Can Elections Incentivise Political Parties to Widen Representation?*
(PRELIMINARY VERSION)

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Abstract

Despite the right to vote being near universal in many countries, there still exists significant inequalities in political representation. One contributing factor may be the decisions made by political parties in selecting candidates for election. I find that the incentive to win elections may encourage parties to select their candidates from a wider range of backgrounds. I exploit the unique setting of the Conservative Party in early twentieth-century Britain, and their unexpected landslide defeat in the 1906 election, and identify a positive association with electoral incentives and wider representation among Conservative candidates in the 1910 elections. I use hand-collected biographical data concerning over 2000 candidates, categorised into socioeconomic groups using machine-learning algorithms. For example, I find that the likelihood of a candidate who worked as a labourer is selected more than doubles in the average constituency, using geographical variation in electoral outcomes, and a candidate from the political elite is 10.2 per cent less likely to be selected.

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'The demand of the democracy is really for a free choice of doctors. Instead of confining, as it were, those who were able to remedy their evils and cure them to a small class, they say "We want an unlimited choice in picking out the men who suit us best".'

David Lloyd George, House of Commons Debate, 10th August 1911[1]

1 Introduction

The right to vote has become near universal in many countries over the past century, yet there remains significant socioeconomic inequalities across many dimensions, such as race, gender, and socioeconomic backgrounds. For example, there still exists vast inequalities in pay across race, gender, and socioeconomic backgrounds. It is clear that the near universal right to vote and stand for office in many democracies are by no means an immediate panacea for these inequalities. Although the Voting Rights Act of 1965 removed racially discriminating voting restrictions in the United States, recent and widespread protests suggest that there are still considerable inequalities across racial lines, such as in policing. Over fifty years passed between the enfranchisement of women in the United Kingdom in 1918 and the passage of the Equal Pay Act 1970[2]. While the extension of voting rights to the working class in nineteenth century Britain increased the proportion of the male population eligible to vote from 18 per cent in 1832 to 63 per cent in 1885, it would be decades before the full emergence of the welfare state after the Second World War.

So why should there be such a delay, or even dislocation, between universal enfranchisement and more equitable policy? The theoretical literature suggests that when the right to vote is extended from a wealthy elite to the entire population, the result is more egalitarian policy, such as redistribution (Meltzer & Richard 1981, Alesina & Rodrik 1994, Persson & Tabellini 1994). However, among many other factors, Lindert (2000) suggests that 'the answer must lie in the relationship of the income distribution to political voice ... the usual pressure-group models, such as median-voter models, should not be applied until they are cast in terms of the self-interest of those who actually have a political voice'.

Indeed there is extensive evidence suggesting that who actually has a 'political voice', and their characteristics, may have a significant impact on policy, whether it be their race (Hopkins & McCabe 2012, Beach et al. 2019), gender (Clots-Figueras 2011, Bhalotra & Clots-Figueras 2014), and socioeconomic class (Carnes 2012), or even whether they smoke (Burden 2007), serve in the military (Gelpi & Feaver 2002), or have daughters (Washington 2008). However, the considerable influence of political parties in many democracies also includes control over the selection of candidates at elections (Hazan 2014), and therefore the supply of political representation across different groups. Therefore the difference between implemented policy and the electorate's preferences may be explained by a cartel of political parties who restrict the supply of redistributive policies and non-elite representation. This may result in no significant change in policy or widening representation, even when increased political participation, whether

[1] Hansard 10th August 1911 Volume 29 Columns 1365-1477 'Debate on the Payment of Members'

[2] The Equal Pay Act 1970 prohibited any less favourable treatment between men and women in terms of pay and conditions of employment.

through extending the franchise or increasing turnout, increases demand for both. While political representation for women and ethnic minorities grew in the twentieth century, working-class representation in politics has remained low, for example less than two per cent of members of the US Congress despite making up 50 to 60 per cent of the electorate (Carnes 2012).

This paper investigates whether the incentive to win elections may widen representation within a political party. I find evidence that electoral incentives may encourage political parties to select candidates from a wider range of socioeconomic backgrounds. I exploit the example of the Conservative Party's selection of candidates after their shock landslide defeat in the UK 1906 general election. I use geographic variation in the Conservative vote share and control for the party's past performance and candidates. I find that the average Conservative defeat of 8.9 percentage points in 1906 led to a 5.4 percent decrease in the likelihood of the Conservatives selecting a candidate from the political elite. Notably, this average defeat is associated with a more than doubling of the probability that the Conservatives chose a candidate who previously worked as a labourer. In stark contrast, the Conservatives attitude towards the creation of the new welfare state by the Liberal government remained hostile, despite its popularity in 1906.

This replacement effect is robust across a comprehensive range of candidate characteristics, which I hand-collect from not only the biographies of MPs but also unsuccessful candidates. These characteristics include information about the backgrounds of these candidates including their education, their family's backgrounds, their previous occupations, their social connections, clubs and hobbies, and so on. In addition, I use machine learning algorithms (Support Vector Machine and Latent Dirichlet Allocation) to sort candidates into different socioeconomic groups. This reduces the interference of prior judgement in the identification of candidates as political elites (for example those families have a long history of involvement in politics) or outsiders (such as the working class).

I find that this replacement is unique to the Conservative Party. In fact, this effect is largely driven by the replacement of candidates who lost in 1906 rather than replacing incumbent MPs in the subsequent 1910 elections. I also find that the decrease in the representation of the political elite and increase in working-class representation in response to a given vote share was greater in constituencies where the Conservatives had traditionally performed well (and therefore a defeat would be perceived as a greater shock). There is also evidence of strategic behaviour or potentially pandering of voters in working class constituencies, where the replacement effect particularly strong. Finally, I find that this strategic behaviour was beneficial to the Conservatives. Replacing a candidate from the political elite with a political outsider is associated with Conservative gains in middle and working-class constituencies in 1910 (which is also where more candidate replacement occurred).

