Supporting Material for: "Trade and Redistribution: Two-Dimensional Interests and the Origins of Progressive Taxation"

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1 Theoretical Extensions

1.1 The Revenue Link between Free Trade and Redistribution

As well as the link in terms of political coalitions, there is a link between trade taxes and progressive taxation through their substitutability as a source of revenue. This can be read in a couple of ways. On the one hand we can think of it as ruling out some combinations of progressivity and tariffs, if each is a way of raising revenue, and some baseline level of revenue is needed.

Thinking graphically, what we can consider the revenue link as doing is in fact ruling out $e2$'s most-preferred low-progressivity, low-tariff solution, as this low tax position would not raise sufficient revenues. Figure A1 illustrates the intuition that a reason for elites to support more progressivity is because the alternative in terms of revenue raising is (even) higher tariffs.

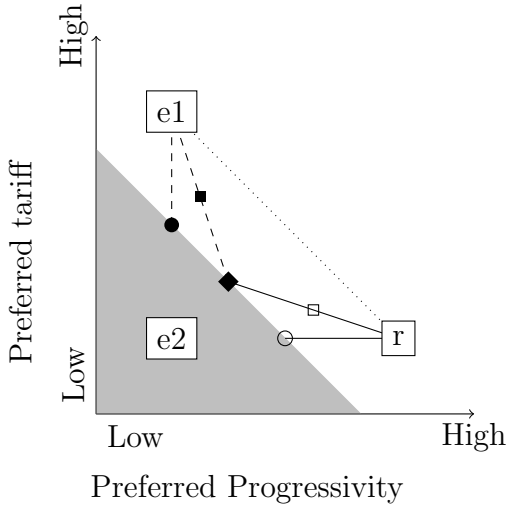

Figure A1: Economic groups in the two dimensional policy space, with minimum revenue constraint: the grey area indicates tariff-progressivity combinations which fail to raise sufficient revenue. $e1$ and $e2$ indicate elite groups (political insiders), r indicates the pro-redistribution group. ◆ shows $e2$'s preferred position within the set of 'revenue feasible' combinations. ● indicates elite-compromise policy outcome; ○ indicates outcome of $e2 - r$ compromise, assuming bargains negotiated with equal bargaining power from ideal points; □ and ■ indicate the outcome of bargaining from ◆, i.e. if r and $e1$ can drive a better deal because of the feasibility constraints on $e2$.

The figure duplicates the basic geometry of figure 1b in the paper but is expanded in size for visibility. The fact that governments need to fulfil a revenue constraint will rule out some

low-tariff, low-progressivity options, as illustrated in the figure by the grey triangle.[1] This narrows the space available for policy, although (as drawn) it does not rule out the initial compromise positions analogous to those indicated in figure 1b in the paper (indicated with the circles). However, those positions were premised on an assumption of equal bargaining power between the two groups. The non-feasibility of $e2$'s preferred position may make this an untenable assumption endogenously to the model.[2] Thus the squares in the figure represent the halfway point on the contract curves between $e2$'s preferred feasible position and $e1$ (filled square) or r (open square). Under these conditions we see that if the alliance chosen by $e2$ is with r, the agreed level of progressivity is even higher (but $e2$ would do equally badly on tariff concessions if allying with $e1$).

[1]For simplicity I have drawn this as symmetric in the tariff-progressivity space, but this is simply for illustration; the true relevant shape of the unfeasible combinations is an empirical question.

[2]Equal bargaining power may be unrealistic for external reasons, empirically, but as an illustration we assume these unrelated to the changing parameters of the model.

2 Macrocomparative Evidence

2.1 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

$$A_{ij}^h = m_i^h m_j^w - m_i^w m_j^h. \tag{1}$$

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(Rassekh & Thompson, 2002, 3). 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.

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 measures 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 (CHAT) database.[3] 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.[4] The CHAT data are measured annually, providing better information about changes over time than other data.

[3] Comin and Hobijn, 2010, 5, 2009.

[4] Bairoch, 1982; Rogowski, 1989.

2.2 Descriptive Statistics

Table A1: Descriptive statistics for the main variables

Statistic	N	Mean	St. Dev.	Min	Max
Domestic market tax share	426	0.41	0.17	0.00	0.70
Direct tax share	426	0.22	0.14	0.00	0.52
Top income tax rate	402	2.21	3.37	0.00	17.10
Top inheritance tax rate	402	1.82	2.64	0.00	15.00
Labour's trade advantage	446	0.31	0.34	−0.04	1.47
Free-trade oriented labour	446	0.39	0.49	0	1
Inequality	432	0.51	0.11	0.18	0.67
Extent of economic franchise	446	0.57	0.31	0.08	0.94
Vote-tax link	450	0.44	0.50	0	1
Real GDP p/c	398	2,944.76	1,097.96	1,192.93	7,211.93
Trade openness	391	0.002	0.001	0.0004	0.01

Country	Observations	First	Last
Belgium	43	1871	1913
Denmark	42	1872	1913
France	43	1871	1913
Germany	42	1872	1913
Italy	43	1871	1913
Netherlands	43	1871	1913
Norway	8	1906	1913
Sweden	43	1871	1913
Switzerland	33	1881	1913
United Kingdom	43	1871	1913

2.3 Macrocomparative Results: Robustness – State Capacity

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 favor 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, I consider the robustness of the main results to including this variable.

State capacity is a difficult concept to measure, particularly as it may take different forms – a state might have a high repressive capacity but a low capacity regarding the extraction of revenues. This latter kind of capacity that seems most likely to affect tax progressivity, and in this sense the 'full' models in the main text, which include the ratio of total taxes to GDP can be seen as incorporating this kind of extractive capacity, following Bartolini (2000, p. 316). The results in the main manuscript indicate that this control does not affect the substantive conclusions drawn for any of the outcome variables.

However, there are alternative measurement strategies for state capacity perhaps less susceptible to post-treatment bias. Here I consider two such indicators: the military capacity of the state, and administrative capacity as indicated by the level of education in society. A basic level of literacy is required to comply with self-reported income taxes, for example. Thus as an alternative, I include as a control military personnel as a percentage of male population aged 20-44, and school enrollment of 5 to 14 year olds, as a share of that age group's population. Data for both measures come from Aidt and Jensen (2009). However, Aidt and Jensen (2009) argue that the impact of administrative capacity interacts with democratisation in promoting direct taxes. They argue that democratic expansions are only likely to lead to more progressive tax systems if there is a sufficiently high level of education. As such, table A3 includes both the simple control for education as administrative capacity, and models where this variable is interacted with the extent of the economic franchise.

Table A2 presents the results of the preferred specification for each of the four measures of tax progressivity, with the additional control for military capacity.

Across all outcomes, the results incorporating military capacity are largely unchanged from the original specifications. Nor does military capacity itself seem to be systematically related to progressivity outcomes.

Table A3 displays results from analogous models incorporating education (odd numbered models) and education and its interaction with franchise extension (even numbered models).

First, we must highlight the results for the top inheritance tax rate outcome, which are changed by the inclusion of these controls. Specifically, while the negative signs for inequality and its interaction with labor's trade advantage are recovered in the presence of the education

Table A2: The determinants of tax progressivity, 1870-1913: robustness to state capacity control (1)

	Indirect Share	**Direct Share**	**Top Income**	**Top Inheritance**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Labour trade advantage (LTA)	-0.65^{***}	0.89^{***}	-1.35	11.24^{**}
	(0.19)	(0.13)	(5.45)	(5.18)
Inequality	-0.38^{*}	-0.16	-28.43^{***}	-19.37^{***}
	(0.20)	(0.14)	(5.77)	(5.48)
LTA : inequality	1.41^{***}	-1.69^{***}	4.39	-22.20^{***}
	(0.30)	(0.21)	(8.71)	(8.27)
GDP per capita	0.0000	0.0000^{***}	-0.0002	-0.002^{***}
	(0.0000)	(0.0000)	(0.001)	(0.001)
Vote-tax link	-0.07^{***}	-0.05^{***}	-3.94^{***}	-0.44
	(0.02)	(0.01)	(0.50)	(0.47)
Economic franchise	-0.04^{***}	-0.005	-0.43	-0.51
	(0.02)	(0.01)	(0.45)	(0.43)
Trade	-24.93^{***}	26.72^{***}	345.46^{**}	-343.68^{**}
	(5.27)	(3.70)	(144.61)	(137.34)
Military capacity	0.0004	-0.003^{**}	-0.11^{**}	0.04
	(0.002)	(0.001)	(0.05)	(0.05)
Country fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
N	348	348	354	354
R-squared	0.92	0.96	0.92	0.88
Adj. R-squared	0.91	0.95	0.90	0.86

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Table A3: The determinants of tax progressivity, 1870-1913: robustness to state capacity control (2)

