{it})$ variable to have a mean of zero and a standard deviation of one. Thus, $\ln(R_{it}/L_{it})$ is negative for countries with below-average land-labor ratios and it is important to bear this in mind when interpreting

[4] Based on a reading of Bairoch (1989), the standard English-language source on nineteenth century trade policies.

some of the results which follow. Summary statistics for the key variables of interest are shown in the Appendix Table.

The regression equation (6) also includes a fixed effect u_i and allows for a serially correlated error term ε_{it}, with autocorrelation coefficient ρ common to all countries. Inclusion of fixed effects controls for each country's "average" pattern of endowments and democracy over the length of the sample period, as well as for any other country-specific factors leading to systematically higher or lower tariffs over time. The marginal effect of an increase in the extent of democracy is then captured by the slope coefficients. The identification of this effect is from a "within" regression—that is, the slope is estimated using the time dimension for each country in the panel. We are therefore seeking to answer the question: if a given country had changed its political institutions then, allowing for the country's factor endowments, what would have been the likely change in trade policy?

Table 1 shows the results of our estimation. In column 1 we estimate (6) without the interaction term to test a naive model inspired by those who argue that democracy is always associated with liberalization, as well as those such as Polanyi who argue that democracy provided a way for societies to mute the impact of markets. Neither of these positions finds much support in the data. Democracy was *not* associated with protection in this period, either positively or negatively.

In columns (2) through (4) we add the interaction term that allows for the impact of democracy on tariffs to vary depending on the country's factor endowment, as suggested by the two-factor median voter model. The positive coefficient on the interaction term implies that democratization raises tariffs in countries with sufficiently high land-labor ratios ($\ln(R_{it}/L_{it})> 0$); and it lowers tariffs with sufficiently low land-labor ratios ($\ln(R_{it}/L_{it})<0$). Still, the model finds only weak support here, with the coefficient on the interaction term statistically insignificant at conventional levels.

Some readers may have worried that our specification of the democracy variable, which took into account not just the level of the franchise, but also the freedom of the country in question to set its own tariffs, may not adequately deal with the fact that several countries in our sample did *not* enjoy tariff autonomy during this period. In order to satisfy them, we have included two additional sets of results in Table 1. Column (3) excludes colonies from the sample, on the grounds that colonies

might not have had true freedom to set their own tariff policies; column (4) includes only those countries in our sample which enjoyed tariff autonomy during our period. Of these two subsets, we prefer the latter, since countries like Australia and Canada, while linked to Britain, did enjoy tariff autonomy and used it to raise tariffs; while other countries, such as Siam or China, which were nominally independent, had no such freedom. These results show that democracy is a statistically significant determinant of protectionism once factor endowments are included in the model, for this sample of countries. One possible reason for the difference between these results and those in column (2) is that in the countries without tariff autonomy, not only were tariff rates fixed at levels specified by the great powers for decades at a stretch, but as often as not there was no democracy, or any movement towards democracy, during the late nineteenth century. With both their tariff rates and democracy scores essentially fixed during the period, it may be no surprise that including such countries in the analysis reduces the variation in the data and weakens the statistical significance of our results.

Was democracy a quantitatively significant determinant of trade policy in countries enjoying tariff autonomy during the period? One simple way to gauge this is to look at the counterfactual changes in the implied tariff level predicted by the model as we change the level of democracy, whilst holding fixed factor endowments. Recall that our measure of the land-labor ratio was standardized, so a simple way to proceed is to use the model to forecast tariffs at all levels of democracy between zero and one, for the average country, when the land-labor ratio is set to –2, –1, 0, 1, or 2 (corresponding to difference, in standard deviations, of the country's raw log land-labor ratio from the world average). These results are shown in Figure 1, based on our preferred specification in Table 1, Column 4.

The model predicts that for a country with an average land-labor ratio, the change in tariffs would be minimal after a "full democratization" experiment, that is, an increase in democracy from the minimum of zero to the maximum of 10. For a country with a land-labor ratio roughly one standard deviation below the mean (such as the U.K., with a standardized log land-labor ratio of –0.93 in 1870), tariffs would be predicted to fall by about 2.5 percentage points. For a country with a land-labor ratio one standard deviation above the mean (such as the U.S., with a standardized log land-labor ratio of +0.83 in 1870), tariffs would be predicted to rise by about 2.5 percentage points in the same experiment. For countries with even more extreme

endowment vectors, the effects would be larger still. For example, in Argentina (with a standardized log land-labor ratio of +2.15 in 1870), the "full democratization" experiment would be predicted to raise tariffs by about 5 percentage points.