I primarily contribute to the literature analysing political under-representation of different groups in society, and especially the causes of such under-representation. There is relatively little work exploring political representation across different socioeconomic groups, such as the working class. Carnes (2012) finds that working-class legislators in the US House of Representatives tend to mirror the economic preferences of working-class voters. In addition, their exclusion from legislatures fuels distrust of political institutions (Barnes & Saxton 2019) and decreased political engagement (Heath 2018). As for why there

are relatively few politicians from poorer socioeconomic backgrounds, Carnes (2016) argues that the limiting factor is not lack of qualifications or any other supply-side issue, but political parties' low demand for candidates from a wider range of backgrounds. Further, initiatives to increase supply, such as increases in politicians' salaries, in fact crowd out the working class as it increases the supply of middle and upper class candidates (Carnes & Hansen 2016). I also contribute to a wider literature concerning the representation of historically under-represented groups in politics, such as women and ethnic minorities. There is a considerable body of work that investigates both the causes of such under-representation, such as the bias of voters (Bhalotra et al. 2018, Fulton 2012, Kahn 1996) and political parties (Sanbonmatsu & Dolan 2009, Anastasopoulos 2016, Folke & Rickne 2016), as well as the consequences of under-representation of women (Clots-Figueras 2011, 2012, Bhalotra et al. 2018, Catalano Weeks 2019) and ethnic minorities (Hopkins & McCabe 2012, Beach et al. 2019) in politics.

I add to the literature by proposing and finding empirical evidence for a different factor impacting political representation of traditionally under-represented groups: electoral pressures, where parties feel they need to select candidates from a wider range of backgrounds to win an election. In addition, the relatively fixed supply of candidates from non-elite backgrounds allows for the identification of parties' demand for wider representation among its candidates. Focusing on the demand-side decision of parties selecting candidates disentangles the supply and demand for political representation that the literature generally struggles to pull apart. Further, I use machine-learning algorithms on comprehensive bibliographical data. As opposed to the literature which focuses on one characteristic of a candidate (for example gender or occupation), I use a wide array of characteristics to indicate whether a selected candidate part of the political elite or not.

Secondly, I contribute to the literature that discusses the link between political participation and policy, and more specifically whether wider political participation leads to more egalitarian policy. Wider political participation may mean extending the suffrage as well as increasing political participation among those already eligible to vote. Downs (1957) and Meltzer & Richard (1981) argue that the composition of the electorate may have direct implications for policy, the latter suggesting that if the franchise is extended to those with lower incomes there may be greater appetite for redistribution. Various work has suggested that the extension of the franchise has a positive influence on redistribution (Kotera & Okada 2017, Aidt et al. 2006, Aidt & Jensen 2013, Boix 2003), confirming the logic of Meltzer & Richard (1981). Indeed there is more recent evidence of how political participation of other groups may influence policy: Jensen & Yntiso (2019) find that the Jim Crow laws leads to a larger decrease in social spending in counties with a greater African-American population, while Bertocchi et al. (2020) find an increase in youth participation at elections, through preregistration laws, is associated with greater public spending on education. However, Aidt et al. (2020) exploit structural breaks in fiscal policy and suffrage in the United Kingdom and find little evidence of a link between franchise extension and fiscal expansion.

I contribute to this literature by providing a stepping stone between wider political participation and policy changes: changes to political representation. I argue that even if wider political participation may increase *demand* for, say, more egalitarian policies, if it is not matched by an increase in *supply* of those

policies by political parties there may be little change in policy. Given the significance of politicians' characteristics on their decision-making, as is the consensus in the political economy literature, wider political participation may only have a meaningful impact on policy once there is wider representation among politicians. As I find, elections may accelerate this process by putting pressure on parties to choose candidates from a wider range of backgrounds.

The paper proceeds as follows: Section 2 explains the theoretical framework from which the empirical strategy is motivated; Section 3 outlines the relevant institutional context surrounding the 1906 election and the Conservative response. Section 4 describes the comprehensive electoral and biographical information collected; Section 5 explains the baseline empirical strategy as well as the machine learning algorithms that sort the candidates into socioeconomic groups (Support Vector Machine and Latent Dirichlet Allocation); Section 6 reports the baseline results. Section 7 explores the heterogeneity in the effect across the country; Section 8 shows the effect of this strategy on outcomes in the 1910 elections; Section 9 concludes.

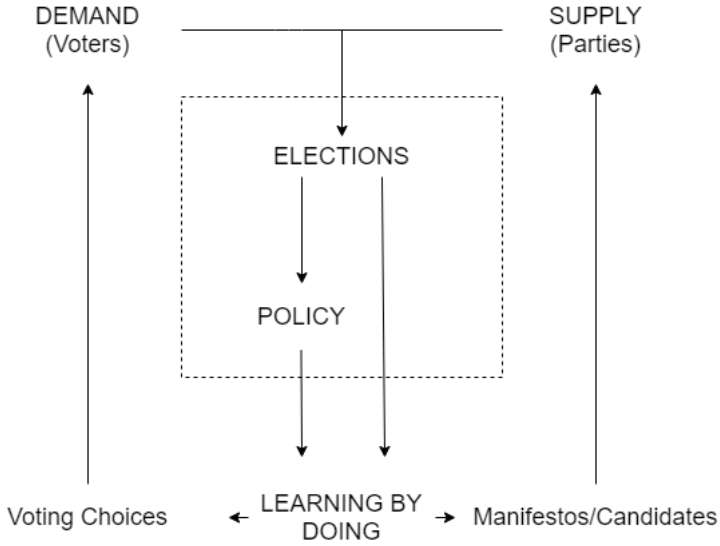
2 Theoretical Framework

This section provides theoretical motivation for how elections may incentivise parties to select candidates from a wider range of backgrounds. I present a theoretical framework of the supply and demand for policies, and its spillover effect into political representation. I argue that while increased political participation may increase demand for more redistributive policies, there may be little change in policy by virtue of a lack of supply of these policies from the political elite. However, through a learning process, political parties may change their strategy after an election. Among other possibilities, they may change their policy platform and their candidates. I outline two theoretical mechanisms for why political parties may choose to change the type of candidates they field rather than their manifesto. They may pander to voters using the identity of the candidates, or they may use candidates as a commitment device to overcome credibility problem associated with changing manifesto promises. Overall, this provides a theoretical hypothesis that I test in the following empirical sections.

I propose that an implemented set of policies can be interpreted as a result of an interaction between supply and demand for different policies, such as more redistribution, as illustrated in Figure **??**. Demand arises from the preference of the electorate, while the supply of policies is presented by various political parties. These may interact in an election, as consumers and producers in a market for policy. Citizen-candidate models (Besley & Coate 1997, Osborne & Slivinski 1996) suggest that if the current policy is sufficiently far away from a voter, then that voter may choose to run for office. However, I argue that this market structure is that of an oligopoly, as there are significant barriers to entry among political parties (Tullock 1965).

