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# Conflicts of interest: Trade, Inequality, and the Origins of Progressive Taxation in Western Europe

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## Abstract

Why did some western European countries adopt more progressive tax systems than others in the early twentieth century? I argue that economic interests dictated by inequality and relative factor endowments played a crucial role. Drawing on political economy theories of trade and redistribution, I argue that common interests between low-income labor and an upscale group on trade policy, and low conflict between these groups thanks to low inequality, led to more progressive tax outcomes by facilitating cross-class coalitions in the context of competition with another elite group. Using quantitative data from ten western European countries from 1890 to 1913, I find that lower inequality and closer trade interests are associated with more progressive tax outcomes. Moreover, there is an interactive effect: close trade preferences matter more when inequality is low. I investigate the political mechanism through a detailed study of reforms in Britain and France between 1906 and 1910.

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## **Conflicts of interest: Trade, Inequality, and the Origins of Progressive Taxation in Western Europe**

Why do some countries rely on more progressive systems of taxation than others? Since the nineteenth century, whether the rich should pay a higher share of their income to the government than the poor has been a central question of distributive politics. It is a consequential issue, given the role of progressive taxation in reducing wealth and income inequalities in the long run (Piketty, 2014). Understanding the political and economic conditions conducive to more or less progressive taxation— as well as redistribution by other means— has thus been a core concern in comparative political economy and related fields (Iversen & Soskice, 2006; Lupu & Pontusson, 2011; Esping-Andersen, 1990).

A key intuition behind political accounts of redistribution is that when political power is more equally distributed than economic power, losers in the economic realm can use political tools to redress the imbalance. Although not always framed in these terms, this logic underpins accounts of why democracies should redistribute more than dictatorial regimes (Boix, 2003; Rudra & Bastiaens, 2014), as well as explanations of welfare state development grounded in the power resources of the working classes (Korpi, 2006; Stephens, 1979; Huber & Stephens, 2001), and canonical political economy models (Meltzer & Richard, 1981). In these accounts of redistributive policies, the space for political competition is unidimensional, and the (political) power of different groups dictates outcomes. Where more complicated political competition is considered, it is usually in the context of religious, race-based or social conservatism undermining the fundamental economic conflict between rich and poor (Roemer, 1998; Finseraas, 2010; Austen-Smith & Wallerstein, 2004).

But the dominance of economic ‘left-right’ interests in structuring politics only emerged in the twentieth century (Rokkan, 1968), and post-dates the emergence of important variation in taxation. In this article, I argue that trade conflict, the dominant economic issue of the

nineteenth century, interacted with the emerging politics of redistribution to shape early tax progressivity. Specifically, high inequality increased conflict between rich and poor, undermining the scope for progressive reforms as it raised the stakes of redistribution for elites. However, conflict among rich groups over trade policy, and the availability of poorer voters as allies, gave low-income groups an entrée for the representation of their demands. Reliance on labor interests on trade made it more difficult to resist their demands in distributive policy, as the interests of the poor were given informal as well as formal legitimation. Thus from 1880 to 1913, while trade policy remained an important issue, low income groups' ability to push for progressive taxation was shaped by their political weight in this preexisting distributive battle.

The effect of trade interest works in interaction with inequality: trade policy commonalities were more likely to mean progressive demands were met where redistributive conflict was low. Further, the revenue implications of trade policy choices meant that labor sharing free trade interests with a high-income group would lead to more progressive outcomes than a shared interest in protection.

Why would trade interests matter for policy outcomes on redistribution? In the liberal era— the 'first globalisation'— large international markets existed, and thus the potential for extensive international integration. But individual countries had a considerable degree of discretion as to their participation in the world economy, at least for the industrial core of western European nations. With trade openness up for dispute, the economic fates of different groups within countries could be as dependent on trade policy as on progressivity. In some countries, it was in the interest of upscale groups (usually capital owners) to incorporate labor demands for progressive taxation to ensure their preferred trade policy outcomes (against the trade preferences of other upscale groups). The relative importance of trade would also depend on the intensity of distributional conflict: where rich and poor

were more strongly divided on issues of redistribution, the gains from an alliance with labor (on trade) would not outweigh the associated distributive policy costs. Put differently, with high inequality the gains from elite solidarity on redistributive issues would outweigh the gains from trade policy victories. This logic echoes the longstanding literature on trade and socioeconomic coalitions (Rogowski, 1989; Hiscox, 2002); this article focuses on how trade and redistributive preferences interact.

This article this makes two main contributions. First, it addresses a puzzle in existing accounts of redistributive politics: what can explain early differences in tax progressivity? The theoretical approaches explaining variation in the twentieth century highlight variables which are largely unchanging in the pre-1914 period, or mechanisms which seem implausible at the low levels of state expenditure that then prevailed. I account for the otherwise puzzling variation in tax systems. This variation is important given the persistence of tax *structures* even as their levels were radically changed between 1914 and 1950.

Secondly, from a theoretical perspective, this article synthesises two important canons in political economy— on trade interests and on the effect of inequality on redistribution. The distribution of trade policy preferences in some european countries between 1890 and 1914 provided a bias towards progressive outcomes. This effect of second dimension politics is theoretically possible but rarely discussed elsewhere (Roemer, 1998; Finseraas, 2010): sometimes the poor do expropriate the rich, to a greater extent than their direct political empowerment would predict.

The next section outlines the empirical puzzle and lays out my theoretical approach. I examine the implications of the theory with two complementary empirical approaches. First, I investigate the predictions of the theory in a quantitative, macro-comparative analysis. Where labor’s trade interests (in freer trade, or greater protection) are closer to those of one upscale group, tax policies should be more progressive. This differential should be greatest

where inequality is low. Relatedly, where the interests of labor are oriented towards free trade, the impact of common trade interests should be amplified. In ten western european countries between 1890 and 1913, I find evidence of precisely these patterns. I then use a detailed historical comparison of Britain and France to investigate the posited mechanism: that it is in securing the support of higher income (and typically liberal) actors for progressivity that trade policy interests are so crucial. With a particular focus on the era of left parliamentary dominance in both countries between 1906 and 1910, I find that the emphasis of British Liberals on free trade, and Labour's support in that political contest, cemented support for the redistributive 'People's Budget'. In France, the isolation of (particularly urban) labor interests over tariffs as well as progressivity meant that direct tax reform under bourgeois interests focused on revenue to the exclusion of redistribution. The final section concludes.

## **Explaining tax progressivity: existing accounts**

First, I outline existing explanations, which highlight the remaining puzzle regarding pre-war tax outcomes. One set of arguments links differences in the structure of taxation across countries and time to other, similarly redistributive policies. The most straightforward expectations in this regard come from simple partisan and power-resources theory approaches in which greater power for labor and the left lead to progressive taxation. However, recent evidence concerning tax structures rather than spending policy has highlighted the constraints that the preferences of the left may place on tax policy. Whether because of high capital mobility (Ganghof, 2006b, 2006a) or social democratic bargains (Beramendi & Rueda, 2007), parties of the left may rely on regressive structures in order to guarantee revenues for generous redistribution on the spending side. Regardless, the political power resources of left parties were low across all countries (nowhere did labor parties control the government)

before 1914. Social spending programs were also small: even capital taxes needed to finance them would be low, and unlikely to be constrained— particularly as many of the progressive taxes available were levies on immobile capital (land and estates taxation).

Perhaps more basic than who controls government is the question of the state's capacity (Levi, 1988). In particular, the administrative difficulties associated with the taxation of income have been proposed as a reason to expect greater progressivity where administrative capacity is higher (Tilly, 1990; Aidt & Jensen, 2009). But while the income tax is an important progressive tax, many less administratively demanding taxes allowed for progressivity. Estate taxation, as well as taxes on assets (such as land) require less monitoring and monetisation than indirect taxes on transactions or turnover, for example. The focus on state capacity which stems naturally from considering income taxation makes less theoretical sense when considering revenue systems overall.

What about the structure of state institutions? Steinmo (1993) identifies particular characteristics of tax systems in Britain, Sweden and the United States with particular institutional characteristics of the state: the complexity of the American system arising from its intentionally fragmented political institutions; effective corporatist government in Sweden leading to efficient, regressive tax structures there; and alternation of majoritarian power in the UK leading to partisan swings in tax policy. But beyond the social democratic regressive compromise also highlighted by Beramendi and Rueda (2007), this analysis has little systematic to say about particular institutions that will lead to more or less progressive structures.

Finally, recent work has highlighted wars of mass mobilization as a critical determinant of tax progressivity. Scheve and Stasavage (2010) argue that the sacrifice of life, disproportionately from lower income individuals, led to demands for equivalent financial sacrifices from the rich. They find evidence of this dynamic for top rates of income (Scheve & Stasavage, 2010) and inheritance (Scheve & Stasavage, 2012) taxation. However, explanations based in mass

warfare cannot predict variation in western Europe's liberal era, as there is no variation on this score. Moreover, considering rates of progressive taxes, while not comparing them to the rates of those taxes that fall disproportionately on the poor, however, is unlikely to be a good measure of system progressivity, particularly at times when the level and structure of taxation were changing dramatically.

