

# Trade Origins of Proportional Representation\*

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## Abstract

How deep are the economic roots of political institutions? While some political economists have theorized that there is a natural affinity between free-trade interests and proportional electoral systems, recent research on the origins of Proportional Representation (PR) in Europe has paid little attention to the role of international trade. We bring trade theory back to the debate on the choice of electoral systems, and argue that a trade perspective provides an insightful complement to accounts based on domestic politics. To test implications of the theory, we leverage historical data from referendums on trade policy and the introduction of PR at the district level in Switzerland 1880-1918. This setting enables us to rule out alternative explanations using state fixed effects, district-level covariates, and an instrumental variable approach. In the decade before World War I, we find that there is a tight link between district-level popular support for free-trade and subsequent support for PR. A ten percentage point increase in support for the protectionist general tariff is associated with a five percentage point decrease in support for PR. This linkage persists to the 1918 adoption of PR. Our results have important implications for theories of endogenous political institutions.

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# Introduction

Electoral institutions specify how electoral competition is conducted in a representative democracy. A large literature has studied the impact of electoral institutions on voting behavior, party systems, and policies. It is well understood that electoral institutions are themselves endogenous to democratic politics. They are chosen, contested, and revised by political actors with private goals that need not coincide with those of most citizens. Over the last decades, a prolific political science literature has examined the choice of electoral system. It has paid special attention to the adoption of proportional representation (PR) in Europe during the late nineteenth and early twentieth century. While much of this literature has focused on domestic explanations for the politics of institutional choice, we re-consider the role of international trade.

In an early theoretical contribution, Rogowski (1987) argued that international trade and the choice of the electoral system are linked. He put forth the idea that there is a natural affinity between free-trade and proportional electoral systems. The mechanism is that free-trade interests should expect their interests to be better represented under PR compared to non-PR systems. Katzenstein (1985) made a closely related argument about the adoption of PR in small open economies in Europe before World War II. These arguments are part of a broader political economy literature on the economic origins of democratic institutions in general (Acemoglu and Robinson, 2006; Boix, 2003) and electoral systems in particular. While Rogowski (1987) highlighted the role of trade, most political economic theories of the emergence of PR in Europe focus on domestic factors, such as labor market coordination (Cusack, Iversen and Soskice, 2007) or economic inequality (Ticchi and Vindigni, 2010).

However, the evidence on the relevance of economic explanations, whether domestic or international, for the politics of electoral system choice is limited and

contested, and most accounts emphasize other explanations. An initial wave of scholarship consisted of cross-national regression analyses with a small number of observations (Blais, Dobrzynska and Indridason, 2005; Boix, 1999; Cusack, Iversen and Soskice, 2007). The literature has increasingly turned to legislative votes and analytical history. Reviewing research on the relevance of domestic economic factors shaping the adoption of PR in Europe, Kreuzer (2010, 376) bemoans the absence of direct evidence linking economic interests to preferences over alternative electoral institutions. An analysis of legislative votes on electoral reform in the German Empire does not consider international trade but finds no evidence for domestic economic explanations (Leemann and Mares, 2014). Thus, some scholars conclude that “economic explanations cannot account for the origins of PR.” (Ahmed, 2013, 13) In contrast, evidence from recent studies is consistent with explanations focusing on electoral calculations of parties, individual members of parliament, and party leaders’ interest in controlling nominations and building their party (Ahmed, 2013; Boix, 2010; Cox, Fiva and Smith, 2019; Leemann and Mares, 2014; Schröder and Manow, 2020).

In this paper, we bring international trade back to the debate about electoral system choice. Theoretically, we flesh out the argument that distributive conflict over trade within a country can spill over onto the political struggle over electoral rules. It generates testable implications at the level of subnational geographic units that address the paucity of direct evidence with respect to the economic mechanism. The central hypothesis is that regions that expect to lose from international trade and prefer protectionist policy should also be more likely to oppose the introduction of PR. Empirically testing this logic is challenging because public opinion data is generally not available until the second half of the 20th century and because of concerns about confounding. We turn to Switzerland in the years from 1880 to 1918 to test the linkage between the politics of trade and the choice of electoral institu-

tions. Given its combination of representative and direct democracy, we can test the theory using fine-grained data at the level of administrative districts from popular votes on *both* trade policy and the adoption of PR. To mitigate concerns about confounding and control for alternative explanation, we leverage the lag structure between the votes, control for state (i.e., canton) fixed effects as well as a rich set of district-level controls drawn from census data. Switzerland is not necessarily an easy case for testing the trade theory of PR at the district level. Several comparative accounts emphasize the consensual nature of politics in Switzerland and assume that support for both free trade and the introduction of PR was generally high (e.g. Katzenstein, 1985, 157-168). However, the voting data shows that in the period under study there was large variation in popular preferences over trade and electoral institutions across districts.