This has implications for the link between voter preferences and implemented policy. An increase in voter participation, whether through extending the franchise (as in nineteenth-century Britain) or dismantling voting restrictions (as in the US Voting Rights Act of 1965), may increase demand for redistribution

Figure 1: Theoretical Framework: Supply and Demand for Policy



if the newly enfranchised voters have lower incomes than the previous median voter's, as argued by **?**. However, if the existing political elite have no preference for redistribution, and there are barriers to entry in the supply of redistributive policies (for example barriers to entry in forming a political party), then such an increase in demand may have limited affect on policy.

However, parties may change their strategy, for example their policy platform or their portfolio of candidates, as part of a learning process across elections. They do not have perfect information about the preferences of the electorate. As a result, an election result may come as a surprise, and therefore a party may update its beliefs about the electorate's preferences and thereby updates its strategy for the next election, as shown at the bottom of Figure **??**. This is a learning-by-doing process (Arrow 1962) and a social learning process (Che & Horner 2018). Political parties may learn faster than others, which potentially results in the same update in strategy occuring at different elections for different parties.

Why would a political party, that resolves to change its strategy to win the next election, then choose to field candidates from a wider range of backgrounds, rather than simply alter its manifesto? There are two potential mechanisms that help explain why parties may change the type of candidates they field.

One mechanism may be that political parties merely pander to the electorate by fielding candidates who are more similar to them, even if they do not fundamentally change their policy platform. This is consistent with social identity theory from the political science literature (Ashforth & Mael 1989, Conover 1984, Shayo 2009) which suggests that voters are influenced by identity of candidates, supported by more recent empirical work, such as by Ansolabehere & Puy (2016). When re-optimising their strategy, a party may trade off the cost of changing their manifesto with the cost of changing their candidates, and choose to do the latter if it would also provide electoral gains, through voters feeling more affinity with the new

candidates who shares more of their characteristics.

Another mechanism argues that political parties may be more sincere. Although they may renege on their manifesto pledges, and increases in government spending may be reversed at relatively short notice, democratic concessions such as more inclusive representation in the party may be more difficult to withdraw. Choosing candidates from a wider range of backgrounds may have a longer-term impact on policy platform of the party, as suggested by the significant incumbency advantage enjoyed by politicians (Lee 2008, Hainmueller et al. 2015). Even if the wealthy elite in the party have no appetite for redistribution, they may choose to change the portfolio of candidates rather than the manifesto, as the former is a greater commitment device of future redistribution, rather than have to promise redistribution in the present which voters may understand to be cheap talk. This logic is similar to that of Acemoglu & Robinson (2000) who argues that the political elite may grant the people democratic concessions rather than immediate redistribution.

Irrespective of the long-term motivations of political parties, this theoretical framework provides two testable hypotheses, which are explored in the empirical framework outlined in the following sections. The first suggests that parties will change their strategy in response to new information from an election, and more so when the signal from the election is larger. The second hypothesis is that the resulting change in strategy may be widening representation across candidates, even in the absence of alterations of its policy platform.

3 Political Representation and the Landslide 1906 Election

In this section I present the relevant background for the following empirical specification. I outline the context of the four elections from 1900 to 1910, alongside the political institutions in British politics. I also explain why the aftermath of the shock 1906 election result is an ideal setting to investigate the impact of electoral incentives on political representation through parties choice candidates.

By the beginning of the twentieth century, British politics had been dominated by two political parties (the Conservatives and the Liberals) for decades. Partly helped by the early popularity of the Boer War, the Conservatives won a large majority of 130 seats (in a House of Commons of 670 members[3]) at the 1900 election. However, the 1906 election saw the Conservatives lose 246 seats in a landslide defeat that left even the Prime Minister Arthur Balfour without a seat in Parliament. As Blewett (1972) suggests, this landslide defeat was the result of a perfect storm of frustration in the Boer War and more general concerns over poverty across the United Kingdom, emphasised by an embryonic trade union and Labour Party movement. Further, the Rowntree Report in 1899 brought the scale of poverty among the working class to the attention of the political elite and the middle class, as well as reports that forty per cent of recruits for the Boer War were so malnourished and unhealthy that they were deemed physically unfit for war. Sykes (1998) suggests that the Conservatives viewed the primary factor behind the landslide defeat in 1906 was 'the desertion of the Conservative working-class voter.' The

[3]The United Kingdom Parliament is made up of two legislative chambers: the House of Commons which is made up of elected officials, and the House of Lords which is made up of appointed and hereditary peers.

next few years would see unprecedented redistributive policy under a Liberal government, which saw the introduction of a welfare state system[4]. In contrast, the Conservatives opposed these policies, as they had done in 1906, emphasising the trade-off between a welfare state and Britain's ability to fund its army and navy. The Conservative-dominated House of Lords rejected the 'People's Budget' of 1909, and the Liberal government were forced to hold not one but two elections in 1910: the first in January to show support for the Budget, while the second in December was later called to show support for removing the House of Lords' ability to reject budgets.

The House of Commons throughout the four relevant elections (1900, 1906, January 1910, and December 1910) consisted of 670 members. The vast majority of Members of Parliament (MPs) were the sole representative of their constituency, with a minority of constituencies represented by two members. The process of election to the House of Commons began with political parties selecting their candidate for election (often the incumbent MP), and the general election being fought by the selected candidates. As Blewett (1972) notes, the central party organisation had considerable influence over the selection of candidates, in particular through campaign funding.

There are several reasons why British politics in the early years of the twentieth century provides an ideal setting to test whether electoral incentives can encourage political parties to widen representation among their candidates.

