Dividing the Costs of War: Conscript Fatalities and Demands for Progressive Taxation in Interwar Britain

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Abstract

Does mass warfare generate demands for progressive taxation? Scholars have theorized that in the aftermath of major conflicts, conscripted masses demand greater taxation of the wealthy to more evenly divide the costs of war. Existing studies, while finding that tax progressivity surged after the World Wars, rely on cross-national comparisons of tax rates and are thus unable to isolate a mechanism for this change. To address this empirical issue, this article examines whether local variation in the human costs of war, measured as local World War 1 fatalities, is associated with demands for progressive taxation in the United Kingdom. Using a geocoded dataset of the home addresses of over 839,000 UK war dead, I find that candidates representing left-wing parties received larger vote shares in constituencies with greater WW1 fatality rates. I also find evidence that legislators representing high fatality constituencies were more likely to vote in favor of progressive taxation, regardless of party affiliation. Moreover, this relationship is strongest for members of the Conservative Party and following elections where war fatalities provided the greatest electoral benefit to left-wing political parties. This suggests that progressive taxation was implemented in response to shifts in constituent preferences arising from war fatalities.

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1 Introduction

> Whether this House likes it or not, this matter has resolved itself into a discussion as to whether the people have the ability financially to pay for the War, and to meet the needs for national development, or whether the masses of the people ultimately are going to be compelled to pay in money as they have paid largely in blood and tears.
>
> — Jack Lawson, MP for Chester-le-Street
>
> April 28, 1920

Scholars have long noted that progressive taxation schemes emerged in Western democracies during and after the World Wars. Governments involved in these conflicts introduced marginal income tax rates as high as 91% and implemented new levies on inheritances, financial transactions, and corporate profits. (Cronin, 2005; Piketty and Saez, 2007). Many of the new taxes continued after the wars, and the greater fiscal capacity these schemes enabled has been credited with fueling state expansion in the 20th century, midwifing the creation of the modern welfare state, and contributing to a decline in economic inequality in Europe and North America (Piketty, 2014; Titmuss, 1959). While it is not surprising that the fiscal demands of war induced states to broaden taxation, the degree of progressivity of the new levies and their persistence after the wars remains puzzling.

One explanation for the jump in tax progressivity following the World Wars is the "compensatory theory," which posits that demands for taxing the rich grew out of a perception that wartime government policy had unjustly favored the wealthy (Seligman, 1893; Scheve and Stasavage, 2016). During the wars, governments implemented policies that had disproportionate impact on the poor, such as conscripting young men and curtailing the rights of workers in military-critical industries (Daunton, 2002). Proponents of the compensatory theory argue that such policies evoked feelings of unfairness among the affected, who then demanded that those who had escaped conscription or profited off the war be taxed as recompense. Progressive taxation would restore equal treatment by ensuring those that had borne the human costs of war would not also have to bear its financial costs.

Past research has found that states which mandated conscription during the World Wars were more likely to introduce progressive income and inheritance taxes during and after the wars (Scheve and Stasavage, 2010, 2012, 2016). Yet the bulk of evidence from these studies comes from cross-national comparisons of tax rates between participants and non-participants in the World Wars. While such highly aggregated designs can demonstrate that the World Wars influenced tax policy, they cannot isolate the mechanism for the observed shifts in taxation. Indeed, in many states the introduction of conscription coincided with other changes brought about by the wars, such as the expansion of the franchise and the accumulation of debt. Current evidence cannot rule out that progressive taxes were instituted to help pay off the enormous loans taken out to fund the wars, which in some cases exceeded 150% of GDP (Ellison, Sargent and Scott, 2019). Fiscal necessity, rather than popular concerns about fairness, may have driven post-war tax policy. More recently, survey experiments have shown that individuals express greater support for progressive taxation when presented with examples of government policies that benefit the wealthy (Alvarado, 2024; Alvarado et al., 2025; Zakharov and Chapkovski, 2025). However, these experiments have primarily been conducted in contexts outside war and do not elucidate whether changes in constituent preferences driven by fairness concerns were a cause of historical tax policy shifts.

This article addresses these empirical issues by studying how subnational differences in exposure to the human costs of war affects voter and legislator support for progressive taxation. As government war debt is a national issue, it impacts all domestic constituencies in common. Consequently, evidence of local variation in the costs of war affecting support for progressive taxation provides a stronger foundation for the idea that fairness considerations drove postwar tax policy. I justify this approach using a simple formal model of electoral competition over the distribution of public debt between social classes. If greater human costs of war makes the working class more sensitive to taxation, legislators respond by proposing more progressive taxes to avoid electoral losses, even in the shadow of increased debt.

My empirical analysis tests this mechanism by studying how fatalities of soldiers conscripted

to fight in World War I affected political support for progressive taxation in interwar Britain. The deaths of soldiers involuntarily enlisted to fight generated feelings of injustice among the deceased's associates, who observed some wealthy individuals evade conscription or even profit from the war (Daunton, 2002; Harrison, 1971). To measure the local impact of war fatalities, I construct a geocoded dataset of the home addresses of 839,626 British soldiers who died in combat during WW1. I combine this dataset with over 39 million records from the 1911 UK census to estimate the WW1 fatality rate of conscripted soldiers for all 509 parliamentary constituencies in England and Wales. With this data, I examine how variation in the costs of war, measured as the combat fatality rate of local conscripts, affected electoral support for left-wing political movements and the outcomes of parliamentary votes on progressive taxation legislation. I find evidence for two results.

First, candidates representing the Labour Party and other economically left-wing political parties received larger vote shares in constituencies with greater WW1 fatality rates. In general elections between 1918 and 1935, left-wing parties increased their share of the vote by an expected 0.47 percentage points for each percentage point increase in the fatality rate of a constituency's conscripts. Counterfactual election simulations reveal that war fatalities had important implications for control of Parliament. A one-standard deviation increase in the conscript fatality rate (roughly 3%) would have been sufficient to flip an additional 91 seats to left-wing candidates during the period under study.

Second, using a new dataset of 424 roll-call votes related to tax legislation in the House of Commons between 1918 and 1935, I find that members of Parliament (MPs) representing high fatality constituencies were more likely to vote in support of progressive taxation legislation, regardless of party affiliation. The effect of conscript fatalities on MP voting was strongest among members of the Conservative Party, who traditionally opposed direct taxation, and during Parliaments that followed elections where war fatalities provided the greatest electoral benefit to left-wing political parties. Taken together, these results support the hypothesis that progressive taxation was implemented in response to electoral pressure arising from constituent reactions to

war fatalities.

This paper contributes to a large literature on the domestic political impacts of international conflict, and in particular how casualties influence voting and trust in government. Several empirical studies, conducted primarily in the context of the Vietnam War and the US War on Terror, have argued that wartime casualties are associated with reduced political legitimacy and incumbent electoral support but greater political participation (De Mesquita and Siverson, 1995; Gartner and Segura, 1998; Gartner, Segura and Barratt, 2004; Koch and Nicholson, 2016; Mueller, 1973; Stam, 1999). This paper also builds on related research examining how those affected by war mobilize to demand compensatory government support (Dorr and Shin, 2021; Haffert, 2019; Skocpol, 1995), the relationship between war an inequality (Piketty, 2014; Scheidel, 2018), and the role of fairness in determining public opinion toward redistributive social policy (Cavaille, 2023). The current project adds to this work by looking at how war fatalities influence support for specific policies, namely progressive taxation, and linking voter-level behavior to the passage of taxation legislation.

This paper also adds to an emerging research agenda employing historical micro-level conflict data from the World Wars to study combat motivation and electoral outcomes (Acemoglu et al., 2022; Cagé et al., 2023; De Juan et al., 2024; Rozenas, Talibova and Zhukov, 2024). Like Acemoglu et al. (2022), who study the political consequences of WW1 fatalities in Italy, my study concludes that greater local fatalities are associated with support for socialist and trade unionist political parties. However, these results contrast with the findings of De Juan et al. (2024), who show that greater local German WW1 fatalities are associated with support for extreme right-wing candidates. While determining the political effects of war casualties across states is outside the scope of this paper, my findings, together with previous research, suggest that war-related grievances push voters toward extreme political positions, but that the partisan direction of this effect is contingent on other factors, such as whether a state was victorious in the conflict. This paper also contributes to this literature by being the first to study the effect of war fatalities on government tax policy.

Finally, it must be said that no evidence presented in this paper rules out fiscal necessity as a cause of the implementation of progressive regimes. Indeed, it is likely that both social demands for equality and budgetary concerns influenced the observed changes in tax policy during the interwar period. The key contribution of this paper is that it provides the first quantitative evidence that allows us to distinguish the existence of a separate social fairness channel affecting tax policy in the aftermath of the First World War.

The remainder of this paper proceeds as follows. Section 2 presents a formal model of electoral competition over the distribution of taxation that illustrates the electoral mechanism. Section 4 describes the data on UK World War I fatalities and interwar political behavior. Section 5 contains the approach and results of the empirical analysis assessing the effect of local war fatalities on left-wing electoral success and legislator support for progressive taxation. Section 6 concludes.

2 Debt, democracy, and war fatalities

In this section, I present a simple formal model to study the effect of debt and war fatalities on tax progressivity, based on existing models of redistributive politics (Cox and McCubbins, 1986; Dixit and Londregan, 1996; Lindbeck and Weibull, 1987; Roemer, 2009). Two office-motivated political parties compete in a probabilistic voting setting by proposing taxation platforms that distribute the burden of paying off government debt between social classes. The effect of war fatalities enters the model in two ways: increased class consciousness among the poor and ideological bias toward a party representing the working class, capturing the claim of Scheve and Stasavage (2016) that government policies that disproportionately impact the poor, such as conscription, generate support for taxing the rich as compensation.

The model illustrates how the debt incurred from war can itself drive progressivity, thus potentially confounding a proposed relationship between mass mobilization for war and progressive taxation. This arises because political parties face a "vote-revenue" trade-off: taxing a social class helps pay off debt but drives away voters (Cox and McCubbins, 1986). Under conditions of high

economic inequality, taxing the wealthy yields higher revenues at a lower electoral cost. The model also demonstrates that ideological bias in favor of a party representing the poor also induces candidates to propose more progressive tax platforms. This suggests an empirical approach to test compensatory arguments for tax progressivity that avoids the confounding influence of fiscal necessity. While war debt is national issue, impacting all constituencies in common, constituencies vary in the degree to which their conscripts died during the fighting. If war fatalities generate demands for compensation and therefore ideological support for left-wing parties, we can leverage local variation in war deaths to verify the "compensatory theory" of taxation.

2.1 Model

Consider a society inhabited by a continuum of individuals, where the population is normalized to 1. Individuals are stratified into two socioeconomic classes, wealthy and poor, where poor individuals constitute a strict majority of size $q > \frac{1}{2}$. Wealthy individuals earn an income of y_w, while poor individuals earn y_p, with $y_w > y_p$.

Income is taxed at a group-specific tax rate t_g where $g \in \{p, w\}$ and $t_g \in [0, 1]$. I assume t_g fully determines the tax burden of group g (i.e., includes both direct and indirect taxation) and is net of transfers. I further assume that income thresholds for group-specific taxes are fixed. These group-specific tax rates capture in a simplified way the fact that tax policies can be designed to have different impacts on socioeconomic groups. For instance, income tax regimes can be made progressive to account for the wealthy's greater ability to pay, while consumption taxes can be regressive because the poor consume more as a proportion of income. Individual preferences are given by post-tax income $(1 - t_g)y_g$. The utility of an individual from group g is given by the function $u_g(t_g)$, where u_g is decreasing in its argument and concave. This formulation imposes the assumption that individuals of both classes always prefer a lower tax on their own income, but are indifferent to the tax rate levied on members of the other social class.

Political competition takes place between candidates of two political parties, denoted L and R, who compete for office by proposing tax platforms $\mathbf{t}^L = (t_p^L, t_w^L)$ and $\mathbf{t}^R = (t_p^R, t_w^R)$. As is common

in probabilistic voting models, I assume that the candidates commit to implement their proposed platform should they be elected. The candidates are office-motivated and obtain no benefit from setting policy beyond its electoral implications. However, for purposes of exposition I assume that the parties also profess an ideology, with party L claiming to represent poor individuals and party R claiming to represent wealthy ones. The candidates' proposed tax platforms are constrained by the existence of government war debt of size $D > 0$. Importantly, candidates' tax platforms must be feasible, in that they raise sufficient funds to meet debt obligations.

Definition 1 (Feasible tax platform) *A tax platform (t_p, t_w) is feasible if it satisfies*

$$t_p q y_p + t_w (1 - q) y_w \geq D \tag{1}$$

I assume that the debt is small enough that there exist feasible tax platforms, but large enough that it cannot be paid off solely by taxing a single group.[1] This ensures that feasible tax rates must take strictly positive values. I also assume that any tax revenue in surplus of debt obligations is rebated back to the population, so constraint 1 binds with equality.[2]

A candidate is elected to office via simple majority rule, where each individual has a single vote. Individuals decide which candidate to vote for based on how each candidate's taxation platform affects their consumption and idiosyncratic ideological preferences regarding the candidates' positions. Specifically, individual i in group g will vote for the candidate of party L if

$$u_g(t_g^L) > u(t_g^R) + \sigma^{ig} + \delta(\alpha)$$

where σ^{ig} is an individual-level parameter that captures individual i's bias toward candidate L. I assume that σ^{ig} is distributed uniformly in group g over $\left[-\frac{1}{2\phi_g}, \frac{1}{2\phi_g}\right]$. The term $\delta(a)$ represents an electorate-wide preference shock against party R, and is distributed uniformly over $\left[-\alpha - \frac{1}{2\psi}, -\alpha + \frac{1}{2\psi}\right]$ where $\alpha > 0$ and $\psi > 0$.[3] The candidates do not know the exact value of

[1] See Appendix A for formal statements of the assumptions.

[2] As a result, electoral competition will take place over one policy dimension, with t_w^i as a residual.

[3] I assume that ϕ_g, α, and ψ take values that ensure the distributions are wide enough to avoid boundary issues

$\delta(a)$ but are aware of its distribution.

The variable α is the average bias against R and is meant to represent the political effect of war fatalities or any other intervention that may influence ideological support for the left. I also assume that ϕ_p, the degree of ideological homogeneity among the poor, is an increasing function of α. These assumptions capture two ways in which mass mobilization for war influences conceptions of just taxation. First, there is evidence that the common experience of conscription among the working classes and perception of unfair treatment increased class consciousness, making voters more ideological homogeneous and sensitive to taxation (Daunton, 2002). Such a class-wide shift in preferences can be modeled as an increase in ϕ_p. Similarly, the inclusion of $\delta(\alpha)$ is intended to model the contention of Scheve and Stasavage (2016) that government policies which disproportionately harm the poor, such as conscription, induce concerns about fairness in future policy that are distinct from preferences about future consumption. A desire for government policy to redress this past inequity should consequently manifest as a shift in preferences toward party L, the party that claims to represent the poor. I model the bias as electorate-wide phenomenon, as compensatory and fairness arguments for taxing the rich can influence the wealthy as well.

Under these assumptions and given party platforms $\mathbf{t}^L$ and $\mathbf{t}^R$, the share of individuals from group g that vote for party L is

$$s_g^L(\mathbf{t}^L, \mathbf{t}^R) = \frac{1}{2} + \phi_g(u_g(t_g^L) - u_g(t_g^R) - \delta(\alpha))$$

It follows that L's total share of the vote is

$$s^L(\mathbf{t}^L, \mathbf{t}^R) = \frac{1}{2} + q\phi_p(u_p(t_p^L) - u_p(t_p^R) - \delta(\alpha)) + (1-q)\phi_w(u_w(t_w^L) - u_w(t_w^R) - \delta(\alpha)) \quad (2)$$

Finally, party L wins the election if it obtains a majority of the vote. Given the uncertainty about

in equilibrium. Statements of the necessary assumptions are in the appendix.

the true value of $\delta(\alpha)$, this happens with probability

$$P\left(s^L(\mathbf{t}^L,\mathbf{t}^R)>\frac{1}{2}\right)=\frac{1}{2}+\psi\alpha+\frac{\psi}{\phi_s q+\phi_w(1-q)}(q\phi_p(u_p(t_p^L)-u_p(t_p^R))+(1-q)\phi_w(u_w(t_w^L)-u_w(t_w^R)))$$

Therefore, party L's goal is to select a taxation platform that minimizes taxation of the poor, taking into consideration party R's tax platform and the probability of winning office. Party L's problem is then

$$\begin{aligned}\max\ & P\left(s^L(\mathbf{t}^L,\mathbf{t}^R)>\frac{1}{2}\right)\\ \text{subject to}\ & t_p^L q y_p+t_w^L(1-q)y_w=D\\ & t_p^L,t_w^L\leq 1\\ & t_p^L,t_w^L\geq 0\end{aligned}$$

Party R's problem can be defined analogously. In fact, R and L face the same optimization problem. The equilibrium of this game is characterized by feasible tax platforms $\mathbf{t}^{L\star}$ and $\mathbf{t}^{R\star}$ such that neither party can improve its chances of victory by switching to another platform.