Existing explanations thus predict little variation in the the period before 1914. Perhaps they nevertheless account for tax policy. Did tax structures only change, and diverge across countries, later? Figure 1 shows changes to both direct (income, property and land) taxes, and to 'market' taxes on domestic consumption between 1890 and 1913, and between 1913 and 1927.

The figure reveals substantial change to tax structures in the liberal era, when compared to 1913 to 1927 despite the latter's reputation as a transformative period. For example, expanding progressive taxes in the United Kingdom meant a reduction in the market tax share from almost 40 per cent of revenues around 1890, to 31 percent by 1913. In contrast, Sweden made the opposite move over the same period, from around 36 per cent of revenues coming from regressive taxes, to nearly 45 per cent. Only in the Netherlands is there a significantly greater drop in the market tax share in the WWI period than there is in Norway in the liberal era. The variation outlined in the figure is substantial, and in need of explanation.

## **Trade, inequality, and coalitions with labor**

Though political cleavages over redistribution were only beginning to emerge before 1914, conflict over economic distribution was not new. The varying nature of distributive battles over trade policy across countries shaped the context in which progressive social reformers operated. Those advocating for progressive revenue policies were more likely to find allies



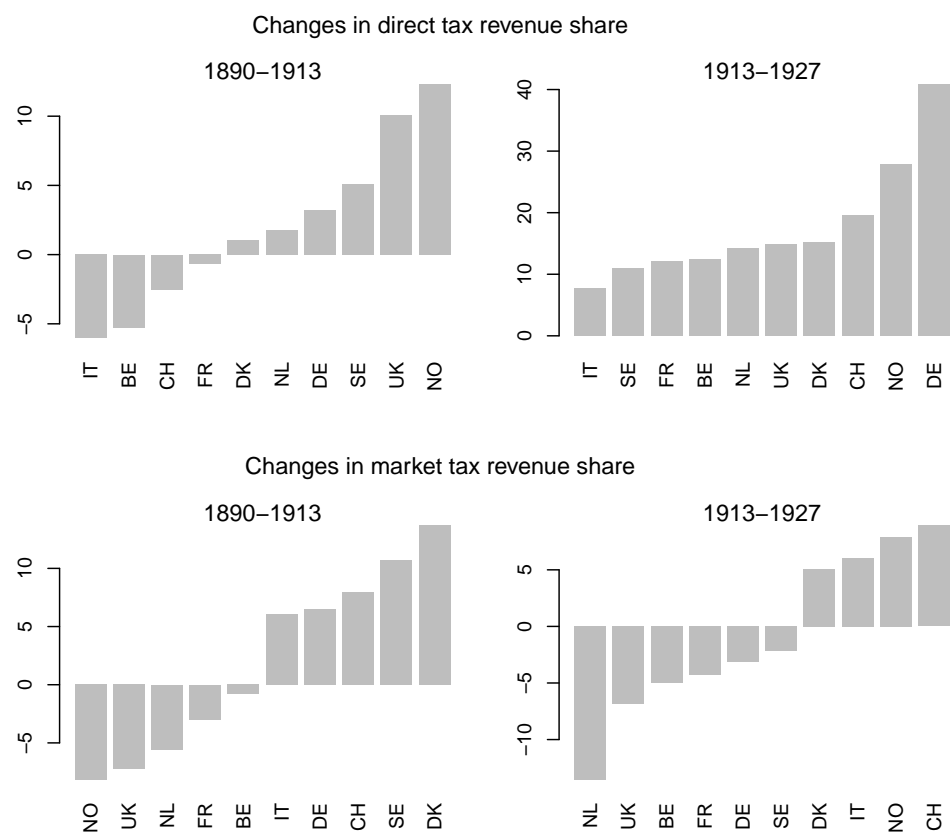


Figure 1: *Changes to tax structures in two periods: the ‘liberal’ era 1890-1913, and the ‘war era’ 1913- 1927. Direct taxes include taxes on income, land, and property; market taxes are taxes on domestic consumption (excises and general sales taxes). Source: Aidt and Jensen (2009). Notes: By construction the difference between changes in the two types of tax here is the change in customs revenues. The increases in direct taxation in the war era largely offset declining tariff revenues with the collapse of world trade.*

under trade-interest configurations which divided incumbent elites. Where labor groups supported the same trade policies as some traditional groups, they were better able to influence policy on other dimensions. This was particularly true for progressive tax policy in those countries where labor and its ally were in support of free trade, as the revenues that progressive taxation promised could be used to reduce reliance on tariffs.

These two sets of dynamics follow two distinct mechanisms. First, mobilising support for particular trade policy led, in some countries, to the incorporation of hitherto excluded social

groups— particularly labor— into political coalitions with existing elites (Rogowski, 1989), and the breaking down of informal institutions upholding exclusion. Labor interests were thus given a political platform, and the legitimacy to extract compromise on redistributive issues. Second, expanding progressive taxation provided a substitute for tariff revenue. Thus free trade groups had an added incentive to shift towards progressive taxation as a source of funds.

But interacting with trade policy dynamics are the costs and benefits associated with redistribution, for labor groups and for upscale elites. These depend in turn on economic inequality. Thus the argument below builds on two important canons in political economy. The role of inequality in redistributive politics has been widely studied, while the importance of trade interests in creating political coalitions has also long been recognised. The theoretical contribution of this paper is first, to examine precisely how trade policy dynamics might affect policy outcomes (as well as political coalitions); and second, to integrate the role of trade interests with that of inequality.

## **Inequality and redistribution**

The role of inequality in shaping redistributive policy stems from the common-sense notion that as (market driven) inequality rises, governments will do more to limit (final income) inequality. The first generation of this scholarship came from economists concerned that high levels of inequality might be harmful to economic growth, via this inducement to government action (Meltzer & Richard, 1981; Alesina & Rodrik, 1994; Perotti, 1996). These accounts, however, tend to rely on political models in which the median voter’s preferred policy is translated in to policy almost automatically. In fact, increasing inequality raises the stakes of redistribution, so the rich have more to lose, just as the (presumed poor- but see Barnes (2013)) median voter has more to gain.

This link between inequality and the stakes associated with redistribution has been most directly highlighted in the context of democratization, in particular by Boix (2003) and Acemoglu and Robinson (2005). In these treatments, democratic reforms themselves are seen as redistributive policies. A transition to democratic institutions acts as a credible commitment to ongoing redistribution. Both accounts emphasize that high levels of inequality give existing owners of unequally distributed assets more to lose in the redistributive policies that democracy commits them to. This increase in conflict as inequality rises is the most basic implication of the Meltzer-Richard model. If the status quo does not empower the (below average income) median voter, there is no guarantee that inequality will increase redistribution. Rather, if the rich are empowered, it may block it. For medium to high levels of inequality relevant to liberal-era Europe, Boix and Acemoglu and Robinson both find evidence that inequality blocks democratic reforms or consolidations.

The constraining effect of (especially landholding) inequality on formal democratic reforms has been further documented (Ziblatt, 2008; Ansell & Samuels, 2010). But the logic regarding inequality should also be reflected in other, less formal institutions within the political system (Helmke & Levitsky, 2004). For example, while secret ballots remove the possibility that an employer punish workers for voting against the employer's interest, they do not remove the informal norm that workers' ballots should reflect that preference. The incentives for elites to maintain these kinds of informal institution should vary with inequality just as those regarding formal institutions do.

The link between inequality and progressive policy outcomes should follow the same logic at different levels of democratic 'intensity'. That is, high inequality in an autocratic regime may lead to a greater likelihood of violent repression of low income groups' demands (Acemoglu & Robinson, 2005). It may raise the stakes in democratization dynamics, making elites more resistant to change (Boix, 2003). Equally, where formal representation is more egalitarian,

it will increase elite opposition to low income demands through tactical choices, such as investing in norms that workers vote according to employers' preferences, or in resistance to reforms such as the payment of MPs. This kind resistance to informal democratization, I argue, will also include the willingness to legitimate labour demands by incorporating, or relying on, labour demands in the sphere of trade policy.

## **Trade divisions and tax progressivity**

Redistributive conflict between rich and poor is not the only basis for political alignments, and may not be the most important. This idea underpins the logic of a second 'path to democracy' (Collier, 1999) as lower income groups are incorporated into political processes to provide support on one side of an intra-elite conflict over policy or partisan politics (Lizzeri & Persico, 2001; Llavador & Oxoby, 2005; Dasgupta & Ziblatt, 2014). This literature has focused on the formal institutions of democratic expansion, but should equally apply to informal incorporation of lower income interests. More importantly, trade has been neglected as a driver of elite conflict, with the focus instead on inequality and redistribution or the provision of public goods (Lizzeri & Persico, 2001), or the simple existence of conflict between elites (Ziblatt, 2008; Llavador & Oxoby, 2005; Himmelfarb, 1967).