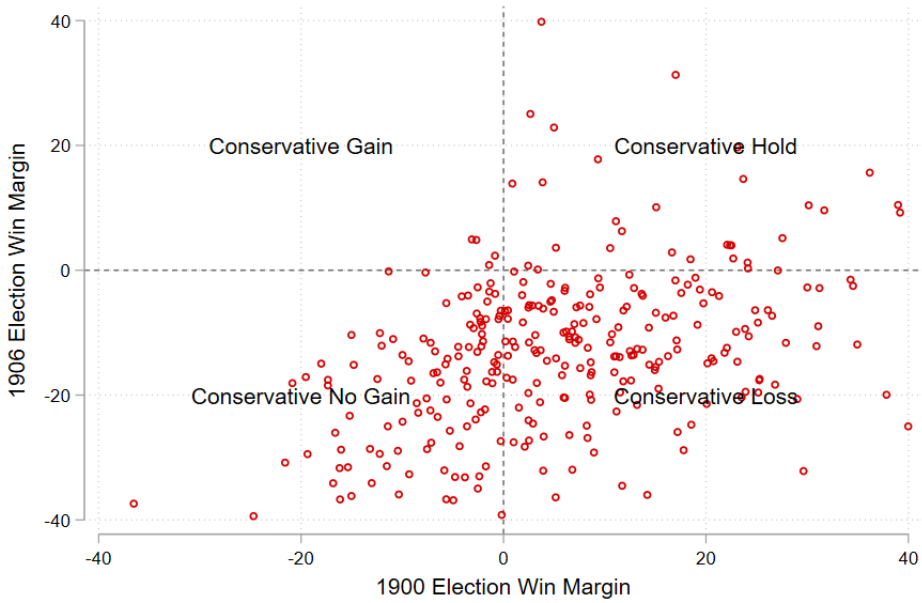
The first advantage of this setting is the unexpected result of the 1906 election. The Conservatives lost 246 out of their 402 seats (in a 670 seat House of Commons), after eleven years of dominance. The popularity of the Liberal Party's policy of radical redistribution was unexpected at the 1906 election,despite the Boer War and the Rowntree Report highlighting the extent of poverty within the United Kingdom[5]. However, this was also a landslide that was indiscriminate across regions and socioeconomic classes, in constituencies where they had previously been popular as well as those where they were unpopular. This is illustrated by the fact that the swing against the Conservatives in 1906 was 12.2 per cent of the vote among predominantly upper class constituencies; 11.7 per cent among middle class constituencies; 13.1 per cent for working class constituencies.

This is presented in Figure 2, which reports the Conservative win margin (as a proportion of total votes) in 1906 compared to that of 1900. This election result was also a shock. All but three of the Conservative cabinet lost their parliamentary seats, including Prime Minister Balfour himself. Had the margin of defeat been known, it seems likely that more resources would have been thrown into assuring the re-election of significant Conservative Party members. Unlike in the previous century, there had been no recent extension of the franchise to new voters. Further, the swing away from the Conservatives in

[4]The Liberals introduced a raft of unprecedented welfare policies: the Education Act (1906) providing new free school meals; the first nationwide state pensions and unemployment insurance were introduced in the Old Age Pension Act (1908) and the National Insurance Acts (1911); the Trade Boards Act (1909) set minimum wages in some trades; job centres were set up in the Labour Exchanges Act (1909); notably the Trade Disputes Act (1906) was the first significant legislation that provided labour unions some protection from their employers when striking.

[5]The Rowntree report in 1899 brought the scale of poverty among the working class to the attention of the middle class, while the Boer War (1899-1902) shone a disturbing light on the health (or lack of) of the country: 40 per cent of recruits were determined unfit for duty. Although there were many other reasons for the Conservative defeat in 1906. Blewett (1972) provides a more detailed explanation of the political timeline.

Figure 2: Conservative 1906 and 1900 Election Results across Constituencies



1906 (5.4 per cent of total votes) was unprecedented in British politics. Furthermore, opinion polling before the election was virtually non-existent in the early twentieth century, with politicians relying on often idiosyncratic results of by-elections instead, limiting the ability of the Conservatives to anticipate the result. This is echoed by the response to the result, with The Times reporting that the Liberals '*will realise all that they dreamt and hoped for, but scarcely ventured to expect ... about to suffer an embarrassment of riches.*'[6]

This election result, in its magnitude and unexpectedness, provide an ideal quasi-exogenous shock to political representation. As discussed in Section 2, parties may update their beliefs and strategy depending on new information from elections. I exploit the shock result to investigate how the Conservative's candidate selection (and the resulting political representation) is influenced by new information from the 1906 election. Although the Conservatives maintained their stance against the Liberal government's redistribution, I test whether the Conservatives update their strategy after the unexpected landslide defeat by widening representation among their candidates. The significant variation in the swing against the Conservatives across constituencies as presented in Figure 2 is another advantage of using the 1906 election as a quasi-exogenous treatment.

The second advantage of this setting is the relatively fixed supply of candidates from non-elite backgrounds, with selection controlled by the central party. Before the Parliament Act of 1911, Members of Parliament (MPs) are not paid and therefore required to pay their own expenses, as well as a large proportion of their campaign funding (Blewett 1972). Even if more candidates from non-elite backgrounds wanted to run for office in light of the 1906 election, they would not be able to do so unilaterally: the supply of candidates from non-elite backgrounds is relatively fixed. The average candidate in a contested

[6]The Times Newspaper, 16th January 1906.

seat spent £1,100 in campaign financing (Blewett 1972), while the average annual income in the United Kingdom in 1900 was £46.64 (Allen 1994). Candidates from non-elite backgrounds therefore rely on central party funding decisions, such as the £13,940 spent by the Conservative Party on working-class candidates in the 1910 elections. Therefore, if the result of the 1906 election prompted the selection of candidates from a wider range of backgrounds, it is likely the consequence of increased *demand* for non-elite candidates from political parties rather than *supply* through non-elite candidates bankrolling themselves. I can therefore explore whether the incentive to win elections can widen representation among the candidates that the party chooses by isolating the effect of the 1906 election on the demand for candidates from a wider range of backgrounds.

Overall, the shock and aftermath of the 1906 election are well suited for exploring the effect of electoral incentives (heightened in the Conservative Party in response to the 1906 election) on political representation via changes in the parties' selection of candidates.

4 Data

4.1 Electoral and Constituency Data

The unit of observation is a party-constituency-election (for example, the Conservative Party candidate for the City of London constituency in the 1906 General Election). The 3,938 party-constituency-election trios cover four UK general elections (1900, 1906, January 1910, and December 1910) in constituencies in England, Scotland, and Wales.

The electoral data is extracted from *British Parliamentary Election Results: 1885-1918* (Craig 1974). This provides the names of candidates (in some cases their title), their party, the number of votes for each candidate, and the rate of turnout. Summary statistics about the elections can be found in the Appendix, but the most important aspect of the electoral data is documenting the extent of the Conservative loses in 1906 (compared to 1900). In addition, information about constituency characteristics is taken from Blewett (1972), which is presented in Table 1.