2.2 Results

The primary quantity of interest in the model is progressiveness' of the equilibrium tax platforms, defined as follows.

Definition 2 (Tax progressivity) *The progressivity of a tax platform (t_p,t_w) is given by the difference in the tax rate paid by the rich and the tax rate paid by the poor, t_w-t_p. If $t_w-t_p>0$, we say the tax platform is progressive. If $t_w-t_p<0$, we say the tax platform is regressive.*

Furthermore, when comparing tax platforms (t_p,t_w) and (t'_p,t'_w), I say platform (t_p,t_w) is "more progressive" than platform (t'_p,t'_w) if the difference t_w-t_p is greater than $t'_w-t'_p$.

I now describe the equilibrium and comparative statics of the model. Proofs of all propositions can be found in Appendix A. First, the political parties will converge on the same tax platform in

equilibrium, a result of the fact that both political parties have the same preferences over policy and therefore solve the same optimization problem.

Proposition 1 *In equilibrium, both parties propose identical tax platforms.*

$$t_p^{L\star} = t_p^{R\star} \qquad\qquad t_w^{L\star} = t_w^{R\star}$$

Henceforth, I will refer to the equilibrium policies as $(t_p^\star, t_w^\star)$, doing away with the party superscript.

Second, the expansion of government debt increases the tax burden of both social classes. However, the degree to which this additional debt is borne primarily by the wealthy or the poor is conditioned by economic inequality and the sensitivity to tax policy between the classes. In particular, when the ratio of income between the wealthy and poor ($\frac{y_w}{y_p}$) sufficiently exceeds the ratio of ideological homogeneity ($\frac{\phi_w}{\phi_p}$), the burden of additional debt is placed primarily on the wealthy. The statement of this requirement is given in Proposition 2. This behavior occurs because the political parties face a trade-off when setting tax policy: raising a group's taxes helps pay off debt but drives away voters. Political candidates consequently tax the social group that offers a better rate of tax revenue to lost votes. This process is isomorphic to the "electoral rates of return" dynamic described in the model of redistributive politics model by Cox and McCubbins (1986). Rather than distributing more benefits to groups that offer the greatest electoral advantages as in the model of Cox and McCubbins (1986), the parties in this model instead impose costs on the groups that are least likely to switch their vote. It follows that, in highly unequal societies, greater debt, such as that accumulated through war, can drive tax progressivity.[4]

Proposition 2 *In equilibrium, greater debt obligations increase tax progressivity under the following condition*

$$\frac{y_w}{y_p} > \frac{\phi_w}{\phi_p}\frac{u_w''(t_w^\star)}{u_p''(t_p^\star)} \implies \frac{\partial[t_w^\star - t_p^\star]}{\partial D} > 0$$

[4]This of course assumes that the wealthy cannot use their financial position to lobby for lower taxes.

The model also demonstrates that war fatalities, or any other variable that creates greater class consciousness, leads to more progressive tax policy in equilibrium. This operates through the same "rate of return" mechanism as the result on debt. Because an increase war fatalities ($\uparrow \alpha$) also produces an increase in class consciousness among the poor ($\uparrow \phi_p$), the poor become more sensitive to taxation. As a result, the electoral cost of a marginal increase in the tax rate on the poor also rises, leading parties to shift more of the tax burden onto the wealthy.

Proposition 3 *In equilibrium, an increase in war fatalities ($\uparrow \alpha$) induces the candidates to propose more progressive tax platforms.*

$$\frac{\partial[t_w^\star - t_p^\star]}{\partial \alpha} > 0$$

Finally, as might be expected, an increase in war fatalities ($\uparrow \alpha$) also increases the expected share of the vote received by L, the left-wing party. This follows from the fact that war fatalities increase the size of the "fairness" parameter generating ideological support for party L.

Proposition 4 *In equilibrium, an increase in war fatalities ($\uparrow \alpha$) increases the expected share of the vote received by party L.*

$$\frac{\partial E_\delta[s^L(\mathbf{t}^{L\star}, \mathbf{t}^{R\star})]}{\partial \alpha} > 0$$

2.3 Discussion and empirical implications

The equilibrium of the model highlights how changes in government debt can confound an observed correlation between mass mobilization and progressive taxation. This indicates that it may be problematic to ascribe the emergence progressive taxation following a war to ideological shifts about the proper distribution of the tax burden between social classes. Progressive tax policy may have instead resulted from electoral competition between class-based political parties over how to pay for the increased debt that fighting a war imposes.

However, Propositions 3 and 4 suggest an empirical approach that may get around this issue. A debt increase due to war is a national-level shock, but there is constituency-level variation in exposure to mass warfare at the local level in the form of war fatalities. If such exposure does

influence individual beliefs about who should pay for the war, particularly in the form of greater ideological homogeneity, we should see candidates of both parties proposing more progressive tax platforms in constituencies with greater exposure to war.

In the sections that follow, I will describe the historical fiscal and political situation in the United Kingdom during the early 20th century, highlighting that the assumptions of the model approximate the circumstances of the time. I will then show that that war fatalities are a valid proxy of α by demonstrating that candidates representing left-wing political parties obtained greater shares of the vote in constituencies whose conscripts died at higher rates during the First World War. Finally, I will show that members of Parliament representing high fatality constituencies were more likely to support progressive taxation, measured as voting in favor of progressive taxation legislation.

3 Historical background

On August 4, 1914, the United Kingdom declared war on the German Empire in response to the invasion of Belgium, thus entering what would become known as the First World War. The ensuing four years of conflict created unprecedented fiscal and personnel demands on the British state. The need for soldiers to maintain the stalemate of the Western Front led to the introduction of conscription in Great Britain in 1916, swelling the ranks of the British Army by 5.7 million men, of which over 800,000 would perish in combat (UK War Office, 1922). Financing the expenditure necessary to purchase equipment and pay soldiers led the state to expand taxation and issue bonds, causing public debt to surge from 30% of GDP in 1913 to 144% of GPD in 1918 (Office for Budget Responsibility, 2025). These fiscal pressures had long-lasting effects: public debt remained persistently over 150% of GDP for two decades following the war, though this was in part due to economic contractions.

The British government confronted the financial costs of war and the accompanying debt with a vast expansion of taxation. The degree to which the tax burden increased is perhaps

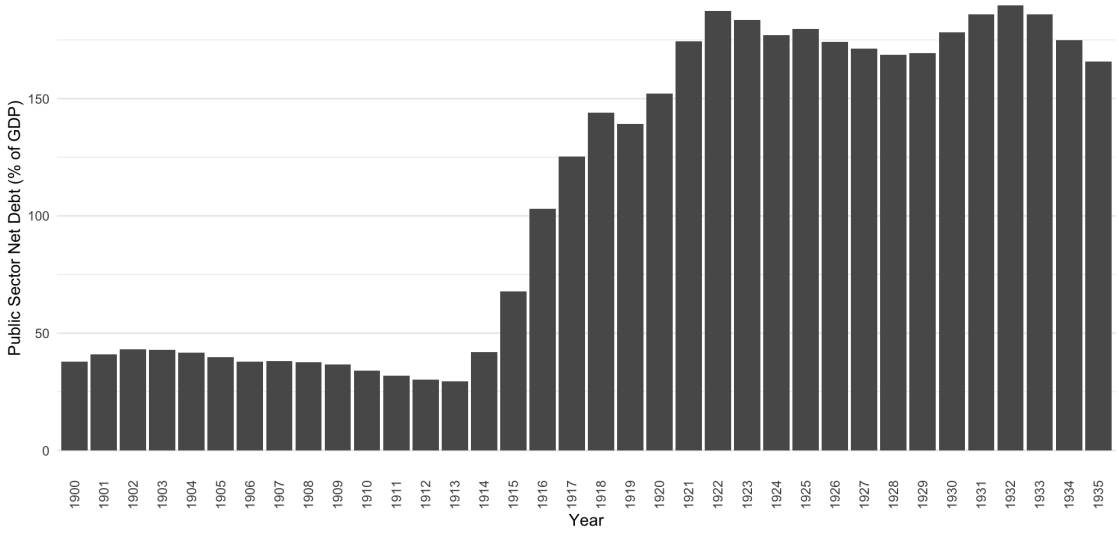

Figure 1: UK net public debt as a percentage of GDP, 1900-1935

most dramatically illustrated by the transformation of the income tax. Figure 2 plots the United Kingdom's marginal tax rate by income bracket between 1900 and 1935. The influence of the war is visible not only by the sharp rise in rates, but also by a far steeper gradation of tax brackets. Immediately before the war, the United Kingdom had a three-tier income tax system. Individuals who earned less than £160 per year were exempt from paying income tax, those who earned between £160 and £5,000, paid 5.83% of their income, and those who earned over £5,000 paid a "super-tax" or marginal rate of 8.33% on that additional income. By the end of the war in 1918, the base tax rate had risen to 30% and the number of individual tax brackets had expanded to nine. The overall gradation of the income tax also increased: the cut-off for paying the "super-tax" had fallen to £3,000 and a marginal tax rate of 43.33% applied to incomes exceeding £8,000 a year.

While the wartime rise in the income tax's progressivity appears to have distributed the financial costs of the war on the basis of ability to pay, sentiments that an undue share of the burden was being placed on the poor grew throughout the conflict. This was due to a combination of regressive economic policies and conscription. In particular, the personal income exemption fell from £160 to £130 per year in 1915 (Daunton, 1996). This, along with a wartime inflation rate that averaged 14% per year, expanded the number of British individuals paying income tax from

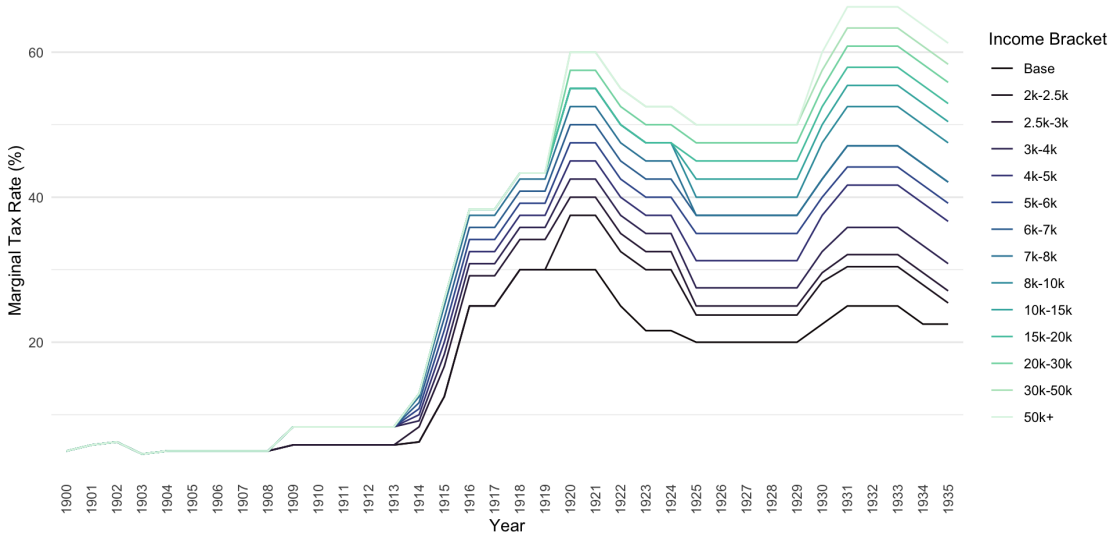

Figure 2: UK income tax brackets, 1900-1935

1,200,000 in 1914 to 3,747,000 in 1918, shifting the income tax from a "class tax" to a "mass tax" (Broadberry and Howlett, 2005; Torregrosa-Hetland and Sabaté, 2022). Moreover, tariffs on staples such as tea were increased by as much as 80% and new duties were applied on imported fruit, tobacco, medicine, and many other goods. Feelings of unfair treatment by the working classes was also stoked by the passage of laws limiting the rights of workers and unions to ensure production of crucial military supplies was not disrupted. For instance, the Munitions Act of 1915 forbade strikes and limited the ability of workers to leave their jobs (Cronin, 2005). Such restrictions on workers' rights were seen as particular galling in light of the profits earned by the owners of firms supplying ordnance to the government.

As a result, accusations that state power was being used to the benefit of capital began to spread. This generated calls for a "conscription of riches" among trade unionists to remedy the fact that, in the words of Dockers' Union leader Ben Tillett, "the capital classes were sitting at home in comfort and security behind the bodies of men better than themselves.[5]" The idea of the conscription of riches crystallized into the policy of a capital levy, a one-time tax on wealth. The capital levy was promoted in Parliament by the nascent Labour Party and the Trades Union Congress, who saw it as a solution to the problem of debt and an instrument to weaken capital

[5]Quoted in Harrison (1971).

(Daunton, 2002). While the wartime coalition government resisted such a levy, some concessions to the growing labor movement were made. For example, as a compromise with organized labor, the government implemented the Excess Profits Duty in 1915, a 50%, later raised to 80%, tax on corporate profits that exceeded a pre-war standard, intended to prevent "excessive returns to capital" (Billings and Oats, 2014; Cronin, 2005). However, these concessions did not halt the growth of the labor movement, as evinced by the fact that number of workers going on strike expanded from 300,000 in 1914 to 2 million in 1919 (Cronin, 2005). Consequently, the Labour Party emerged from the war with a stronger electoral profile, catalyzing the transformation of the party from a trade union lobbying group to a political party with a goal of national governance (Douglas, 1972).

The growth of the labor movement complicated debates over how the burden of paying off debts accrued during the war should be divided among social classes. Despite the wartime expansion of taxation, the British government had primarily funded the war with loans: an average of 70% of yearly government spending during the war was debt financed (Stamp, 1932). The United Kingdom emerged from the war with a public debt of £6.1 billion pounds, an almost tenfold increase from 1914.[6] Moreover, about £1.4 billion of the debt was short-term "floating debt" that the government was obliged to continuously refinance at a high rate of interest, which could trigger a hyperinflationary cycle (Daunton, 1996, 2002). Prime Minister David Lloyd George's Conservative-Liberal wartime Coalition government that had re-won election in 1918 was therefore faced with the need to increase taxes immediately after the end of the war.

While there was broad agreement across the parties in Parliament that the debt needed to be repaid as soon as possible, there were significant political tensions over who should provide the funds. Parliamentary leaders were aware of the discontent over conscription among workers, which was compounded by a decline in living standards due to an economic recession that reduced British economic output by a quarter between 1918-1922 and resentment against perceived unjust wealth accumulation.[7] This, along with the wartime expansion of the franchise to

[6]For reference, £6.1 billion in 1919 is approximately $370 billion today.

[7]Immediately after the war, the top 10% of British wage earners collected about 39% of all income and the top

all men and some women over the age of 21, made the prospect of generating revenue through the traditional Conservative method of reducing social spending and increasing indirect taxation electorally dangerous. The class tensions over taxation were explicitly discussed as the Coalition government planned its tax policy. For instance, Chancellor of the Exchequer Neville Chamberlain, a Conservative, remarked in 1920:

> I have felt throughout the danger of the present position of capital. We have for the first time a great political party organised on an anti-capitalist basis. They are a power and have violent views. The prejudice against great wealth in "pockets" is a danger to all capital. The wealth has come to men too rapidly and they have waxed fat while the mass have grown poorer. This is felt among the whole of the professional classes and in black coated circles and by the squires who see new men in the country flinging wealth about extravagently.[8]

The threat of working class electoral backlash prompted the Coalition government to pursue a progressive postwar tax policy, even over the protests of both party members and financiers. In 1920, the income tax was reformed, increasing the number of income tax brackets to 11 and lifting the highest marginal tax rate to 60% on incomes over £50,000, while keeping the base tax rate constant. Moreover, it was a Conservative Chancellor who proposed a war wealth levy in 1920 on additional wealth generated during the war, the nearest a capital levy came to being implemented. While the levy was not instituted, the Coalition government did choose to maintain and expand the Excess Profits Duty. The justification for these policies was to "contain Labour", as illustrated by Chamberlain's rebuff to Conservative MPs opposed to the expansion of the Excess Profits Duty: "It is good for them to know that I stand or fall by my proposals. If they won't take them from me, they will get them and a Capital Levy from someone else," referencing the consequences of a Labour election victory.