Our quantitative analysis proceeds in three main steps. First, we investigate the linkage between economic sectors and support for protectionism. We find that the size of the agricultural sector in a district is an important predictor of support for the protectionist general tariff of 1903. This result is robust to the inclusion of canton fixed effects and district characteristics. This pattern makes sense against the backdrop of declining transport costs and rising import competition throughout the nineteenth century. Second, consistent with our main hypothesis, we find that there is a close correlation between district-level preferences over trade policy and electoral institutions. Specifically, our estimates suggest that a 10 percentage point increase in support for protectionism in the 1903 referendum on the general tariff is, on average, associated with a 4-5 percentage point decrease in support for PR in the 1910 referendum. We also use an instrumental variable approach to model the full mechanism from sectoral composition, support for protection in the tariff referendum, and subsequent support for the introduction of PR. This analysis leverages variation in support for protectionism stemming from the predetermined

district-level size of the agricultural sector in 1880. It confirms that support for free trade and electoral reform go hand in hand. Finally, we extend our analysis to the adoption of PR in 1918. In Switzerland and several other continental European countries, PR was ultimately adopted around the end of World War I. These years lend themselves to explanations focusing on short-term political factors such as the threat of revolution or mass strikes (Alesina and Glaeser, 2004). They may obscure the role of longer-term economic factors. Nonetheless, voting for PR in 1910 is highly correlated with voting for PR in 1918. Moreover, we find that the tight correlation between supporting protectionism in 1903 and opposing the adoption of PR persists in the 1918 referendum.

Altogether, our results support the trade theory of endogenous electoral institutions. To the best of our knowledge, this is the first study to provide direct evidence on the linkage between economic interests, preferences for trade policy, and institutional preferences during the emergence of PR in Europe. To be clear, we do not argue that international trade is the only or most important explanation for the politics of electoral system choice. However, our evidence brings in international trade as a relevant explanation, to be taken more seriously by empirical research. More broadly, it further encourages scholarly dialogue across the fields of international political economy and comparative politics. Analytically, the trade theory we test is not a strict alternative to so-called political explanations emphasizing vote maximization or the incentives of party leaders. Our case also illustrates that conflict over trade, the dominant economic policy issue at the time, encouraged economic interests to organize a mass base and linkages to political parties in order to defend their interests at the ballot box. Once suitably organized, these interests also tried to shape the contest over electoral rules.

## Theoretical foundations

In theory, what are the links between the politics of trade and the choice of electoral system? Rogowski (1987) developed the idea that there is a natural affinity between trade and the choice of PR. The basic claim is that trade dependent economies are better able to reap the benefits of trade by adopting institutions that resist protectionist pressures. Implicit in the original argument is a welfare-maximizing electoral engineer choosing institutions.<sup>1</sup> Departing from this particular view of who chooses the institutions but remaining within the same broader framework focused on international trade, we take a within-country perspective and, in line with a well-established literature in international political economy, argue that distributive conflict over trade shapes preferences over trade among economic interests. This, in turn, influences preferences over the choice of political institutions. Importantly, our theory is agnostic as to what interests are for or against trade. This depends on the particular economic environment. In the empirical section, we relate foundational models explaining support for free trade from the political economy literature to salient cleavages identified by historical accounts of Switzerland's tariff policy.

The basic premise of this theory of endogenous electoral institutions is that actors in the political economy (individuals at the mass or elite level) have preferences over electoral institutions that are informed by the institutions' expected effects on policies that the actors care about (Diermeier and Krehbiel, 2003). The theory does not assume that actors have ex-post correct beliefs about the effects of electoral reform. They may miscalculate. But preferences over institutions are informed by expected effects of alternative institutions.

Given this, what reasons would free traders have to support PR? Following upon Rogowski (1987), the theoretical literature in the political economy of trade and,

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<sup>1</sup>Rogowski (1987, 207) refers to states with an interest in increasing national income and wealth.

more broadly, the economic effects of political institutions identifies a number of mechanisms through which PR may lead to less protectionism. First, electoral rules shape whether elected policymakers have incentives to cater to broad as opposed to concentrated interests. Although not specifically a theory of trade protection, a class of models studying electoral competition under alternative electoral systems with probabilistic voting implies that policymakers in systems with low district magnitude provide protection (i.e., group-specific transfers to concentrated interests) instead of social programs that are national in scope (Persson and Tabellini, 2000). The reason is that policymakers in majoritarian systems in these models have stronger incentives to target policy to groups that are geographically concentrated and cheaper to “buy”. Under PR, in contrast, all votes count, and there are comparatively stronger incentives to focus on broad based policy.

Second, electoral rules shape the responsiveness of policymakers to lobbying for protection. In theories where incumbent policymakers weigh the interests of their electoral constituencies against favors offered by special interest groups, legislators elected under PR tend to be less responsive to lobbying for protection because parties are stronger and party discipline tends to be higher (Grossman and Helpman, 2005; McGillivray, 2004). This makes it costlier for legislators to deviate from the party line in order to cater to a lobby. Specifically, the model of Grossman and Helpman (2005) implies greater rates of protection in majoritarian systems, where elections are tied to particular geographic or economic interests. It also implies that an exogenous strengthening of party discipline within majoritarian systems should lead to lower protection. In a similar vein, Rogowski (1987, 209) argued that “[pressure] groups are restrained where campaign resources or the legal control of nominations are centralized in the hands of party leaders.”<sup>2</sup>

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<sup>2</sup>In contrast, Rogowski and Kayser (2002) argue that because majoritarian systems have greater vote-seats elasticity, consumer interests are more likely to outweigh producer demands for protection. Though this depends on the distribution of voter preferences (Herrera, Morelli and Nunnari, 2016).

Third, electoral rules shape policy stability and credible commitment. Following Duverger's Law, PR systems tend to favor multi-party systems where no single party controls a majority of seats (Duverger, 1954). This fosters the emergence of coalition governments that better able to credibly commit to a policy mix that combines free trade with the compensation of trade losers through social policy (Cameron, 1978; Cusack, Iversen and Soskice, 2007; Iversen and Soskice, 2006).