Table 1: Constituency Characteristics

Population	68377
Number of Houses	13047
Urban	48.8%
Predominantly Upper/Middle Class	13.3%
Mixed Classes	24.6%
Predominantly Working Class	22.6%
Mixed Urban/Rural	12.0%
Mining Community	2.3%

Notes: This table reports summary statistics concerning constituency characteristics, either as the mean value across constituencies (population and number of houses) or as a percentage of constituencies that match the description according to Blewett (1972).

4.2 Biographical Data

I hand-collect biographical information concerning not only concerning those who won election to the House of Commons between 1900 and 1910, but also the vast majority of unsuccessful candidates. This provides a wider insight into whether the Conservative party opened its doors to those outside of the establishment than only focusing on those who were elected.

This data is compiled primarily from two biographical dictionaries. The first is *Who's Who of British Members of Parliament* (Stenton & Lees 1979), which provides summarising biographies of Members of Parliament from 1832 to 1945. This provides information not only about those who sat in Parliament between 1900 and 1910 (which is the period of interest in this paper), but also those who ran unsuccessfully in that period and succeeded before 1900 or after 1910. The second is the *Oxford Dictionary of National Biography*, which covers many unsuccessful candidates who played a significant role in society in other ways. Combined, these sources contribute information on 2,245 candidates across the four elections between 1900 and 1910.

The full extent of the biographical data can be explored in the Appendix[7], but the main characteristics of each candidate are their titles (honorary, military, hereditary); their education (school and university); their previous occupations before running for office; the occupations of their family members (often their father and father-in-law's). In addition, there is data on their social connections, which illustrates to what extent the candidate was well connected to the political or social establishment. This information includes all of the social clubs they were members of; what law houses they practised at; the number of connections with other candidates in the sample they had by virtue of their school, university, law houses, and social clubs; whether they were appointed Justice of the Peace[8]. Using this wealth of information I am able to assess whether the Conservative party selected candidates in 1910 who were very different from those in 1906, as well as identify those who are from the political elite/establishment.

There are inevitably some limitations associated with the data. The most important is the lack of data for 10.7 and 11.5 per cent of all and Conservative candidates, respectively[9]. I discuss the potential impact of missing biographical data in Appendix E.4. I report results for a wide range of assumptions about those with missing biographical data, and still find similar results. Another issue is the incidence of two-member constituencies, such as Plymouth and Cambridge University, as it is unclear what the margin of loss is for a candidate or party, but this is only the case for 23 constituencies. Furthermore, biographical data is scarce for the Irish MPs (and more so for candidates in general), so their 103 constituencies are removed.

[7] An example of a summarised biography from Stenton & Lees (1979) can be found in Figure A.1, and from the Oxford Dictionary of National Biography in Figure A.2.

[8] This title implied they had many connections in the local area they were appointed a JP for.

[9] 10.7 per cent of all party-constituency-election trios and 11.5 per cent of Conservative constituency-election pairs.

5 Empirical Strategy

5.1 Baseline Empirical Strategy

I use the following simple empirical strategy to find whether the Conservatives responded to the electoral shock of 1906 by changing the identity of the candidate for the 1910 elections:

$$y_{i,1910} = \alpha + \beta_1 LossMargin_{i,1906} + \beta_2 y_{i,1906} + \beta_3 LossMargin_{i,1900} + \epsilon_{i,1910} \tag{1}$$

Where $y_{i,1906}$ and $y_{i,1910}$ are values of the outcome variable, which is a certain characteristic of the Conservative candidate in constituency i, in the 1906 and the 1910 elections, respectively; $LossMargin_{i,1906}$ and $LossMargin_{i,1900}$ are the margins by which the Conservative party lost the election in constituency i in the 1906 and the 1900 elections, respectively. I define the variable by the loss margin so that the explanations of the results are more intuitive: for avoidance of doubt I also include observations with negative values of $LossMargin$ (where the Conservative won).

The coefficient of interest is β_1 - this estimates how much the Conservative party candidate changed for the 1910 elections in response to electoral failures in 1906. I include $y_{i,1906}$ so that β_1 can be interpreted as the effect of the 1906 election on candidate characteristics in 1910 *relative* to the candidate in 1906. I also include $LossMargin_{i,1900}$, so that the variation across constituencies is how poorly the Conservatives did *relative* to their past performance in 1900. One would expect that, if the Conservatives lost by the same margin in two constituencies, the shock would be greater in the constituency where historically they had performed well. This is robust to other controls for previous Conservative performance, such as how many elections the Conservatives won in the constituency between 1885 and 1900. The treatment group is effectively constituencies where the Conservative lost by a large margin in 1906 relative to their previous performance in 1900, the control is a loss margin in 1906 that is not as large relative to 1900, compared to other constituencies.

Another reason for including $y_{i,1906}$ and $LossMargin_{i,1900}$ is to control for unobserved constituency heterogeneity. While the 1906 election was a shock to the political elite, the geographical variation in this electoral shock, the variation in the Conservative loss margin, may not be exogenous (although Figure 2 suggests that heavy losses were experienced across seats with a wide range of 1900 performances). For example, the $LossMargin_{i,1906}$ may be low in constituencies where the Conservatives have previously performed well, which may be associated with long-incumbent Conservative MPs who are more likely to be part of the political elite. I include these controls in the remainder of the paper (estimating standard errors clustered at the constituency level), and Appendix D reproduces these results without controls which lead to similar conclusions.

5.2 Categorisation of Candidates: Elite Index

While there is a wide range of biographical data available for each of the candidates, I aggregate this information using two different machine learning methods: a Support Vector Machine (SVM) and Latent

Dirichlet Allocation (LDA). I use these methods to classify candidates, and the SVM and LDA estimate the probability that the candidate is a member of a certain group, such as the political elite.

The main advantage of using these machine learning algorithms is that it reduces prior judgement required in the classification of candidates. Compared to manual classification, where I would make intuitive decisions about classifications based on the biographical information, I make fewer assumptions about which candidates appear in which groups (such as the political elite). While some candidates may be obviously part of the political elite (such as those who have hereditary titles and families involved in politics) or the working class, it may be less obvious with other candidates, how may have elements of both classes and/or exist in the middle class. Further, these machine learning algorithms require fewer assumptions about the relative importance of different characteristics in placing candidates into different groups. For example, it is not immediately obvious whether being involved in business is either an important characteristic in classifying a candidate as part of the political elite or even a characteristic that makes someone more likely to be part of the political elite[10]. While both methods require some prior judgement[11], it avoids arbitrary prior judgement about weighting of characteristics, as discussed by Gründler & Krieger (2016). For example, using an aggregation index that summed various characteristic dummy variables together would implicitly assume weighting on each of the characteristics, which these machine learning methods avoid.