In addition, great care was taken to ensure that the tax code had an appearance of treating

5% of households controlled 82% of wealth (Atkinson, 2007; Lindert, 1986, 2000).

[8] Quoted in Daunton (1996).

different social classes equally. Prime Minister David Lloyd George admitted as much during the debate over the war levy in 1920, stating "It is very important to give the impression that we are not a "class" government. The strength of this government must be that it holds the balance evenly between classes, and it is ready to face their opposition.[9]" Some Coalition MPs even feared that the Coalition did not go far enough in addressing labor's concerns about the just distribution of the tax burden. For example, Winston Churchill, argued that if the Coalition failed to institute a war wealth levy:

> It will be said that we are in the grip of the plutocracy and it will be said with a certain truth. It will be very hard anyway to hold this immense electorate by reason and not by force and still hold the capitalist system. If we cannot reason with them and convince them, we shall bring the very disaster which the City fears.[10]

Nevertheless, the Coalition government was unable to forestall the rise of the Labour Party indefinitely. After the 1923 election, Labour formed its first government with the tacit support of H.H. Asquith's Liberals. Being a minority, the government lasted only 10 months before collapsing and ceding control of Parliament to the Conservatives. Labour formed another minority government in 1929, before splintering into two factions, one of which continued to govern in a coalition with the Conservatives. While Labour did not implement the program of dramatic social change envisioned by some, it did manage to increase progressivity of the tax system and introduce new taxes on wealth, such as a land value tax. Moreover, tax rates remained high through the 1920s and 1930s, a necessity due the continued costs of servicing debt.[11]

This section has recounted how the experience of mass warfare increased class consciousness among labor and generated society-wide concerns about the just distribution of taxation. There is evidence that these sentiments were recognized by establishment politicians, who attempted to design progressive tax policy to placate the newly expanded electorate and prevent the rise of the Labour Party. However, this section has also highlighted the empirical difficulties of ruling

[9] Quoted in Strachan (2023).
[10] Quoted in Daunton (2023).
[11] The percent of the UK government budget spent on debt service exceeded 40% in 1925.

out fiscal necessity of a driver of tax policy, given the urgency of the war debt. Indeed, the rate of the income tax plotted in Figure 2 closely follows the shape of the overall debt burden shown in Figure 1, indicating that it is plausible that the exigencies of debt drove tax policy. In the sections that follow, I will investigate the relationship between the experience of mass warfare and support for a progressive taxation at subnational level.

4 Data

My empirical analysis assesses whether World War I fatalities affected left-wing candidate vote share and MP voting behavior in England and Wales during the interwar period. While I collect geocoded fatality data for the entirety of the British Isles, I focus on England and Wales in particular for reasons of additional data availability and comparability. Specifically, missing census data and circumstances of the Irish independence movement prevent extending the study to include Ireland and Scotland.

In Ireland, conscription was never applied due to concerns about political instability, meaning all Irish soldiers who participated in the war were volunteers.[12] Although many Irish soldiers did perish during the conflict, the fact that their sacrifice was voluntary likely means that their deaths produced different reactions than in Great Britain, where most soldiers were unwilling conscripts. Scotland is not included due to inaccessible microdata for the 1911 census, preventing construction of the independent variable.

[12]Men residing in Ireland were excluded from the initial wave of conscription mandated in the Military Service Act of 1916. However, in April 1918, the UK government attempted to impose conscription in Ireland to address a lack of manpower. Conscription was resisted by civil and religious organizations in Ireland, and the effort was abandoned in July 1918 without being enforced (Ward, 1974).

4.1 World War I Fatality Rates

The independent variable of this study is the combat fatality rate of conscripts from a given parliamentary constituency, which is defined as

$$\text{Fatality Rate} = \frac{\text{Number of World War I Fatalities}}{\text{Number of Conscripts}} \times 100$$

To determine the number of deceased WW1 soldiers that resided in each constituency, I constructed a geocoded dataset of soldiers from the British Isles who died during the First World War. The basis of the dataset is sourced from records of war dead scraped from the website of the Commonwealth War Graves Commission (CWGC), an organization dedicated to preserving the memory of soldiers from the Commonwealth of Nations who died during the World Wars. Each fatality record contains the name, age, burial location, and service record of the fallen soldier, often along with a short epitaph. These epitaphs generally list the name and address of the closest relatives of the deceased, often a spouse and/or parents.

The listed addresses can be precise up to the house number, and are current at time of burial for the deceased. I treat these addresses as the "home addresses" of the fallen soldiers in order to geocode the fatalities. To obtain addresses from the fatality records, I submit each epitaph to ChatGPT-4 with a prompt asking it to extract only the address from the text.[13] I employ a large-language model for this task due to the high variability in formatting of the epitaphs and addresses themselves, which renders rule-based and supervised machine learning methods inaccurate.[14] Once an address is obtained using this method, I associate it with a longitude-latitude point via a geocoding API call through a local OpenStreetMap client.[15]

I carry out this geocoding procedure on CWGC records pertaining to soldiers who fought for the United Kingdom and were native to British Isles.[16] Excluded are soldiers from British

[13] In cases where addresses for a spouse and parents are both listed, I instruct ChatGPT to provide the spouse's address. Example addresses are listed in Appendix B.1.

[14] The prompt used to instruct ChatGPT to extract the addresses can be found in Appendix B.2

[15] Hand verification of a random sample of geocoded addresses shows that this method is accurate to within a civil parish for 90% of the sample.

[16] That is, Great Britain, Ireland, the Isle of Mann, the Channel Islands, the Hebrides, the Northern Isles, and all

Dominions (i.e., Australia, Canada, Newfoundland, and New Zealand), colonies (i.e., India, other British territories in Africa and Asia), and nationals of other countries who volunteered to fight for the UK. These soldiers can be distinguished by their service in particular regiments, which during this period were segregated geographically. The CWGC database lists 839,626 records of deceased soldiers who fought for the United Kingdom, of these 504,065 (60%) both had a non-empty epitaph and were associated with a British Isles regiment. Of those, 446,295 (89%) were successfully geocoded. Of the records that were successfully geocoded, 358,690 are located in England and Wales, a figure that corresponds to between 60% and 70% of the total fatalities sustained by the two countries.[17]

One concern about conducting an empirical analysis using this geocoded data as a treatment is the possibility that the sample of soldiers whose home addresses were successfully geocoded differs from the full population of deceased soldiers in some characteristic that is related to an outcome of interest. To test if this is the case, I conduct balance tests to compare the samples of geocoded and non-geocoded soldiers using observable characteristics present in CWGC. The results can be found in Appendix B.3. The tests show that the sample of geocoded soldiers resembles the non-geocoded sample in terms of age at death, time of death, rank, and surname, though non-geocoded soldiers generally had more missing characteristics in the data compared to geocoded soldiers.

I use this geocoded data set to estimate the World War I fatality rate for each House of Commons parliamentary constituency in England and Wales as it was between 1918 and 1945. I first match each geocoded address to a House of Commons parliamentary constituency, using boundary files drawn from the Great Britain Historical GIS database (Southall and Aucott, 2009). Computing the fatality rate then requires statistics on the number of soldiers from a constituency that participated in the war. Unfortunately, nearly two-thirds of UK WW1 service records were

smaller possessions located nearby.

[17]The precise number depends on estimates of Irish and Scottish losses in the war. In 1922, the War Office estimated that 702,000 soldiers from the British Isles perished during the conflict. Estimates of Irish war dead range from 30,000 to 40,000. Similar estimates place Scottish losses between 80,000 and 150,000. (Bunbury, 2014; UK War Office, 1922; Watt, 2019)

destroyed in 1940, after an incendiary bomb was dropped on the War Office Record Store during the Blitz. I instead estimate the number of individuals from each constituency that would have been conscripted using 1911 UK Census microdata from IPUMS (Ruggles et al., 2003).

Conscription was first introduced in the United Kingdom in January 1916 with the passage of the Military Service Act. The Act mandated that all unmarried men in England, Scotland, and Wales between the ages of 18-41 enlist or obtain an exemption. Conscription was extended to married men five months later in May 1916 and then to men between the ages of 41 to 51 in April 1918. Exemptions were permitted for health reasons, conscientious objection, and for employment in certain "reserved occupations" that were deemed critical for the war effort or essential for the functioning of local communities. Examples of reserved occupations include priests, train drivers, teachers, coal miners, steel mill workers, and armament firm employees. While the number of conscientious objectors was minimal, with only 16,000 making such a claim, by 1918 nearly 2.5 million men were listed as being employed in a reserved occupation (Pattinson, 2016).

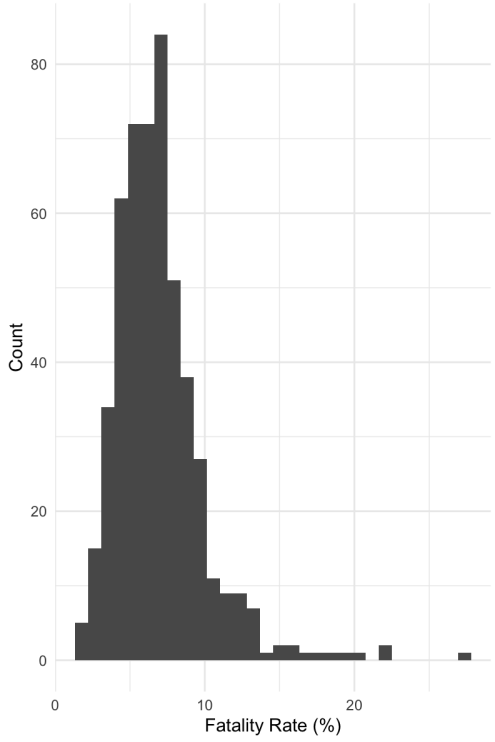

Figure 3: Fatality rate historgram

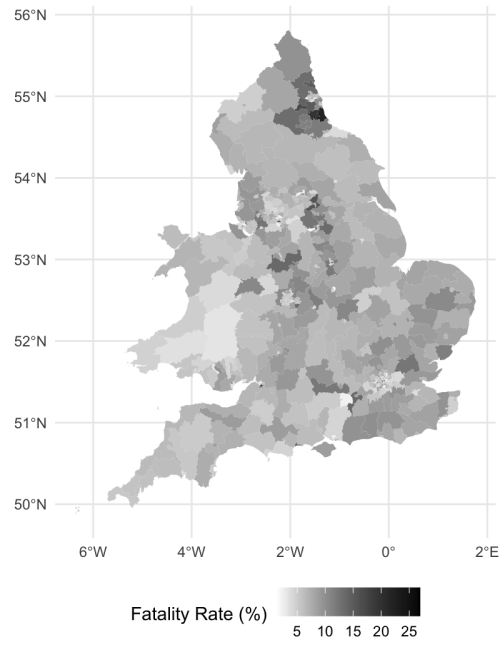

Figure 4: Fatality rate map

To estimate the number of conscripted soldiers in each constituency, I first count the number of males between the ages of 11 and 46 in each civil parish in England and Wales, the smallest level of aggregation available in the 1911 census.[18] This number represents the maximal set of individuals in each census who could have been conscripted between 1916 and 1918. Using a 1918 "Schedule of Protected Occupations," I exclude all individuals employed in a reserved occupation. I assume the same proportion of boys under the age of 15 in 1911 entered reserved occupations as current adults in the same parish. This procedure estimates the number of males in each parish that were of draftable age and not employed in a reserved occupation, but does not account for health exemptions. The parish-level data is then aggregated to the level of the parliamentary constituency.

There is significant variation in fatality rates across constituencies, with the lowest fatality rate being 1.3% in Southwark North (London) and the highest being 26.5% in Sheffield Central. Figure 4 also reveals that there are some regional patterns. In particular, we see elevated fatality rates in industrial regions in the north of England and lower fatality rates in Wales. A histogram of fatality rate by constituency is shown in Figure 3. The historgram reveals that the distribution of fatality rates is near normal with a long right tail. The median constituency lost 6.3% of its draftable men to the war.

4.2 Outcomes

I study the effect of war fatalities on two outcome variables: the share of the vote received by left-wing candidates in general elections between 1918 and 1935, and roll-call votes on progressive taxation measures in the House of Commons during the same period.

4.2.1 Left-wing party vote share

To examine how local WW1 fatalities influenced support for left-wing candidates, I draw constituency-level general election results for the seven general elections between 1918 and 1935 from the

[18] In 1911 there were 14,681 parishes in England and Wales, of which 14,033 had census records available through IPUMS.

House of Commons database compiled by Eggers and Spirling (2014). The database records vote counts received by each candidate contesting an election, as well as overall turnout data and party affiliation for each candidate. To measure left-wing vote share in a constituency, I add together the votes received by all candidates that identified themselves with a communist, labor, socialist, or trade unionist party.[19] Also included are candidates not affiliated with a political party but who self-identified as communist or socialist. Table 1 lists the average share of the vote received by left-wing candidates and the number of constituencies contested by at least one left-wing candidate in England and Wales.

Election	1918	1922	1923	1924	1929	1931	1935
Mean left-wing vote share	31.6	37.2	39.0	36.6	38.3	33.0	40.4
Seats contested	355	376	382	453	504	461	482

Table 1: Left-wing vote share and seats contested

4.2.2 Parliamentary voting on taxation legislation

To measure legislator support for tax progressivity, I collect a dataset of MP voting records for 424 House of Commons divisions relating tax policy that took place between 1918 and 1935, comprising 143,773 individual votes. The data were drawn from the digitized Hansard archives, the official record of what is said in Parliament. The roll-call votes relate to five categories of tax legislation, most of which are associated with the Finance Act, the UK's yearly headline budget legislation. I briefly describe each category below.

1. **Income taxes**: Legislation related to rate and gradation of taxes on individual income. This category includes proposals that affect tax exemptions for individuals and their dependents.

2. **Wealth taxes**: Legislation pertaining to death and estate duties (forms of inheritance tax), the land value tax, and the Excess Profits Duty.

[19] A full list of parties categorized as left-wing is presented in Appendix B.4

3. **Capital levy and nationalization**: Legislation and resolutions on direct transfers of capital to the government. Includes proposals to impose a capital levy (a one-time wealth tax) and to nationalize certain industries.

4. **Excise duties**: Legislation related to any form of non-tariff consumption tax. For instance, sales taxes on alcohol, tobacco and cinema tickets, as well the "betting duty," a tax on bookmaker profits.

5. **Customs duties**: Legislation on the implementation and level of tariffs on goods entering the United Kingdom. Excludes technical clauses clarifying the precise definition of the good on which the tariff is to be imposed, as well as legislation seeking to impose tariffs on goods from specific countries (e.g. Imperial Preference).

The five categories of legislation described above cover the universe of taxation legislation considered in the United Kingdom during the interwar period. Prior research studying the relationship between war and taxation has focused on specific forms of taxation, primarily income taxes. However, such an approach presents a limited view of tax policy during this period. Political parties considered the totality of tax policy when proposing their tax platform, and carefully considered the ratio of tax revenues coming from direct and indirect taxation. For instance, the Labour Party favored a progressive tax platform that emphasized direct taxation. It consequently stridently opposed consumption taxes and customs duties, seeing them as regressive instruments that raised the cost of living for workers. In contrast, the Conservative Party preferred to finance the government through tariffs and other sources of indirect taxation, reducing the share of government revenue drawn from income tax. These were highly contentious issues–the Liberal Party even fractured in 1931 over the issue of tariffs, though this was catalyzed by the trade wars of the Great Depression.