The absence of trade politics from accounts of redistributive changes to political institutions and economic policy is surprising given the empirical importance of trade policy in the economic policymaking of the nineteenth century. Rogowski (1989)'s account of how trade shapes domestic policy coalitions— and the kinds of far-reaching coalition structures he outlines— indicate that trade interests should matter beyond politics, into policy. Rogowski's account uses the Stolper-Samuelson theory of trade interests to account for political cleavage patterns as international trade expanded between 1840 and 1914 (as well as other periods not relevant here). Based on the assumption of factor mobility across industries, an individ-

ual's preferences on trade policy can be predicted by her ownership of relatively abundant or relatively scarce factors of production. Relatively abundant factors are supplied in greater proportions in the domestic market than on world markets, and thus command a lower return in nationally protected markets than under free trade. For relatively scarce factors of production this position is reversed. Rogowski's argument is that differences across countries in the patterns of relative abundance can account for different political cleavages. Where land and capital are both scarce (or both abundant), while labor is abundant (scarce) we get class conflict; whereas if labor's interests are aligned with those of capital, urban-rural cleavages result.<sup>1</sup>

More properly, though, Rogowski's argument is a *ceteris paribus* one: where labor and capital share trade interests, there are greater incentives for urban coalitions between those two groups. Severe conflict over redistributive policy—such as that deriving from high levels of inequality—should undermine the translation of trade policy commonalities into coalitions.

But why should these coalition incentives translate into progressive tax policy outcomes? One might object that given the weakness of low-income groups in liberal-era politics, any elite group sharing trade interests with these groups could ensure their support simply via advocating their preferred trade policy, without any concessions in terms of redistribution. This criticism misses the nature of the 'coalition' building that trade policy helped to motivate. It was less a question of policy negotiation with labor groups, but one of recognising that these groups could legitimately participate in politics Bartolini, 2000, ch. 7. If low income interests should be 'counted' on trade policy questions, it was harder to dismiss their claims to have their interests represented on other issues.

As well as its importance in structuring the political landscape faced by emerging labor groups, trade policy had an ongoing influence in debates about progressive taxation because

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<sup>1</sup>Where labor's interests coincide with those of land, while capital is opposed, we would expect 'red-green' coalitions (to use Rogowski's terminology)—populist alliances between agricultural and labor interests.

tariffs provided an alternative source of revenue and redistribution. If labor was scarce, and would be harmed by free trade elites could raise tariffs to alleviate threats of unrest (and so on). Where labor interests would be harmed by protection, and improved by free trade, using tariffs to help workers or to pay for social programs was less feasible. Thus the impact of labor incorporation into the political system should have had the greatest impact on progressive tax policy where labor interests lay in free trade. This effect is an interactive one: if labor is excluded from legitimate political participation by virtue of its trade (as well as distributive) interests, it will not matter whether those interests lie in free trade or protection. Conversely, where labor is oriented towards free trade, the impact of having an ally on trade will be all the greater, and vice versa.

## **Interactions and implications**

Taken separately, we thus have reason to expect that inequality should hamper progressive reforms, while labor sharing closer trade interests with an elite group should increase progressivity. This latter should be more pronounced where labor favours free trade policies. But the coalition logic implies that the trade interest and inequality dynamics should not be independent. Consider a case of extremely high inequality. A marginal change to the similarity of trade interests will make little difference to the incentives for elite groups to incorporate low income representatives: the redistributive conflict makes such a small change irrelevant. At lower levels of inequality, the same small difference in the pattern of trade interests stands to play a much more important role. There should be an interaction between the commonality of trade interests and the level of inequality.

These theoretical implications are shown– in highly stylized form– in table 1 with tax policy outcomes the result of levels of inequality and divisions on trade issues between upscale groups. Both variables are better conceived of as continuous than categorical, but the table

characterises the extremes.

		<i>Inequality</i>	
		Low	High
<i>labor - upscale com- monality on trade</i>	Low	little redistributive conflict; no entry for labor groups: <b>low progressivity</b>	conflict over redistribution; no entry for labor groups: <b>low progressivity</b>
	High	little redistributive conflict; labor included to influence trade outcomes: <b>progres- sivity</b>	conflict over redistribution; labor included to influence trade outcomes: <b>interme- diate progressivity</b>

Table 1: Tax policy dynamics and outcomes under stylized conditions for inequality and trade policy divisions.

The second set of empirical implications concern the direction of labor’s trade preferences, as well as their ability to generate alliances with upscale groups. Here again the anticipated effect is interactive. Where labor’s trade interests isolate it from upscale groups on trade policy just as low income groups are marginalised in terms of their redistributive interests, it matters little whether they prefer free trade or protection. However, as labor’s trade interests increase their potential as coalition partners, a free trade orientation on their part increases the chance that their demands will be met by progressive taxation rather than tariff revenues. Thus the interaction between labor’s trade position relative to its allies and its free trade orientation should increase the progressivity of taxation.

Table 2 summarised the theoretical expectations to take to the data.

It is worth highlighting the difference between this account and the existing literature on the joint determination of trade openness and redistribution – the ‘compensation hypothesis’(Rodrik, 1998; Adserà & Boix, 2002; Cameron, 1978; Katzenstein, 1985; Ruggie, 1982; Burgoon, 2001; Walter, 2010). The argument here is distinct for a number of reasons. The

Variable	Impact on progressivity
Labor trade advantage (LTA)	+
Inequality	-/0
LTA $\times$ inequality	-
Free trade labor (FTL)	+/0
LTA $\times$ FTL	+

Table 2: Summary of hypotheses for progressivity outcomes.

compensation hypothesis is grounded in the insurance role of welfare spending, with redistributive policy offering compensation for the increased risks associated with international trade. The claim here is based on the returns from trade being *unequal* rather than uncertain.

## Empirical Investigation

To investigate these predictions empirically, I first consider macro-comparative relationships between trade interests, inequality, and tax outcomes in ten western European countries<sup>2</sup> between 1890 and 1913. Then, to probe the coalition mechanisms highlighted by the theory, I compare the politics of progressive tax reform in the UK and France— particularly in the period between 1900 and 1910— in close detail.

### Macro-comparative analysis

To test the hypotheses from Table 2, I use quantitative data on tax revenue shares and inequality, and measures of trade interests derived from structural features of the economy. The data have a time-series cross-sectional structure, creating particular modelling issues (Beck & Katz, 1995). The time-series nature of the data allows for the inclusion of country fixed effects to account for unobserved heterogeneity across countries that is constant over

<sup>2</sup>Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland and the UK



time; however, because tax policy processes are not set each year in isolation, but with regard to the status quo, the lagged dependent variable (LDV) also has substantive grounds to be included. However, including both fixed effects and LDV simultaneously can lead to biased estimates— particularly in the estimate of the coefficient on the LDV (Nickell, 1981). Thus there are potentially consequential choices to be made about the inclusion versus exclusion of the country effects and LDV.

Equally, modelling the country effects as fixed, rather than themselves drawn from an underlying distribution may be a substantive decision (Gelman & Hill, 2007). Particularly given the relatively small size of the dataset, and the large degree of cross-sectional variation in the independent variables, the fixed effects estimates’ low efficiency make high variance in coefficient estimates likely. In consequence, modelling the country effects as random draws from an underlying distribution (which increases efficiency by partially pooling information across countries) may be preferable even as it introduces some bias into the estimates (to the degree that the country effects are correlated with the independent variables) (Clark & Linzer, 2012). In this particular substantive application, the results do not vary greatly in consequence of these modelling choices. I present the simplest specifications— fixed effect models— in the main tables. Tables 7 and 8 in the Appendix show the main results under alternative modelling choices.

For concreteness, the results in table 3 derive from models with the structure:

$$Y_{i,t} = \alpha_i + \beta X_{i,t-1} + \gamma Z_{i,t-1} + \delta_t + \varepsilon_{i,t}, \quad (1)$$

where  $i$  indexes countries, and  $t$  years.  $X$  comprises the substantive variables of interest and  $Z$  the control variables. Note that all the right-hand side variables are lagged by one year to reflect the temporal ordering: tax policy is set in reaction to last year’s accounts and events, not those that are realised at the same time as revenues. The specification also includes

fixed effects for each year to account for shocks over time that are common to all countries in the sample.

The control variables  $Z$  are time-variant characteristics suggested by the existing literature. First, I include an indicator for universal male suffrage to capture any effects of formal political empowerment of lower income groups on tax outcomes. Second, gross domestic product per capita (GDP p.c.) is included to measure the level of development. Finally, given the importance of trade interests in the argument, it is important to account for the differing economic circumstances that trade policy debates were located in: tariff politics can be expected to be different in very open, compared to less open economies. Thus I include a measure of openness to international trade (measured as usual as imports plus exports as a share of GDP).

### **Operationalisation and data**

I measure the progressivity of the tax system using the share of sales tax revenues in total revenue. This measure includes all domestic excise and general sales taxes, but excludes customs. Although simple, the sales tax share is the macro-level variable that is best correlated with overall tax system progressivity (Prasad & Deng, 2009). The greater the sales tax share, the less progressive the tax system. For comparability to other studies (for example, Aidt and Jensen (2009)) I include analyses of the more commonly used, but less correct, direct tax share in the Appendix.