	Indirect Share		**Direct Share**		**Top Income**		**Top Inheritance**	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
Labour trade advantage	-0.56^{**}	-0.61^{***}	0.53^{***}	0.65^{***}	-11.00	1.26	-3.75	-1.19
	(0.22)	(0.23)	(0.17)	(0.17)	(6.94)	(6.74)	(6.42)	(6.68)
Inequality	-0.25	-0.33	-0.70^{***}	-0.47^{**}	-43.75^{***}	-20.27^{**}	-19.46^{***}	-14.56^{*}
	(0.24)	(0.27)	(0.18)	(0.21)	(7.64)	(7.97)	(7.07)	(7.90)
LTA : inequality	1.24^{***}	1.31^{***}	-1.08^{***}	-1.26^{***}	23.67^{**}	4.71	0.82	-3.13
	(0.36)	(0.37)	(0.28)	(0.28)	(11.38)	(11.00)	(10.53)	(10.89)
GDP per capita	-0.0000	-0.0000	0.0000	0.0000^{*}	-0.001^{***}	-0.001^{***}	-0.001^{***}	-0.001^{***}
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Vote-tax link	-0.06^{***}	-0.06^{***}	-0.05^{***}	-0.05^{***}	-3.80^{***}	-3.40^{***}	-0.53	-0.45
	(0.02)	(0.02)	(0.01)	(0.01)	(0.50)	(0.47)	(0.47)	(0.47)
Economic franchise	-0.02	-0.01	-0.01	-0.04^{**}	-0.80	-3.52^{***}	-1.72^{***}	-2.29^{***}
	(0.02)	(0.02)	(0.01)	(0.02)	(0.53)	(0.65)	(0.49)	(0.64)
Trade	-28.94^{***}	-28.15^{***}	22.05^{***}	20.02^{***}	93.84	-119.02	-445.60^{***}	-489.98^{***}
	(5.60)	(5.71)	(4.32)	(4.36)	(178.48)	(169.60)	(165.14)	(167.98)
Education	-0.001^{**}	-0.001^{**}	-0.0000	-0.0002	-0.002	-0.02	0.04^{***}	0.04^{**}
	(0.001)	(0.001)	(0.0004)	(0.0004)	(0.02)	(0.02)	(0.02)	(0.02)
Education : franchise		-0.0002		0.0004^{**}		0.04^{***}		0.01
		(0.0002)		(0.0002)		(0.01)		(0.01)
Country fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
N	336	336	336	336	341	341	341	341
R-squared	0.97	0.97	0.97	0.97	0.92	0.93	0.89	0.89
Adj. R-squared	0.96	0.96	0.96	0.96	0.90	0.91	0.87	0.87

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

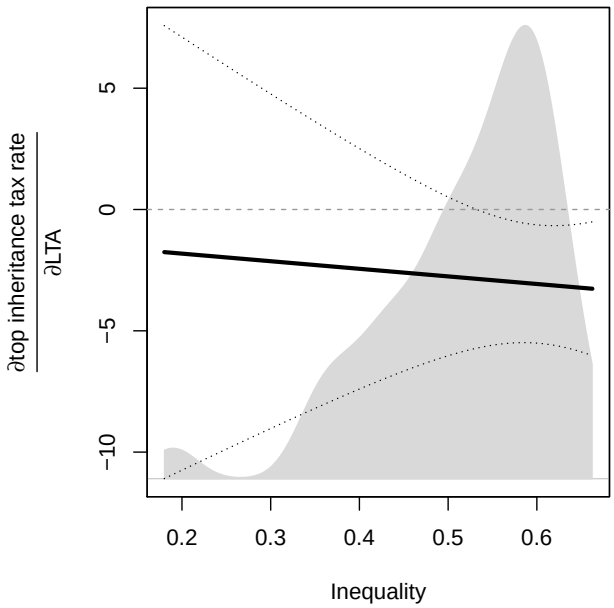

Figure A2: Marginal effects of labor's trade advantage on top inheritance tax rates as inequality changes, with controls for education and its interaction with the extent of the franchise.

controls, the latter – our core variable of interest – is no longer statistically significant, and its magnitude is substantially reduced compared to the original specifications. Again the easiest way to interpret the results in light of the theory is graphically, so figure A2 shows the marginal effects of labor's trade advantage on top inheritance rates as estimated in the presence of these controls (model 8 in table A3).

The figure makes clear that there is no great difference in the impact of the labor trade advantage across different levels of inequality here. The estimated effect is discernible from zero only at higher levels of inequality, but this is due to the narrowing confidence intervals in that range, rather than a large slope for the estimated marginal effects.

In contrast, the results for the indirect tax share and the direct tax share, as well as the more awkward original results for top income tax rates, show little substantive change with the inclusion of these controls for state capacity.

Administrative capacity itself – as measured by the level of education in the population – is systematically related to the tax progressivity outcomes examined here, even when it does not change the substantive conclusions regarding inequality and labor's trade advantage. Country-years with higher education see lower indirect tax shares and higher top rates of inheritance taxation. Interestingly, there is no significant overall effect of education on the direct tax share or the top income rate, but in these cases (as anticipated by the Aidt and

Jensen (2009) results), the interaction results are positive. Importantly, for these and the other models which control for state capacity (whether via taxes/GDP, military capacity, or education), the estimated coefficients on the economic franchise are always negative – with opposite interpretations in terms of progressivity for the indirect tax share and the other outcomes.

2.4 Macrocomparative Results: Robustness – Alternative Specifications

As noted in the main text, it is important to consider the robustness of the inferences made to alternative treatments of dynamic and spatial relationships. As such, lagged dependent variable models are presented in table A4 and models which models country effects as random rather than fixed are presented in table A5.

In sign and substance, as well as statistical significance, the lagged dependent variable models return substantively similar results to the fixed effect specifications for the direct tax share outcome and the top rate of income taxation – though these latter are not in accordance with the theoretical predictions. In the indirect tax share and inheritance tax rate models, the magnitude of the estimated coefficients (across all three coefficients of interest: labour trade advantage, inequality, and their interaction) are considerably reduced and no longer reach conventional levels of statistical significance.

However, the basic pattern of the interaction is recovered in all three cases as it is in the original specifications. Figure A3 makes this clearer than the numerical results. For the indirect tax share, the non-significance of the negative effect of the labour trade advantage, and the non-significance of the interaction are obvious with reference to the very wide confidence intervals at the low-inequality area of the figure. But the positive (if not precisely statistically estimated) slope of the line replicates the original pattern. Similarly, for the other three outcomes recall that the substantive pattern predicted by the theory is of a negatively sloping line with a positive marginal effect at low levels of inequality. This is borne out in the direct tax share panel of the figure. For the top inheritance tax rate, the wide confidence intervals preclude statistically discernible results (but the correct overall patterns are maintained). In the case of the income tax, we do not recover the pattern predicted by the theory, but this is not a feature of the addition of the lagged dependent variable: the 'wrong' signs are equally produced by the estimation with fixed effects alone. For the tax rate outcomes, the lack of statistical significance in the presence of the lagged dependent variable is unsurprising given that changes to these rates do not occur every year – as also indicated by the high estimate for the impact of the lagged dependent variable itself (around 0.9 in both cases).

Moreover, considering the lagged dependent variable models opens up the possibility of simulating the long-run effects of the main theoretical variables of interest. Following Williams and Whitten (2012), and using their `dynsim` package in `R`, I create dynamic simulations of

Table A4: The determinants of tax progressivity, 1870-1913: robustness to alternative specifications: lagged dependent variable models

	Indirect Share	**Direct Share**	**Top Income**	**Top Inheritance**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Labour trade advantage	−0.12	0.21**	−1.01	1.76
	(0.12)	(0.10)	(3.44)	(2.36)
Inequality	−0.11	−0.17*	−6.43*	−2.19
	(0.12)	(0.09)	(3.53)	(2.21)
LTA : inequality	0.32	−0.39**	2.49	−3.52
	(0.20)	(0.16)	(5.39)	(3.73)
GDP per capita (10k)	−0.03	0.06	−1.62	−1.69
	(0.08)	(0.06)	(2.26)	(1.54)
Vote-tax link	−0.01	−0.02***	−1.55***	−0.36
	(0.01)	(0.01)	(0.36)	(0.22)
Economic franchise	−0.02**	−0.003	0.47	−0.27
	(0.01)	(0.01)	(0.31)	(0.20)
Trade	−8.55**	7.07**	−93.19	−5.87
	(3.66)	(2.89)	(95.99)	(63.66)
Domestic Indirect share$_{t-1}$	0.75***			
	(0.04)			
Direct share$_{t-1}$		0.71***		
		(0.04)		
Top income rate$_{t-1}$			0.92***	
			(0.05)	
Top inheritance rate$_{t-1}$				0.90***
				(0.03)
Country fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
N	378	378	386	386
R-squared	0.98	0.98	0.96	0.97
Adj. R-squared	0.98	0.98	0.95	0.97