These results offer some insights into the evolution of national tariff policies in the nineteenth and early twentieth centuries. In land-abundant countries, the extension of the franchise raised popular pressure for protection, but in land-scarce countries the same democratic tendencies encouraged trade liberalization. The mechanism identified by the model is the different endowment bundles owned by median voters in the two groups of countries. Whilst we should never take the median voter model too literally, given its simplistic assumptions and dubious implications about voting behavior, we think it nonetheless proves revealing as a way of illustrating the power of the "middle-of-the-road" electoral group to drive commercial policy.

Robustness Check: Three-Factor Model

In Table 2, we extend our tests to a three-factor setting, and interact the democracy variable with capital-labor as well as with land-labor ratios. Building on equation (6), the estimating equation is now

$$tariff_{it} = \beta_1 democ_{it} + \beta_2[democ_{it} \times \ln(R_{it}/L_{it})] + \beta_3[democ_{it} \times \ln(K_{it}/L_{it})] + u_i + \varepsilon_{it}. \quad (8)$$

Obtaining historical capital-labor ratios for our sample is no simple task. The capital-labor ratio is physical capital per worker, based on the 1890–1914 *average* level for each country taken from Baier, Dwyer, and Tamura (2006). These capital stock estimates are based on standardized perpetual inventory methods (and guessed starting values). We consider only the average in the later part of our period 1890–1914 simply because perpetual inventory data are likely subject to wide initial estimation errors close to the start date of these series, which is no earlier than 1870 in most cases. It should be noted that these capital stock measures are only available for occasional benchmark dates. Since we average them, they contain no time series variation within each country. Furthermore, there are no capital stock data for the following countries: Ceylon, China, Colombia, Cuba, Egypt, Indonesia, Philippines, Russia, Serbia, Thailand, Turkey, Uruguay. For consistency in the presentation of the

results, these countries are omitted from the sample for all regressions reported in Table 2.

For reference, column (1) replicates the specification used in Table 1 for the new sample. The basic point of the simple land-labor median-voter model is underscored again, and the coefficient on the interaction term even rises to the 5% significance level in this sample. The remaining columns in Table 2 can be viewed as a test of a more complex, three factor model. As can be seen from Table 2, the capital-labor interaction terms are statistically significant, and negative. Moreover, this result is robust to the omission of colonies and countries without tariff autonomy during the period, as columns (3) and (4) show.[5]

Tables 3 and 4 provide additional sensitivity analysis, to gauge the robustness of our results. They concentrate throughout on the sub-sample of countries enjoying tariff autonomy, to make them consistent with out preferred specifications in column (4) of Tables 1 and, especially, 2. Table 3 shows that the results are unaffected if random effects are used rather than fixed effects, and that they are also unaffected if time dummies are included alongside country dummies. This is particularly true for the three-factor specification reported in columns (4) through (6): the coefficients of interest are very similar in size to those reported in column (4) of Table 2, and are all highly statistically significant. In the case of the two-factor model, the results also seem fairly robust, although the interaction term between democracy and the land-labor ratio becomes statistically insignificant at conventional levels when a random effects specification without time dummies is used. This does not concern us too much, however, since the three-factor model clearly fits the data better than the simpler two-factor model.

Table 4 addresses another concern which some readers may have, namely that we have not controlled for other factors which might influence tariff levels. Since the regressions reported in Tables 1 and 2 includes country fixed effects, we are picking up a lot of these factors already, but Table 4 provides some extra reassurance by including two variables in the specification which have been found to be important in

[5] In results not reported we also found the result holds when missing data on democracy (e.g., for colonies excluded from Polity) are imputed by backfilling from the first available year. As an additional check, we also replaced our data on capital-labor ratios with data on output per capita, to see if the results were an artifact of our capital stock data. (The rationale for using output per capita is that one would expect rich countries to have high capital-labor ratios, other things being equal.) The results were robust to this change as well.

determining average tariff rates (see Blattman, Clemens and Williamson 2002 and Williamson 2003, 2004). These are the lagged export to GDP share, and lagged partner tariffs, and as Table 4 shows including them has virtually no effect on the coefficients of interest to us here, whether we use fixed or random effects, or include time dummies or not.