In parallel, a growing body of empirical work in comparative and international political economy has studied the economic effects of political institutions.<sup>3</sup> A number of studies conclude that proportional rules tend to be positively correlated with programs that target broad groups, as opposed to narrow transfers that target particular industries, such as subsidies, tariffs or non-tariff barriers. For instance, Persson and Tabellini (2003) find in a global cross-section of democracies that PR systems spend more on broad transfers such as social security and welfare spending. Several studies based on within-country research designs bolster this conclusion (Funk and Gathmann, 2013; Gagliarducci, Nannicini and Naticchioni, 2011). Most studies of the effect of electoral system on trade protection also find that proportional rules tend to correlate with lower tariffs (Ehrlich, 2007; Evans, 2009; Kono, 2009) or subsidies (Rickard, 2012). However, some find evidence that more proportional rules tend to favor narrow groups. For example, Rogowski and Kayser (2002) find that PR is positively correlated with consumer prices, which are taken to reflect policies that benefit narrow producer groups. Mansfield and Busch (1995) also find evidence that PR systems are associated with higher non-tariff barriers to a greater extent than majoritarian systems. More recently, Rickard (2018) offers a conditional argument based on economic geography, and finds that the effects of electoral rules depend on the geographic distribution of narrow interests.

For a given set of preferences in a society, the choice of electoral institutions also

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<sup>3</sup>A prominent line of research compares democratic and autocratic regimes (e.g., Mansfield, Milner and Rosendorff, 2000; Milner and Kubota, 2005).

depends on the formal and informal rules governing institutional change. Can the parliament unilaterally change the electoral system through a majority vote or are there supermajority hurdles? Is the consent of other actors, such as states or voters, required? Answers to these questions determine how preferences over institutions translate into institutional choices.

Our discussion suggests two general hypotheses. First, districts with a greater share of economic interests adversely affected by trade are more likely to support protectionism. And second, that districts that favor free trade are more likely to favor the introduction of PR than districts that favor protectionism.

## Empirical analysis

We investigate the linkage between the politics of trade and the choice of electoral institutions in a democratic political system during an era of rising protectionism. Switzerland between 1880 and 1918 is an interesting test case for the theory that support for free-trade and more proportional electoral rules are linked. The period before World War I saw intense conflict over trade and institutions, similar to its European neighbors. The comparatively inclusive nature of the political system (Boix, 2003), in which (most) adult male citizens had the right to vote in both parliamentary elections and regularly national referendums, enables us to confront the theory with fine-grained, district-level data from popular votes on *both* issues. A constitutional reform in 1891 had paved the way for citizens to use initiative referendums to pursue a reform of the electoral system from below, even against the veto of the government (Lutz, 2004).

In eight European countries, Switzerland included, proportional representation was finally adopted during or in the intermediate aftermath of World War I. These turbulent years quite naturally lend themselves to explanations emphasizing war

or the threat of revolution (Alesina and Glaeser, 2004, 97-107), though they may also obscure the role of international economic factors. This may enhance a bias in the political science literature on the origins of PR that, when studying historical cases, tends to rely on political rather than economic history (for an exception, see Cusack, Iversen and Soskice, 2007). Political historians acknowledge that their field tilts toward sources that “focus on short-term, day-to-day politics and hence are prone to overlook longer-term, slowly unfolding, and, hence, less visible background structural factors” (Kreuzer, 2010, 375). Thus, we begin our analysis in the decades before World War I and focus on a credible but ultimately failed effort at electoral system change in 1910<sup>4</sup> and prior political conflict over the general tariff at the turn of the century.

Our analysis draws on district-level data on popular votes and district characteristics from the decennial census. At the time, Switzerland consisted of 25 cantons (i.e., states) that had large policy autonomy under the 1848 constitution. Tariffs were the main economic policy, set at the national level, and the only direct source of revenue for the federal government. Cantons were further divided into administrative regions that we call districts (*district* in French and *Bezirk* in German). There were 186 districts. Importantly, the borders of these administrative districts were empirically stable and difficult to change. Historical referendum results are available at the district level. The Linder, Bolliger and Zürcher (2007) dataset contains district-level data on votes and census data for 1880, 1888, 1900, and 1910.

One possible concern is that the theory, when tested in a historical case, is anachronistic. After all, the argument builds on contemporary social science theory and evidence on the effects of electoral institutions not available at the time. Relatedly, one may be tempted to think that the historical actors had little informa-

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<sup>4</sup>This is similar to studies of reform attempts in pre-World War I Germany (Leemann and Mares, 2014; Schröder and Manow, 2020).

tion to draw on when considering the potential effects of electoral reforms (Ahmed, 2013). However, this line of argumentation should not be taken too far. Rather, it has to be considered in each case. Parliamentary debates on the introduction of PR in Switzerland reveal a keen awareness by legislators and party elites of the debate and reform experiences in other countries.<sup>5</sup> They were also drawing on the experience of Swiss cantons that had already introduced PR. Newspapers reported the expected distribution of votes under PR, calculated from the observable distribution of votes. The arguments made in the parliamentary debate should sound familiar to today's political science students. Opponents of the reform emphasized the need for a stable parliamentary majority for the government. They also claimed that introducing PR would enhance party unity at the expense of individual representation. This line of reasoning is consistent with evidence from other historical cases (Schröder and Manow, 2020). It also resonates with political economy theories that identify party cohesion as one mechanism through which electoral institution can be expected to affect trade policy. Proponents of the reform denounced the large disproportionality between votes and seats as well as the majority's blatant gerrymandering. Some of the proponents of the reform had also previously attacked protectionist tariff legislation, enacted under the majoritarian system, as an example of a policy that responds to a well-organized interest, the farmer's lobby, at the expense of the broader population (Gruner, 1956). Social Democrats demanded the reform to achieve a fairer parliamentary representation of economic interests. Again, this rhetoric resonates with the potential institutional mechanisms outlined above.