***p < .01; **p < .05; *p < .1

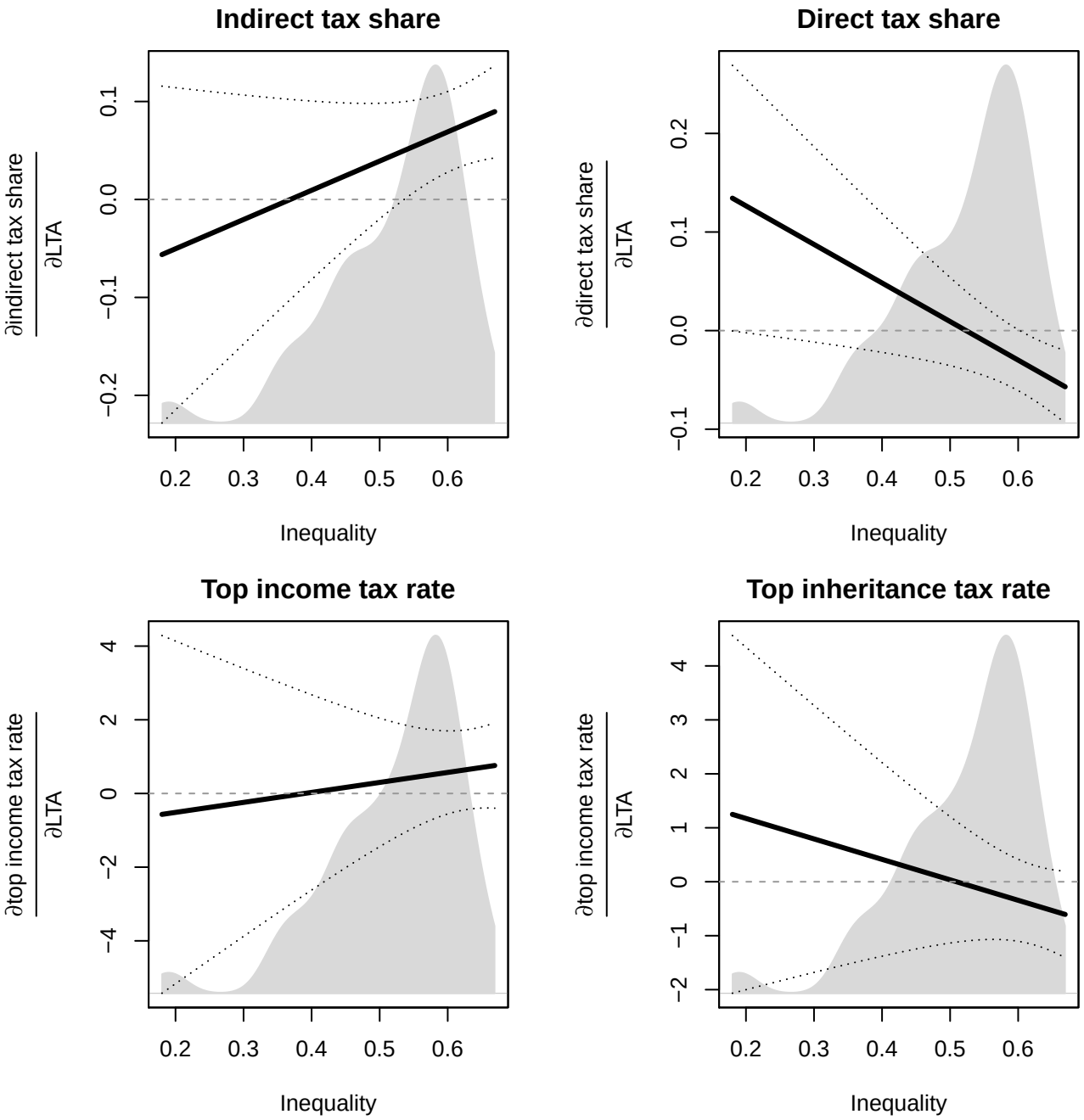

Figure A3: Marginal effects of labor's trade advantage on top inheritance tax rates as inequality changes. Estimates from lagged dependent variable models.

the effects of inequality and the labor trade advantage on the basis of the models in table A4. Specifically, I predict the level of tax progressivity (as captured by the four measures of the dependent variable) for countries in the four corners of the two-dimensional distribution of structural conditions (at the 10th and 90th percentiles). Thus I plot the evolution of four conditions over the long run: equal – high LTA countries where I expect the most progressive outcomes; unequal – high LTA countries and equal – low LTA countries (which should be intermediate in their progressivity outcomes) and unequal – low LTA countries where low income groups are most isolated in their preferences and thus where the least progressive outcomes are predicted.

These expectations are generally borne out in the data. The ordering of the four scenarios is exactly consistent with the predictions for the direct tax share outcome and the inheritance tax top rate, and the impact of the labor trade advantage (but not inequality) is in line with the theory for the indirect tax share. The outcome profiles through time are plotted in figure A4.

These dynamics over the long run indicate that, except for the top income tax rate measure, the labour trade advantage matters for tax progressivity outcomes. The two 'high LTA' paths are always distinct from the low trade advantage paths over a ten-year period or more. The inferences for inequality and for the interaction between inequality and the trade ally advantage over the long run, however, are more mixed. Again leaving aside the results for the top income tax rate (see below), the more equal conditions are associated with more progressive outcomes for direct tax shares and for top inheritance tax rates, but the difference is statistically discernible only in the low labor trade advantage pairing. For the domestic indirect tax share measure, the long run predictions indicate more regressive outcomes (higher shares) in the more equal conditions (though again, the difference where labor has a large advantage on trade are not statistically significant).

The income tax rate results again show a different pattern, just as they do for the short-term results. What is even more apparent in the LDV specifications and the long-run effects is that in this case, inequality rather than trade politics seems to be more important. The discrepancy between the top income tax rate results and all the other measures of progressivity, however, highlights the importance of careful attention to generalisations about taxation in general from results based solely on the study of income tax rates.

Table A5 shows the analogous results using random effects for country, rather than the fixed effects presented in the main analyses. Here, the differences from the original results are marginal in all cases.

2.5 Macrocomparative Evidence: The Size of Government

In the context of the theoretical argument about coalitions, to the extent that larger government was a demand made by labor groups (just as much as more progressive structures of taxation) we should expect the same effects of trade interests on the size of taxation outcome

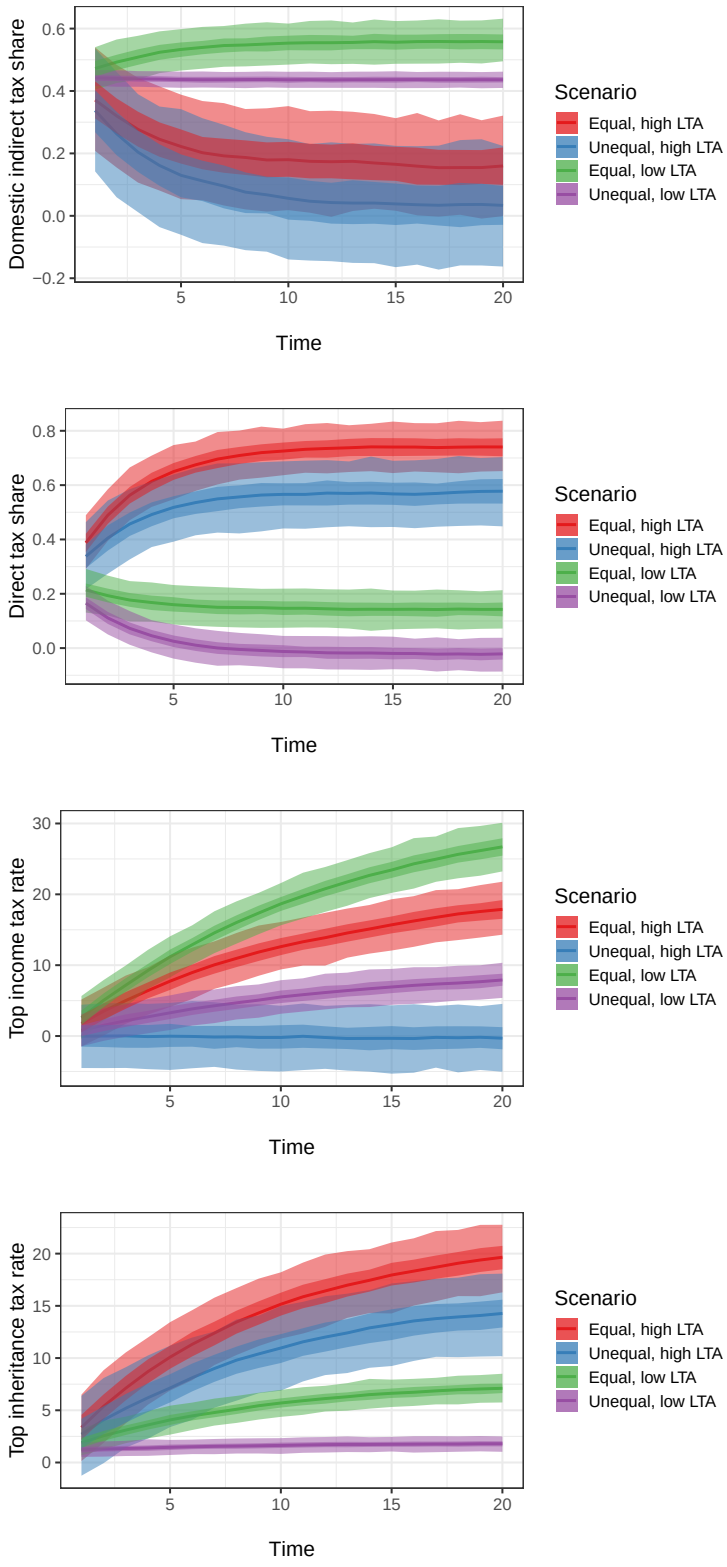

Figure A4: Long-run effects of inequality and labor trade advantage on tax progressivity. Simulations from models in table A4. Shaded ribbons indicate 95% confidence intervals; darker ribbons are 50% central intervals.