It is worth noting that the salience of different forms of taxation varied over time. Figure 5 plots the proportion of roll-call votes by topic in each parliament. While divisions related to income taxes consistently form roughly a quarter of all taxation legislation considered in the House

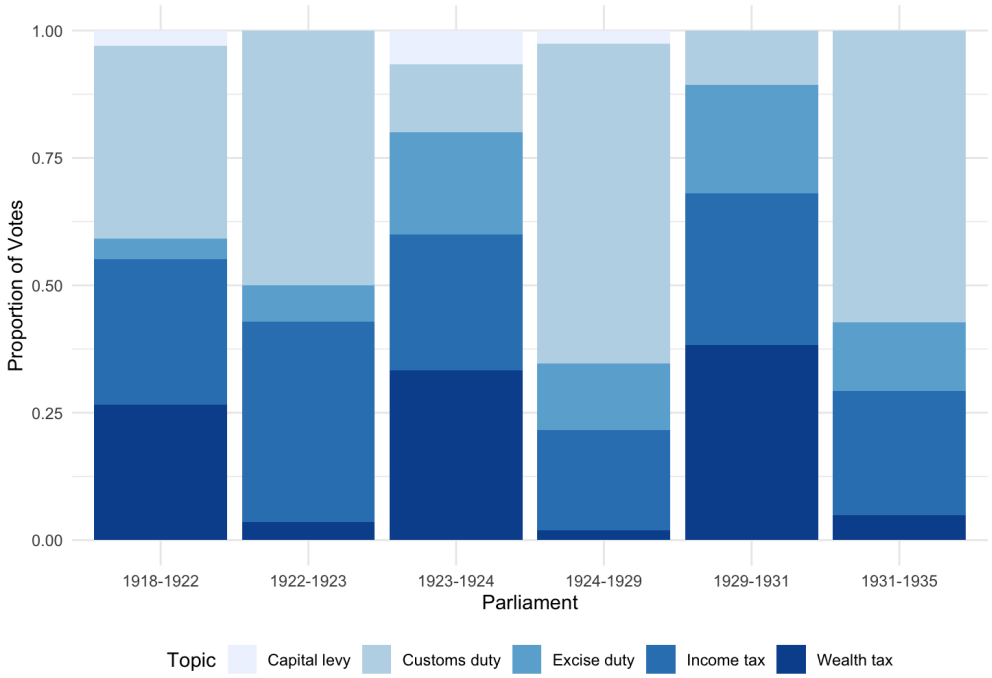

Figure 5: Division by topic and parliament

of Commons, we see significant variation in the frequency over forms of taxation. Discussions on wealth taxes spiked in 1918-1922, 1923-1924, and 1929-1931, a consequence of debates over the abolition of Excess Profits Duty and the (re-)introduction of the land value tax. Divisions on customs duties also became more frequent after the start of the Great Depression in 1928, comprising more than half of all taxation votes in 1931 to 1935.

For each House division on taxation legislation, I code whether an individual "Aye" or "No" vote is considered to be in support of progressive taxation, and then record each MP's position. Votes are categorized as "pro-progressive taxation" based on the consequence of the legislation's passage. For instance, an "Aye" vote may indicate support for progressivity if it is associated with legislation that increases the individual income tax exemption. An example of a pro-progressive "No" vote is one against legislation that seeks to abolish inheritance taxes. Full coding rules and example legislation can be found in Appendices B.5 and B.6.

4.3 Control Variables

In addition, I collect data on a wide variety of demographic and electoral controls. Using the 1911 census, I construct constituency-level estimates of occupational mix (i.e., percentage of residents employed in different industries), population density, population, average age, household size, and gender shares. Descriptive statistics for all constituency-level data can be found in Appendix B.7.

5 Empirical analysis

5.1 Electoral outcomes - empirical strategy

To assess the effect of World War I fatalities on left-vote share during the interwar period in the United Kingdom, I employ a fixed-effects approach. Specifically, I estimate the following baseline specification via ordinary least squares

$$share_{ice} = \alpha fatalityRate_i + \beta candidates_{ie} + \gamma^T \mathbf{X}_i + \delta_c + \nu_e + \epsilon_{ice} \tag{3}$$

where $share_{ice}$ is the percentage of the vote received by a left-wing candidate in parliamentary constituency i within administrative county c during general election cycle e, $fatalityRate_i$ is the WW1 fatality rate of conscripted soldiers in constituency i, and ϵ_{ice} is an error term. The variable $candidates_{ie}$ represents the number of candidates contesting constituency i during election cycle e. The terms δ_c and ν_e are administrative county and election fixed effects, respectively. Finally, $\mathbf{X}_i$ is a vector of controls, consisting of pre-war demographic and geographic characteristics of constituency i. Standard errors are clustered by constituency to account for autocorrelation in voting patterns. The coefficient of interest is α, which represents the expected change in the share of the vote received by left-wing parties resulting from a one-percentage point increase in the fatality rate of WW1 conscripts.

The main threat to inference is the presence of factors that influence both a constituency's

support for left-wing candidates and the fatality rate of soldiers that were conscripted within its boundaries. One such factor is socioeconomic status. In the early 20th century, Labour and other trade unionist parties drew much of their support from industrial and mining regions in the north of England and the south of Wales. Conscripts from these urban and industrial areas were often less healthy than conscripts from more rural areas, due to a combination of harsh labor conditions, poor sanitation, and exposure to pollution (Davenport, 2020). Worse overall health may have made conscripts hailing from industrial regions less likely to survive the exacting physical demands of fighting a war (Kriner and Shen, 2010). As a result, it is possible that an observation of greater electoral support for left-wing candidates in locales with higher fatality rates may stem from preexisting socioeconomic factors. Another channel through which socioeconomic status might influence both conscript fatality rate and left-wing vote share is through tactical decisions about force employment. If officers intentionally used conscripts from lower socioeconomic backgrounds as "cannon fodder" by placing them in more dangerous combat situations, as some have alleged, then we would again observe a higher fatality rate in constituencies that had a preexisting inclination to support left-wing candidates (Mueller, 1991). More generally, a constituency's pre-war partisan or ideological lean, e.g. overall degree of nationalist sentiment, could affect both post-war political behavior and the propensity to take risks during war that could increase combat fatalities (Rozenas, Talibova and Zhukov, 2024).

To mitigate these issues, I include in my analysis several demographic, economic, and electoral features of parliamentary constituencies. To account for a constituency's baseline partisanship, I control for the share of the vote received by the Conservative Party in the 1910 election.[20] I use Conservative Party vote share because the trade unionist movement was still nascent in 1910, with left-wing parties contesting only 62 of the 670 seats in the House of Commons.[21] Conditioning on 1910 left-wing vote share would exclude constituencies that left-wing parties did

[20]House of Commons constituencies were redrawn prior to the 1918 election. I estimate a 1918 constituency's 1910 Conservative vote share by assuming electors are distributed uniformly within a constituency and aggregating after intersecting 1910 and 1918 constituency boundaries.

[21]This number comprises the total number of candidates standing for election for the Labour Party (56), the Social Democratic Federation (2), and the Independent Labour Party (4).

not contest, limiting the analyses to only those seats that leftist parties regarded as competitive enough to be worth competing for in 1910. In contrast, candidates for the Conservative Party stood for election in 548 constituencies, with most of the non-contested constituencies located in Ireland.

I also control for a wide range of demographic and economic features extracted from census microdata. While no parish-level or constituency-level data on historical incomes exists, I proxy for income by controlling for a constituency's occupational mix. Specifically, I separately control for the share of adults within a constituency in 1911 that were employed in agriculture and "blue collar" work, including manufacturing, mining, and menial labor. To capture overall economic prosperity, I also control for number of unemployed and indigent persons, educators per capita, and medical professionals per capita.

Finally, a third set of controls captures other factors that could influence both fatality rates and voting. To capture urban-rural differences, I control for population density, total population, constituency area, and the distance of a constituency from a major city.[22] I also control for the demographic structure of a constituency using the share of women, average age, and average household size. In addition, I use administrative county fixed effects to control for regional time-invariant unobserved influences and election fixed effects to capture time-varying unobserved influences that have a common on impact all constituencies. In further analyses, I introduce election $\times$ administrative county fixed effects and constituency linear trends to account for the effect of unobserved time-varying confounders.

The final control variable I include is the number of candidates competing for office. Although the model I presented in Section 2.1 assumed a two-party race, in actuality British politics during the interwar period featured three major political polities, the Conservatives, the Liberals, and Labour, as well as a host of minor and regional parties. This means that many races were contested by three or more candidates, with some having as many as seven. The number of candidates contesting a seat is an important determinant of vote share–if electors vote sincerely and their

[22]I define a major city as a settlement with more than 200,000 residents in 1911.

preferences over candidates satisfy independence of irrelevant alternatives, then the entrance of a new candidate must weakly decrease the share of the vote received by existing candidates.[23] Moreover, races involving more candidates may require a lower vote share for victory. For example, a 35 percent vote share in a two-candidate race implies a blowout loss, but could constitute a narrow victory in a three-candidate race. Consequently, I include the number of candidates as a control variable to ensure vote shares are comparable across races.

The inclusion of the number of candidates contesting a constituency as a control variable is potentially problematic, as it is determined after the war, making it a post-treatment variable. This can create issues for inference if part of the effect of war fatalities on left-wing vote share is mediated through the number of candidates; for instance, by making a constituency appear more or less competitive. If this is the case, then the existence of unobserved confounders that influenced both the number of candidates contending a seat and the share of the vote received by left-wing parties can introduce collider bias (Acharya, Blackwell and Sen, 2016; Rosenbaum, 1984).

However, there are theoretical and empirical reasons to believe that constituency's conscript fatality rate did not influence the number of candidates contesting its Commons seat. A party's decision to propose a candidate for election is influenced by a calculus over the cost of resources needed to contend the seat and likelihood of winning office given a resource investment. Well-resourced parties may find it worthwhile to contest even safe seats. Indeed, for nearly the entirety of the interwar period, all three of the major British parties put forth candidates for office in more than two-thirds of constituencies (and in the case of Labour and the Conservatives, nearly all), although the Liberals increasingly contested fewer seats as time wore on. Cases of races with more than three candidates seemed to be primarily driven by fractures of existing parties (i.e., the breakaway of the National Liberals from the Liberals in 1931) or the presence of idiosyncratic regional and independent candidates.

[23] An individual's preferences satisfy independence of irrelevant alternatives if the introduction of unrelated options does not change the final decision of the individual. For instance if a voter prefers candidate A to candidate B, then the entrance of candidate C into the race, who the voter regards as worse than both A and B, should not cause the voter to switch his vote to B.

I also empirically test whether war fatality rate affect the number of candidates choosing to run for office. To do so, I regress the number of candidates competing for office on the WW1 fatality rate and an array of constituency-level controls. The results are displayed in Appendix C.1. I find that the relationship between war fatalities and the number of candidates is both statistically insignificant and substantively close to zero, providing evidence that the number of electoral candidates contesting a constituency are not influenced by the constituency's war fatalities. Consequently, I treat the number of candidates as acting similarly to pre-treatment variable that does not bias the OLS coefficient α on the war fatality rate (Pepinsky, Goodman and Ziller, 2024). Finally, as an additional caution against post-treatment bias I also estimate Equation 3 excluding controls and using left-wing electoral margin as an alternative outcome variable.

5.2 Electoral outcomes - results

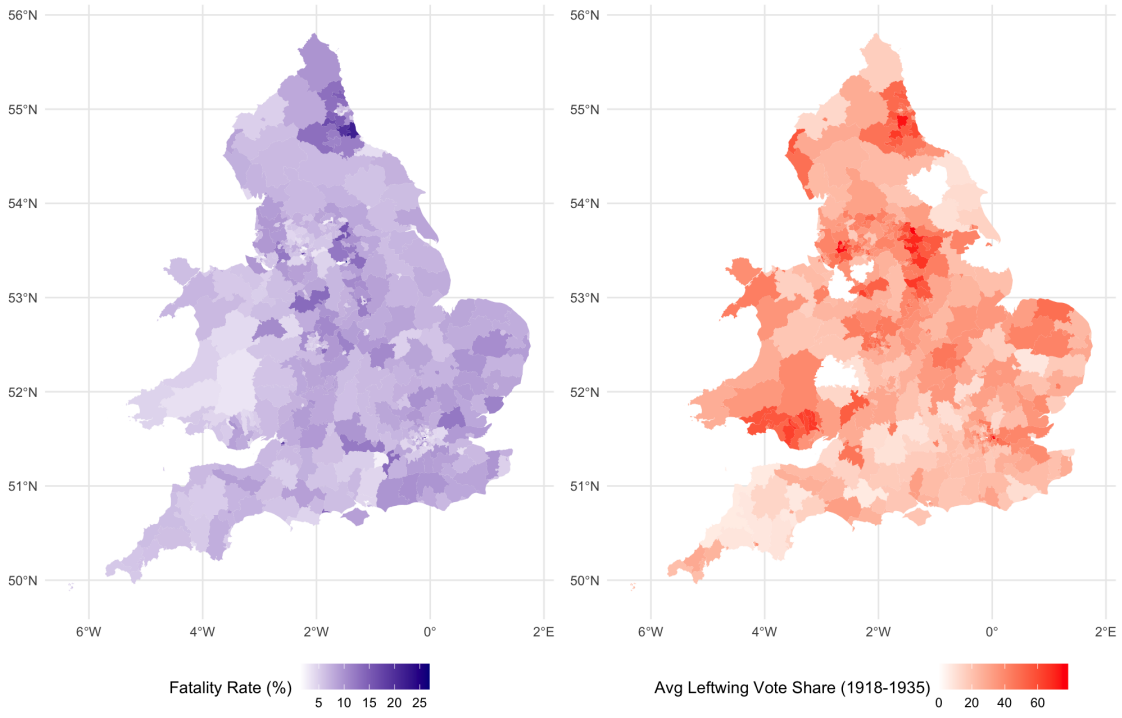

Figure 6: Constituencies by left-wing vote share and WW1 fatality rates

Table 2 displays the principal regression results for electoral outcomes. Column 1 reports

the simple bivariate regression of left-wing vote share on the World War I combat fatality rate. Column 2 adds to this pre-war demographic and geographic control variables. Columns 3 and 4 introduce administrative county and election fixed effects. Column 5 includes county $\times$ election fixed effects to account for time-varying regional unobservables. Finally, Column 6 features constituency-level linear trends as an alternative method to account for time-varying unobservables.

In all model specifications, the WW1 combat fatality rate is found to have a positive and statistically significant correlation with left-wing vote share. Moreover, the magnitude of the effect is also stable across specifications: a one percentage point increase in the WW1 fatality rate of a constituency's conscripts is associated with between a 0.38 and 0.51 percentage point increase in the share of the vote received by candidates representing left-wing political parties. This result is illustrated in Figure 6, which depicts the average left-wing party vote share in the interwar period and the WW1 fatality rate for all parliamentary constituencies in England and Wales. The maps show that Labour, socialist, and trade unionist political parties consistently obtained greater shares of the vote in locations with higher WW1 fatality rates, particularly in the north of England and southern Wales.

I also examine how the effect of World War I fatalities on support for left-wing political parties evolved throughout the interwar period. To do so, I estimate equation 3 separately for each of the seven general elections that took place in the United Kingdom between 1918 and 1935. Results of these regressions are shown in Table 3. All models include a full complement of controls and fixed effects. Coefficients and confidence intervals associated with the WW1 fatality rate are plotted by election in Figure 7. The narrow vertical bars represent 95% confidence intervals and thick vertical bars represent 90% confidence intervals.

The chart shows that the effect of war fatalities on left-wing vote share is persistent and strong for elections that took place during the first five years following the end of the war. In particular, we see that the magnitude of the effect increases during the first three elections, peaking in 1923, where a one percentage point increase in the war fatality rate is associated with a 0.67 percentage

	DV: Left-wing vote share (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.38*	0.51***	0.38**	0.41***	0.38**	0.47**
	(0.20)	(0.14)	(0.15)	(0.15)	(0.16)	(0.22)
Mean LW Share (%)	37.32	36.79	36.79	36.79	36.79	36.79
Avg. margin of victory (%)	21.02	21.02	21.02	21.02	21.02	21.02
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters:	503	493	493	493	493	493
N	2886	2832	2832	2832	2832	2832
R^2	0.01	0.52	0.59	0.65	0.70	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 2: Effect of WW1 fatalities on left-wing vote share

point increase in left-wing party vote share. This notably coincides with the Labour Party's most successful election to that point, where it obtained 191 seats and formed its first government (albeit as a minority) with the tacit support of the Liberals. Afterwards, the magnitude of the effect of war fatalities declines, even becoming statistically insignificant in 1924 and 1931.