Our empirical analysis proceeds as follows. First, we discuss the general tariff law of 1903, which provides our measure of public support for protectionism. Second, we use district-level regressions to explore whether differences in the share of

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<sup>5</sup>For instance, see the parliamentary debate on the introduction of PR on March 15, 1910.

affected economic interests are important for explaining variation in popular support for protectionism in the 1903 referendum on the general tariff. Third, we turn to our main question and assess the strength and robustness of the trade-PR nexus. Does higher popular support for protectionism in 1903 translate into stronger opposition to PR at the ballot box in 1910? Finally, we extend our analysis to the adoption of PR in 1918.

## The general tariff

At the turn of the 20th century, the federal government proposed a sweeping new tariff law. Its stated goal was to substantively increase protection for Swiss producers. The government also argued that making higher tariffs the new status quo policy would enhance its bargaining position when negotiating bilateral trade agreements with other countries. The proposal from 1902 was significantly more comprehensive than the existing law from 1891 and the government stated that the new general tariff law would increase tariff rates “on most positions” (Bundesblatt, 1902). From a total of 1114 product categories, the proposed policy increased tariffs on 48% of positions, it left 39% unchanged and tariffs on the remaining positions were lowered or saw mixed change (13%).

Trade had become the defining economic policy issue in the second half of the 19th century. With the defeat of mercantilism, “[the] policy problems of the mercantilist era — military alliances and monopolies — gave way to the great debates of the nineteenth century about whether and how countries should join the global market” Frieden (2006, 4). Spurred by technological innovations that made trade cheaper, most European countries had liberalized in the wake of the Industrial Revolution. However, those same innovations paved the way for a protectionist backlash in the later decades of the 19th century (O’Rourke and Williamson, 1999, Chapter 3, 6). The transportation technology brought about by the Industrial Revolution

— the advent of the steam engine and its consequences for rail and maritime transportation, in particular — opened European economies to long-distance trade in competing commodities such as grain and textiles (Findlay and O’Rourke, 2006), and exposed domestic producers to significant competition. Compounding this, the long depression of the 1870s exacerbated demands for protection among losing groups.

In preparing the law, the government had solicited input from peak-level organizations representing agriculture, industry, and crafts, and it also received requests from many other groups. Nonetheless, the proposed policy was controversial and its passage not certain. The lines of division between supporters and opponents reflected distributive conflicts over trade policy (we discuss this more in detail below). The Farmers’ Association (*Bauernverband*) was a staunch supporter of the proposal (Gruner, 1956; Neidhart, 1970). The new general tariff raised protection for agricultural products in which Swiss farmers had specialized. This included butter, wine, fresh meat, animals for slaughter, and breeding animals.<sup>6</sup>

Industry was divided. The main line of conflict was between textile manufacturers in East Switzerland, who wanted more protection, and producers of machinery and clock-makers in the West, who opposed higher tariffs across the board. The Industry Association (*Industrieverein*) was a politically and socially powerful organization, with the expertise and ability to provide civil servants to draft bills. But in contrast to the farmers’ organization, it did not take a unified position on the tariff given the divergent interests of its members.

The Social Democratic Party (SP) opposed the new tariff in the name of consumer interests. But the party had little legislative clout. Given the majoritarian electoral system and gerrymandered electoral districts (Gruner, 1978), the party

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<sup>6</sup>The relatively low tariffs on grain, on the other, were not increased, as the prices for animal feed and bread were not to be increased. The farmers’ association had even suggested that grain be exempt from tariffs altogether, given that grain was also used as an input and other countries were seen in a better position to produce it.

was severely underrepresented in the lower chamber of parliament. Between 1890 and 1908, its seat share was one-third or less of its vote share. While the law was passed by both chambers of parliament, opponents could try to stop it with a popular vote. A cross-class coalition between the social democrats, labor unions, hotel associations, and export-oriented industries such as clock-makers formed a “League against the Tariff” to mobilize opposition against the law. They successfully requested a national referendum on the general tariff. In a show of strength, they collected three times the required signatures, and the referendum was held in 1903.

In the Swiss political system combining representative democracy with referendums, economic interest groups understood the need to organize at a mass level in order to defend their interests at the ballot box (Gruner, 1956; Neidhart, 1970). The tariff issue in particular provided decentralized farmers’ organizations with the incentives to organize nationally, which they achieved in 1897. By the time of the referendum on the general tariff, the Farmers’ Association was recognized as the leader of the protectionist camp, willing to mobilize members in support of protectionist policy.

At this stage, it is worth reiterating that the trade-theory of the choice of political institutions does not take a stand on who wants protection and who prefers free trade. It implies that we should observe a negative relationship between popular support for the general tariff and the introduction of PR. Nonetheless, a full examination of the mechanism requires an understanding of the relevant cleavages on trade policy in the case under study. Following our discussion above on the positions taken by peak-level interest groups on the general tariff, we thus start our analysis by assessing the relationship between the size of the agricultural sector in a district and support for the protectionist general tariff, and discuss how our estimates are related to international political economy theories of who favors protectionism.