The relevant measure of inequality, given the theoretical emphasis on fears of expropriation of the rich, is one based in land inequality rather than income (Boix, 2003; Ansell & Samuels, 2010; Ziblatt, 2008). Thus I use the same measure of rural inequality as Ansell and Samuels (2010), which is constructed as:  $(1 - \text{family farms}) \times (1 - \text{urbanization})$ , where ‘family farms’ is the share of cultivable land that is farmed by (small) families— so the first term indicates

inequality in the ownership of cultivable land; scaled by the share of the population whose economic interests are tied to the land. As rural inequality increases, regressive taxation should increase; and this difference should be more pronounced where labor has an advantage in trade coalition formation.

From the theory, there are two important trade-related variables to measure empirically. First, is the similarity of low income groups' trade interests and those of (some) elite groups. The other is the free trade orientation of those low income groups. The relative abundance of labor is used as a measure of low-income trade interests, while capital and land comprise the two elite groups. I measure abundance following Rassekh and Thompson (2002); data and methods are detailed in the Appendix. The incentives for land or capital to ally with labor will vary with the extent to which labor is closer to that group. I use the absolute difference in two groups' relative abundance to measure dissimilarity of trade interest. The amount by which the land-capital distance exceeds the distance from labor to its closest ally is the labor trade advantage (LTA) in forming coalitions. Formally,

$$LTA = |a_k - a_a| - \min(|a_k - a_l|, |a_a - a_l|), \quad (2)$$

where  $a_i$  indicates the abundance of the factors  $a$ , land;  $k$ , capital, and  $l$ , labour.

The second trade variable, labor's free trade orientation, is a simple binary indicator which takes a value of one if labor is relatively abundant compared to land, and if its natural ally on trade would be capital (so, the difference between labor and capital abundance is less than that between labor and land). In principle, free-trade labor orientation could also occur where labor is abundant relative to capital, and landowners are the closer potential ally, but this case does not occur in the data. An indicator of relative abundance of labor, this variable signals labor's free-trade orientation.

The control variables are all taken from Aidt and Jensen (2009), and their measurement is straightforward. Universal suffrage measure is a binary indicator equal to one where all adult males may vote; but other measures of democratic extension yield similar results.<sup>3</sup>

## Results

The main results are shown in Table 3. Model 1 shows the simple average relationship between labor's trade advantage and the regressivity of taxation— which is in the expected direction: a trade alliance advantage for labor increases progressivity. Model 2 also includes inequality, which works (as hypothesised) to increase the share of revenues raised from regressive sales taxes: inequality acts as a brake on progressivity.

However, the main theoretical claim concerns the interaction between LTA and inequality. This specification appears in Model 3. From the first-order terms we can see that if inequality were zero, a one-unit increase in labor's trade advantage would have a large negative effect, and when there is no labor trade advantage, the regressive impact of inequality is moderate. The interaction itself is positively signed and strongly significant— but its interpretation and relevance are clearer in graphical form, as displayed in Figure 2.

The figure shows the varying impact of labor's trade advantage. At low levels of inequality, a change in labor's advantage over its trade-coalition rival decreases the regressivity of taxation (or, increases progressivity) by over five percentage points. At the highest levels of inequality observed in the sample, this change is essentially zero. The grey area shows the distribution of inequality levels in the sample, showing that levels of inequality low enough (less than 54.6) for trade to matter are empirically relevant for a large share of observations: 80 per cent of country-years.

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<sup>3</sup>The results are robust to using alternative suffrage thresholds, the extent of the economic franchise, and to including a measure for the secret ballot.

Table 3: The impact of trade interests and inequality on market tax revenue shares (regressive tax structures), 1890-1913.

	Model 1	Model 2	Model 3	Model 4
Labor trade advantage (LTA) $_{t-1}$	-1.06*	-1.29***	-7.57***	0.16
	(0.42)	(0.38)	(1.80)	(0.47)
Inequality $_{t-1}$		1.01***	0.48 <sup>†</sup>	0.65*
		(0.26)	(0.26)	(0.26)
LTA $\times$ inequality $_{t-1}$			0.12***	
			(0.03)	
Free trade labor (FTL) $_{t-1}$				1.06 <sup>†</sup>
				(0.55)
LTA $\times$ FTL $_{t-1}$				-3.29***
				(0.76)
Universal suffrage $_{t-1}$	0.46	-0.87	-0.45	-0.59
	(1.33)	(1.16)	(1.19)	(1.12)
Real GDP p.c. $_{t-1}$	0.01**	0.01***	0.01**	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)
Trade $_{t-1}$	-2.01	-0.15	-2.89 <sup>†</sup>	-4.58*
	(1.59)	(1.75)	(1.65)	(1.88)
$N$	195	195	195	195
Resid. sd	3.19	3.06	2.92	2.95

Robust (panel corrected) standard errors in parentheses

All models estimated with year and country fixed effects (not shown).

\* indicates significance at  $p < 0.05$

The final model in table 3 investigates the other interaction, the impact of labor's orientation towards free trade versus protection, as well as the proximity to trade allies. The first-order coefficient on labor trade advantage here is essentially equal to zero, indicating that when labor is in favour of protection, greater interest proximity has no impact on the progressivity of domestic taxes. It is where labor groups prefer free trade that an increasing advantage in trade coalitions translates to a reduction in regressivity, as indicated by the coefficient on the interaction term.

These effects too are more clearly seen graphically. Figure 3 displays the effect on the level of regressive taxation (as fitted by the model) that the trade advantage (on the horizontal axis) corresponds to, where labor is oriented towards free trade, and towards protection. Note this

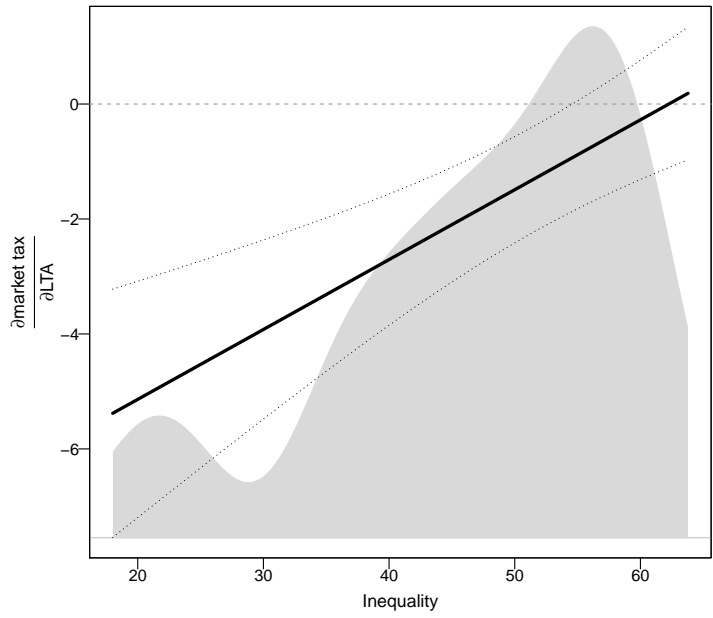


Figure 2: The marginal effect of labor trade advantage as inequality varies. The grey bloc shows the frequency distribution of inequality levels in the sample.

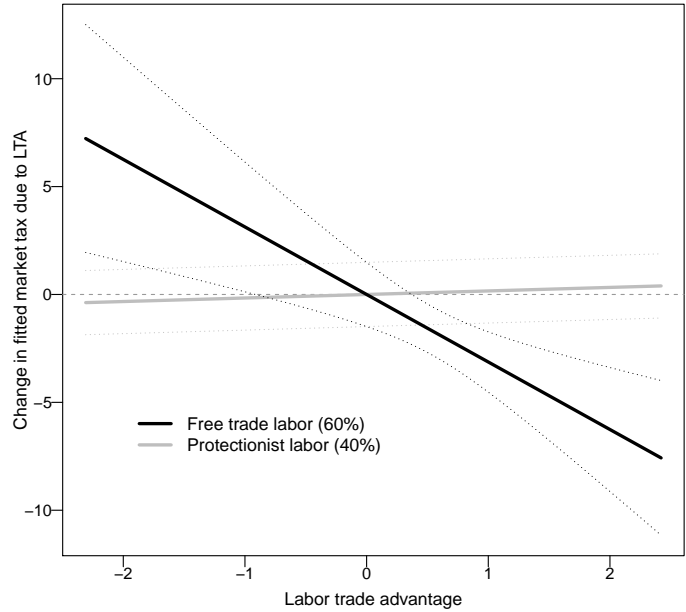


Figure 3: The total effect of Labor trade advantage for free trade and protectionist labor.

is not a marginal effect plot, but rather a plot of the total effect of labor trade advantage. The flat grey line indicates the absence of a large effect for protectionist groups. Conversely, where labor prefers free-trade, its trade advantage (or disadvantage) has a large effect on tax policy outcomes. If free trade labor is opposed by elites with cohesive trade interests (where the labor trade advantage is strongly negative), taxes are more regressive. By contrast, high levels of coalition advantage for free-trade labor reduce the regressive revenue share by over five percentage points.