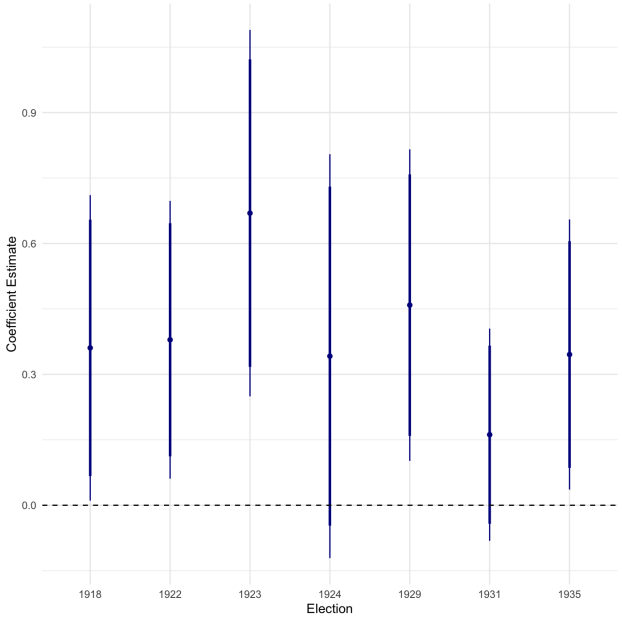

Figure 7: Plot of the effect of WW1 fatalities on vote-share by election

	DV: Left-wing vote share (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.36**	0.38**	0.67***	0.34	0.46**	0.16	0.35**
	(0.18)	(0.16)	(0.21)	(0.24)	(0.18)	(0.12)	(0.16)
Mean LW Share (%)	31.92	38.30	40.19	37.35	38.69	33.09	40.83
Avg. margin of victory (%)	28.38	16.10	12.87	18.62	16.20	32.45	22.53
Num. clusters:	47	54	51	54	57	53	56
N	327	354	363	422	481	434	451
R^2	0.46	0.69	0.69	0.74	0.78	0.75	0.76

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 3: Effect of WW1 fatalities on left-wing vote share by election

The effect of war fatalities may appear small, especially considering that during the period under study, left-wing parties received on average around 37% of the vote and the average margin of victory across all races was 21%. However, these averages are skewed by large margins in safe seats, obscuring the fact that roughly one-sixth of races during the interwar period were decided by a margin of less than 5%. In such races, even small changes in vote share can change which candidate wins. To evaluate the implications of war fatalities for control of the House of

Commons, I use the estimates obtained in Table 3 to compute counterfactual election outcomes for all 509 non-university constituencies in England and Wales.[24] The results are plotted in Figure 8.

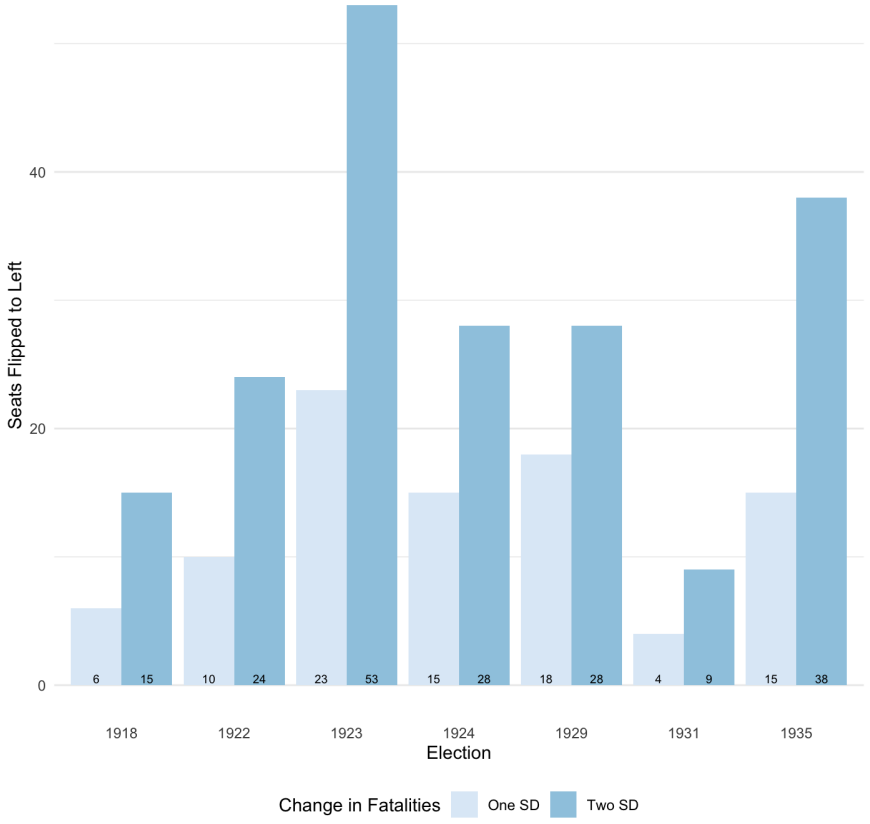

Figure 8: Counterfactual parliamentary seat changes

The counterfactuals show that in 1923, incrementing the war fatality rate by one standard deviation (3%) is sufficient to flip 23 seats to left-wing parties, while a two standard deviation increase (6%) would have resulted in an additional 53 left-wing candidates winning office. While the counterfactuals for other elections do not produce as dramatic swings in seats, they still suggest that changes in vote share resulting from war fatalities could have significant consequences for the composition of the House of Commons. Indeed, in 1929, a one-standard deviation increase in war fatalities would have put Labour three seats shy of an outright majority, even disregarding

[24]The counterfactuals assume that the vote share gained by left-wing parties is drawn equally from the shares of the other parties.

potential seat changes in Scotland and Northern Ireland, a feat that the party would not achieve until 1945 in reality.

I also examine whether war fatalities influence several other electoral outcomes. In Appendices C.2.3 and C.2.4, I test for an effect of war fatalities on the share of the vote received by candidates representing the Conservative and Liberal Parties. I find no evidence of an effect of WW1 fatalities on electoral support for Conservative candidates. In contrast, there is evidence greater WW1 fatalities are associated with reduced support for the Liberal party, perhaps indicating that the war led some traditional Liberal voters to switch to Labour. This is also broadly consistent with prior work arguing that the decline of the Liberal Party in the 1920s and 1930s was due in part to competition from Labour (Adelman, 2014). In Appendix **??**, I conduct the analysis again using an alternative measure of left-wing electoral success, the margin of victory/loss for left-wing candidates, and obtain similar results. In Appendix **??**, I repeat the vote share analysis again while conditioning on 1910 left-wing vote share. The predicted effect of war fatalities is directionally similar and larger in magnitude, perhaps indicating that left-wing messaging about the "conscription of wealth" was more successful in locales where economically left-wing parties were more established.

5.3 Parliamentary voting - empirical strategy

Having shown that war fatalities are associated with electoral support for left-wing political parties, I now examine whether war fatalities had an impact on the passage of progressive taxation legislation in the House of Commons. Specifically, I test whether members of the House of Commons representing constituencies with higher World War I fatality rates were more likely to vote in favor of progressive taxation legislation, as predicted by the model. To do so, I estimate the following model via ordinary least squares

$$proTaxVotes_{ictp} = \alpha fatalityRate_i + \gamma^T \mathbf{X}_i + \delta_c + \nu_t + \lambda_p + \epsilon_{icvp} \tag{4}$$

where i indexes constituencies, c indexes administrative counties, t indexes years, and p indexes political parties.

The variable $proTaxVotes_{ictp}$ counts the number of times the MP of party p representing constituency i in county c during year t voted in favor of progressive taxation legislation. As is the case in the vote share specifications, $fatalityRate_i$ is the WW1 fatality rate in constituency i, $\mathbf{X}_i$ is a vector of pre-war constituency-level demographic and geographic controls, γ_c is an administrative county fixed effect, and ν_t is a year fixed effect. New to this specification is a party fixed effect θ_p, which controls for party affiliation p. The party fixed effect means that I examine within-party variation in fatality rates and voting behavior to ensure that any observed relationship is not being driven solely by partisanship. Finally, to allay concerns that county and vote fixed effects do not address time-varying confounding, I also include party $\times$ year fixed effects. These fixed effects capture how changing national circumstances influence partisan behavior and which party controls the government, both of which can influence voting patterns, As in the vote share specifications, I report robust standard errors clustered at the constituency level to account for autocorrelation in the residuals.

Because the dependent variable consists of count data, I also estimate the specification in 4 using a fixed-effect Poisson model (Cohn, Liu and Wardlaw, 2022; Hausman, Hall and Griliches, 1984; King, 1988). These results can be found in Appendix C.3.1

5.4 Parliamentary voting - results

The coefficients obtained from estimating Equation 4 are displayed in Table 4. Column 1 report the estimate with a party fixed effect alone. Columns 2 and 3 add year and county fixed effects, respectively. Column 4 includes constituency-level control variables and Column 5 introduces a party $\times$ year fixed effect.

The results show that there is a positive correlation between the WW1 fatality rate of a constituency's conscripts and the frequency with which the MP representing that constituency voted in favor of progressive taxation. In Column 6, a one-percentage point increase in the local fatal-

	DV: Num. pro-progressive tax votes				
	Model 1	Model 2	Model 3	Model 4	Model 5
Fatality Rate (%)	0.05**	0.05**	0.04**	0.07***	0.06**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
DV Mean:	4.67	4.69	4.69	4.69	4.69
Controls	-	-	-	✓	✓
Party FEs	✓	✓	✓	✓	✓
Year FEs	-	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓
Party × Year FEs	-	-	-	-	✓
Num. clusters:	508	508	508	498	498
N	9045	9045	9045	8866	8866
R^2	0.49	0.62	0.63	0.63	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 4: Effect of WW1 fatalities on parliamentary voting

ity rate is associated with an additional .06 votes cast in support of progressive taxation during a year. This effect is statistically significant and stable in magnitude across all model specifications.

	DV: Num. pro-progressive tax votes					
	1918-1922	1922-1923	1923-1924	1924-1929	1929-1931	1931-1935
Fatality Rate (%)	0.10**	0.12*	0.05	0.09	0.14**	−0.01
	(0.05)	(0.06)	(0.03)	(0.07)	(0.06)	(0.02)
DV Mean:	3.47	7.31	5.24	7.58	6.36	1.92
No. clusters:	57	58	58	58	58	58
N	1887	493	499	1974	1460	2344
R^2	0.67	0.84	0.61	0.74	0.71	0.68

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 5: Effect of WW1 fatalities on parliamentary voting by session

Similar to the vote share models, we can decompose the effect of war fatalities on MP behavior over time by estimating Equation 4 for each parliament. The results are shown in Table 5. Notably, the effect of fatalities on MP support for progressive taxation is largest in parliaments formed after elections where war fatalities provided the greatest benefit for left-wing candidates: 1918, 1922,

and 1929. In these three parliaments, a one percentage point increase in war fatalities induced MPs to vote in favor of progressive taxation 0.12 more times per year on average, a change twice as large as the overall effect found in Table 4. This is consistent with both the empirical results found in the previous section and the predictions of the model, which predicted that candidates for office in constituencies with greater fatalities would propose more progressive tax platforms.

A predicted increase of between .04 to .07 votes per year in favor of progressive taxation for each percentage point increase in the war fatality rate may appear small. Nevertheless, the fact that a within-party effect is detectable at all is notable given the high degree of party cohesion seen in Parliament during the Victorian and Edwardian eras. Past studies have documented that English political parties of the time exhibited almost no within-party factional conflict (Eggers and Spirling, 2014; Cox, 2005). The small magnitude of the expected effect of war fatalities is likely a result of strictly enforced party discipline during roll-call votes. Party leaders employed whips to persuade, bribe, threaten, and even blackmail their own MPs to vote the party line on legislation (Troughton, 2023). MPs that disregarded the party line were subject to various punishments, which ranged from being passed over for ministerial posts to expulsion from the party (Pollock, 1930).

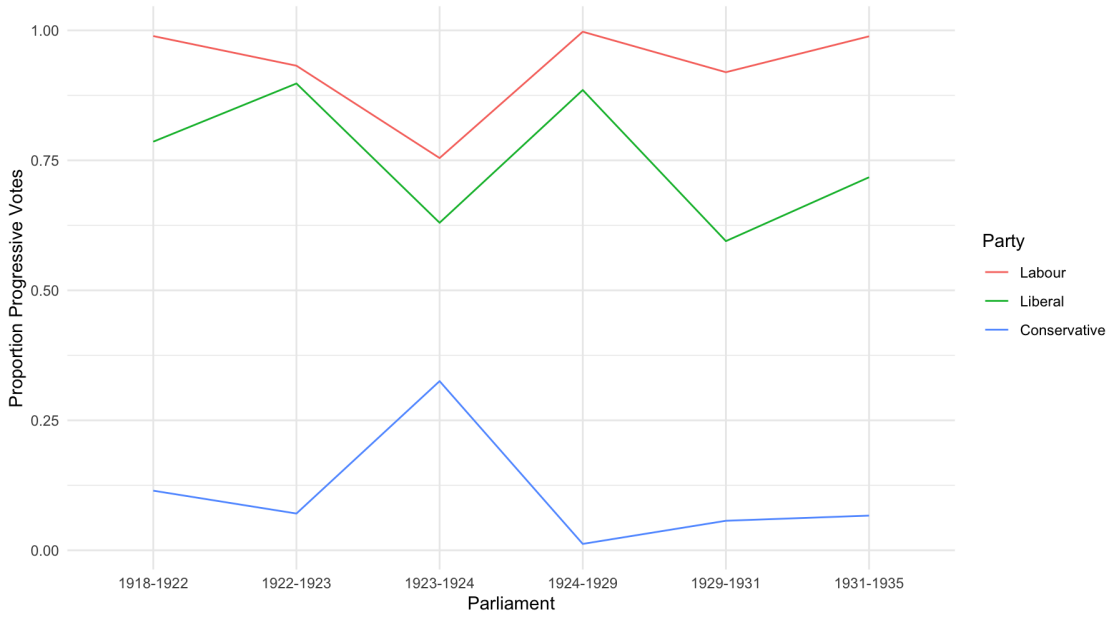

Figure 9: Proportion of votes supporting progressive taxation by party

The high degree of party cohesion is illustrated in Figure 9, which plots the proportion of votes cast in favor of progressive taxation legislation over time for members of the Conservative, Labour, and Liberal parties. The parties are stratified into groups based on their level support for progressive taxation. Note that over 90% of Labour roll-call votes were cast in favor of progressive taxation, as opposed to only about 10% of Conservative votes. The proportion of votes cast in support of progressive taxation is also roughly stable over time, indicating that MP voting patterns are influenced by the ideological stance of the party leadership. As a result, it seems likely that much of the effect found in the prior analyses is driven by defectors from the party position.

	DV: Num. pro-progressive tax votes		
	Conservative	Labour	Liberal
Fatality Rate (%)	0.03***	0.09	0.01
	(0.01)	(0.08)	(0.25)
DV Mean:	0.67	15.07	8.68
No. clusters:	416	250	171
N	4492	1918	649
R^2	0.64	0.80	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 6: Effect of WW1 fatalities on parliamentary voting by party

Therefore, to get a better look at how local war fatalities influence MP voting behavior within political parties, I estimate Equation 4 separately for MPs in each of the three major political parties. The results are shown in Table 6. I find no evidence that Labour and Liberal MPs representing high fatality districts were more likely to support progressive taxation legislation. However, I do find evidence of a relationship between fatalities and Conservative support for progressive taxation. Conservative MPs voted in favor of .03 additional progressive taxation proposals per year for every one percentage point increase in WW1 fatality rate of the constituency they represent. To put this effect size in context, note that on average, Conservative MPs only supported such legislation 0.67 times per year, meaning the size of the effect is nearly 5% of the average outcome. This indicates that shifts in constituent preferences caused by war fatalities were important drivers of

Conservative MP defections to support progressive taxation legislation.