## Voting for protectionism

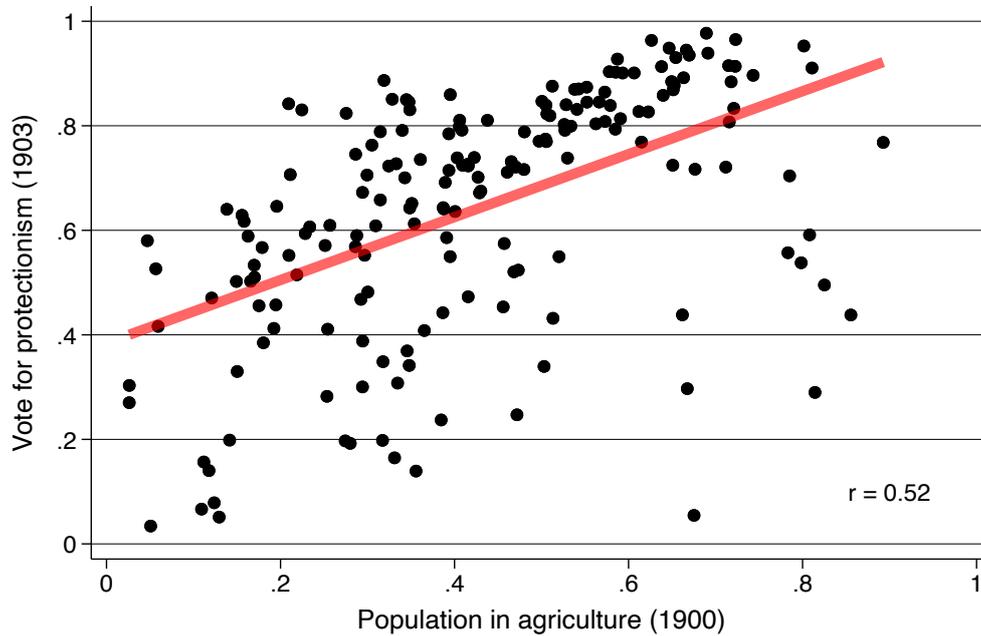
Empirically, our baseline model takes the following form:

$$V_i^T = \beta_1 A_i + \mathbf{X}_i' \beta_2 + \delta_c + \epsilon_i \quad (1)$$

where  $V_i^T$  is the vote share in support of the general tariff (1903) in district  $i$ ,  $A_i$  is the share of the agricultural workforce in the district (from the 1900 census),  $\mathbf{X}_i$  is a vector of district-level controls and  $\delta_c$  are fixed effects for cantons. In this specification, canton fixed effects capture differences in the political-economic environments between cantons, such as canton political institutions, culture, and critical historical junctures. District-level controls include population size and measures of the religious and ethnic composition of the population: the share of native German and French speakers, respectively, the share of Protestants, as well as indices of ethnic and religious fractionalization. The main idea behind this approach is that if agricultural interests are an important driver of demand for protectionism, then this relationship should be visible when focusing on variation within cantons and after adjusting for other salient characteristics of the population that may be correlated with the size of the agricultural sector. Given the observational nature of the data, this specification cannot rule out the existence of unobserved district-level confounders. An additional specification reaches back further in time to measure the size of agriculture 22 years before the referendum using data from the 1880 census. We also control for population dynamics, not just levels. This comes at the cost of dropping 10 districts for which we do not have prior census data but it further mitigates concerns about confounding.

Figure 1 illustrates that there is a fairly strong positive correlation between the share of the agricultural workforce in a district and popular support for protection in the form of the general tariff. It also highlights the large variation in support for

Figure 1: The association between district-level size of agricultural workforce and support for protectionism (1903) in Switzerland



the tariff across districts.

The estimation results in Table 1 show that this relationship is robust to accounting for canton fixed effects (model 2) and district-level controls (model 3).<sup>7</sup> The most conservative estimate (model 1) suggests that a ten percentage point increase in the size of the agricultural sector is associated, on average, with a six percentage point increase in vote for protection. The 95% confidence interval is clearly bounded away from zero, covering a range of 4-8 percentage points. With canton fixed effects and controls, the estimate is about 2 percentage points larger. We find the same pattern when we use the agricultural workforce two decades prior to the vote (model 4), and when controlling for population growth and the growth rate in non-agricultural employment (model 5). Altogether, these results confirm the view of historians that agriculture was a central pillar of support for the general

<sup>7</sup>The number of observations in models 1-3 in Table 1 is 183 rather than 186 (the total number of districts) because in the dataset separate city districts for Geneva and Basel are merged.

tariff of 1903 and thus the rise of protectionism in Switzerland at the dawn of the 20th century (Gruner, 1956).

Table 1: Agriculture and protectionism

	Vote for protectionist general tariff (1903)				
	(1)	(2)	(3)	(4)	(5)
Agricultural workforce (1900)	0.602*	0.753*	0.842*		
	(0.087)	(0.073)	(0.116)		
Agricultural workforce (1880)				0.785*	0.806*
				(0.150)	(0.162)
Canton Fixed Effects		X	X	X	X
District Controls			X	X	X
R2	0.27	0.70	0.77	0.74	0.75
Observations	183	183	183	173	173

*Notes:* Coefficient estimates from district-level OLS regressions. The dependent variable is the yes vote share in referendum on general tariff (1903). Robust (heteroskedastic-consistent) standard errors in parentheses.