Table A5: The determinants of tax progressivity, 1870-1913: robustness to alternative specifications: random effects models

	Indirect Share	**Direct Share**	**Top Income**	**Top Inheritance**
	Model 1	**Model 2**	**Model 3**	**Model 4**
Labour trade advantage	-0.68^{***}	0.78^{***}	-2.04	16.55^{***}
	(0.17)	(0.12)	(4.67)	(4.03)
Inequality	-0.49^{***}	-0.33^{***}	-30.35^{***}	-10.05^{***}
	(0.16)	(0.11)	(4.42)	(3.84)
LTA : inequality	1.46^{***}	-1.49^{***}	6.34	-31.69^{***}
	(0.26)	(0.19)	(7.31)	(6.33)
GDP per capita (10k)	0.03	0.24^{***}	-8.39^{***}	-10.49^{***}
	(0.11)	(0.08)	(3.07)	(2.72)
Vote-tax link	-0.07^{***}	-0.05^{***}	-3.84^{***}	-0.58
	(0.02)	(0.01)	(0.47)	(0.44)
Economic franchise	-0.04^{***}	-0.004	-0.32	-0.56
	(0.02)	(0.01)	(0.43)	(0.41)
Trade	-27.01^{***}	25.48^{***}	315.55^{**}	-225.82^{*}
	(4.87)	(3.40)	(132.51)	(122.62)
Country random effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
N	380	380	386	386
Log Likelihood	550.87	668.49	-567.85	-544.68
AIC	-997.74	-1232.99	1239.70	1193.37
BIC	-792.85	-1028.10	1445.40	1399.07

$^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

as we do on its progressive structure. An advantage for labour in terms of similarity of trade positions should translate into higher taxes as a share of GDP, in that larger government is also an outcome likely to increase redistribution and thus an additional concession to labour's demands on that score.

As such, we can run analyses parallel to those of the tax shares and rates with taxes/GDP as the outcome of interest, as shown in table A6.

Table A6: The determinants of domestic indirect tax revenues as a share of total tax revenue, 1871-1913

	Taxes/GDP	
	Model 1	**Model 2**
Labour trade advantage (LTA)	6.51***	16.38***
	(2.37)	(2.79)
Inequality	−2.96	4.98*
	(1.96)	(2.76)
LTA:Inequality	−7.24**	−23.28***
	(3.52)	(4.38)
GDP per capita		0.001***
		(0.0002)
Vote-tax link		−0.40
		(0.29)
Economic franchise		0.90
		(0.64)
Trade		583.25***
		(161.01)
Country fixed effects	Y	Y
Year fixed effects	Y	Y
N	353	310
R-squared	0.96	0.97
Adj. R-squared	0.96	0.97

***p < .01; **p < .05; *p < .1

Again, we do not recover statistically significant effects of inequality in the direction we suggest, but the positive impact of labour's trade advantage, and its declining effect when inequality is higher.

This confirms the logic of the theoretical model in a slightly different context, where labour's goals can be seen as broader than just progressivity but include redistribution more broadly, but for obviously similar reasons.

3 Case Selection: Britain in Comparative Context

As noted in the main text, Britain after 1900 is a useful case in which to examine the impact of trade alliance incentives for compromise, because it is at the lower levels of inequality where the effects of trade politics strategy are most likely to be felt. Figure A5 provides the descriptive data underpinning this claim, showing the average levels of the rural inequality measure for each country in the sample, between 1900 and 1910, and for the earlier period 1870 to 1899.

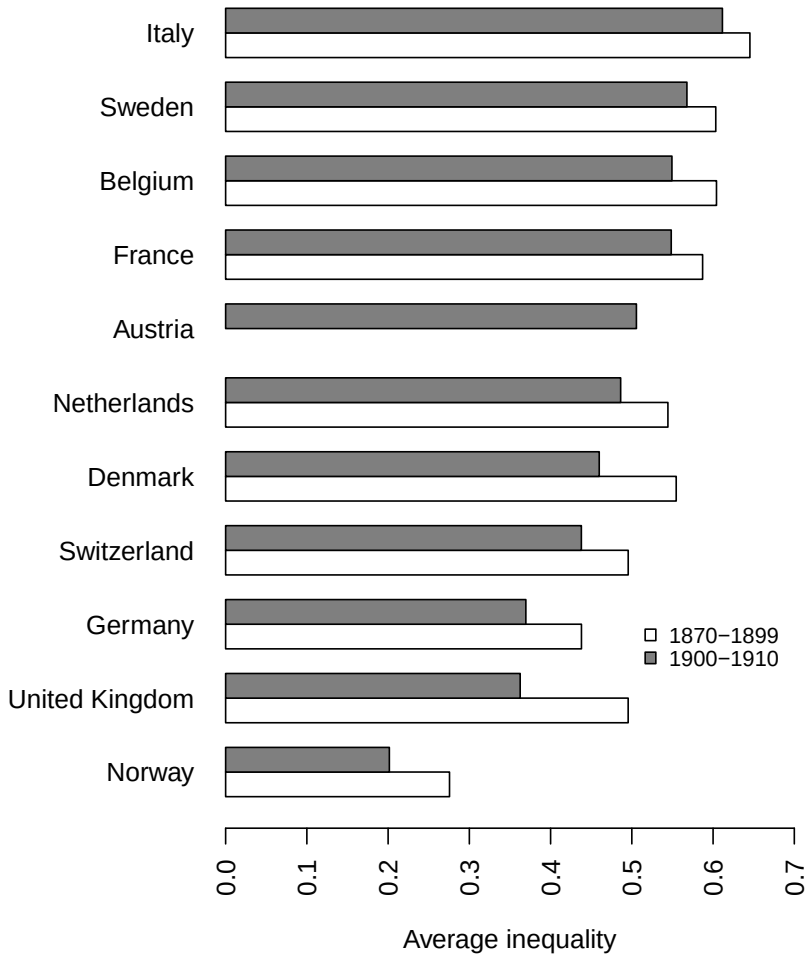

Figure A5: Rural inequality in Britain compared to other countries in the sample.

4 British Evidence: Coding the Historical Record

As noted in the main text, the core empirical data on constituency interests in trade and redistribution (as well as other characteristics) come from Henry Pelling' s *Social Geography of British Elections, 1885-1910*[5]. Given the centrality of these data to the analysis of the UK case, in this section I discuss both the book, its place in the historical consensus, as well as my own methodology for translating the 400 pages of historical detail into a quantitative dataset for analysis.

4.1 Pelling and *Social Geography*

Henry Pelling was primarily a historian of labor and the trade union movement. *Social Geography* was published in 1967 and is noted in his obituary as "a pioneering exercise in historical psephology" (Macintyre, 1998).

The book aims, in the first instance, to provide a geographical analysis of elections as a way of revealing insights about the structure of local communities (Pelling, 1967, p.1). That is, the particular contribution intended by the author is in the analysis of the electoral data, using geography as the lens through which to analyze these political differences. The primary difficulty for Pelling was that the administrative units used in Britain for gathering data– in particular, the census– typically do not overlap with parliamentary constituencies. Thus *Social Geography* unites data from a number of sources to characterize the individual constituencies.

For the purposes of the quantitative analysis and research question here, many queries about Pelling's methodological choices are not relevant (for example, the introduction to *Social Geography* spends a good deal of time defending the use of a six-election average to summarize constituency leanings, which is not of direct relevance here), the two core areas of attention are first, how is the geographical area 'divided up'; and second, where does the information on which Pelling's account relies come from.