Our results thus appear to be robust. What they imply is that, other things being equal, democratization had a stronger impact on lowering tariffs in rich, capital-abundant countries than in poor, capital-scarce countries. Such a finding seems at odds with the median voter model, since as stressed earlier, we should in principle be able to replace land with capital in the model outlined in section 2 and derive precisely the same results. In order to understand this result, we need therefore to step outside the rather limited confines of that model, and enter the real world of late nineteenth century politics.

Reality Check: Simulating the Rogowski Model

For the purposes of illustration we now simulate the impact of "full democratization" on tariff policy as predicted by what we regard as our benchmark three-factor model for the sample of countries with tariff autonomy (Table 2, Column 4). What the coefficient sign patterns suggest is as follows. In land-scarce Europe, low land-labor ratios should have implied that democratization lowered tariffs. In the capital-abundant north-western core, high capital-labor ratios should have reinforced this effect; thus, in countries such as Britain or Belgium, democratization should have unambiguously lowered tariffs.

On the other hand, in poorer European countries such as Italy or Spain, low capital labor ratios should have worked in the opposite direction, and democratization should have had a far less dramatic effect on liberalization. The implication is that democracy should have implied much lower tariffs in the European core, but that the effect should have been weaker in the European periphery. Figure 2 illustrates the mechanism for two European countries, Britain and Italy. The preferred model of Table 2 Column 4 predicts that "full democratization" (moving from 0 to 1 on the horizontal axis) would, ceteris paribus, lower British tariffs by about 7 percentage points. In Italy the same democratic shift would have lowered tariffs by only 2 percentage points, a muted effect.

In the New World, the opposite logic applies. Everywhere in the New World, high land-labor ratios implied that democratization should have been associated with higher tariffs. However, in the richer parts of the New World, such as the United States, high capital-labor ratios should have muted this effect significantly. On the other hand, in poorer regions such as Latin America low capital-labor ratios should have reinforced the impact of high-land-labor ratios, and thus democratization should have raised tariffs by a lot. Figure 2 shows the impact of increasing democracy in two New World economies, the United States and Argentina. The preferred model predicts that "full democratization" (moving from 0 to 1 on the horizontal axis) would, ceteris paribus, have raised Argentine tariffs by 7 percentage points. In the United States the same democratic shift would have actually lowered tariffs by a small 3 percentage points.

As mentioned, to understand the findings in Figure 2, we have to move beyond the simple median voter model. What the coefficients in Table 2 imply, in very broad terms, is that the sign of *d(tariff)*/*d(democ)* corresponds to the qualitative predictions of the Rogowski model (in general, three-factor form) as summarized in our Table 5.

What we see is that we get an unambiguous result for the rich European core, as well as for land-abundant but capital-scarce countries in Latin America and elsewhere. However, in poor land-scarce economies, and economies abundant in both capital and land, we do not expect much of an effect one way or another. This may not make sense in terms of the intuitions provided by the median voter model in Section 2, but it does make sense in terms of nineteenth century politics (Rogowski 1989).

What regions A and D in Table 5 have in common is that in each case, capital and labor share the same interests as regards trade policy. In region A, both capital and labor are pro-free-trade, with only land being protectionist; in region D, both capital and labor are protectionist, with only land being pro-free-trade. Thus, in both regions capital and labor formed coalitions against land, and political cleavages relating to trade took on an urban-rural nature. On the other hand, in regions B and C, capital and labor were on opposite sides of the trade debate. In region B, capital was pro-free-trade, along with land, while labor was protectionist; while in region C, capital and land were both protectionist, with only labor supporting lower tariffs. In

these cases, cleavages over trade policy took on a class nature, with labor being opposed to both capitalists and landowners.

What our results suggest is that democracy helped labor get its way on tariff policy, but only if it was supported by capital. In cases where labor was opposed by both capital and land, extending the franchise was not sufficient to allow labor to push trade policies in its preferred direction. Extending the logic of the two-factor model in section 2 to a three-factor case, it would seem that the opposite should have been the case: in cases where labor was unambiguously scarce (abundant) relative to the two other factors of production, shifting the median voter in the direction of a 'pure worker' should have unambiguously produced a more pro-labor tariff. The reason why this was not the case is that in the real world, politics is a more complicated affair than the median voter model would suggest. In particular, and especially (if not exclusively) in countries with proportional representation, coalition-building is an essential requirement for constituencies trying to push particular policies.