Both of these effects are substantively important as well as strongly statistically significant. One standard deviation of the labor trade advantage measure is equal to 0.83 points. Thus at the lowest levels of inequality, a one-standard deviation change in labor's standing in terms of trade coalition incentives yields a 4.5 percentage point reduction in regressive tax revenues. From Model 4, where labor is oriented towards free trade the same change in coalition advantage results in a 3 percentage point tax change. Overall, then, trade policy coalition incentives matter for progressive tax policy, consistent with the theoretical expectations. In the next section I present a more detailed account of how those incentives were channeled through political actions, into the policy outcomes through a detailed comparison of Britain and France.

## **Trade coalition mechanisms in France and Britain**

In Britain and in France between 1890 and 1913, the need for new revenues to meet rising defence expenditure needs put tax reform on the agenda. In both cases, dynamic and ambitious ministers— Joseph Caillaux in France and David Lloyd-George in Britain— assiduously promoted changes to direct taxation. Examining the contrasting trade and redistributive conflicts in the two countries highlights the mechanism by which these interests affect progressivity. This section is not a 'test' of the effect of inequality and trade on taxation— that

need is more properly met by the quantitative analyses. Rather, it highlights the mechanism by which the combination of high inequality and low commonality of trade interests (between labor and other groups) led to lower progressivity in taxation in France, while the converse conditions in Britain precipitated radical reforms. Though there may also have been other pathways of influence, a link from economic interests in the two policy areas via cross-class coalitions, to tax progressivity is clear in the comparison, particularly between 1906 and 1910.

First greater redistributive conflict due inequality undermined the potential for cross-class alliances in France. From the 1880s until 1899, division between orthodox Marxism and less radical redistributive demands divided the Parti Ouvrière Français from moderate socialist groups. Meanwhile, liberals in France were terrified of potential fiscal reform (Delalande, 2011, p.141). A great “fear of socialism, as a force which would ‘contaminate’ the social fabric”,<sup>4</sup> divided moderate liberals from Radicals, especially after 1893 (Delalande, 2011, p.139). From the 1890s to the war, redistributive policy in France was characterised by resistance from middle and higher income groups. This intransigence was explicitly economic, coexisting with centrist support for political reforms that would benefit the ‘little man’ (Owen, 1982, p. 169). The Radical propensity to undermine non-economic hierarchies— of religion, via the Ferry laws, and of the military, in the Dreyfus affair, for example— indicate that it was not generalised conservatism that stymied progressive reforms, but material distributive conflict.

In the United Kingdom, lower inequality coincided with less polarized distributive politics, with a good degree of common ground between emerging labor representatives and reformist Liberals. Not all liberals in the United Kingdom were completely sanguine about redistribution (especially employers in engineering and mining) but from the mid-1880s, Liberals

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<sup>4</sup>Author’s translation.



sought to reconcile appeals to lower income groups with the continuing support of Liberal industrial capitalists (Pelling, 1954, p.40), and Liberal politicians stressed the commonality of interests of capital and labor (Powell, 1986, p. 374). Conflict between the Liberal party and labor concerned the organizational independence of labor Bealey, 1956, p. 354, while on policy “there was little opposition to the LRC [Labour Representation Committee] among the Liberals at Westminster,” (Bealey & Pelling, 1958, p. 125). In 1888 labor leader Keir Hardie “had no quarrel with the Liberal Party programme,” boasting that “a vote for Hardie is a vote for Gladstone.” (Pelling, 1954, p. 68) This fairly straightforward compromise is consistent with lower inequality in Britain by this time.

The second impetus for progressivity in the United Kingdom, deriving from commonality of trade interests between the Liberals and labor, also worked via cementing cross-class coalitions. Free trade interests were threatened by Conservative policy proposals, especially from 1903, when Joseph Chamberlain embarked on a campaign for tariff reform. He argued that a move away from free trade could raise revenue, protect manufacturing, and strengthen Imperial ties. The shared opposition of labor and many capital owners meant that,

“[f]ree trade ... provided an additional stimulus and the ideological veneer for the renewed Lib-Lab alliance” (Howe, 1997, p. 244).

Free trade had long been a key Liberal issue, and the LRC endorsed it in 1904. As in party politics, so in the labor movement, “[w]here trade unionists and socialists could agree ... in rejecting tariff reform” (Daunton, 2001, p. 353). The 1906 election was then fought primarily on the trade question: 98 percent of Liberal and 79 percent of LRC election addresses endorsed free trade as a priority (calculations based on Russell, 1973, p. 65, 79). The divisions between Liberals and Conservatives on trade allowed more progressive representation in 1906 (Bealey & Pelling, 1958, p. 258): Liberal candidates stressed the radical potential of free trade, making ‘progressivism’ an integral part of the platform. Thus

similar positions on distribution and trade provided the glue for a left coalition (Howe, 1997, p.250). This was formalized in the Gladstone-MacDonald pact. Aided by the hegemony of the Irish Party in Catholic Ireland, it gave an overwhelming majority to the ‘progressive coalition’ from 1906. (McLean & Lodge, 2007)

Trade politics in France provided little incentive for cross class compromise. Economic elites agreed on targeted protection, while redistribution-oriented politicians of the left sought free trade. Some inter-industry conflict notwithstanding (Hiscox, 2002, 2001), capital and land owners both articulated increasing dissatisfaction with the continued moderate free trade policies of the Second Empire in the 1880s.(Smith, 1980; Verdier, 1994) By the next tariff revision in 1892, preferences among upper income groups in France had shifted toward protection; but they had shifted together. Capital and land interests were reconciled in the Méline tariff which, by securing elite agreement on trade, eliminated tariffs from political debate (Morgan & Prasad, 2009; Smith, 1980, p.1370). The compromise also cemented bourgeois support at the expense of urban workers. Exclusion from the parliamentary consensus on trade reinforced the political isolation of those in favour of progressive distributive policy (Owen, 1982; Smith, 1980).

Why are trade concerns, rather than other issues, so decisive for cross-class coalitions? Perhaps because of their substantive link to economic interests, they underpinned more durable coalitions than other policy conflicts. For example, religious cleavages united the left in both the United Kingdom and France in the early 1900s. In France, the Dreyfus affair mobilized anti-clericals (including socialists) to form the *bloc des gauches* for the 1902 election. Meanwhile the British Conservatives’ education bill of 1902 rallied Liberal as well as working class non-conformists. These religious coalition incentives proved less enduring than common positions on trade and distribution. The absence of common economic goals on the French left meant there was little cooperation once the anti-clerical battle had been won. French

socialists refused further support for liberal governments after 1905 (Luebbert, 1991, p.31).

### **Pre-war progressive direct tax reforms**

As went the stability of coalitions between low income and middle class interests, so went the success of progressive tax legislation in the two countries. Before 1918, low income actors “never had entrée to a governing circle in the absence of an interclass coalition” (Luebbert, 1991, p.29). Importantly for redistributive outcomes, these interclass coalitions did pass progressive reforms in the sphere of tax policy. In fact, progressive taxation was directly intended to cement the electoral alliance between workers and the middle class (Daunton, 2001, p.370). Equally, committed free traders in the United Kingdom feared that “if it could not be proved that social reform... can be financed on Free Trade lines, a return to Protection is a moral certainty”,<sup>5</sup> linking trade to redistribution via revenue as well as political mechanisms. In contrast, the lack of cooperation in France undermined the passage of progressive taxation even in the lower house where the left held a majority after 1906.

The clearest illustration of the effect of cross-class coalitions on progressivity is in the contrast of direct tax reforms under left-majority parliaments from 1906 to 1910. In the United Kingdom, the 1907 budget and the ‘People’s Budget’ of 1909 increased the importance of inheritance and income taxation relative to regressive indirect taxation, and made them more progressive. Even centrist Liberals’ supported these measures in parliament. In France defections throughout the left bloc, and especially in the centre, undermined every attempt to reform income taxation before 1914.

As a case study, we can compare two similar votes in the lower house of parliament: a vote from January 1908 on placing income tax at the top of the parliamentary agenda in France, and the division on the third reading of the 1909 Finance Bill in Britain. I compare these

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<sup>5</sup>H. H. Asquith to Richard Strachey, 9 May 1908. Quoted in Murray (1973), p.92

two votes as they had the same impact in advancing the legislation. The possible outcomes on British Finance bill were that the third reading occur ‘now’, or in three months’ time (Hansard, 1909a). In France, voting was on whether to give the income tax legislation precedence over questions of military conscription and education reform. In both cases the choice was between moving the process forward, or delay. In contrast, the French vote on final passage was a choice between moving forward, or rejecting the process entirely. This makes it an unsuitable comparison to the British division. Delay was an important tactic used by opponents of progressivity, and the kind of resistance that required informal as well as formal political empowerment to overturn.