District-level controls from 1900 census: log of population; shares of German speakers, French speakers, Protestants; ethnic fractionalization, religious fractionalization. (5) also includes the population growth rate and the growth rate in non-agricultural employment between 1888 and 1900.

\* $p < 0.05$  (two-tailed tests)

These findings are also consistent with standard international trade theories. Factoral models predict that trade benefits the relatively abundant factor and hurts the relatively scarce factor (Stolper and Samuelson, 1941). Growing imports of cheap grain plunged agriculture, with which the country was not well endowed, into crisis, and land-owners (the scarce factor) were faced with the surge of farm products from the New World, Russia and Australia.<sup>8</sup> Factoral arguments also imply lesser

<sup>8</sup>Factoral accounts of international trade posit that countries specialise in and export goods that make intensive use of the abundant factor (Heckscher [1919] 1949). With trade, global demand for those goods that make intensive use of the abundant factor rises and so does its domestic price. As a result, trade raises the real returns to the relatively abundant factor and decreases those that accrue to the

support for protection among capital-owners and relatively skilled labor, with which Switzerland was relatively well endowed. Our measure of industrial workforce at the district level does not allow us to unbundle employment in capital-intensive activities. An additional analysis adds the share of the industrial workforce to the model in equation (1). Results (not reported here) show a positive coefficient estimate without canton fixed effects and controls. The coefficient turns negative and statistically insignificant once canton fixed effects are added. We attribute this to the heterogeneous interests that characterized the industrial sector, and which are consistent with accounts that emphasize sectoral cleavages.<sup>9</sup> As in other European countries, textiles — one of the leading economic sectors in Switzerland in the 18th century — suffered enormous pressure from foreign competition in the 19th century, largely linked to technological innovation. The introduction of more efficient spinning techniques in Britain in the later 18th century was compounded by subsequent mechanization of weaving decades later, with devastating effects for (inefficient) handicraft weaving, which was virtually eliminated across Swiss cantons. However, exporting industries located in the West of the country — mainly clock-makers and machinery producers — were advocates of free trade.

In sum, the above findings lend support to the notion that trade was a divisive policy issue at a time when political elites were debating the choice of political institutions. We now turn to the main implication of the trade theory of the choice

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relatively scarce factor (Stolper and Samuelson, 1941). In relatively capital- and skill-rich Switzerland (Humair 2004, Kreuzer 2010), factoral arguments thus predict that owners of capital and relatively skilled labour should support freer trade, with owners of land opposing it. In line with its relative abundance of capital and high-skilled labour, Switzerland specialised in a narrow range of industries that employed a highly skilled labour force to produce relatively sophisticated manufactures. Bergier (1984) links the existence of a cheap supply of “technically and morally qualified labour” to relatively high literacy levels even before the onset of industrialisation (in part, a product of the Protestant reformation).

<sup>9</sup>Sectoral accounts assume limited mobility across sectors and claim that at least one factor of production is tied to the industry it is employed in. Policy preferences stem from the industry in which individuals are employed, and thus cuts across class interests. Individuals employed in industries that face strong import competition will be protectionist, while those in an exporting industry will want freer trade.

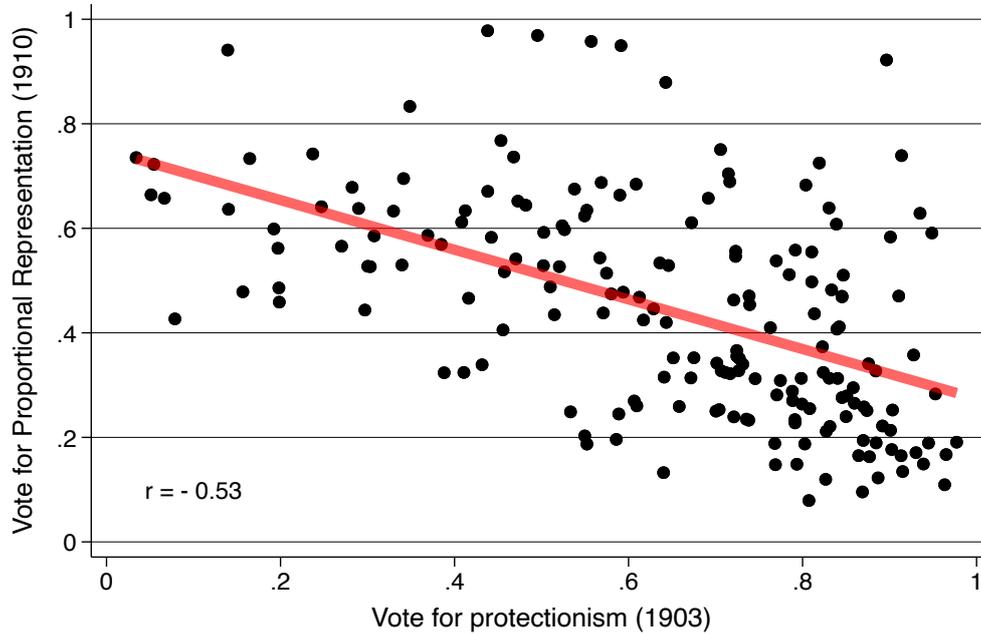
of political institutions, namely, that popular support for protectionism should go hand in hand with subsequent opposition to the introduction of PR. We test if this is indeed the case.