First, 15 regions are used by Pelling to divide the country. These are: South East (London), South East (outside London), East Anglia, Central region, Wessex, Bristol region, Devon and Cornwall, West Midlands, East Midlands, Peak-Don region, Lancastria, Yorkshire, North England, Wales, and Scotland. Pelling based these areas on divisions created by C. B. Fawcett from data in the 1911 census intended to generate areas most suitable for government administration at the regional level (Pelling, 1967, p. 3). This administrative focus for drawing regional boundaries is "not directly related to a consideration of... political factors" (Pelling, 1967, p.414). These regions provide the structure of the historical analysis, but in fact the core geographical area is the individual constituency, and (for trade interests) a mid-range local area (which I call 'constituency type'), explained below.

[5]Hereafter *Social Geography*.

The sources on which *Social Geography* is based are typical for a work of social and electoral history, as well as comprehensive. First, where possible, Pelling draws on census data. Other primary sources include parliamentary papers, reports of the Boundary Commissioners, election addresses, and (most importantly, according to Pelling) national and local press accounts. *Social Geography* also draws on numerous secondary sources, particularly county gazettes, articles, books and surveys in British geography, and biographies and works of reference (used particularly for information on the preferences and politics of local employers and landowners) (Pelling, 1967, pp. 23-24). As such, the body of evidence underpinning the historical source used here is– at least according to the author– evidence "a great deal better than that which historians usually have available" (Pelling, 1967, p.2).

4.2 Historiography: Criticisms and Weaknesses of *Social Geography*

It is difficult to find negative reviews and criticisms of *Social Geography*, particularly in terms of the quality of the information collected. The more negative comments in reviews at the time of publication focus on the absence of thematic analysis in the book, beyond its presentation of the facts as organized geographically. Thus Briggs notes " It would have been interesting if Pelling had had time to embark on a fuller discussion of some of the key questions relating to social class" (Briggs, 1969, p.182); while from a political science perspective, "[t]his excellent book falls short of its full promise because the author... is too shy of moving to a description of the wood as a whole" (Butler, 1968, p. 304). Nevertheless, the reviews agree on the "exact and scholarly classification of the trees" (Butler, 1968).

Indeed, some of the criticisms of *Social Geography* as a book recommend it directly for the kind of 'data reduction' exercise involved in coding the text to a quantitative dataset. Specifically, one criticism leveled at the book is that "the general reader, unless a master of judicious skipping, may well emerge rather dazed", in spite of– or perhaps because of– the very range and volume of the data which provide "ample facilities for testing generalizations" (Dunbabin, 1969, p.428).

4.3 Quantitative Coding

My coding of Pelling's analysis into quantitative form generates the two main variables of interest, socioeconomic status and trade interests, at the constituency level. I also generate trade interests at the slightly more aggregated geographical level of the constituency type. In this section I detail the construction of these measures, and the control variables, from the text.

Socioeconomic Ranking. The socioeconomic rankings of each constituency come, where possible, directly from *Social Geography*, which uses three categories that I maintain for

my analysis. Thus constituencies are divided into predominantly middle and upper class (A); predominantly working class (C); or mixed between the two (B). There are three types of categorization here. First, for some constituencies, census data on the average number of female domestic servants per household allowed Pelling to create the three categories based on this variable. Where the number of these servants was at least 25% the number of households in a constituency, it was classed as A; less than 10%, C; and thus between 10 and 25% indicated a mixed constituency. Where possible, I use this information to construct the variable in the analysis. However, this information is only readily available for borough constituencies and counties in the South East. Elsewhere around the country, Pelling makes a directly comparable classification into A, B, or C types; in these cases, too, I use this categorization. However, for many constituencies outside the South East, Pelling makes no explicit categorization of socioeconomic ranking. In these cases, I use the qualitative descriptions of the constituencies to categorize them into one of the three groups. For example (see also below), Reading is described as having "a strong middle class and a poor working class" (Pelling, 1967, p.111), and is thus categorized as mixed.

Trade Interests. The second core independent variable for analysis is the trade interests prevailing in each constituency. These are coded into three categories on the basis of the text according to whether pro-Free Trade, or pro-Tariff Reform views dominated in the constituency. Explicit references to free trade, or to resistance or a distaste for protection result in a coding of 1. For example, turn of the century Oldham receives the commentary:

> "The peculiarity of the local swing was probably due to the cotton workers' special hostility... to ... the Indian Cotton Duties, which threatened the Lancashire export trade." (p.254)

This earns it a 'free trade' classification. The discussion of Stockport ("The hatters do not seem to have supported Tariff Reform with any more enthusiasm than their fellow-townsmen in the cotton industry" (p.255)) is an example of a 'negative' reference to protection which earns that constituency a free-trade classification. In contrast, I classify as protectionist any constituency where there are references to support for Tariff Reform or protection; or negative assessments of free trade. Examples include "The constituency only became marginal in 1910, and this may have been due to the attraction of Tariff Reform" (a reference to Eye in East Anglia) (p.101); or on the negative side, Cheltenham ("?it was a matter of local comment that the fear of tariff reform encouraged Liberal voting" (p. 147).

In order to maximize the available information, and because the kinds of economic interests within constituencies are unlikely to change rapidly over time, I categorize constituencies based on references to trade issues reflecting any time in the period covered by *Social Geography*. However, explicit reference to trade interests at this geographical level– the individual constituency– occurs for only around 15 per cent of constituencies. Most of the individual constituencies do not receive explicit comment about trade interests. These, as well as a very small number of constituencies where an explicit balance of preferences on trade is articulated, are coded 0. However, at a slightly broader geographical level, trade interests

receive more attention.

Trade Interests: Constituency Type

The level at which trade interests are measured for the analyses in the main text is the 'constituency type'. As noted in the main text, this is primarily to maximize variation in the independent variable, since at the individual constituency level there are a large number of constituencies where trade is not mentioned either way, having been already attributed at a broader geographical level. These geographical groupings are itemized in table A7: at their largest they correspond to Fawcett's regions (in East Anglia).

Table A7: Regions and constituency types. Author's categorizations based on Pelling (1967).

Region	Sub-type
Bristol	City
	Region
	Outlying borough
Central	London economy
	Outer
Devon and Cornwall	Distinct West country rural structure
	Larger landowning patterns
	Less rural
	Eastern: no mining, less distinctive
East Anglia	
East Midlands	Boroughs
	Eastern counties
	Eastern counties - industrial villages
	Western counties
Lancastria	Industrial
	Manx
	Mersey
	North Staffs. pottery
	Northern
	Southern
	Spinning
	Weaving
London	Central working class
	East End
	Southern working class
	Mixed with working class inflow
	Mixed

	Central middle class
	Suburban middle class
North	General
	Mining dominated
Peak-Don	Coal
	Steel
Scotland	Eastern counties
	Highland and island counties
	Western counties
	Western boroughs
	East and High/Island boroughs
South East	Boroughs
	Rotten boroughs
	Rural counties
	Commuter counties
Wales	Boroughs
	Industrial counties
	Rural counties
Wessex	Military particularistic
	Non-conformist
	Not religiously distinctive
West Midlands	Agricultural
	Birmingham
	Black Country
	Exurban/industrial counties
Yorkshire	Agricultural
	Leeds and Kingston
	Mining
	Textiles

Within most of the regions, though, various groups of constituencies are introduced together with some general remarks about their social and economic profile and political predilections and history. Some of these groupings are explicitly named by Pelling; in others a small list of constituencies simply appears together in the discussion. In all, coding these area-specific remarks yields 56 constituency types. Types are thus nested within regions, with no differentiation within East Anglia, but a maximum of eight types per region (in Lancastria). These are delineated in table A7. For many areas, *Social Geography* contains descriptions at the level of these groupings which more directly address trade interests shared across multiple constituencies. This information forms the basis of the 'constituency type' coding of trade interests.

The types are generated inductively in the sense that a type is simply a grouping of constituencies within which the local political issues and characteristics are the same. While this might be an odd 'measurement' strategy if the types had substantive meaning or importance, the types themselves are not directly used in the analyses. Rather, they are a way of incorporating variation in constituency interests that is included in the discussion in *Social Geography* but not uniquely tied to a single constituency.

The relevant descriptions of trade interests are coded analogously to those for the constituency level. Direct reference to pro-Free Trade leanings are scored 1. The absence of any references, as well as references explicitly emphasizing neutrality, division, or the lack of salience of trade issues (for example, from the less rural Devon and Cornwall type, "Home Rule, rather than Tariff Reform, accounted for the strength of South-Western opposition to Liberalism in 1910" (p. 173, *Social Geography*)) result in a 0 coding. Where support for Tariff Reform or protection are explicitly mentioned, the variable is coded -1. In contrast to the constituency-specific coding, this results in explicit codings (that is, categorizations of 1 and -1) for almost forty per cent of constituencies.