Examining the constituency characteristics of Conservative MPs who defected from the party line lends additional credence to this explanation. Conservative MPs that defected at least once from the party line to vote in favor of progressive taxation legislation were 10% more likely to represent a constituency with an above-median WW1 fatality rate than their colleagues that never defected. In addition, defection appears to have been more frequent among MPs representing constituencies with high fatality rates: defectors were 25% more likely to represent constituencies in the top decile of war fatalities. Moreover, the fact that the effect of war fatalities on MP voting is only detectable for Conservatives provides additional evidence for the model's prediction that politician support for progressive taxation platforms is induced by attempts to offset electoral bias in favor of left-wing parties caused by war fatalities.

	DV: Num. pro-progressive tax votes				
	Income tax	Wealth tax	Capital levy	Excise duty	Customs duty
Fatality Rate (%)	0.01	0.04***	0.00	0.01	0.02
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
DV Mean:	1.40	1.94	0.33	0.98	2.13
Num. clusters:	498	498	496	498	498
N	7040	4150	2064	5565	8253
R^2	0.82	0.80	0.88	0.81	0.85

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency. Models with a full set of controls and fixed effects.

Table 7: Effect of WW1 fatalities on parliamentary voting by topic

Finally, I examine how WW1 fatalities affected MP support for the different kinds of taxation legislation. The results are displayed in Table 7, which shows that greater war fatalities were associated with stronger MP support for wealth taxes, which include estate taxes, inheritance taxes, land taxes, and the excess profits duty. The analysis does not find evidence that greater constituency war fatalities affected MP support for or opposition to the other types of taxation legislation. This may suggest that the class conflict hypothesized as characterizing political competition in the model is better framed as between capital and labor than between the wealthy

and the poor. War casualties and the experience of mass warfare may have produced increased class consciousness among laborers as well as affecting their preferences about the fairness of government tax policy.

6 Conclusion

This article has examined the relationship between local exposure to World War I fatalities and support for progressive taxation in interwar Britain. I find evidence for two effects. First, constituencies with higher conscript fatality rates provided greater electoral support to candidates representing economically left-wing political parties. These effects were strongest during the elections immediately following the war and in "safe" constituencies where left-wing parties had an established presence prior to the war. Second, members of parliament representing districts that experienced more fatalities were more likely to vote in favor progressive taxation legislation. This effect was particularly pronounced among members of the Conservative Party and on legislation relating to wealth taxes, consistent with anecdotal evidence that Conservatives felt electoral pressure to disprove allegations that they were the party of capital.

This study offers new quantitative evidence linking popular discontent over mass warfare to the creation and persistence of progressive taxation schemes in Western democracies following the World Wars. Prior research on the relationship between mass warfare and tax progressivity relied on highly aggregated state-level comparisons of tax policy, which cannot disentangle the effect of mass mobilization from that of other simultaneous changes associated with the World Wars, such as the expansion of the franchise or the accumulation of debt. This article's use of sub-national variation in war fatalities circumvents such confounding factors to directly link legislator support for tax progressivity to voter dissatification over the war via the mechanism of electoral competition, offering support for the "compensatory theory" of taxation.

Finally, the findings of this paper may hint that concerns about the fairness of government taxation policy may be more salient during poor economic conditions. This is suggested by the

fact that left-wing candidates received the greatest electoral benefit from war fatalities in the 1918, 1922, 1923, and 1929 general elections. While the size of the effect in the first three elections can be explained by the recency of the war, the re-emergence of the salience of war fatalities in 1929 is surprising. A common factor linking all four elections is that each took place during a period of economic contraction: the postwar recession in the case of the first three and the Great Depression for 1929. Indeed, there some anecdotal evidence that taxation became less contentious politically after the economic crisis and issue of short-term had been mitigated. To quote the historian M.J. Daunton, by 1924 "taxation was taken out of politics and reduced to a matter of technicalities" (Daunton, 1996, 917). This may indicate that concerns about fairness are stronger when taxation is perceived to be zero-sum, such as during a fiscal crisis.

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A Proofs

This appendix contains the proofs of all propositions in the text.

A.1 Assumptions

Assumption 1 *To avoid boundary issues in equilibrium, I assume that* $\phi_g < \frac{1}{2}\left(\frac{\psi}{\psi+1}\right)$ *for* $g \in \{p, w\}$ *and* $\alpha < \frac{1}{2\psi}$.

A.2 Proposition 1

Proposition 1 *In equilibrium, both parties propose identical tax platforms.*

$$t_p^{L\star} = t_p^{R\star} \qquad\qquad t_w^{L\star} = t_w^{R\star}$$

Proof. Party L's maximization problem is

$$\begin{aligned} \max \;\; & P\left(s^L(\mathbf{t}^L, \mathbf{t}^R) > \frac{1}{2}\right) \\ \text{subject to} \;\; & t_p^L q y_p + t_w^L (1-q) y_w = D \\ & t_p^L, t_w^L \leq 1 \\ & t_p^L, t_w^L \geq 0 \end{aligned}$$

Substituting $t_w^L = \frac{D - q t_p^L y_p}{(1-q)y_w}$ and taking the derivative gives the first order optimality condition

$$\frac{\psi}{q\phi_p + (1-q)\phi_w}\left[q\phi_p u_p'(t_p^L) - (1-q)\phi_w u_w'\left(\frac{D - q t_p^L y_p}{(1-q)y_w}\right)\left(\frac{q y_p}{(1-q)y_w}\right)\right] = 0 \tag{5}$$

Likewise, party R's maximization problem is

$$\begin{aligned} \max \;\; & 1 - P\left(s^L(\mathbf{t}^L, \mathbf{t}^R) > \frac{1}{2}\right) \\ \text{subject to} \;\; & t_p^R q y_p + t_w^R (1-q) y_w = D \\ & t_p^R, t_w^R \leq 1 \\ & t_p^R, t_w^R \geq 0 \end{aligned}$$

Following the same procedure as for party L gives the first-order optimality condition

$$\frac{\psi}{q\phi_p + (1-q)\phi_w}\left[q\phi_p u_p'(t_p^R) - (1-q)\phi_w u_w'\left(\frac{D - q t_p^R y_p}{(1-q)y_w}\right)\left(\frac{q y_p}{(1-q)y_w}\right)\right] = 0$$

Note that the parties' first-order optimality conditions are identical and that the platform of the opposing party is not present. Consequently, the optimization problems are identical and have

the same solution. Taking the second derivative verifies that the objective function is concave and that the solution will be an equilibrium.

$$\frac{\psi}{q\phi_p + (1-q)\phi_w}\left[q\phi_p u_p''(t_p^R) + (1-q)\phi_w u_w'\left(\frac{D - qt_p^R y_p}{(1-q)y_w}\right)\left(\frac{qy_p}{(1-q)y_w}\right)^2\right] < 0$$

where the inequality follows from the concavity of the utility functions u_g and the fact that all other exogenous parameters are strictly positive. ■

A.3 Proposition 2

Proposition 2 *In equilibrium, greater debt obligations increase tax progressivity under the following condition*

$$\frac{y_w}{y_p} > \frac{\phi_w}{\phi_p}\frac{u_w''(t_w^\star)}{u_p''(t_p^\star)} \implies \frac{\partial[t_w^\star - t_p^\star]}{\partial D} > 0$$

Proof. Treating the equilibrium tax rate $t_P^\star$ as a function of the debt level D and differentiating equation 5 with respect to D produces

$$\frac{\psi}{q\phi_p + (1-q)\phi_w}\left[q\phi_p u_p''(t_p^\star)\frac{\partial t_p^\star}{\partial D} - (1-q)\phi_w u_w''\left(\frac{D - qt_p^\star y_p}{(1-q)y_w}\right)\left(\frac{qy_p}{(1-q)y_w}\right)\left(\frac{1 - q\frac{\partial t_p^\star}{\partial D}y_p}{(1-q)y_w}\right)\right] = 0$$

Re-arranging and isolating $\frac{\partial t_p^\star}{\partial D}$ on the left-hand side yields

$$\frac{\partial t_p^\star}{\partial D} = \frac{(1-q)\phi_w u_w''\left(\frac{D-qt_p^\star y_p}{(1-q)y_w}\right)\frac{qy_p}{(1-q)^2 y_w^2}}{q\phi_p u_p''(t_p^\star) + (1-q)\phi_w u_w''\left(\frac{D-qt_p^\star y_p}{(1-q)y_w}\right)\frac{q^2 y_p^2}{(1-q)^2 y_w^2}} > 0$$

where the inequality follows because the numerator and both terms in the denominator are negative, a consequence of the concavity of u_g. Likewise, the derivative of the tax on the wealthy $t_w^\star$ with respect to D is

$$\frac{\partial t_w^\star}{\partial D} = \frac{\partial}{\partial D}\left[\frac{D - qt_p^\star y_p}{(1-q)y_w}\right] = \frac{1 - q\frac{\partial t_p^\star}{\partial D}y_p}{(1-q)y_w} > 0$$

The equilibrium tax progressivity will be increasing in D if

$$\begin{aligned}
\frac{\partial[t_w^\star - t_w^\star]}{\partial D} = \frac{1 - q\frac{\partial t_p^\star}{\partial D}y_p}{(1-q)y_w} - \frac{\partial t_p^\star}{\partial D} > 0 \iff \\
\frac{1}{(1-q)y_w} - \frac{\partial t_p^\star}{\partial D}\left(1 + \frac{qy_p}{(1-q)y_w}\right) > 0 \iff \\
\left(1 + \frac{qy_p}{(1-q)y_w}\right)\left(\frac{(1-q)\phi_w u_w''\left(\frac{D-qt_p^\star y_p}{(1-q)y_w}\right)\frac{qy_p}{(1-q)^2 y_w^2}}{q\phi_p u_p''(t_p^\star) + (1-q)\phi_w u_w''\left(\frac{D-qt_p^\star y_p}{(1-q)y_w}\right)\frac{q^2 y_p^2}{(1-q)^2 y_w^2}}\right) < \frac{1}{(1-q)y_w}
\end{aligned}$$

Some algebra and simplifying shows the condition for the derivative to be positive to be

$$\frac{y_w}{y_p} > \frac{\phi_w}{\phi_p}\frac{u_w''(t_w^\star)}{u_p''(t_p^\star)}$$

■

A.4 Lemma 1

This lemma is used in the proof of Proposition 3.

Lemma 1 *In equilibrium, an increase in ideological homogeneity among the poor (↑ ϕ_p) induces the candidates to propose more progressive tax platforms.*

$$\frac{\partial[t_w^\star - t_p^\star]}{\partial \phi_p} > 0$$

Proof. As before, I treat the equilibrium tax rate $t_P^\star$ as a function of ϕ_p and differentiate equation 5 with respect to ϕ_p to obtain

$$\frac{-q}{q\phi_p + (1-q)\phi_w}\underbrace{\frac{\partial P\left(s^L(\mathbf{t}^L,\mathbf{t}^R) > \frac{1}{2}\right)}{\partial t_p^L}}_{=0} + \frac{\psi}{q\phi_p + (1-q)\phi_w}\left(qu_p'(t_p^\star) + q\phi_p u_p''(t_p^\star)\frac{\partial t_p^\star}{\partial \phi_p} + (1-q)\phi_w u_w''\left(\frac{D - qt_p^\star y_p}{(1-q)y_w}\right)\frac{q^2y_p^2}{(1-q)^2y_w^2}\frac{\partial t_p^\star}{\partial \phi_p}\right) = 0$$

Note that the term on the left is simply the first-order optimality condition times a constant, which must be 0 in equilibrium. Re-arranging then produces

$$\frac{\partial t_p^\star}{\partial \phi_p} = \frac{-qu_p'(t_p^\star)}{q\phi_p u_p''(t_p^\star) + (1-q)\phi_w u_w''\left(\frac{D - qt_p^\star y_p}{(1-q)y_w}\right)\frac{q^2y_p^2}{(1-q)^2y_w^2}} < 0$$

where the inequality follows because the numerator is positive, due to the fact that u_g is decreasing, while the denominator is negative, due to the concavity of u_g.

The result prior shows that the equilibrium tax rate on the poor decreases in ϕ_p. This means that the tax rate on the wealthy must therefore increase in ϕ_p, as verified below.

$$\frac{\partial t_w^\star}{\partial \phi_p} = -\frac{qy_p}{(1-q)y_w}\frac{\partial t_p^\star}{\partial \phi_p} > 0$$

Taken together, this means that tax progressivity in equilibrium is increasing in ϕ_p ■

A.5 Proposition 3

Proposition 3 *In equilibrium, an increase in war fatalities (↑ α) induces the candidates to propose more progressive tax platforms.*

$$\frac{\partial[t_w^\star - t_p^\star]}{\partial \alpha} > 0$$

Proof. Take the derivative of tax progressivity with respect to α. By the chain rule

$$\frac{\partial[t_w^\star - t_p^\star]}{\partial \alpha} = \frac{\partial[t_w^\star - t_p^\star]}{\partial \phi_p}\frac{\partial \phi_p}{\partial \alpha} > 0$$

The inequality follows from Lemma 1 and the fact that ϕ_p is an increasing function of α (which means $\frac{\partial \phi_p}{\partial \alpha}$ is positive). ■

A.6 Proposition 4

Proposition 4 *In equilibrium, an increase in war fatalities (↑ α) increases the expected share of the vote received by party L.*

$$\frac{\partial E_\delta[s^L(\mathbf{t}^{L\star}, \mathbf{t}^{R\star})]}{\partial \alpha} > 0$$

Proof. Note that because the parties choose the same tax platform in equilibrium, the share of the vote received by party L is

$$s^L(\mathbf{t}^{L\star}, \mathbf{t}^{R\star}) = \frac{1}{2} - q\phi_p\delta(\alpha) - (1-q)\phi_w\delta(\alpha)$$

Taking the expectation over $\delta(\alpha)$ yields

$$E_\delta[s^L(\mathbf{t}^{L\star}, \mathbf{t}^{R\star})] = \frac{1}{2} + q\phi_p\alpha + (1-q)\phi_w\alpha$$

Differentiating with respect to α

$$\frac{\partial E_\delta[s^L(\mathbf{t}^{L\star}, \mathbf{t}^{R\star})]}{\partial \alpha} = q\frac{\partial \phi_p}{\partial \alpha}\alpha + q\phi_p + (1-q)\phi_w > 0$$

■

B Data Appendix

B.1 Sample fatality record

Below is a sample record from the Commonwealth War Graves Commission database of fallen World War I soldiers. I extract soldiers' home addresses from the "Additional Info" box, outlined in red in Figure 10.

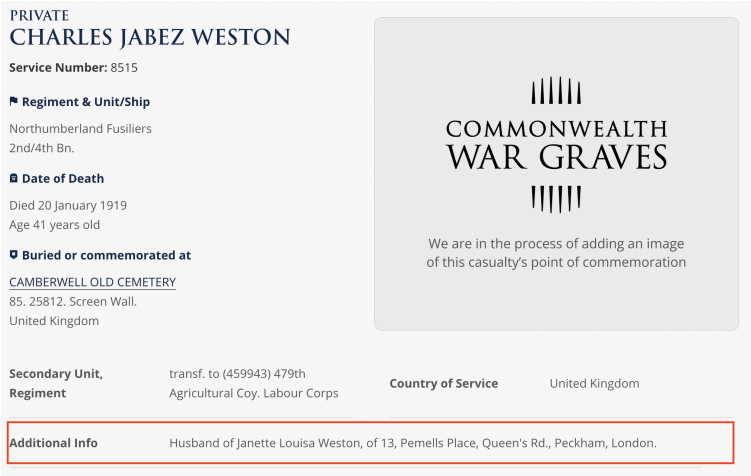

Figure 10: Sample casualty record 1

B.2 LLM Prompt

Below is the text used to prompt ChatGPT to extract soldier addresses.

> You will be provided with a series of short epitaphs. Some of the epitaphs contain an address. Your job is to extract the address from the text and return it in the following format:
>
> Number:
> Street:
> Neighborhood:
> City:
> County:
> Country:
>
> If you cannot locate a field in template within the address, leave it blank. If there are addresses for both a wife and parents in the text, extract the one that corresponding to the wife. If there are no addresses in the text, return only the above template with all fields blank. Do not include any other text in your response.