5.2.1 Support Vector Machine (SVM)

The first method I use is the Support Vector Machine, which has been used in various scientific fields, such as bioinformatics (Manavalan & Lee 2017) and brain image classification (Zhang et al. 2015). In economics, Gründler & Krieger (2016) use a support vector machine to compile a democracy index using a range of variables, while Ghoddusi et al. (2019) discusses its popularity in predicting energy prices and consumption.

An intuitive explanation (a technical discussion can be found in Cortes & Vapnik (1995) and Gründler & Krieger (2016)) of the support vector machine process is as follows:

1. Label candidates who are unambiguously 'elite' or unambiguously 'outsiders'.
2. Assign $elite = 1$ to those labelled as 'elite' and $elite = 0$ to those labelled as 'outsiders'.
3. Use a support vector machine to find an optimal hyperplane that maximises the distance (within the space of all characteristics besides those used to label the unambiguous cases) between itself, the 'elite', and the 'outsiders'.
4. Use this hyperplane to categorise unlabelled candidates (either discretely $elite = 0, 1$, or continuously $0 \leq elite \leq 1$).

For the initial labelling, I define those who are unambiguously 'elite' as candidate who have both a

[10] For example, it may be a common characteristic among the middle or working class.

[11] The SVM requires 'pre-judgement' in the initial labelling of a small proportion of candidates and the LDA requires requires 'post-judgement' in the labelling of the clusters that it groups together

hereditary title in their family and a member of their family who is involved in politics, which labels 6.7 per cent of the observations. This is likely to well identify the pinnacle of the political elite, as these candidates are likely to have connections to both the House of Commons and the House of Lords. I define those who are unambiguously 'outsiders' as those whose families were traditionally manual workers/labourers, which labels 9.0 per cent of the observations. These families are highly unlikely to have a previous connection with Westminster politics - especially as the trade union movement had only just begun to involve themselves in Westminster politics at the turn of the century. While initial labelling is inherently somewhat arbitrary, I believe this labelling is justified by the historical context. Furthermore, in Appendix E.1 I alter the labelling assumptions about the unambiguously elite and outsiders which show the robustness of the following results. The following results use the continuous form of the estimated Elite (SVM) variable.

5.2.2 Latent Dirichlet Allocation (LDA)

To support this analysis, I also use Latent Dirichlet Allocation. This unsupervised machine learning topic model clusters text into a number of topics, which has been used to analyse text in a variety of scientific settings, such as grouping medical studies (Wu et al. 2012) . Latent Dirichlet Allocation has also been recently used in economics to analyse the transcripts of the Federal Reserve's Open Market Committee to analyse transparency in policy-making decisions (Hansen et al. 2018), CEO behaviour (Bandiera et al. 2020), and political ideologies among voters Draca & Schwarz (2019). While a thorough explanation of the method can be found in Blei et al. (2003) (and its implementation by Bandiera et al. (2020) who explain its advantages over other methods such as k-means clustering - in Appendix E.2 I use k-means clustering and find similar results), the following is a more intuitive explanation.

The Latent Dirichlet Allocation finds clusters of characteristics, and estimates probabilities that each candidate is a member of a given cluster. An example of this may be those who have hereditary titles in their families may also be more likely to go to Eton and work in finance, or those whose families are labourers are likely not to go to university or go into jobs without academic requirements such as business or manual workers. I initially use the LDA specifying three groups.

Table 2: Latent Dirichlet Allocation: Common Characteristics by Group

Elite	Middle	Working
Hereditary Title	Law	Business
Oxbridge	University	Labourer (Family)
Military	Civil Service	Labourer
Eton	Academia	Trade Union
Public School	Church (Family)	Local Politics

Table **??** reports the most common characteristics in each group. The three groups are distinct from each other, and are in particular the divisions one would expect from the historical context. The elite group is identified by hereditary titles and an Eton-Oxbridge education, while the working class group are associated with manual labour[12].

[12]The Working Class group may be associated with business as it requires fewer academic hurdles than other professions

It is possible to choose different numbers of groups/clusters, and in the Appendix E.3 I report the results in the case of assuming two, four, five, and six groups, which lead to similar results. The driving force behind this robustness is the distinctive clustering of those who have hereditary titles into one group and those whose families are labourers into another, even for larger group sizes.

5.2.3 Elite Index Variables

The two algorithms estimate probabilities between 0 and 1 of a candidate being a member of a group:

1. *Elite (SVM)*: Probability that the candidate is in the political elite, according to the SVM.
2. *Elite (LDA)*: Probability that the candidate is in the political elite, according to the LDA.
3. *Middle (LDA)*: Probability that the candidate is in the middle class, according to the LDA.
4. *Working (LDA)*: Probability that the candidate is in the working class, according to the LDA.

Elite (SVM) provides an indication of switching between candidates from the political elite to those further away from the political elite, whether it be the middle class or the working class. The variables estimated by the LDA may illustrate more nuanced patterns of switching between the political elite to the middle class, the middle class to the working class, and so on. I use all four of the estimated probabilities as dependent variables in the main analysis.