In both cases the motions (advancing progressive reforms more quickly) passed, but a breakdown of the votes illustrates the cohesion and strength of support for reform. The margin of victory was much lower in France: 277 to 208 compared to the British 379 to 149,<sup>6</sup> and the measure only passed in France thanks to large scale abstention. But why the smaller margin in a Chamber equally dominated by the centre-left? Compared to its British analogue, the vote in the Assemblée highlights the lack of support from traditional groups. In particular, “some Radicals were willing to accept income tax as part of the party program, but were less willing to see it actually enacted” (Owen, 1982, p. 169). 42 percent of députés associated with the Gauche Radicale voted ‘no’ in France, while in the UK only two percent of Liberals voted against the reform at this stage. The internal division of votes in the United Kingdom also highlights the importance of trade interests: those regions home to the most staunchly protectionist interests gave no support to the measure, whatever their position in income terms: for example, not one MP from Birmingham voted ‘Aye’.

In both countries, the tax bills passed the lower chambers of parliament to face implacable opposition from the upper house. In France, powerful agricultural interests were respon-

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<sup>6</sup>A full breakdown of votes is shown in the Appendix.

sible for holding up income tax legislation in committee indefinitely. However, opposition from landed interests does not differentiate France from the United Kingdom. It is common to both. The House of Lords rejected Lloyd-George's 1909 budget, but the strength of support from the Commons made this position untenable. The (Liberal) Viscount Morley's pronouncements in the House of Lords were part propaganda, but they highlight the importance of such solid House support in making the Lords' resistance a constitutional issue:

“Such a contrast as that, 379 against 149 in one House, only a four-year-old House, and 400 or 500 in this House against forty or fifty – I say it cannot last. . . . It cannot be.” (Hansard, 1909b, S. 1156)

While it took a general election, and a weakening of its radicalism, the ‘People’s Budget’ was passed in 1910. By 1912, around half of British tax revenues came from (progressive) direct taxes. Meanwhile in France, lukewarm support for Caillaux’s reforms, even on the left, put little pressure on the Senate to act on fiscal reform. In 1912, France raised just over a quarter of its tax revenues from direct taxes, and these were largely unreformed and not oriented systematically towards redistribution.

To summarize: compared to Britain, progressivity was hampered in France by the instability of divided left coalitions; and these divisions stemmed in large measure from distributive conflict over both progressivity and trade. Inequality and trade interests were important to tax structures, thanks to the same mechanism: their effect on labor’s (potential) allies on the centre-left. Liberals in the United Kingdom were more available as coalition partners to labor since they differed little on redistribution, and differed little on trade; while the latter issue sharply separated Liberal from Conservative elites. Liberals in France— the gauche radicale and moderate republicans— could less well compromise with the socialists’ redistributive demands; nor did they share trade policy goals.

There are obvious imitations to this investigation of the theoretical mechanism. First, we can only attribute differences in outcomes to the trade- and inequality-induced coalition patterns in this way if other differences between the two cases are ruled out as explanations. No two countries look exactly alike, but a good case can be made for comparing Britain to France. In particular, the political institutions translating socioeconomic demands into policy were largely similar. (Luebbert, 1991, p.48) This helps isolate differences in the socioeconomic factors at stake in the theory. Throughout the period under study, both countries use a secret ballot, though the franchise is wider in France. Neither country uses a proportional electoral system, although France does use two-round elections. In political-institutional terms, then, the countries are as similar as is feasible for the period, and any progressive advantage would seem to point towards France, rather than Britain.

What about the capacity of the state? The early development of effective government in Britain is widely accepted. However, at least in terms of many observable metrics, compelling evidence is somewhat hard to find. Between 1880 and 1914, both central taxation and government spending are higher in France than in Britain, indicating no disadvantage in revenue raising capacity. Since this relies on the structure of taxation, though, we might want to look at different measures of capacity also; but here too the contrast points to greater capacity in France, not lower. The number of soldiers (as a share of the male population aged 20-44) is almost twice as high on average across the period; indicating that military capacity is *prima facie* higher in France. France also has slightly higher levels of school enrolment, indicating both a capacity for implementing public policy other than warfare, and also the feasibility of tax systems reliant on literacy. Thus though literacy is lower in France, higher enrolment would imply this being a transitory situation. On none of the measured dimensions do we find a significant advantage in Britain that could explain the greater ease of implementing progressive taxation. (The figures used in this paragraph come from Aidt and Jensen (2009)'s data and are summarised in Appendix H).

In terms of mass mobilization, both countries mobilize for World War I; since we focus on changes before the outbreak of war this is not of direct consequence. France also has a prior period of mass mobilization for the Franco-Prussian war in 1871. Where the two countries differ, France therefore has the profile that would tend towards more progressive taxation, yet the opposite outcomes occur.

## Conclusions

In this article, I have drawn on two surprisingly distinct literatures to help explain variation in progressive tax structures before the large-scale mobilization of the First World War, and before the emergence of PR and large welfare states, the key pieces in existing explanations. The evolution of trade interests, and their political implications, has been surprisingly absent from political science accounts of early developments in redistribution. I have argued that, in concert with the more commonly examined level of inequality in a country, trade interests gave elite groups varying incentives to support progressive taxation. Macro-comparative data from western Europe provides support for this claim: where labor groups' trade interests coincided with those of a traditional elite groups (empirically, usually capital owners), progressive taxation was more likely. This was particularly true where economic inequality was lower. Here, 'vertical' distributive conflicts over progressivity were dampened, and the trade policy conflicts more important. Equally, a substantive preference for free trade led labor (and its upscale ally) even more strongly towards domestic redistribution— progressive taxation: in this case revenues could not well be raised via tariffs.

The logic of the argument is thus a structuralist one, where economic conditions shape policy outcomes. But they do so via political processes and through the deliberate actions of politicians. In particular, economic structures shape the willingness of elite groups to ally

(or not) with newly emerging lower income interests. The contrast between the preferences and strategies of the Liberal party in Britain, and those of liberal tax reformers in France highlights this mechanism: in Britain, where trade interests programmatically divided elite groups, progressive reformers could make allies of free trade liberals. In France, trade interests did not allow for this division. There, the impetus for tax reform was a simple revenue imperative, and progressive taxes did not displace any regressive levies in the overall structure of taxation.

However, the empirical results are based on observational comparisons, and as such inferring causation requires careful thought. The obvious danger is one of reverse causation. Given the structural basis of the ‘first cause’ in the trade interests argument, this may be less pronounced: at least in the case of land and labor endowments it is a stretch to argue that tax policy drives a country’s supply of these factors. This is less the case for capital, as different tax characteristics will change the returns to investment and thus the incentives to build up a large capital stock. Nevertheless, there are three reasons why this is unlikely to undermine the analysis presented here. First, the reverse-causation argument most logically works in the opposite direction than we have found here. Labor in Europe was almost everywhere relatively abundant, and its closer trade ally was typically capital: the higher progressivity outcomes that drive the results are cases where capital was abundant. High progressivity, though, should undermine capital accumulation, not encourage it; so to the extent that there is a link from tax structures to trade interests, it is leading us to underestimate the true effects. Moreover, in this period the overall levels of all taxation were low enough that strong behavioural consequences— such as changes to the underlying capital stock— would require heroically large elasticities. Finally, all the empirical results come from estimates with a temporal lag, so that the trade interest measures are prior to the tax outcomes. While none of these arguments entirely preclude the possibility of reverse causation, they do make it less plausible.



There is slightly more cause for this concern in the dynamics between inequality and progressivity, since progressive taxation should lower inequality, and I find that progressivity is likely to be higher where inequality is lower. However, since the type of inequality we care about—both theoretically and empirically—is inequality of land holding, again there is less cause for concern than for an income measure. Again, given their generally low overall levels, even the most progressive taxes of the time would have done little to change the distribution of land from year to year. Finally, and most importantly, the key role played by inequality is in interaction with trade interests, and here it becomes much harder to make the reverse-causal argument: it would need to be the case that where labor had an advantage in forming trade alliances, progressive taxation had a larger impact on land inequality than where labour had no such advantage. This is somewhat convoluted compared to the straightforward coalition logic that provides the ‘right’ causal direction.

Given the importance of trade politics in nineteenth century Europe, and the gradual emergence of left-right redistributive conflict in the twentieth, the interaction of these two dimensions had important implications both for politics and policy. Perhaps more surprising is the persistence of the patterns set in this critical period, in the structure of taxation over the longer run (Steinmo, 1993; Morgan & Prasad, 2009). Thus an important empirical contribution of this article is to help understand tax policy choices which remain relevant even now, made in a period that has been somewhat neglected.

Theoretically, this analysis points to the importance of ‘horizontal’ (trade) as well as purely vertical distributive interests in determining policy over (vertical) redistribution, and the critical mechanism of coalition formation in a more complex political world than a median-voter democracy. Importantly, trade politics in the liberal era provide an instance where competition on a second dimension could serve to increase progressivity, rather than solely to undermine it. While a theoretical possibility in models of redistribution under two di-

mensions (Roemer, 1998), this is a contrast to the effects of the religious or social second dimension highlighted in analyses of the present day (Roemer, Lee, & van der Straeten, 2007; Finseraas, 2010).