Figure 11: ChatGPT Prompt

B.3 Geocoding covariate balance

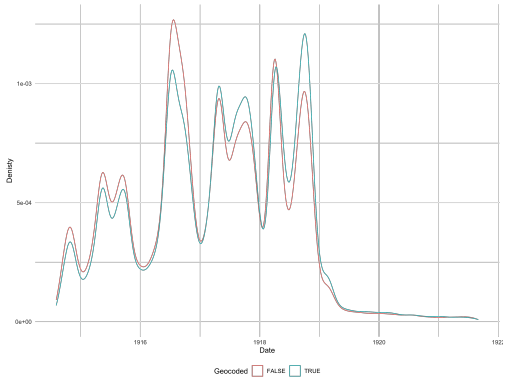

Figure 12: Balance by date of death

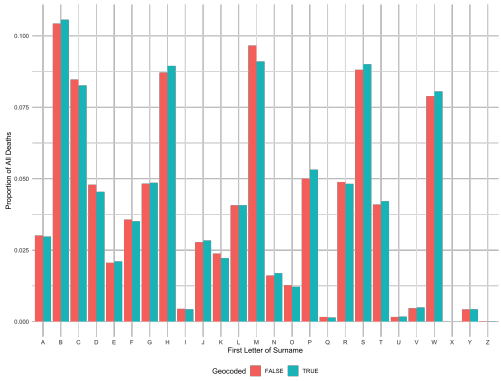

Figure 13: Balance by first letter of surname

Variable	Geocoded	Non-geocoded
Avg Age	26.36	28.39
Percent Private	56	61.2

Table 8: Balance by age and rank

B.4 List of left-wing parties

Party/Affiliation
British Labour Party
British Socialist Party
Co-operative Party
Communist Party of Great Britain
Highland Land League
Independent Labour Party
Independent communist/progressive/socialist
National Democratic and Labour Party
National Socialist Party
Socialist Labour Party

Table 9: UK Leftwing Parties, 1918-1935

B.5 Tax legislation coding rules

The table below describes under what conditions "Aye" and "No" votes are considered to indicate support for progressive taxation for each category of taxation.

Topic	Aye	No
Capital levy	The proposed legislation imposes a capital levy or nationalizes property; or it takes steps to do so	The proposed legislation limits the ability of the government to nationalize property or impose a capital levy
Customs duty	The proposed legislation reduces the rate of or abolishes an existing tariff	The proposed legislation imposes a new non-tariff consumption tax or increases the rate of an existing non-tariff consumption tax
Excise duty	The proposed legislation reduces the rate of or abolishes an existing non-tariff consumption tax	The proposed legislation imposes a new non-tariff consumption tax or increases the rate of an existing non-tariff consumption tax
Income tax	The proposed legislation introduces new tax or modifies existing tax that increases gradation of the income tax (i.e., creates more tax brackets, raises taxes on the rich or lowers them on the poor)	The proposed legislation introduces new tax or modifies existing tax that reduces gradation of the income tax (i.e., collapses tax brackets, lowers taxes on the rich or increases them on the poor)
Wealth taxes	The proposed legislation imposes a new tax on capital (i.e., property, securities), increases the rate of an existing tax on capital, or reduces exemptions/increases enforcement of a tax on capital	The proposed legislation abolishes or reduces the rate of an existing tax capital; or it increases exemptions and/or reduces enforcement of a tax on capital

Table 10: Coding rules for tax legislation

B.6 Example legislation

The following is a clause proposed by James Hudson, MP for Huddersfield, on July 6, 1926. The clause seeks to increase the earned income tax exemption. The text of the clause is

> Sub-section (1) of Section fifteen of the Finance Act, 1925 (which makes allowances in respect of earned income), shall have effect as if for the words "one-sixth" there were substituted the words "one-fifth."

The question moved, i.e., the formal statement that MPs must cast a yes-or-no vote on, is "That the Clause be read a Second time." In Westminster-style Parliamentary debate, a second reading of a piece of legislation opens the legislation to debate, allowing other MPs to amend it. If the legislation does not obtain a second reading, it is effectively killed. Thus, because a "No" vote aids the defeat of legislation that would increase the gradation of income tax, an "Aye" vote is coded as being in favor of progressive taxation,

B.7 Descriptive statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
Fatality rate	509	6.9	3	1.3	5	8.1	27
Population	509	70814	21486	16111	58676	78514	188835
Population density	509	4846	7631	23	155	6429	54592
Share employed in agriculture	509	0.063	0.072	0.0052	0.012	0.1	0.28
Share employed in manual labor	509	0.86	0.048	0.68	0.83	0.9	0.94
Educators per capita	509	0.0072	0.0022	0.00061	0.0058	0.0086	0.015
Doctors per capita	509	0.0042	0.0023	0.00095	0.0027	0.0049	0.02
Share women	509	0.52	0.025	0.41	0.5	0.53	0.62
Unemployed or indigent	509	211	204	14	82	257	2126
Average household size	509	4.5	0.31	3.8	4.3	4.7	6.3
Average age	509	28	1.9	23	27	30	33
Area	509	303	462	1.2	11	461	3119
Distance from large city	509	23	28	0	3.3	34	172

Table 11: Constituency summary statistics

C Additional results

C.1 WW1 fatalities and electoral candidates

To test whether local World War I fatalities influenced the number of candidates contesting a House of Commons seat, I estimate the following equation for each general election cycle using ordinary least squares

$$candidates_{ic} = \alpha_c + \beta fatalityRate_i + \delta^T \mathbf{X}_i + \epsilon_{ic}$$

where $candidates_{ic}$ is the number of candidates contesting constituency i in county c, α_c is a county fixed effect, $\mathbf{X}_i$ is a vector of pre-war geographic and demographic controls, ϵ_{ic} is an error term, and $fatalityRate_i$ is the percentage of conscripted soldiers from constituency i that died during the First World War. I include the same set of controls used in the analyses of left-wing vote share and parliamentary voting, as they contain variables that may influence how competitive a seat is.

	DV: Number of candidates						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.03	0.01	0.02	0.01	0.02**	0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
DV Mean	2.35	2.42	2.43	2.40	2.91	2.17	2.27
Controls	✓	✓	✓	✓	✓	✓	✓
County FEs	✓	✓	✓	✓	✓	✓	✓
Num. clusters:	58	58	58	58	58	58	58
N	499	497	498	498	498	498	498
R^2	0.24	0.28	0.31	0.28	0.23	0.22	0.27

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 12: Effect of WW1 fatalities on number of candidates

Results obtained from estimating these equations are displayed in Table 12. Reported standard errors are clustered at the level of the administrative county. In every general election except that of 1929, a constituency's WW1 fatalities do have a statistically significant effect on the number of candidates choosing to contest that constituency's House of Commons seat. Moreover, in all models, the size of the effect is tiny. Even in 1929, a one percentage point increase in a constituency's fatality rate is associated with an only a 0.02 increase in the number of candidates contesting an election, compared to a mean value of 2.91 candidates. Moving from the minimum fatality rate (1.3%) to the maximum (26.9%) is associated with a 0.56 increase in the number of candidates. The small size of these effects and their general lack of statistical significance provides strong evidence that WW1 fatalities do not have an effect on the number of candidates contesting a constituency. Consequently, I treat the number of candidates as similar to a pre-treatment control that does not bias estimates of the effect of WW1 fatalities on the vote share received by left-wing candidates.

C.2 Additional results for electoral outcomes

C.2.1 Conditioning on 1910 left-wing vote share

In this section, I reanalyze the effect of war fatalities on left-wing vote share while conditioning for 1910 left-wing vote share rather than 1910 Conservative vote share. Note that because Labour and other economically leftist parties were less prominent before the war, this approach limits the conclusions to those constituencies that left-wing parties regarded as competitive enough to be worth contesting. The overall results are similar, while the election-level results have larger point estimates in most cases, suggesting that war fatalities had a greater effect in constituencies where Labor was already established prior to the war.

	DV: Left-wing vote share (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.38*	0.52**	0.39*	0.41**	0.43**	0.75**
	(0.20)	(0.21)	(0.20)	(0.20)	(0.22)	(0.34)
Mean LW Share (%)	37.32	36.79	36.79	36.79	36.79	36.79
Avg. margin of victory (%)	21.02	21.02	21.02	21.02	21.02	21.02
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters:	503	237	237	237	237	237
N	2886	1428	1428	1428	1428	1428
R^2	0.01	0.47	0.53	0.63	0.67	0.82

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 13: Effect of WW1 fatalities on left-wing vote share (1910 left-wing)

	DV: Left-wing vote share (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.64***	0.55**	1.10***	0.38	0.23	0.14	0.40*
	(0.22)	(0.22)	(0.28)	(0.27)	(0.20)	(0.18)	(0.21)
Mean LW Share (%)	31.92	38.30	40.19	37.35	38.69	33.09	40.83
Avg. margin of victory (%)	28.38	16.10	12.87	18.62	16.20	32.45	22.53
Num. clusters:	22	24	22	25	25	25	27
N	172	193	189	205	233	217	219
R^2	0.45	0.71	0.69	0.71	0.74	0.75	0.72

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 14: Effect of WW1 fatalities on left-wing vote share by election (1910 left-wing)

C.2.2 Alternate measure of left-wing electoral success

In this section, I test whether the results linking WW1 fatalities to left-wing support are robust to an alternate measure of left-wing electoral success: margin of victory/loss. I define the left-wing margin as difference in constituency vote share received by a left-wing candidate and either the runner-up candidate or the victor (if a non-left-wing candidate won).

$$\text{Left-wing margin} = \begin{cases} \frac{\text{Left-wing votes} - \text{Runner-up votes}}{\text{Turnout}} \times 100 & \text{Left-wing winner} \\ \frac{\text{Left-wing votes} - \text{Winner votes}}{\text{Turnout}} \times 100 & \text{Non-left-wing winner} \end{cases}$$

To examine how war fatalities influenced left-wing margin, I estimate the following via OLS

$$leftwingMargin_{ice} = \alpha fatalityRate_i + \beta candidates_{ie} + \gamma^T \mathbf{X}_i + \delta_c + \nu_e + \epsilon_{ice}$$

where $leftwingMargin_{ice}$ is the electoral margin, as defined above, of the left-wing candidate(s) in constituency i in county c during election e. I include the same set of controls used in the analyses of left-wing vote share and parliamentary voting, save for the number of candidates. The estimated effects of war fatalities are nearly identical in size and significance to those on vote share.

	DV: Left-wing electoral margin (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.33	0.79***	0.65**	0.76***	0.73***	0.72**
	(0.36)	(0.24)	(0.26)	(0.26)	(0.28)	(0.33)
Mean LW margin (%)	−13.19	−13.03	−13.03	−13.03	−13.03	−13.03
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters:	503	493	493	493	493	493
N	2953	2899	2899	2899	2899	2899
R^2	0.00	0.46	0.52	0.64	0.68	0.83

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 15: Effect of WW1 fatalities on left-wing electoral margin

	DV: Left-wing electoral margin (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.45	0.58*	1.17***	0.74*	1.00***	0.35	0.70**
	(0.33)	(0.30)	(0.37)	(0.40)	(0.31)	(0.27)	(0.32)
Mean LW Margin (%)	−24.26	−9.36	−3.19	−14.18	−0.87	−29.24	−13.00
Avg. margin of victory (%)	28.38	16.10	12.87	18.62	16.20	32.45	22.53
Num. clusters:	47	54	51	54	57	53	56
N	335	363	373	432	491	444	461
R^2	0.45	0.63	0.56	0.70	0.67	0.77	0.74

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 16: Effect of WW1 fatalities on left-wing electoral margin

C.2.3 Conservative vote share

To examine the effect of local war fatalities on Conservative vote share, I estimate the following equation using ordinary least squares

$$conShare_{ice} = \alpha fatalityRate_i + \beta candidates_{ie} + \gamma^T \mathbf{X}_i + \delta_c + \nu_e + \epsilon_{ice}$$

where $conShare_{ic}$ is the share of the vote received by a Conservative Party candidate contesting constituency i in county c during election e, with the rest of the specification identical to that of Equation 3 for left-wing share. Table 17 displays the results for the entirety of the interwar period, while Table 18 decomposes the effect by election. In both cases, there is no evidence that war fatalities increased or decreased the share of the vote received by Conservatives.

	DV: Conservative vote share (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.08	0.11	0.06	0.03	0.03	−0.20
	(0.18)	(0.14)	(0.15)	(0.14)	(0.15)	(0.20)
Mean Con. Share (%)	50.62	50.56	50.56	50.56	50.56	50.56
Avg. margin of victory (%)	21.02	21.02	21.02	21.02	21.02	21.02
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters:	508	498	498	498	498	498
N	2877	2823	2823	2823	2823	2823
R^2	0.00	0.47	0.55	0.72	0.75	0.86

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 17: Effect of WW1 fatalities on Conservative vote share

	DV: Conservative vote share (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	−0.16	−0.11	−0.06	0.10	−0.00	0.27	0.03
	(0.17)	(0.21)	(0.19)	(0.18)	(0.21)	(0.30)	(0.24)
Mean Con. Share (%)	57.46	48.93	43.14	52.22	39.19	62.88	54.41
Avg. margin of victory (%)	28.38	16.10	12.87	18.62	16.20	32.45	22.53
Num. clusters:	47	51	53	54	58	50	52
N	307	381	423	428	482	393	409
R^2	0.62	0.65	0.60	0.70	0.74	0.72	0.72

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 18: Effect of WW1 fatalities on Conservative vote share by election

C.2.4 Liberal vote share

To examine the effect of local war fatalities on Liberal vote share, I estimate the following equation using ordinary least squares

$$libShare_{ice} = \alpha fatalityRate_i + \beta candidates_{ie} + \gamma^T \mathbf{X}_i + \delta_c + \nu_e + \epsilon_{ice}$$

where $libShare_{ic}$ is the share of the vote received by a Liberal Party candidate contesting constituency i in county c during election e, with the rest of the specification identical to that of Equation 3 for left-wing share. Table 19 displays the results for the entirety of the interwar period, while Table 20 decomposes the effect by election. The pooled results show there is no statistically detectable effect of fatalities on left-wing vote share. However, this appears to be due to significant heterogeneity in the effect over time.

	DV: Liberal vote share (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.10	−0.06	0.16	0.09	0.07	0.61*
	(0.15)	(0.15)	(0.17)	(0.17)	(0.18)	(0.32)
Mean Lib. Share (%)	31.29	30.83	30.83	30.83	30.83	30.83
Avg. margin of victory (%)	21.02	21.02	21.02	21.02	21.02	21.02
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters:	488	479	479	479	479	479
N	1883	1853	1853	1853	1853	1853
R^2	0.00	0.38	0.44	0.51	0.60	0.78

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 19: Effect of WW1 fatalities on Liberal vote share

Observe that in 1931 and 1935, an one percentage point increase a constituency's conscript fatality rate is associated with a greater than one percentage point decline in Liberal vote share.

	DV: Liberal vote share (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.51	0.14	0.35	−0.10	−0.12	−1.89**	−1.18**
	(0.36)	(0.22)	(0.29)	(0.38)	(0.19)	(0.75)	(0.58)
Mean Lib. Share (%)	27.57	32.69	37.74	30.95	27.77	36.68	25.42
Avg. margin of victory (%)	28.38	16.10	12.87	18.62	16.20	32.45	22.53
Num. clusters:	45	50	54	55	58	41	46
N	236	272	372	289	443	98	143
R^2	0.54	0.64	0.60	0.64	0.49	0.75	0.78

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 20: Effect of WW1 fatalities on Liberal vote share by election

C.3 Parliamentary voting

C.3.1 Poisson models

I also estimate several fixed-effect Poisson models to examine the effect of war fatalities on the frequency of pro-progressive taxation votes by MPs. Specifically I estimate the following specification by Poisson pseudo maximum likelihood

$$proTaxVotes_{ictp} = \frac{\exp\left(\alpha fatalityRate_i + \gamma^T \mathbf{X}_i + \delta_c + \nu_t + \lambda_p\right)\epsilon_{icvp}}{\sum_{\tau=0}^{1} \exp\left(\alpha fatalityRate_i + \gamma^T \mathbf{X}_i + \delta_c + \nu_t + \lambda_p\right)\epsilon_{icvp}} \bar{S_c}tp$$

where $\bar{S_c}tp$ is total pro-progressive taxation votes in county c during year t from an MP of party p. The results are reported in Tables 21 through 24. The Poisson regressions yield findings consistent with the linear models. The estimates in the overall model and the Parliament-level models are less precise than the linear models, but still show that local war fatalities are positively correlated with support for progressive taxation. In the full model, a one percentage point increase in the fatality rate is associated with a one percent increase in the expected number of pro-progressive taxation votes per year.