6 Results

6.1 Baseline Results

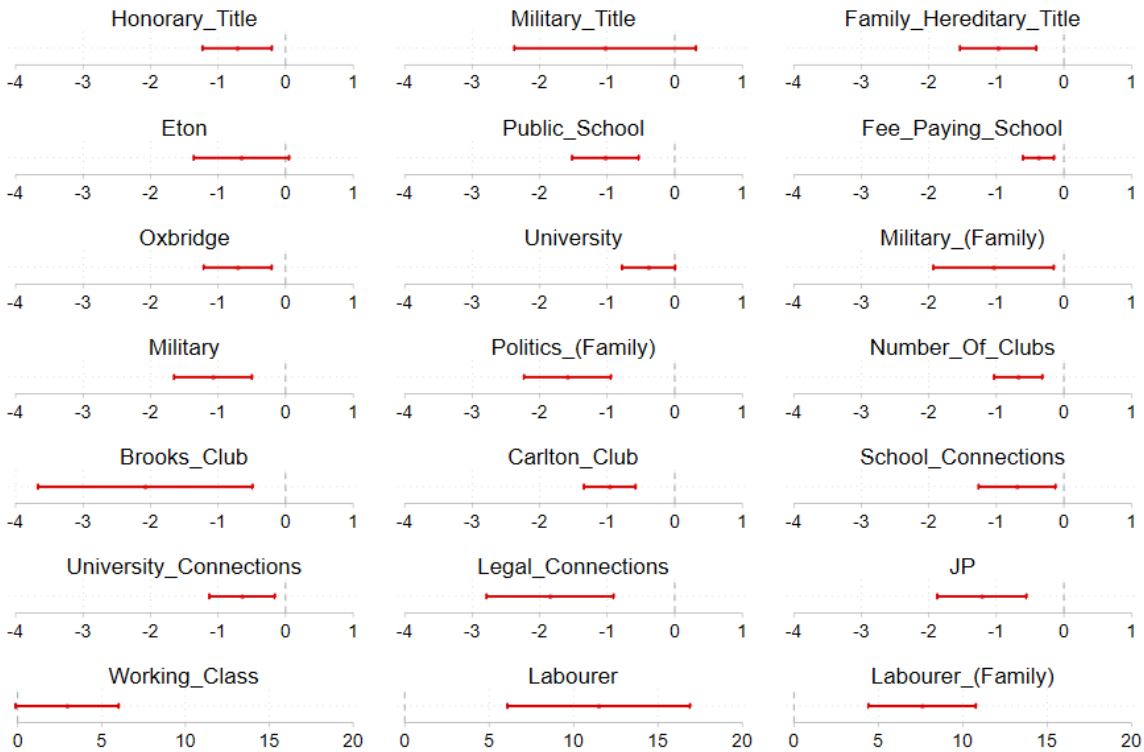
In this section I report the results, and find evidence of the Conservatives responding to electoral pressures in 1906 and increasing working class representation and decreasing the representation of the political elite among their candidates in the 1910 elections.

Figure **??** reports the baseline results, and illustrates the significant effect of the margin of loss in the 1906 election on the representation of candidates across a wide range of characteristics[13]. The first six rows consist of characteristics that one would associate with the political elite. A more thorough discussion of these characteristics can be found in Appendix A.1, but the associations are intuitive: whether by their education or titles bestowed on them, or whether they were from a family already involved in politics. Candidates and family members who are coded as having had a military career are overwhelmingly those of an elite officer rank (such as colonel or general). The Brooks and Carlton Clubs are social clubs that are particularly exclusive, the latter effectively mandatory for inner-circle Conservatives. School, university, and legal connections are the number of connections to other candidates a given candidate has via their school, university or law house, which is a proxy for social connections. The appointed position of a Justice of a Peace also indicates a wealth of connections. On the bottom row, the working-

such as law, academia, the civil service and so on. The working class association with local politics is likely to be as a result of trade union efforts in the local community.

[13]Full results can be found in Table **??**.

Figure 3: Baseline Results



This figure illustrates the main results from Table **??**, the coefficient (and 95 per cent confidence intervals) of the 1906 loss margin on whether the Conservative candidate in 1910 has a given characteristic.

class characteristic is assigned to those who were manual labourers or those with blue-collar technical occupations.

Figure **??** illustrates the estimates (and 95 per cent confidence intervals) of the Conservative's 1906 loss margin in a constituency on the probability that the candidate chosen in the 1910 elections has a certain characteristic, which is the coefficient of interest β_1 in (1). The results show that the larger the Conservative loss margin, the greater the shift away from candidates who were from the political elite and towards working-class candidates. For example, a one percentage point increase in the loss margin in 1906 is associated with a 1.1 per cent decrease in the probability that the candidate in 1910 is from a family with a hereditary title. This is considerable given that the average loss margin in 1906 was 8.9 percentage points (so the average constituency saw a 9.8 per cent decrease in the probability of a candidate running from a family with a hereditary title). This is supported by the estimated effect on well-connected candidates: the coefficient estimate for legal connections is -2.1 which suggests that the average constituency saw the number of legal connections the Conservative candidate has fall by 18.7 per cent by 1910. These results are significant and consistently so across characteristics.

These results are in stark contrast with the positive and significant estimates for working-class characteristics. For example, a one percentage point increase in the loss margin increases the probability of a candidate whose family were labourers increases by 7.6 per cent (and therefore in response to the average

Table 3: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.289***	-0.255***	0.068	0.193***
	(0.098)	(0.088)	(0.081)	(0.064)
1900 Loss Margin	0.046	0.009	0.069	-0.070
	(0.096)	(0.086)	(0.078)	(0.062)
Lagged Dependent Variable	0.270***	0.430***	0.351***	0.378***
	(0.044)	(0.041)	(0.047)	(0.041)
Adjusted R^2	0.089	0.205	0.108	0.162
N	468	468	468	468

This table reports the estimates of the effects of the 1906 loss margin in a constituency on the type of candidate the Conservatives select in 1910. The dependent variable in Column 1 is the elite index variable as defined by the Support Vector Machine, in Column 2 it is the dummy variable of whether the candidate's previous occupation included being a labourer, in Columns 3 and 4 it is the probability that the candidate is a member of the political elite or the working-class groups as defined by the Latent Dirichlet Allocation, respectively. The 1900 and 1906 loss margins are the Conservative losses to the winning party, as a percentage of total votes cast in the constituency (negative if the Conservatives won). The lagged dependent variables are the values of the dependent variables in 1906. The dependent variables are multiplied by 100 and are standardised by the sample average, so that the estimates report the percentage change in the likelihood of the candidate having that characteristic in the average constituency, in response to a one per cent loss margin in 1906. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

loss margin an increase of around 67.7 per cent). Although these coefficients are large and significant, these increases are from a small base: by 1910 just under 2 per cent of candidates were from a family of labourers. However, these results do reveal a significant response by the Conservatives to the 1906 election.