This theoretical emphasis points to two fascinating open questions for further research. First, what kinds of (second) dimension can support durable coalitions on redistributive policy? In the liberal era, trade politics was highly politicised, and thus unsurprising as an important source of political dynamics. I have argued that its material nature— not least in the potential for tariff revenues to substitute for progressive tax revenues— made it particularly important. But there may also be a behavioural aspect which is less limited to a particular historical era. That is, trade-offs and bargains across policy dimensions that are both strongly material may be easier than those that cross material and more ideological issues. ‘Selling out’ ideological positions on political, religious or social issues for the sake of lower tax rates (or higher benefits) may be more difficult than compromises between different types of economic policy. Thus the failure of anti-clericalism to hold the French left together on progressive taxation may look more similar to the ways in which second-dimension politics plays out today. But relatively diverse economic coalitions do persist, and an examination of the kinds of *issues* that support them, or fail to do so, is an important complement to the burgeoning literature on the institutional contexts in which they thrive (Iversen & Soskice, 2006).

Second, the emphasis on coalitions for lower income interests is particular to the historical time and place, where labor groups were growing in political influence but nowhere a political majority. But it highlights an important aspect of Capoccia and Ziblatt (2010)’s ‘historical turn’ in democratization studies which has been generally neglected, namely the democratization of informal as well as formal institutions (Helmke & Levitsky, 2004). It makes sense that the extension of formal democratic rights— suffrage extensions, ballot secrecy, and so on— have been privileged in studies of democracy, for these formal institutions are necessary com-

ponents of democratic systems. But for analyses of policy outcomes, informal institutions and strategic choices may be equally important— particularly for the inclusion and representation of new types of citizen. In the British case, the Liberals’ compromise was such that parliamentary representation of Labour in 1913 was recognised by its leader as having been “by the good will of the Liberals” (Snowden, 1913); with the 1903 pact a significant part of this ‘goodwill’. Equally, the degree to which formal democratization represents a credible commitment to redistribution (as it must, to quell the ‘revolutionary threat’ in models such as Acemoglu and Robinson (2005)’s) will depend also on the degree of informal inclusion. As with formal institutions, though, there is no reason to anticipate the speed of informal change to be the same across countries, and indeed it should vary with the capacity of existing power-holders to benefit from the changes. The measurement, description, explanation and effects of such informal ‘democratisations’ is a fascinating avenue for future research.

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# Appendix

Supplementary material for *Trade, Inequality and the Origins of Progressive Taxation in Western Europe*

## A. Variation in customs revenues

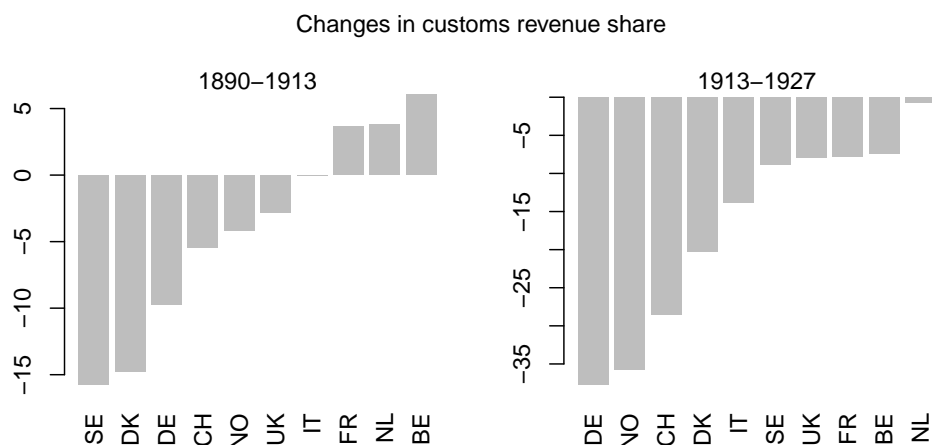


Figure 4: *Changes to tax structures in two periods: the ‘liberal’ era 1890-1913, and the ‘war era’ 1913- 1927.* Source: *Aidt and Jensen (2009)*. Notes: *The decline of customs revenues in the war era was primarily due to collapsing volumes of world trade after 1913 (Estevadeordal, Frantz, & Taylor, 2003).*

## B. Measuring factor abundance

I use data on land, capital and labor to calculate measures of relative factor endowments following Rassekh and Thompson. The abundance  $A$  of factor  $i$  relative to  $j$  in country  $h$  is given by

$$A_{ij}^h = m_i^h m_j^w - m_i^w m_j^h. \quad (3)$$

The factors  $i, j \in \{k, l, a\}$  denote capital ( $k$ ), labor ( $l$ ) or land ( $a$ );  $h$  indicates the home country and  $w$  the rest of the world.  $m_i^h$  is the (absolute) endowment of factor  $i$  in the home country, rescaled by the mean global endowment.  $m_i^w$  is the endowment of all other countries, similarly scaled. To the extent that  $m_i^h$  is large relative to  $m_j^h$ , country  $h$  is abundant in  $i$ . Scaling by the global average endowment and comparing the home to world share of each factor makes the weighted measure a cardinal one that can be compared across factor-pairs and countries.<sup>7</sup> I translate these measures into labor-capital similarities using the extent to which these factors are similar in abundance relative to land. Trade policy incentives for liberal coalitions in  $h$  will be greater when  $A_{ka}^h \approx A_{la}^h$ . The difference between the two endowments ( $|A_{ih}^h - A_{jh}^h|$ ) measures distance in preferences. Incentives for centre-left coalitions ('liberalism') are measured by  $-1$  times the log of this measure.

This requires data on factor endowments not only of the European countries under study, but their global trade partners. The need for wide coverage means that the sophistication of the measures is limited; but trade preferences depend on endowments relative to all trading partners. Thus coverage is prioritized. Labor abundance is measured by population, and land by geographic area in 1913. The land endowment measure is somewhat simplistic: it is fixed over time, and does not discount land not usable for agriculture. Capital endowments are measured across 74 countries in the Cross-Country Historical Adoption of Technology

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<sup>7</sup>Rassekh and Thompson, 2002.

(CHAT) database.<sup>8</sup> These data thus have excellent coverage of internationally-trading nations, but they concern specific types of capital. I use the geographic or route length of railway line open at the end of the year. This represents a good measure of capital endowment as it does not reflect particular industries at the forefront of capital accumulation. Of course, there is no guarantee that this capital was owned domestically; however, this problem applies equally to all measures for this period.<sup>9</sup> The CHAT data are measured annually, providing better information about changes over time than other data.

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<sup>8</sup>Comin and Hobijn, 2010, 2009.

<sup>9</sup>Bairoch, 1982; Rogowski, 1989.

### C. Macrocomparative results: controlling for state capacity

As noted, there is a relatively large literature on the impact of state capacity on taxation. While most of this literature concerns the ability of states to raise revenue (that is, it concerns the level of taxation more than its structure), it has been argued that direct taxes require more powerful administrative states than indirect ones. If inequality increases state capacity, or if high capacity is correlated with the constellation of trade interests, this could bias the results in favour of the findings discussed here. Although I am unaware of evidence, or strong theoretical reasons to expect this relationship between state capacity and the independent variables of interest, Table 4 includes a control for state capacity.

State capacity is a difficult concept to measure, particularly as it may take different forms – a state might have a high repressive capacity (police and army) but a low capacity regarding the extraction of revenues. Since it is this latter kind of capacity that seems most likely to affect tax progressivity, I follow Bartolini (2000, p. 316) and measure extractive capacity using the level government taxes as a share of GDP. Unfortunately, these data are missing for Belgium, which drops out of the sample; because of this I also use a 75 percent enfranchisement threshold (rather than universal suffrage) as a measure of democracy as without this Switzerland is the only country with universal suffrage in some years.

Table 4: The impact of trade interests and inequality on market tax revenue shares, 1890-1913.

	Model 1	Model 2	Model 3	Model 4
Labor trade advantage (LTA) $_{t-1}$	-1.18*	-1.33*	-0.40	-7.76***
	(0.56)	(0.55)	(1.06)	(1.82)
Inequality $_{t-1}$		0.93**	0.57†	0.49
		(0.32)	(0.33)	(0.32)
LTA $\times$ inequality $_{t-1}$				0.12***
				(0.03)
Free trade labor (FTL) $_{t-1}$			1.48	
			(1.11)	
LTA $\times$ FTL $_{t-1}$			-3.03**	
			(1.01)	
75% suffrage $_{t-1}$	-17.07***	-10.35***	-11.81***	-12.17***
	(2.04)	(3.03)	(2.98)	(2.93)
Real GDP p.c. $_{t-1}$	0.01**	0.01***	0.01**	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)
Trade $_{t-1}$	2.68	5.76	1.68	3.47
	(6.55)	(6.45)	(6.64)	(6.19)
State capacity	-1.44*	-0.62	-0.56	0.19
	(0.62)	(0.66)	(0.65)	(0.67)
Country effects	fixed	fixed	fixed	fixed
Year effects	fixed	fixed	fixed	fixed
$N$	164	164	164	164
$R^2$	0.97	0.97	0.97	0.97
adj. $R^2$	0.96	0.96	0.97	0.97
Resid. sd	3.31	3.22	3.13	3.08

Standard errors in parentheses

† significant at  $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## D. Macrocomparative results: direct tax shares

Table 5: The impact of trade interests and inequality on direct tax revenue shares, 1890-1913.