## **Trade policy and the vote for PR**

In 1910 there was a nearly successful attempt to introduce PR through a national referendum against the opposition of the bicameral legislature dominated by the radical democratic party (Lutz, 2004). The initiative referendum was launched by the Social Democrats and a couple of other smaller parties against the opposition of the governing party. The proposal was to replace the existing majoritarian electoral system with proportional representation. Each canton was supposed to form one electoral district. As a result, average district magnitude would approximately double, from 3.9 to about 7.6. The incumbent legislature was also supposed to lose its power to gerrymander electoral districts. The proposal was rejected by both chambers of the federal parliament and put to referendum. The outcome of the popular vote was close. The pro-reform option won a majority of cantons. With 47.5% in favor of the reform it came close to but failed to win the popular vote. As a result, the existing majoritarian system remained in place. But the supporters of PR also learned that a future victory will only require a small gain in support.

In line with the hypothesis that preferences over trade policy and electoral institutions are linked, Figure 2 indicates that there was a strong negative correlation between district-level support for the protectionist general tariff of 1903 and support for the introduction of PR in the 1910 referendum.

Figure 2: The association between district-level support for protectionism and support for the introduction of PR in Switzerland



To account for alternative explanations, we start by estimating a regression model similar to the one above:

$$V_i^{PR} = \beta_1 V_i^T + \mathbf{X}_i' \beta_2 + \delta_c + \epsilon_i \quad (2)$$

where  $V_i^{PR}$  is the vote share in favor of introducing PR in district  $i$  in 1910,  $V_i^T$  is the prior support for protectionism from the 1903 vote on the general tariff,  $\mathbf{X}_i$  is a vector of district-level controls and  $\delta_c$  are fixed effects for cantons. Canton fixed effects help to account for several explanations emphasized in the literature on the choice of PR in Europe. They capture considerable differences in the party system and socialist threat across cantons (Boix, 1999; Gruner, 1978). They also account for potential heterogeneity in the development of labor market institutions and

coordination between employers and workers based on skill intensive production that may foster a cross-class compromise on PR (Cusack, Iversen and Soskice, 2007). District-level characteristics are from the 1910 census, and they account for differences in the electoral marketplace and sources of demand for PR within cantons. For instance, proportional electoral systems may be attractive in places that are heterogeneous in terms of language or religion or where a fast-growing population wants better parliamentary representation.

In addition, we estimate an instrumental variable model that instruments the main explanatory variable of theoretical interest, support for protectionism ( $V_i^T$ ), using the size of the agricultural workforce in 1880 ( $A_i^{1880}$ ). The instrument is measured two decades before the vote on the general tariff and almost three decades before the dependent variable. This is useful because the 1880 share is arguably more exogenous to the political conflicts surrounding trade and PR. The issue of electoral reform became more salient in subsequent decades with the rise of left wing parties and increasing votes-seats-disproportionality (Lutz, 2004). The first serious attempt to introduce PR at the national level took place in the 1890s. Table 1 shows that the size of the agricultural sector in 1880 is a strong predictor of voting for protection in 1902. We want to be clear that the coefficient from this model does not necessarily have a causal interpretation, as one may be worried about a violation of the exclusion restriction. Rather than straightforward causal inference, we see the value of this specification in formalizing the linkages between size of the agricultural sector, support for protectionism, and voting for or against PR. That is, it enables us to study the link between support for protection on subsequent support for PR when focusing on variation in protection stemming from the district-level strength of the agricultural sector. It thus integrates our prior analysis of voting for protection with the analysis on voting for PR.

Table 2: Protectionism and support for introduction of PR in 1910

	Vote for introduction of PR (1910)			
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	2SLS
Vote for Protectionism (1903)	-0.475*	-0.481*	-0.338*	-0.563*
	(0.051)	(0.071)	(0.075)	(0.108)
Canton Fixed Effects		X	X	X
District Controls			X	X
First-stage F-Stat				16.6
R2	0.28	0.54	0.80	0.79
Observations	183	183	183	173

*Notes:* Coefficient estimates from district-level OLS (columns 1-3) and 2SLS models (column 4). The dependent variable is the yes-vote share in favor of introducing PR (1910 referendum). Robust (heteroskedastic-consistent) standard errors in parentheses.

District-level controls from 1910 census: log of population; shares of German speakers, French speakers, Protestants; ethnic fractionalization, religious fractionalization; population growth and growth of non-agricultural workforce since 1900.