These trade interests are the only characteristics that I am interested in at this level of regional aggregation. Other characteristics discussed at the level of 'type' are primarily focused on religion and the issue of Ireland (Home Rule); population dynamics; and details about specific industrial types. However, these issues do not bear directly on questions of redistribution, so are not important to include in the analyses.[6] I do include a number of control variables, coded at the constituency level from the data and text in *Social Geography*.

Boroughs and Counties (Urbanization). My analyses differentiate borough constituencies from counties. This distinction is of interest in terms of economic interests primarily because it distinguishes urban constituencies (boroughs) from rural (counties). There were also differences in the qualifications required for the franchise in the two types of constituency.

Industrialization. I code the extent of industrialization of each constituency in a similar three-level variable. This variable is generated from the qualitative descriptions of the area in *Social Geography*. Areas dominated by agriculture receive a code of 0. This encapsulates most of the primarily rural districts (for example, Medway or Mid-Kent, described as "almost purely agricultural" (*Social Geography* p.75)). It also includes more urban, but non-industrial areas. Market towns (e.g. Maidstone in Kent; or Chelmsford in Essex); spa towns (Bath, Cheltenham); as well as university and cathedral cities (Cambridge, Winchester, Canterbury) represent many of the borough districts categorized as non-industrial. The final bulk of non-industrial constituencies is made up of coastal areas around the country which remained dominated by fishing, and/or tourism. Examples of this type include Scarborough, Great Yarmouth, and Barnstaple.

It is interesting to note that while the urban (borough) districts are more industrialized, on

[6] In contrast, if the outcome we cared about was the election of a Liberal MP, for example, these characteristics of constituency types would be extremely important. These electoral questions are Pelling's main focus in the book, explaining why these issues feature in the discussion.

	Industrialization			
	0	1	2	Total
Borough	76	83	108	266
Share of boroughs	0.29	0.31	0.40	
County	135	93	62	290
Share of counties	0.47	0.32	0.21	
Total	211	176	169	556

Table A8: Number of constituencies according to borough/county type and level of industrialization. Source: author's calculations based on *Social Geography*.

average, than the counties, a simplistic contrast between industrial towns and rural counties is belied by the more detailed information provided in *Social Geography*. Over a fifth of county constituencies score in the highest industrialization categories, and over a quarter of boroughs are non-industrial. This is largely due to the existence of the non-industrial boroughs (university, cathedral, spa, fishing and resort towns) as well as industrial counties in the north and in mining areas in particular. Table A8 shows the joint distribution of constituency types.

In the analyses below I include this variable in continuous form, as this does nothing to alter the main conclusions and the interpretation of the industrialization variable is not directly prescribed by the theory.

Military Presence. Finally, I create a binary variable taking the value of 1where Pelling identifies a clear military interest in the constituency. These include constituencies with navy shipyards, army barracks, military depots or arsenals. I also code industrial areas reliant on military demand– particularly Newcastle and Sheffield– as including military interests. These constituencies make up about six percent of constituencies, with the navy ports and shipyards accounting for the majority.

4.4 Coding Examples: Reading, Oldham, Chelmsford

For concreteness, here is an example of the translation of historical text to dataset, for the constituency of Reading in Berkshire. This is part of Pelling's Central Region which lies in the middle of southern England, between the South East and the Midlands. The description of the Reading constituency in *Social Geography* is reproduced in figure A6.

From this description, I made constituency specific notes, particularly as pertaining to the major industries and the trade positions associated with them, as well as the socioeconomic status of the constituency, its level of industrialization, and whether Pelling notes an electorally relevant military base or tradition in the constituency (see main text). These notes for Reading are shown in the first substantive entry in table A9.

The next largest of the region's boroughs, although, like the remainder, returning only one Member to Parliament, was READING. The biscuit firm of Huntley and Palmer was the town's largest employer, but there were a number of other industrial occupations of some importance, notably work on the railways, engineering and printing. The biscuit works employed a large proportion of unskilled workers, and although there was a considerable middle-class population in the town, it was reckoned that a larger proportion of the working-class families of Reading were below Rowntree's poverty standard than Rowntree himself found at York.[1] This combination of a strong middle class and a poor working class made for some electoral uncertainty. The working class accepted middle-class leadership more readily than in most industrial towns, and this meant that there were many Tory working men and a more politically divided middle class. A Conservative was elected by small majorities in 1885 and 1886, but in 1892, when G. W. Palmer of the biscuit firm came forward as the Liberal candidate, he was able to carry the election. We are told that 'Not a few Conservatives either absented themselves from the poll, or actually supported Mr. Palmer from purely local ties and associations',[2] and also that 'Undoubtedly the Conservatives as well as the Liberals have a strong working class vote'.[3] In 1895 Palmer was defeated, but he secured re-election at a by-election in 1898 and again at the general election of 1900. In 1904 he was succeeded by Rufus Isaacs, an exceptionally able barrister, who managed to retain the seat for the Liberals in each of the three following general elections. Isaacs had against him most of the leading Reading employers, including the other members of the Palmer family,[4] and in 1910, with a good deal of local unemployment, Tariff Reform seemed to be making some converts.[5] But Isaacs, who from October 1910 served as Liberal Attorney-General, probably owed his re-election to his own capacity as a speaker, for the margin was small.

Figure A6: Excerpt from *Social Geography*: entry for the constituency of Reading (Central region).

The second column of text in the table is the analogous set of notes for the constituency *type*, as outlined above.

From the perspective of coding the trade interests of the constituency, the critical element in the text for Reading is at the bottom of the page, where Pelling notes "Tariff Reform seemed to be making some converts". This translates to 'sympathy for Tariff Reform' in the abbreviated notes, and yields the constituency a 'Tariff Reform' coding at the constituency-specific level. Trade interests in the central region more generally, however, are coded as neutral, based on the description that the important local manufacturing industries saw little need for Tariff Reform.

For comparison, table A9 also shows the entries for Oldham and Chelmsford (also known as Mid-Essex). The former case is coded as 'Free Trade' (1) at both the constituency level and based on constituency type. The former categorization is based on the explicit articulation of increasing Free Trade interests in 1906. The latter is shared with other constituencies of the same type– in this case, a local area smaller than the region of Lancastria, and limited to those constituencies there where industrial activity was more concentrated on spinning. In these constituencies, Pelling notes a revulsion to the Tariff Reform cause, leading to the 'Free Trade' classification. In contrast, the generalized local interests in the rural South East constituency types are for protection (in the notes on the Chelmsford type), yielding the -1, Tariff Reform, coding.

In this way, trade interests are coded for constituencies at the highly specific level, and at the broader level of constituency types. With explicit mention of support for Free Trade, or aversion to Tariff Reform, the constituency (or type) is scored as a Free Trade constituency. Conversely, explicit mention of support for Tariff Reform or protection, or distaste for Free Trade yields a categorization as 'Tariff Reform'. Where the trade issue is discussed in neutral terms (as in the central constituency type, for example), or not mentioned at all, the constituency is not classified to either category, scoring 0. While a certain amount of subjectivity is likely in these codes, the availability of the notes, data, and the book on which they are based, will allow any skeptical reader to replicate the analyses for themselves.

4.5 Factor-Based Interests from *Social Geography*

One feature of Pelling's discussion of constituency trade interests is that it does not differentiate factor from industry-based interests in trade. In the table of examples, here, we see examples of both kinds of interest in the summaries of the constituency types. The "farmers' interest in protection from foreign competition" cited with reference to Chelmsford and the rural South East maps on to a Heckscher-Ohlin, factor based account, while the emphasis for Lancastrian spinning constituencies is on the impact of tariffs at the industry level. In the Central region, indifference to Tariff Reform is again explained with reference to industry– the relative success of boot, shoe and straw hat manufacturing. Given the main focus of this empirical analysis is to investigate *whether* trade interests have an independent effect

Constituency	**Notes from *Social Geography***		**Quantitative coding**				
	Constituency Specific	Type	Trade (specific)	Trade (type)	Socioecon.	Military	Industrial
Reading	Biscuit factory largest employer, also important employment in railways, engineering, printing. Strong middle class but large working class in high poverty. Sympathy in 1910 for tariff reform cause.	Absence of class and imperial politics in the central region, buoyed liberal vote. Comparatively strong non-conformity, and two main industries– boots/shoes and straw hat manufacture– did well in the early 20c and saw little need for Tariff Reform. The most important non-agricultural industry was long distance transport. Some industries with low transport costs having left London in search of cheaper labor	-1	0	B	0	1
Oldham	Textiles and some engineering, predominantly working class but marginal until 1906, when either because of Free Trade or the increasingly Liberal labor vote, Liberal holds	Surprising conservative support in light of working class character and absence of Irish issue, especially among cotton-spinners. Generally explicable with reference to education: widespread development of voluntary education meant even nonconformists had little interest in Liberal policy. Many cotton workers comparatively well off and homeowners. BUT cotton workers responded to claim that tariff reform would damage their industry, in some places to support Labour rather than Liberals	1	1	C	0	2
Chelmsford	Predominantly anglican market town of some residential quality	General factors making for conservatism in rural SE areas were farmers' interest in protection from foreign competition; opposition to temperance from hop-growers; comparative weakness of Nonconformity and agricultural laborers' vote	0	-1	A	0	0

Table A9: Excerpt from quantitative dataset: constituency and constituency type entries for the constituency of Reading (Central region).

on tax policy votes, the source of these preferences is not an immediate concern. Moreover, the industry-based indicators in this analysis provide variation in interests that is less likely to be 'contaminated' by class differences. This is particularly important since the measure of the socioeconomic level of each constituency is quite approximate, and not capture all the variation in class interests on taxation.