	Model 1b	Model 2b	Model 3b	Model 4b
Labor trade advantage (LTA) $_{t-1}$	-0.64 (0.44)	-0.45 (0.39)	4.85*** (1.22)	-0.94* (0.42)
Inequality $_{t-1}$		-0.84*** (0.22)	-0.39 (0.25)	-0.65** (0.23)
LTA $\times$ inequality $_{t-1}$			-0.10*** (0.02)	
Free trade labor (FTL) $_{t-1}$				-1.44** (0.54)
LTA $\times$ FTL $_{t-1}$				2.00*** (0.57)
Universal suffrage $_{t-1}$	-3.92*** (0.88)	-2.81** (0.92)	-3.16*** (0.87)	-2.81** (0.90)
Real GDP p.c. $_{t-1}$	-0.00 (0.00)	-0.01** (0.00)	-0.00 <sup>†</sup> (0.00)	-0.00* (0.00)
Trade $_{t-1}$	-8.20*** (1.50)	-9.74*** (1.61)	-7.44*** (1.50)	-5.84*** (1.63)
Year FEs	y	y	y	y
Country FEs	y	y	y	y
$N$	195	195	195	195
Resid. sd	2.61	2.50	2.38	2.43

Robust standard errors in parentheses

<sup>†</sup> significant at  $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## E. Fully interacted results

Table 6: Fully interacted results, analogues to Table 3.

	Model 1	Model 2
Labor trade advantage (LTA) $_{t-1}$	-19.24 (12.91)	14.71 (13.09)
Inequality $_{t-1}$	0.46 (0.25)	-0.45 (0.24)
Free trade labor (FTL) $_{t-1}$	-13.94* (6.63)	7.35 (5.18)
LTA $\times$ inequality $_{t-1}$	0.30 (0.21)	-0.25 (0.21)
LTA $\times$ FTL $_{t-1}$	21.41 (13.37)	-14.58 (13.35)
FTL $\times$ inequality $_{t-1}$	0.29* (0.12)	-0.17 (0.10)
LTA $\times$ FTL $\times$ inequality $_{t-1}$	-0.42 (0.23)	0.26 (0.23)
Universal suffrage $_{t-1}$	-1.11 (1.25)	-2.56* (0.96)
Real GDP p.c. $_{t-1}$	0.01* (0.00)	-0.00 (0.00)
Trade $_{t-1}$	-6.36* (1.96)	-5.06* (1.58)
Year FEs	$y$	$y$
Country FEs	$y$	$y$
$N$	195	195
Resid. sd	2.78	2.32

Robust standard errors in parentheses

\* indicates significance at  $p < 0.05$



## F. Alternative specifications: LDV and random effects models

Table 7: Alternative specifications: inequality, trade interests and market revenue shares 1890-1913.

	Model 5	Model 6	Model 7	Model 8
Labor trade advantage (LTA) $_{t-1}$	0.77 (1.09)	-3.54* (1.60)	-6.77*** (1.49)	-2.72† (1.34)
Inequality $_{t-1}$	0.06* (0.03)	0.38 (0.24)	0.42† (0.21)	0.30† (0.14)
LTA $\times$ inequality $_{t-1}$	-0.01 (0.02)	0.06* (0.03)	0.12** (0.03)	0.05† (0.02)
Universal suffrage $_{t-1}$	-0.03 (0.45)	-0.21 (1.36)	-0.54 (1.62)	-0.06 (1.40)
Real GDP p.c. $_{t-1}$	-0.00 (0.00)	0.00† (0.00)	0.01*** (0.00)	0.00*** (0.00)
Trade $_{t-1}$	0.11 (0.43)	-0.53 (1.60)	-1.81 (2.22)	0.04 (1.80)
Market tax revenue share $_{t-1}$	0.96*** (0.02)	0.49*** (0.09)		0.54*** (0.06)
Country effects	none	fixed	random	random
Year effects	fixed	fixed	random	random
$N$	195	195	195	195
Resid. sd	2.87	2.56	2.46	2.55

Robust standard errors in parentheses

† significant at  $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

(in Model 8, LTA, inequality and their interaction are all significant at  $0.05 < p < 0.07$ , though not quite at conventional levels.)

Table 8: Alternative specifications: trade alliances, trade preferences and market revenue shares 1890-1913.

	Model 9	Model 10	Model 11	Model 12
Labor trade advantage (LTA) <sub><i>t</i>-1</sub>	0.69 (0.50)	0.31 (0.40)	1.12 <sup>†</sup> (0.61)	0.85 (0.53)
Free trade labor (FTL) <sub><i>t</i>-1</sub>	-0.54 (0.57)	0.24 (0.59)	0.57 (0.62)	-0.13 (0.55)
LTA × FTL	0.06 (0.62)	-1.62* (0.75)	-3.32** (0.87)	-1.53 <sup>†</sup> (0.76)
Inequality <sub><i>t</i>-1</sub>	0.07* (0.03)	0.43 <sup>†</sup> (0.23)	0.50* (0.20)	0.31* (0.14)
Universal suffrage <sub><i>t</i>-1</sub>	0.08 (0.46)	-0.20 (1.34)	-0.34 (1.65)	0.14 (1.40)
Real GDP p.c. <sub><i>t</i>-1</sub>	-0.00 (0.00)	0.00 <sup>†</sup> (0.00)	0.01*** (0.00)	0.00* (0.00)
Trade <sub><i>t</i>-1</sub>	0.20 (0.46)	-0.95 (2.11)	-2.61 (2.42)	0.08 (1.94)
Market tax revenue share <sub><i>t</i>-1</sub>	0.96*** (0.02)	0.50*** (0.09)		0.56*** (0.06)
Country effects	none	fixed	random	random
Year effects	fixed	fixed	random	random
<i>N</i>	195	195	195	195
Resid. sd	2.87	2.58	2.89	2.55

Robust standard errors in parentheses

<sup>†</sup> significant at  $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

(in Model 12 the interaction between free trade labor and the Labor trade advantage is significant at  $p = 0.067$ .)

## G. Voting on Progressive Reforms, UK versus France

Table 9: Parliamentary votes on progressive tax reforms in the UK and France

Bloc	party	Aye		No		Abstention	
		N <sup>a</sup>	(% <sup>b</sup> )	N	(%)	N	(%)
United Kingdom 4 Nov 1909, that the word 'now' stand part of the question							
Left		371	(89)	7	(1)	37	(9)
	Liberal	344	(89)	7	(2)	32	(8)
	labor	27	(84)	0	(0)	5	(16)
Right		2	(1)	112	(87)	15	(12)
	Conservative	2	(2)	105	(86)	15	(13)
	Unionist	0	(0)	7	(100)	0	(0)
Irish MPs		2	(2)	12	(12)	84	(86)
Others <sup>c</sup>		6	(21)	20	(69)	3	(10)
France vote 445, 16 Jan 1908, motion to put income tax at top of agenda							
Left		240	(73)	61	(19)	26	(8)
	Gauche Radicale	48	(45)	45	(42)	14	(13)
	Radical Socialist	119	(84)	14	(10)	8	(6)
	Independent Socialist	19	(79)	2	(8)	3	(13)
	Socialist	54	(98)	0	(0)	1	(2)
Right		33	(1)	107	(46)	93	(40)
	Catholic Right	25	(28)	8	(9)	55	(63)
	Conservative Rep.	3	(5)	34	(52)	29	(44)
	Moderate Rep.	5	(6)	65	(83)	9	(11)

a. Totals and percentages include tellers as ayes and noes.

b. Percentages of members of the chamber with the relevant affiliation (including abstentions).

c. 'Others' are Liberal Unionists (26), Independent Unionists (2) and Independent Liberal (1).

Sources: Hansard, 1909a; Owen, 1982

## H. The British-French Comparison: Covariate Summaries

Table 10: France and Britain 1880-1913 averages of state capacity and political institutional variables.

Variable	France			Britain		
	Median	Mean	SD	Median	Mean	SD
Central tax / GDP	10.3	10.2	0.94	5.7	5.7	0.57
Government spending / GDP	11.6	11.7	1.1	7.3	7.6	1.1
Military personnel / Males 20-44	8.6	8.4	0.46	4.5	4.8	0.78
School enrolment / 5-14 year olds	83.3	83.9	1.76	74	70.2	10.5
Literates (%)	78	78	5	88	86	5.3
Economic franchise (electorate / enfranchised age group and gender)	87.4	88.5	2.5	62.4	57.2	11.3

Sources: Aidt and Jensen, 2009