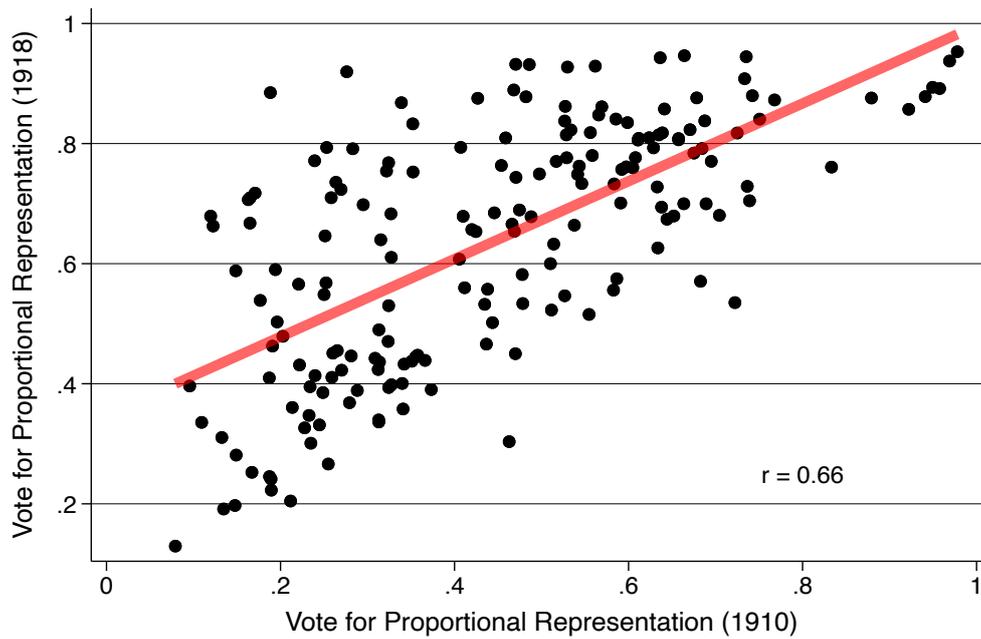
Model (4) instruments support for protectionism (1903) with the size of the agricultural workforce in 1880. The effective first-stage F-statistics is based on the weak instrument test of Montiel Olea and Pflueger (2013).

\* $p < 0.05$  (two-tailed tests)

Table 2 displays the estimation results. In all specifications, there is a negative relationship between district-level support for protectionism and subsequent support for the introduction of PR that is statistically significant at the five percent level. Support for protectionism alone accounts for 28% of the variation in support for PR (model 1). Unsurprisingly, canton fixed effects capture a considerable amount of the variation in support for PR. But adding them does not reduce the coefficient on support for protectionism (model 2). The estimate of  $-0.48$  suggests that increasing support for protectionism by 10 percentage points is associated with a 5 percentage point decline on average in support for PR. The coefficient becomes

somewhat smaller when adding district-level controls (model 3), but it remains substantively and statistically significant. The instrumental variable estimate (model 4) is the largest one but in the same ballpark. Taken together, these results imply that the correlation between support for protectionism and opposition to PR is not driven by canton-level differences or observed district-level characteristics.

Figure 3: The association between district-level support the introduction of PR in 1910 and 1918



Some explanations of the adoption of PR in Switzerland emphasize the importance of mass strikes and the threat of revolution that preceded the ultimately successful referendum in 1918, and similar arguments have been made for belligerent countries, especially those on the losing side (Alesina and Glaeser, 2004). We agree that this context was surely important, weakening the resolve of some incumbent elites to fight PR and perhaps making some voters more accommodating to a change in the electoral system. However, this does not mean that deeper, structural factors were irrelevant.

Already in the 1910 referendum, before the war and the Russian Revolution that radicalized the left in Europe, the PR camp was close to a victory. Moreover, there is a strong correlation between support for PR over time (see Figure 3). Furthermore, an additional analysis summarized in Table 3 shows that the linkage between voting on trade and voting on electoral reform does not break down in the 1918 referendum.

Table 3: Protectionism and support for introduction of PR in 1918

	Vote for introduction of PR (1918)			
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	2SLS
Vote for Protectionism (1903)	-0.413*	-0.317*	-0.104	-0.366*
	(0.054)	(0.057)	(0.068)	(0.087)
Canton Fixed Effects		X	X	X
District Controls			X	X
First-stage F-Stat				23.6
R2	0.22	0.72	0.83	0.80
Observations	183	183	183	173

*Notes:* Coefficient estimates from district-level OLS (columns 1-3) and 2SLS models (column 4). The dependent variable is the yes-vote share in favor of introducing PR (1918 referendum). Robust (heteroskedastic-consistent) standard errors in parentheses.

District-level controls from 1910 census: log of population; shares of German speakers, French speakers, Protestants; ethnic fractionalization, religious fractionalization; population growth and growth of non-agricultural workforce since 1900.

Model (4) instruments support for protectionism (1903) with the size of the agricultural workforce in 1880. The effective first-stage F-statistics is based on the weak instrument test of Montiel Olea and Pflueger (2013).

\* $p < 0.05$  (two-tailed tests)

## Discussion

Unlike electoral calculations of party elites in the face of new competitors or a revolutionary situation in the streets, international trade is not a proximate explanation for the adoption of proportional representation. Following Rogowski (1987) and building on the literature on the effects of electoral institutions on trade policy, we argue that it can nonetheless be a deeper cause for why winners and losers from trade have different induced preferences over electoral institutions.

Our historical evidence from a small and comparatively open economy shows that local-level support for free trade is a significant predictor of subsequent support for PR. While the observational nature of the data cautions against a causal interpretation of these results, we demonstrate that the trade-PR linkage is robust to accounting for canton fixed effects, district-level characteristics, as well as the use of arguably exogenous variation in trade preferences. We also find that the significant cleavage over trade policy is based on the strong and unified demand of agriculture for protection from foreign competition.

While political economy theories of electoral institutions are well developed, most of them focus on domestic factors. Moreover, several scholars have argued that the evidence in favor of economic explanations is lacking or unconvincing (Ahmed, 2013; Kreuzer, 2010). Our analysis squarely addresses their criticism that economic explanations of electoral institutions lack systematic evidence on the link between economic interests and support for PR.

This a preliminary and incomplete draft. In the next iteration of this paper, we aim to dig deeper into political rhetoric surrounding the votes and to explore the impact of the adoption of PR on tariffs in the interwar period, among others.

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