Readers who seek a more directly factor-ownership based account of trade interests in these British data should nevertheless be reassured by the impact of the measure of constituency industrialization on the budget vote. This industrialization measure can be seen to capture the degree to which constituency interests were dominated by (free trading, abundant) capital, as opposed to (more protectionist) land. I do not prefer this measure, since it is likely to also capture variation in redistributive interests that are not wholly absorbed by the socioeconomic ranking measure; furthermore industrialization is more difficult (than specific trade interests) to separate from other differences across constituencies, in particular those which make them more likely to be Liberal.

4.6 Exclusions from *Social Geography*

The data on the socio-economic characteristics in *Social Geography* do not cover all the British constituencies, and thus do not provide data on the local interests of every MP voting on the People's Budget. There are two kinds of constituency which must therefore be excluded from my analyses: Irish constituencies, and 'corporate' constituencies (the universities and the City of London).

4.7 The Leemann-Mares Critique

In discussing the characterization of skill development and co-specific investments as an explanation of the adoption of proportional representation, Leemann and Mares (2014, 02) make the general methodological point that

> "qualitative assessment of nineteenth-century economic realities (which are likely to be based on twentieth- century outcomes) turn out to be inaccurate" (p.465)

To what extent should we be concerned that the strategy for categorizing constituency trade interests in this case is subject to the same problems? In particular, a prime concern is the anachronistic projection of subsequent realities backward through time. In this specific case, this would mean inferring the trade preferences of the turn of the century constituencies from their industrial and trade orientations in the 1960s, when *Social Geography* was written.

The first line of defense against this critique relies on the historical credibility of Pelling's work itself. As discussed above (section 4.1), *Social Geography* is based on a consistent set of primary sources (census and local newspaper records in particular), and "exploits to the full such reliable statistical information as we have" (Howarth, 1969, 1, p.185). The quality

of the evidence thus depends to a great degree on the quality of the historical scholarship it draws on.

In its favor, Pelling's 'qualitative assessment of nineteenth-century economic realities' is unlikely to be influenced by this author's particular research interests (in trade and redistribution). Thus the use of an independent interpretation of the primary sources may insulate to some degree from inadvertent confirmation bias in interpretation.

On the other hand, the 'theories' underpinning Pelling's interpretation are less obvious to us as analysts. A weakness of the strategy in this regard is its reliance on a single source, rather than a larger number of works. However, this is to be balanced against the need to have each geographic area treated consistently: most other sources of data cover only specific regions, and those which have received more attention in the historical record have been those with surprising or interesting trade politics.

The second reason to be more sanguine about the anachronistic projection of future trade preference profiles backwards to the politics of 1909 is the gradual obsolescence of trade interests as a driving force in politics. The issue of trade was the core political economic conflict in the elections of 1906 and 1923, with the Conservatives also emphasizing their Tariff Reform platform in the January 1910 election– though this election was dominated by the constitutional crisis surrounding the People's Budget and thus was also tied to redistribution and the power of the House of Lords (Irwin, 1995). However, the 1923 election was indeed fought "specifically on protection" (Taylor, 1965, cited by Capie, 1983, p.72). In the 1930s, Britain, along with most of the world, withdrew from its commitment to Free Trade: in 1931 Britain abandoned the Gold Standard, and in February 1932, "abandoned nearly a century of free trade [and] . . . imposed tariff protection" (Frieden, 2006, p.184). Subsequently, however, the issue of trade largely retreated from electoral salience as questions of the welfare state and macroeconomic management replaced it as the core areas of electoral competition.

So how concerned should we be that developments subsequent to 1910 may have colored Pelling's perceptions of the situation in the 1900s? It does not seem likely that this was a dominant element of Pelling's personal orientation or interest. First, the historian was born in 1920: thus the core political conflict over trade in 1923 is earlier than should be cause of concern. The trade policy experience of the 1930s is more plausibly worrying in terms of Pelling's political socialization. However, the turn to protection in the 1930s was not only part of a global trend, but also enacted by a National Government– an emergency coalition between Labour and the Conservatives. As such, though the trade issue was present, the political conflict was not. It is thus more difficult to see how regional specificities in support would be projected backwards to the era of the People's Budget.

Moreover, Pelling's primary works as a historian centered first, on the British Labour party and labor politics. That is, the main concern about the authors' credibility would be about the overemphasis of class conflict, rather than of trade conflict.

Finally, the overlap between parliamentary constituencies and the administrative boundaries

used for the collection of objective population and economic data is not complete for this period of British history. Thus constructing objective historical measures at the constituency level is far from straightforward. Moreover, the detail available from any single (and thus consistent) source, at the national level, is far more limited than that provided by *Social Geography*. Overall, I believe that the introduction of Pelling's qualitative judgments, and my reliance on his work, is more likely to be accurate, and is certainly more transparent, than my reinterpretation of the same primary, objective material would be.

Thus, there is a distinction between this kind of 'qualitative assessments' of historical situations criticized by Leemann and Mares (2014, 02), and these which are based directly on independent interpretation of the primary evidence (i.e. Pelling's, not mine), rather than my own qualitative assessments based on less reproducible interpretations. However, the reader is encouraged to take their own view of the quality of evidence on which the analysis is based, and to return to the source evidence if unconvinced by its use here.

5 Ease of Labor Electoral Entry, 1906

This section contains more detailed information about the ease of labor's entry into the 1906 election.

First, the dependent variable is distributed as shown in table A10.

	No. constituencies
No labor candidate	481
Labor candidate, opposed by Liberals	34
Labor candidate, unopposed by Liberals	41

Table A10: Ease of labor election circumstances in 1906.

Where labor ran was concentrated in particular regions of the country, and a similar distribution emerges in terms of where this was accommodated by Liberal withdrawal. The share of constituencies in each major region where labor candidates (including Lib-Labs) ran unopposed by Liberals, is given in fig. A7.

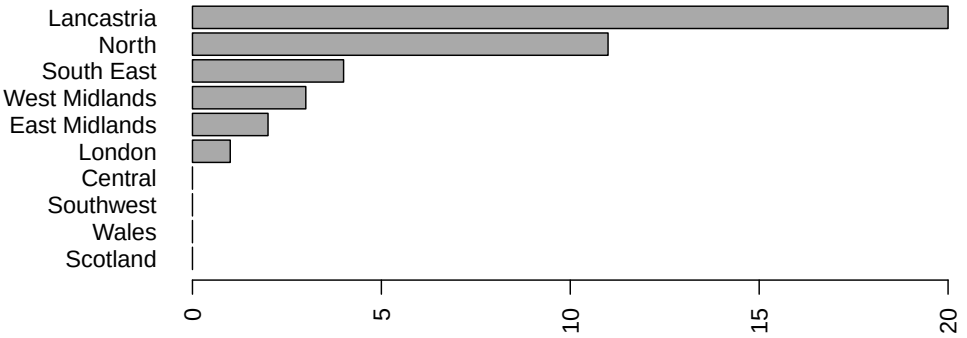

Figure A7: Distribution of constituencies where labor candidates ran unopposed by any Liberal.

5.1 Alternative Specification: Unopposed Labor Candidacies

Instead of the ordered model, we can ask the more straightforward question as to whether labor candidates were more likely to run unopposed in constituencies with free trade interests. This discards information about the strength of opposition to labor which may have

discouraged entry at all, but it is cleaner in focusing on the strategic actions of the Liberals more directly.

The results, shown in table A11, indicate that the positive impact of trade interests remain.

Table A11: Bivariate model: Where labor candidates run unopposed.

Free trade	1.56**
	(0.69)
Neutral trade	0.48
	(0.65)
Double member	2.98***
	(0.70)
County	−0.93
	(0.67)
Mixed class	18.96***
	(0.70)
Working class	19.28***
	(0.52)
Industrial	17.95***
	(0.45)
Part-industrial	19.06***
	(0.68)
Election 1900: Liberal	−13.93**
	(5.53)
Election 1900: Conservative	−10.83**
	(5.18)
Election 1900: Neither	−11.35**
	(5.32)
Cons. vote 1900	−0.64***
	(0.23)
Cons. vote 1900 squared	0.01***
	(0.002)
Scotland	−18.85***
	(0.78)
Constant	−28.40***
	(5.13)

***p < .01; **p < .05; *p < .1
Standard errors clustered by constituency type
Omitted categories are: protectionist, upper class socioeconomic, contested by Liberals and Conservatives in 1900, non-industrial single-member, borough.