The argument is well illustrated by the Belgian case (see Huberman forthcoming). The country's socialist party, the *Parti Ouvrier Belge* (POB), was founded in 1885, and from the beginning supported free trade, as would be predicted by Heckscher-Ohlin theory. However, it was not until the introduction of universal male suffrage in 1893 that the POB obtained enough votes to be represented in Parliament: its share of the vote was 13.2% in 1894, 21% in 1898, 22.5% in 1900, 26% in 1904, and 30.3% in 1914. The POB joined forces with the pro-business liberals in opposing tariffs, which were favored by the pro-landlord conservatives. Eventually, the POB and the liberals joined forces in government, with the POB using their support for free trade to extract welfare reforms from their *laissez faire* liberal allies. The net result that there was no return to protection in Belgium during this period, unlike in France and Germany, where conservative agrarian interests gained the upper hand in the tariff debate. Crucially, neither the POB nor the liberals had enough votes to govern on their own: throughout the period, both parties' share of the vote was much lower than that of the conservatives (which varied from a high of 51.1% in 1894 to a low of 41.4% in 1898). A POB-liberal coalition was necessary for free trade to hold; and this in turn required both the extension of the franchise, and agreement between capital and labor on the trade issue. If the POB had been opposed by both land and capital on trade policy, it would not have had its way.

By contrast, in poorer regions of the European continent, labor was abundant but capital was scarce; thus capital and land joined forces on the trade issue. This was the case in countries like Spain, where Barcelonan industrialists and large landowners agreed on a policy of rotation between conservative and liberal governments, both of whom favored protection. The franchise was gradually extended over the course of the late nineteenth century, but without a natural coalition partner, labor found its views on trade ignored, with a gradually mounting level of worker discontent, occasionally expressed through strikes and violent disturbances, being one consequence of this (Rogowski 1989, 41).

4. Conclusion

To the question "does democracy promote free trade?" we can only answer "it depends." Political economy considerations are crucial in answering such a question, and there is no reason to believe that the political economy of trade policy will be the same in every country. Indeed, standard trade theory suggests that it will vary greatly across countries: this paper provides further evidence, if such were needed, of the power of Heckscher-Ohlin factor endowment theory in understanding late nineteenth century trade and politics. Democracy had directly opposite effects on tariff levels in rich Europe and the poor New World, while it had relatively small effects on tariffs in poor land-scarce regions, and rich land-abundant ones.

Furthermore, it is important to reiterate the point that our results are based on variation across time, not across countries. Across time, the link between democracy and protection is complicated; across countries, it explains only a small proportion of the overall variance in the data. In all the regressions reported here, we found (but did not report) evidence of large country fixed effects, suggesting that other forces were at work in determining the variation of tariffs across countries: forces which have recently been identified in a series of papers by Jeffrey Williamson and his co-authors (and summarized in Williamson 2003, 2004). These were many and varied, and they included the need for governments to raise revenue, fears of de-industrialization in the periphery, increases in partner tariffs, and distributional concerns. For the preferred model in Table 2, Column 4, these fixed effects ranged from a high of 18% in Brazil, to a low of –10% in Austria-Hungary. To put it another way, our preferred specification in column 4 of Table 2 had an overall R^2 of 0.173, a between R^2 (due to

the fixed effects) of 0.239, and a within R^2 of just 0.014. There was a strong relationship between democracy and factor endowments on the one hand, and tariff levels on the other; but there are a whole range of country-specific factors that mattered more for policy.

While this paper's subject matter is deliberately narrow, we suspect that it has implications for broader debates. If the impact of democracy on trade liberalization is complicated, the impact of democracy on economic liberalization more generally, not to mention its impact on economic growth, is likely to be even more complicated. Democracy is neither a golden bullet ensuring pro-market policies, as some western triumphalists would have it, nor does it fatally undermine such policies. Democracy does help produce policies that ordinary voters want, but what they want will vary dramatically across countries and over time.

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Table 1

Democracy, Factor Endowments, and Protection: Land and Labor

dependent variable: *tariff*	(1) all countries	(2) all countries	(3) noncolonies	(4) tariff autonomy
democ	0.261	0.691	1.337	0.094
	(0.20)	(0.51)	(0.90)	(0.06)
democ x ln(*R/L*)	—	1.551	2.292	2.516
		(1.32)	(1.81)*	(1.87)*
Observations	1262	1262	1172	1087

Notes: See text.

Panel regression with fixed effects (not shown) and an AR(1) error term.