	DV: Num. pro-progressive tax votes				
	Model 1	Model 2	Model 3	Model 4	Model 5
Fatality Rate (%)	0.01**	0.01*	0.01	0.01**	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
DV Mean:	4.67	4.69	4.69	4.69	4.69
Controls	-	-	-	✓	✓
Party FEs	✓	✓	✓	✓	✓
Year FEs	-	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓
Party × Year FEs	-	-	-	-	✓
Num. clusters:	508	508	508	498	498
N	9043	9043	9043	8864	8864
Pseudo R^2	0.54	0.68	0.69	0.69	0.73

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 21: Effect of WW1 fatalities on parliamentary voting (Poisson)

	DV: Num. pro-progressive tax votes					
	1918-1922	1922-1923	1923-1924	1924-1929	1929-1931	1931-1935
Fatality Rate (%)	0.01	0.01*	0.01	0.00	0.02*	−0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
DV Mean:	3.47	7.31	5.24	7.58	6.36	1.92
No. clusters:	57	58	58	58	58	58
N	1886	492	499	1970	1459	2344
Pseudo R^2	0.54	0.64	0.19	0.83	0.69	0.63

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county.

Table 22: Effect of WW1 fatalities on parliamentary voting by session (Poisson)

The results of the party-level and topic-level models also mirror the substantive size and statistical significance found in the linear models. For Conservative MPs, a one percentage point increase in the constituency WW1 fatality rate is associated with a four percent increase in the number of votes cast in support of pro-progressive tax legislation per year. Similarly,

	DV: Num. pro-progressive tax votes		
	Conservative	Labour	Liberal
Fatality Rate (%)	0.04***	0.01	0.00
	(0.01)	(0.01)	(0.03)
DV Mean:	0.67	15.07	8.68
No. clusters:	416	250	171
N	3748	1918	649
Pseudo R^2	0.28	0.50	0.43

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Robust SEs clustered by constituency

Table 23: Effect of WW1 fatalities on parliamentary voting by party (Poisson)

In the case of wealth tax legislation, a one percentage point increase in the fatality rate is associated with two percent increase in the expected number of pro-progressive taxation votes per year.

	DV: Num. pro-progressive tax votes				
	Income tax	Wealth tax	Capital levy	Excise duty	Customs duty
Fatality Rate (%)	0.00	0.02***	−0.00	0.00	0.00
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
DV Mean:	1.40	1.94	0.33	0.98	2.13
Num. clusters:	498	498	496	498	498
N	7036	4143	1846	5559	8246
Pseudo R^2	0.65	0.58	0.46	0.50	0.74

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 24: Effect of WW1 fatalities on parliamentary voting by topic (Poisson)

D Full tables

The following appendix contains full versions of all tables reported in Section 5.

Electoral outcomes

	DV: Left-wing vote share (%)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Fatality Rate (%)	0.38*	0.51***	0.38**	0.41***	0.38**	0.47**
	(0.20)	(0.14)	(0.15)	(0.15)	(0.16)	(0.22)
1910 Con. Vote Share (%)		−0.08***	−0.11***	−0.11***	−0.11***	−0.11***
		(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
Num. Candidates		−6.73***	−6.07***	−7.19***	−6.90***	−6.69***
		(0.49)	(0.46)	(0.54)	(0.60)	(0.41)
Log(Pop. Density)		1.31**	1.03*	1.00*	0.93	0.73
		(0.59)	(0.60)	(0.60)	(0.64)	(0.93)
Log(Population)		1.86	2.16	2.70	2.47	3.75
		(1.55)	(1.67)	(1.73)	(1.85)	(2.31)
Avg. Age		−3.60***	−3.39***	−3.37***	−3.35***	−1.32
		(0.57)	(0.59)	(0.60)	(0.64)	(1.07)
Avg. Household Size		−7.76***	−5.20**	−5.74**	−5.44**	1.10
		(2.34)	(2.56)	(2.60)	(2.73)	(4.24)
Share Women (%)		−0.42	−0.51	−0.50	−0.52	−0.64
		(0.33)	(0.32)	(0.33)	(0.35)	(0.45)
Educators per capita		−478.49	194.51	117.86	135.70	−83.76
		(378.72)	(380.49)	(377.76)	(400.76)	(626.33)
Doctors per capita		−258.37	−292.48	−338.87	−359.89	−352.44
		(232.30)	(246.37)	(250.40)	(267.96)	(512.81)
Log(unemployed or beggar)		1.26*	1.74**	1.79**	1.74**	−0.23
		(0.75)	(0.70)	(0.71)	(0.75)	(1.25)
Share in blue collar labor (%)		0.53***	0.89***	0.86***	0.87***	0.69**
		(0.18)	(0.21)	(0.21)	(0.23)	(0.34)
Share in farming (%)		−0.58***	−0.59***	−0.63***	−0.59***	−0.05
		(0.15)	(0.17)	(0.18)	(0.19)	(0.25)
Log(Dist. from large city)		1.28***	0.46	0.60	0.51	−0.18
		(0.38)	(0.48)	(0.49)	(0.51)	(0.76)
Area (km^2)		0.00**	0.00	0.00	0.00	−0.00
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Mean LW Share (%)	37.32	36.79	36.79	36.79	36.79	36.79
Avg. margin of victory (%)	21.02	21.02	21.02	21.02	21.02	21.02
Controls	-	✓	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓	✓
Election FEs	-	-	-	✓	✓	✓
County × Election FEs	-	-	-	-	✓	-
Constituency trend	-	-	-	-	-	✓
Num. clusters	503	493	493	493	493	493
N	2886	2832	2832	2832	2832	2832
R^2	0.01	0.52	0.59	0.65	0.70	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency in parentheses.

Table 25: Full table for effect of WW1 fatalities on left-wing vote share

	DV: Left-wing vote share (%)						
	1918	1922	1923	1924	1929	1931	1935
Fatality Rate (%)	0.36**	0.38**	0.67***	0.34	0.46**	0.16	0.35**
	(0.18)	(0.16)	(0.21)	(0.24)	(0.18)	(0.12)	(0.16)
1910 Con. Vote Share (%)	−0.13**	−0.11***	−0.12*	−0.11***	−0.08**	−0.11***	−0.14***
	(0.05)	(0.04)	(0.06)	(0.04)	(0.03)	(0.04)	(0.05)
Num. Candidates	−4.31***	−8.10***	−11.45***	−9.00***	−5.66***	−3.45***	−5.76***
	(1.07)	(0.76)	(1.30)	(1.22)	(1.04)	(0.70)	(1.03)
Log(Pop. Density)	−0.30	2.21***	1.05	1.66*	1.52*	0.96	0.19
	(0.84)	(0.69)	(1.00)	(0.93)	(0.80)	(0.77)	(0.95)
Log(Population)	1.72	3.84*	10.04**	1.17	1.50	0.92	1.06
	(1.95)	(2.21)	(3.77)	(2.67)	(2.29)	(1.73)	(2.17)
Avg. Age	−2.06*	−0.72	−1.73*	−3.24***	−3.86***	−3.50***	−5.45***
	(1.19)	(0.84)	(1.01)	(0.61)	(0.67)	(0.95)	(0.64)
Avg. Household Size	−1.19	2.79	1.12	−6.98***	−7.90***	−5.69	−10.70***
	(3.43)	(3.75)	(3.74)	(2.50)	(2.78)	(3.54)	(2.32)
Share Women (%)	−0.49	−0.64	−0.84*	−0.27	−0.67*	−0.83**	−0.19
	(0.42)	(0.40)	(0.43)	(0.34)	(0.35)	(0.39)	(0.36)
Educators per capita	624.47	336.28	−570.92	−123.38	41.48	871.73**	181.67
	(841.50)	(711.94)	(1034.46)	(527.93)	(624.15)	(396.35)	(447.39)
Doctors per capita	−49.65	−1539.70***	−223.39	−353.23	−439.37	−161.89	−180.44
	(597.23)	(532.59)	(534.85)	(287.24)	(268.01)	(412.85)	(415.09)
Log(unemployment)	0.61	0.99	−0.46	2.34***	1.70	2.36**	3.21***
	(0.61)	(1.27)	(1.37)	(0.76)	(1.10)	(1.16)	(0.85)
Share in blue collar labor (%)	0.76**	0.95***	0.33	0.92***	0.99***	1.26***	0.69**
	(0.33)	(0.26)	(0.44)	(0.26)	(0.22)	(0.19)	(0.27)
Share in farming (%)	−0.43	−0.06	−0.24	−0.46*	−0.85***	−0.99***	−0.88***
	(0.31)	(0.17)	(0.31)	(0.23)	(0.23)	(0.19)	(0.24)
Log(Dist. from large city)	0.69	−0.13	−0.13	0.21	0.22	0.49	2.01***
	(0.72)	(0.72)	(0.93)	(0.74)	(0.72)	(0.53)	(0.62)
Area (km^2)	0.00	−0.00	−0.00	0.00	0.00	0.00**	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
DV Mean	2.35	2.42	2.43	2.40	2.91	2.17	2.27
Num. clusters:	47	54	51	54	57	53	56
N	327	354	363	422	481	434	451
R^2	0.46	0.69	0.69	0.74	0.78	0.75	0.76

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by administrative county in parentheses.

Table 26: Full table for effect of WW1 fatalities on left-wing vote share by election

Parliamentary Voting

	DV: Num. pro-progressive tax votes				
	Model 1	Model 2	Model 3	Model 4	Model 5
Fatality Rate (%)	0.05**	0.05**	0.04**	0.07***	0.06**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
1910 Con. Vote Share (%)				−0.00	−0.00
				(0.00)	(0.00)
Log(Pop. Density)				0.02	0.01
				(0.09)	(0.08)
Log(Population)				0.18	0.21
				(0.24)	(0.21)
Avg. Age				−0.12	−0.13**
				(0.08)	(0.07)
Avg. Household Size				−0.67**	−0.69***
				(0.29)	(0.23)
Log(unemployment)				0.03	0.16
				(0.17)	(0.13)
Share in blue collar labor (%)				0.06**	0.03
				(0.02)	(0.02)
Share in farming (%)				0.01	0.00
				(0.02)	(0.02)
Log(Dist. from large city)				0.02	0.03
				(0.08)	(0.07)
Area (km^2)				−0.00	−0.00
				(0.00)	(0.00)
DV Mean:	4.67	4.69	4.69	4.69	4.69
Controls	-	-	-	✓	✓
Party FEs	✓	✓	✓	✓	✓
Year FEs	-	✓	✓	✓	✓
County FEs	-	-	✓	✓	✓
Party × Year FEs	-	-	-	-	✓
Num. clusters:	508	508	508	498	498
N	9045	9045	9045	8866	8866
R^2	0.49	0.62	0.63	0.63	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency reported in parentheses.

Table 27: Full table for effect of WW1 fatalities on parliamentary voting

	DV: Num. pro-progressive tax votes					
	1918-1922	1922-1923	1923-1924	1924-1929	1929-1931	1931-1935
Fatality Rate (%)	0.10**	0.12*	0.05	0.09	0.14**	−0.01
	(0.05)	(0.06)	(0.03)	(0.07)	(0.06)	(0.02)
1910 Con. Vote Share (%)	−0.00	0.02	0.00	−0.01	−0.01	−0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Log(Pop. Density)	−0.13	0.22	0.03	−0.10	0.22	−0.05
	(0.12)	(0.23)	(0.20)	(0.25)	(0.17)	(0.10)
Log(Population)	0.44	−0.29	0.71**	−0.16	1.11	−0.05
	(0.46)	(0.55)	(0.32)	(0.44)	(0.76)	(0.18)
Avg. Age	−0.09	−0.48**	0.10	−0.36*	−0.15	−0.06
	(0.12)	(0.20)	(0.14)	(0.20)	(0.16)	(0.07)
Avg. Household Size	0.03	−1.59**	0.06	−2.03***	−0.40	0.23
	(0.49)	(0.72)	(0.53)	(0.71)	(0.45)	(0.18)
Log(unemployment)	0.25	0.71	−0.01	0.21	0.25	−0.00
	(0.30)	(0.45)	(0.24)	(0.25)	(0.22)	(0.11)
Share in blue collar labor (%)	0.06*	0.04	−0.00	0.13**	0.01	0.02
	(0.04)	(0.05)	(0.04)	(0.06)	(0.04)	(0.02)
Share in farming (%)	−0.04	0.05	0.00	0.01	0.03	−0.01
	(0.05)	(0.05)	(0.06)	(0.04)	(0.04)	(0.02)
Log(Dist. from large city)	−0.07	0.16	0.00	−0.04	0.30*	0.02
	(0.11)	(0.24)	(0.14)	(0.22)	(0.17)	(0.06)
Area (km^2)	−0.00	0.00	0.00	−0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
DV Mean:	3.47	7.31	5.24	7.58	6.36	1.92
No. clusters:	57	58	58	58	58	58
N	1887	493	499	1974	1460	2344
R^2	0.67	0.84	0.61	0.74	0.71	0.68

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 28: Full table for effect of WW1 fatalities on parliamentary voting by session

	DV: Num. pro-progressive tax votes		
	Conservative	Labour	Liberal
Fatality Rate (%)	0.03***	0.09	0.01
	(0.01)	(0.08)	(0.25)
1910 Con. Vote Share (%)	−0.00	−0.00	−0.05
	(0.00)	(0.02)	(0.05)
Log(Pop. Density)	0.05**	−0.24	−0.14
	(0.02)	(0.38)	(0.96)
Log(Population)	0.21***	0.58	−1.74
	(0.06)	(0.74)	(1.88)
Avg. Age	−0.01	−1.20***	−1.54
	(0.02)	(0.40)	(1.14)
Avg. Household Size	−0.01	−5.89***	−4.64
	(0.09)	(1.80)	(4.60)
Doctors per capita	0.08	508.53	850.58
	(10.94)	(312.63)	(721.28)
Log(unemployment)	−0.06*	0.97**	0.74
	(0.04)	(0.41)	(1.69)
Share in blue collar labor (%)	0.00	0.06	−0.04
	(0.01)	(0.14)	(0.32)
Share in farming (%)	−0.00	0.10	−0.03
	(0.01)	(0.16)	(0.25)
Log(Dist. from large city)	0.04*	0.12	−0.06
	(0.02)	(0.33)	(0.51)
Area (km^2)	0.00	−0.00	0.00
	(0.00)	(0.00)	(0.00)
DV Mean:	0.67	15.07	8.68
No. clusters:	416	250	171
N	4492	1918	649
R^2	0.64	0.80	0.84

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 29: Full table of effect of WW1 fatalities on parliamentary voting by party

	DV: Num. pro-progressive tax votes				
	Income tax	Wealth tax	Capital levy	Excise duty	Customs duty
Fatality Rate (%)	0.01	0.04***	0.00	0.01	0.02
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
1910 Con. Vote Share (%)	−0.00	−0.00	−0.00	−0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Log(Pop. Density)	−0.00	0.05	0.00	0.02	−0.02
	(0.03)	(0.04)	(0.01)	(0.02)	(0.04)
Log(Population)	0.02	0.35***	−0.01	0.08*	−0.00
	(0.07)	(0.11)	(0.02)	(0.05)	(0.13)
Avg. Age	−0.06***	−0.06*	−0.01	−0.01	−0.07
	(0.02)	(0.03)	(0.01)	(0.01)	(0.04)
Avg. Household Size	−0.17**	−0.14	−0.02	−0.09	−0.33**
	(0.08)	(0.13)	(0.02)	(0.06)	(0.14)
Log(unemployment)	0.04	0.11*	0.02	−0.01	0.06
	(0.04)	(0.06)	(0.01)	(0.03)	(0.07)
Share in blue collar labor (%)	0.01	0.01	0.00**	0.01*	0.03**
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Share in farming (%)	0.00	0.01	0.00	−0.00	−0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Log(Dist. from large city)	0.02	0.07*	0.00	0.00	−0.02
	(0.02)	(0.04)	(0.01)	(0.02)	(0.04)
Area (km^2)	−0.00	0.00	−0.00	0.00	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
DV Mean:	1.40	1.94	0.33	0.98	2.13
Num. clusters:	498	498	496	498	498
N	7040	4150	2064	5565	8253
R^2	0.82	0.80	0.88	0.81	0.85

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Note: Robust SEs clustered by constituency.

Table 30: Full table for effect of WW1 fatalities on parliamentary voting by topic