5.2 Uncontested Constituencies in 1906

For completeness, we might care not only about the ease of the electoral run which the Liberals gave to Labour and the Lib-Lab candidates, but also if and where they stepped aside for Conservative candidates.

Table A12 combines information from Pelling (1967), Kollman, Hicken, Caramani, Backer, and Lublin (2016), and Whitaker (1907) to list all those constituencies which were uncontested in the general election of 1906, and the parties which held those seats (excluding the University and Irish constituencies as usual). The 1906 election saw a considerable increase in the share of contested seats, compared to historic levels. However, the Conservatives did not have the same completeness of electoral organization as the Liberals. Particularly in areas of Liberal strength (such as Yorkshire and Wales), many Liberal candidates were returned unopposed. These are not of direct theoretical interest, however.

On the other hand, only two Conservative candidates were allowed a free rein in the election. One was the incumbent Speaker of the House of Commons, who runs unopposed by convention in British politics. The other was William Lambton, a Unionist Free Trader in Durham. His free trade credentials allowed him uncontested passage. But there are many more trade unionist (Lib-Lab) candidates in the north-east and Wales not opposed at all – in Normanton, Mid-Durham, the Rhondda and West Monmouthshire where no Conservative ran, these labor candidates were returned unopposed.

Constituency	Note
Uncontested Conservative/Unionist Constituencies	
Durham South East	William Lambton, Unionist free trader
Cumberland, Penrith	James W Louther, Speaker of the House
Uncontested Lib-Lab Constituencies	
Yorkshire, Normanton	
Durham Mid	
Glamorganshire, Rhondda	
Monmouthshire West	
Uncontested Liberal Constituencies	
Suffolk North East, Eye	
Gloucestershire, Forest of Dean	
Nottinghamshire, Mansfield	
Yorkshire, Barnsley	
Yorkshire, Rotherham	
Yorkshire, Morley	
Yorkshire, Cleveland	
Durham, Jarrow	
The Hartlepools	
Swansea District	
Glamorganshire East	
Glamorganshire Mid	
Carnarvonshire, Eifion	
Denbighshire East	
Denbighshire West	
Merionethshire	
Montgomeryshire	
Stirling District of Burghs	Henry Campbell-Bannerman, Prime Minister

Table A12: Uncontested constituencies in the 1906 election.

6 Votes on the People's Budget

The data on the independent variable are more straightforward. They come directly from the parliamentary record as discussed in the main text. Votes in favor of the third reading occurring 'now' are coded as votes for the progressive reform; abstentions are excluded. The only particular detail to note is that I use data including the tellers for each side (two additional MPs each).

6.1 Descriptive Statistics for Pelling and the People's Budget

Descriptive statistics for the variables coded from *Social Geography*, as well as the voting data, are displayed in table A13 below.

	Obs.	Categories		
		A	B	C
Socioeconomic level	556	51	240	265
		Tariff Reform	Neutral/none	Free Trade
Trade interests – constituency	556	40	469	47
Trade interests – type	556	37	336	183
		Non-industrial	Mixed	Industrial
Industrialization	556	211	176	169
			Borough	County
Borough/county	556		266	290
			No	Yes
Military interests	556		519	37
		No	Yes	Abstain
Vote – excl. Ireland, corporate	556	127	373	56

Table A13: Descriptive statistics for the variables derived from *Social Geography*; and the vote on the People's Budget. Vote totals include tellers.

Figure A8 shows the votes on the bill (by party).

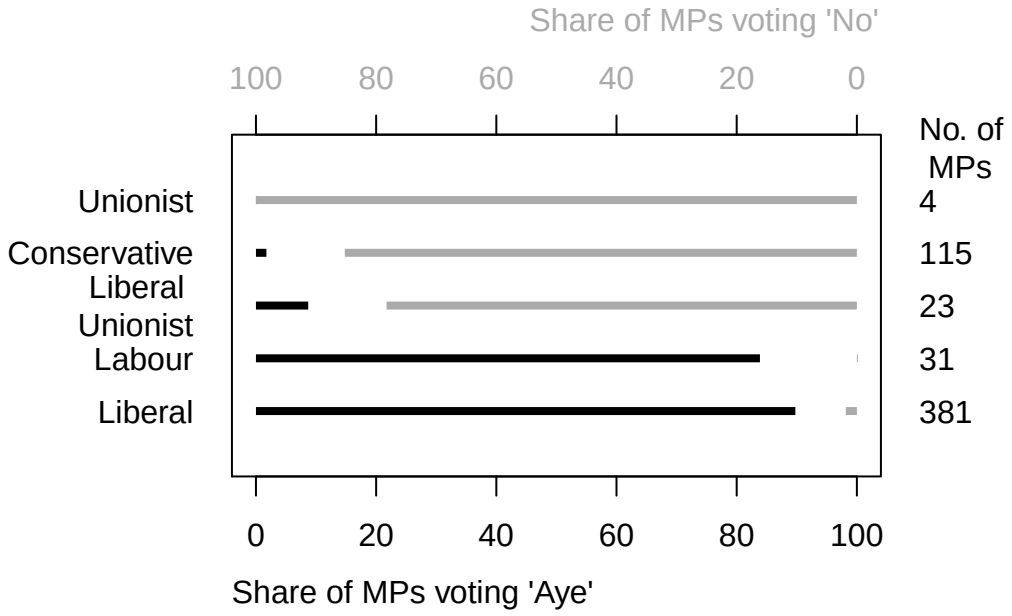

Figure A8: Votes on the Third Reading of the 1909 Finance Bill, by party. Black bars indicate the share of MPs in each party voting 'Aye' (read from the left on the bottom axis). Grey bars indicate the share of MPs voting 'Nay' (read from the right on the top axis). The space between the bars indicates the share of abstentions. Source: Author's calculations based on Hansard (1909) and Whitaker (1907).

6.2 Expected Values: Party Model

The main discussion of results included predicted probabilities from model 3 of table 4 in the main text, incorporating region effects and considering the predicted difference that trade interests made to a county constituency in the Central region, without any significant industrialization or military presence, and with a predominantly upper or middle class population. Here (in figure A9), I show the results for generic Liberal and Conservative constituencies with those same characteristics, generated from model 4.[7]

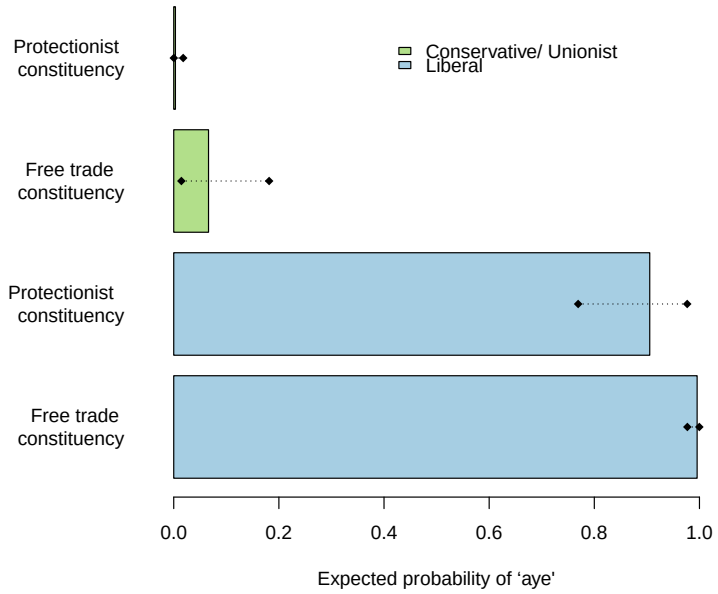

Figure A9: Expected probability of MPs voting 'aye' on the Third Reading of the 1909 Finance Bill. Generated from model 4, table 4. Other constituency covariates set to: predominantly upper/middle class; non-industrial; borough.

What the figure makes clear is that the significant partisan slant of the vote is reflected in the model– there is a huge difference between the expected probabilities for the two parties. However, the trade interests of the constituencies still lead to an appreciable divergence in outcomes. The chance of a Conservative voting 'aye' in a protectionist constituency is essentially zero (0.3 per cent), while in free trade areas this rises to 6.5 per cent. In Liberal constituencies, free trade interests virtually guarantee an 'aye' vote (the expected value is over 99 per cent), but nearly ten per cent of Liberals from areas favoring protection voted against the bill. Note too that these differences probably underestimate the 'causal' effect of trade interests, as free trade preferences predispose constituencies to return Liberal MPs to parliament, and protectionist interests, Conservatives.

[7]The party-specific estimates are not specific to a geographic region, as this is not included in model 4.

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