Absolute value of t-statistics in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2

Democracy, Factor Endowments, and Protection: Land, Labor, and Capital

dependent variable: *tariff*	(1) all countries	(2) all countries	(3) noncolonies	(4) tariff autonomy
democ	2.680	2.487	4.753	2.103
	(1.46)	(1.36)	(2.34)**	(1.13)
democ x ln(*R/L*)	3.595	4.201	6.467	5.114
	(2.21)**	(2.56)**	(3.48)***	(2.92)***
democ x ln(*K/L*)	—	-4.762	-4.089	-4.034
		(2.62)***	(2.24)**	(2.13)**
Observations	936	936	894	905

Notes: See text. Sample is restricted to countries with data on capital-labor ratio.
Panel regression with fixed effects (not shown) and an AR(1) error term..
Absolute value of t-statistics in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3

Robustness: Fixed versus Random Effects and Year Effects

dependent variable:	(1)	(2)	(3)
tariff	tariff autonomy	tariff autonomy	tariff autonomy
year effects	yes	no	yes
estimation	fixed effects	random effects	random effects
democ	0.586	-0.414	-0.687
	(0.39)	(0.30)	(0.49)
democ x ln(*R/L*)	2.566	1.670	2.143
	(1.85)*	(1.44)	(1.81)*
Observations	1087	1112	1112

dependent variable:	(4)	(5)	(6)
tariff	tariff autonomy	tariff autonomy	tariff autonomy
year effects	yes	no	yes
estimation	fixed effects	random effects	random effects
democ	2.234	2.618	2.415
	(1.16)	(1.65)*	(1.45)
democ x ln(*R/L*)	4.257	4.571	4.190
	(2.30)**	(3.39)***	(3.01)***
democ x ln(*K/L*)	-4.114	-4.044	-4.040
	(2.13)**	(2.62)***	(2.58)***
Observations	905	926	926

Notes: See text.

Samples as in Tables 1 and 2, column 4 (countries with tariff autonomy).

Panel regression with an AR(1) error term.

Absolute value of t-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4

Robustness: Additional Regressors

Include lagged export/GDP share and lagged partner tariffs (coefficients not reported)

dependent variable: *tariff*	(1) tariff autonomy	(2) tariff autonomy	(3) tariff autonomy	(4) tariff autonomy
year effects	no	yes	no	yes
estimation	fixed effects	fixed effects	random	random
democ	1.912	2.099	2.312	2.132
	(1.02)	(1.09)	(1.45)	(1.28)
democ x ln(*R/L*)	5.366	4.446	4.731	4.374
	(3.05)***	(2.41)**	(3.52)***	(3.16)***
democ x ln(*K/L*)	-4.357	-4.614	-4.385	-4.577
	(2.29)**	(2.40)**	(2.83)***	(2.93)***
Observations	904	904	925	925

Notes: See text.

Samples as in Tables 1 and 2, column 4 (countries with tariff autonomy).

Panel regression with an AR(1) error term.

Absolute value of t-statistics in parentheses.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5

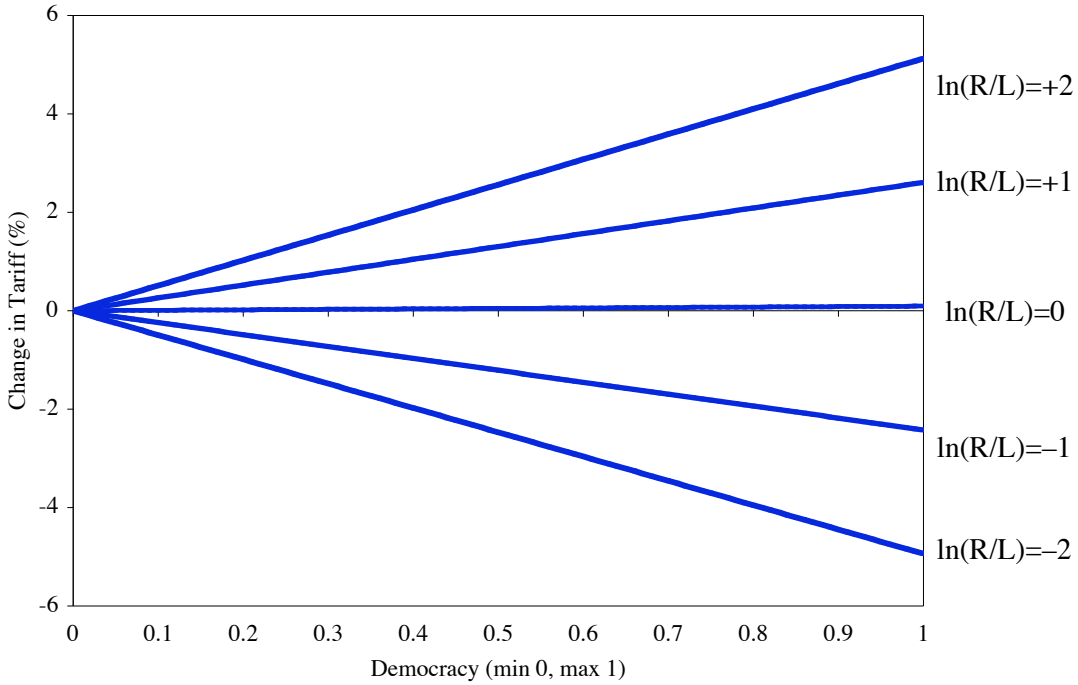
Impact of Increasing Democracy on Tariffs in the Rogowski Model

	R/L low	R/L high
K/L high	A **–** rich europe	B **0** rich new world
K/L low	C **0** poor europe	D **+** poor new world

Source: Based on Rogowski (1989, Chapter 1).

Figure 1

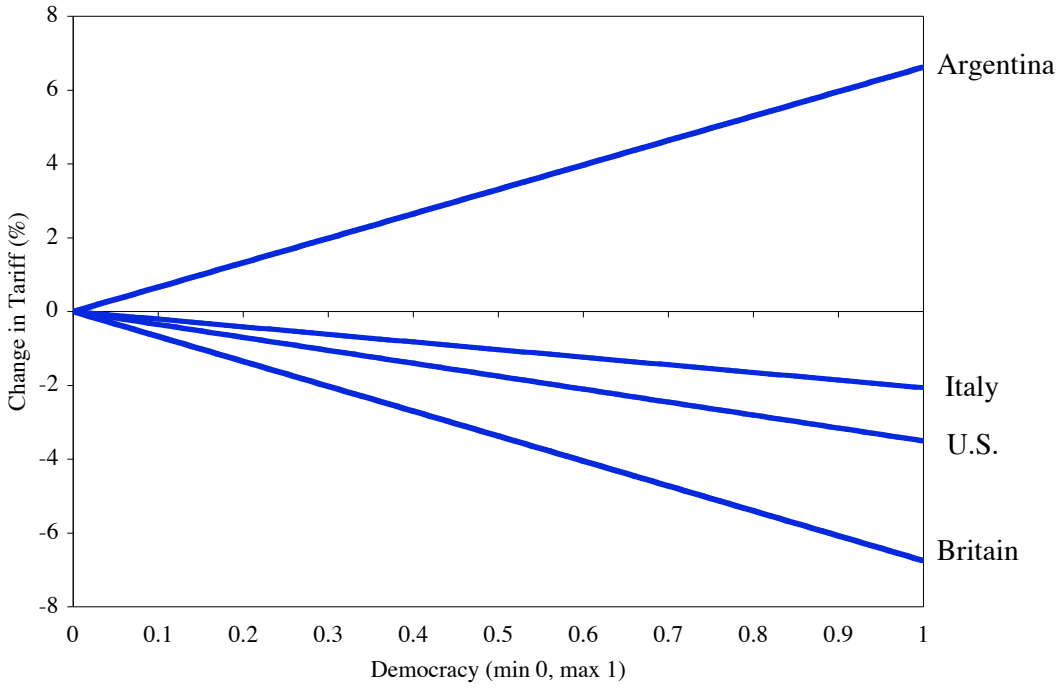
Democracy, Factor Endowments, and Protection: Land and Labor, 5 Experiments



Source: Table 1, Column 4.

Figure 2

Democracy, Factor Endowments, and Protection: Land, Labor and Capital, 4 Country Simulations



Source: Table 2, Column 4.

Appendix Table

Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
tariff	1290	16.839	11.729	1.778	58.200
democ	1290	0.344	0.350	0.000	1.000
ln(R/L)	1290	0.000	1.000	-1.735	2.205
ln(K/L)	957	0.000	1.000	-1.850	1.708
democ x ln(R/L)	1290	0.030	0.493	-1.125	1.797
democ x ln(K/L)	957	0.156	0.606	-1.218	1.708
colony	1290	0.071	0.256	0.000	1.000
tariffautonomy	1290	0.862	0.345	0.000	1.000

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