Table **??** illustrates this for the elite index variables outlined in Section **??**. Column 1 shows that an additional one percentage point increase in the loss margin in 1906 is associated with a 0.392 per cent decrease in the probability that the 1910 candidate is from the political elite (as defined by the Support Vector Machine). For the average constituency with an average loss margin of 8.9 percentage points this suggests the average effect was around a 3.5 per cent decrease. Column 2 reproduces the result for labourers from Figure **??**, and for the average constituency the probability of the Conservatives fielding a candidate who was a manual worker more than doubles (11.498×8.9 is around 102.3 per cent increase). Columns 3 and 4 report the effect of the 1906 loss on the probability of selecting a candidate from the political elite and the working class as defined by the Latent Dirichlet Allocation. The results mirror Columns 1 and 2: the average loss margin of 8.9 percentage points leads to a 4.5 per cent decrease and 8.4 per cent increase in the probabilities that the Conservatives chose a candidate from the political elite and working class[14], respectively. The evidence of switching candidates in response to worse election results is consistent across the different outcome variables and while including controls for previous electoral performance and previous candidate characteristics. For the purposes of succinctness, I will focus on the four outcome variables in Table **??** as good summary/aggregate variables, although I find consistent evidence supporting the following analysis when using the full range of characteristics, which is reported

[14]The reason why the estimates in Columns 2 and 4 differ significantly is that the working-class candidates as defined by the Latent Dirichlet Allocation includes a much wider range of candidates than just those who were labourers, even if they are still very much political outsiders compared to the political elite.

in Appendix C.

6.2 Falsification Test: Is the Effect Unique to the Conservatives?

Given that the British political scene also included the Liberal Party, I use them as in effectively a placebo test. The proportion of candidates who were from families who had hereditary titles among the Liberals was around half of that among the Conservatives in 1900. While clearly not a party whose representation fairly reflected the electorate, let alone the population, they were proponents of policies favouring the working class. In addition, their support for these policies had begun years before the 1906 election (for example their electoral pact with the Labour Party in 1903), so one would not expect the 1906 election to have a significant effect on the Liberal (or the Labour Party). Therefore one would expect the effect of the 1906 election to be unique among the Conservatives.

To test this, I alter the baseline empirical strategy in two ways. Firstly, I include candidates from all parties, not just the Conservatives. Secondly, I include an interaction term that allows one to compare the effect of the 1906 loss margin on Conservative selection in 1910 to the same effect on other parties.

Table 4: Comparing Political Parties

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
Other Parties × 1906 Loss Margin	0.035	0.005	-0.015	0.016
	(0.081)	(0.063)	(0.063)	(0.059)
Conservatives × 1906 Loss Margin	-0.271**	-0.216**	0.057	0.155*
	(0.121)	(0.094)	(0.094)	(0.087)
Adjusted R^2	0.303	0.376	0.237	0.413
N	1038	1040	1040	1040

This table reports the estimates of the effects of the 1906 loss margin in a constituency on the type of candidate select in 1910, across different political parties (not just the Conservatives). The dependent variable in Column 1 is the elite index variable as defined by the Support Vector Machine, in Column 2 it is the dummy variable of whether the candidate's previous occupation included being a labourer, in Columns 3 and 4 it is the probability that the candidate is a member of the political elite or the working-class groups as defined by the Latent Dirichlet Allocation, respectively. The explanatory variables reported are the 1906 loss margin interacted with whether the candidate is from Other Parties (besides the Conservatives) and another interaction with whether candidate is from the Conservatives. The 1906 loss margin is the Conservative loss to the winning party, as a percentage of total votes cast in the constituency (negative if the Conservatives won). The lagged dependent variables are the values of the dependent variables in 1906. The 1900 loss margin and lagged dependent variable are also included. The dependent variables are multiplied by 100 and are standardised by the sample average, so that the estimates report the percentage change in the likelihood of the candidate having that characteristic in the average constituency, in response to a one per cent loss margin in 1906. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

The results of this alteration to the empirical strategy can be found in Table **??**. The second row illustrates the effect of the 1906 loss margin on the selection of other parties' candidates in 1910, which appears to be insignificant for those outcome variables. The combination of the first and second rows (the latter being the interaction between the 1906 loss margin and the Conservative Party) show that the effect is driven by the reaction of the Conservatives, especially in the increase in selection of political outsiders. The estimated effects within the Conservative party is similar and insignificantly different to Table **??**. For example, the average loss margin leads to around a 7.3 per cent increase in the probability that the Conservatives choose a working-class candidate (as defined by the Latent Dirichlet

Allocation in Column 4) at the 1910 elections. These results that use index variables mirror those using individual characteristics as reported in the Appendix in Table C.2. The estimates for the Conservative interaction in Column 3 is negative but insignificant, although for some other specifications (for example changing the number of socioeconomic groups) in the Appendix it is significant, for example in Table E.4. Furthermore, Table C.2, which investigates individual characteristics, reports significant results for suggesting that there the effect is unique to the Conservatives. Overall these placebo tests suggests that the change in candidates due to electoral pressure in 1906 was unique to the Conservative party.

7 Constituency Heterogeneity

This section provides further evidence for the replacement of candidates in response to electoral pressures by examining the heterogeneity of this effect across the country, whether by the variation in the perceived threat to the political elite, or in the response to the 1906 election. For the previous analysis this threat was measured by the electoral shock of a certain loss margin at the 1906 election, controlling for performance in the 1900 election. However, one could expect that the same result in two different constituencies could illicit a different response depending on other characteristics of the constituencies.

7.1 Replacing Losing Candidates, not Incumbents?

The incumbency advantage in politics has been widely researched in the political economics literature. There is considerable evidence of a significant incumbency advantage, especially in U.S. politics (Lee 2008, Hainmueller et al. 2015). This evidence implies that the effect of losing another percentage point of the vote in 1906 on 1910 candidates may depend on whether the Conservative candidate won or lost in 1906 (note the sample includes both, those who won have negative loss margins). One would expect this for two reasons.

The first reason is that parties may seek the benefit of the incumbency advantage. For example, if the benefit of changing an incumbent MP who performed relatively poorly in 1906 with a less elite candidate in 1910 was 10 percentage points, but the incumbency advantage was 15 percentage points, then the party would choose to re-select the incumbent for the next election. The second is the practical difficulty of replacing a sitting MP. Even if a Conservative candidate won a smaller share of the vote in 1906, if they won the election they would be a sitting MP. Replacing a sitting MP at the 1910 election would likely cause party disunity (at the local constituency level). Assume two candidates whose win margins in 1906 were -2 per cent and 2 per cent, both falling by 20 percentage points from 1900. Even if one argued they performed similarly poorly and therefore would be optimal to replace them, it would be more difficult to replace the incumbent MP (the second candidate) than the candidate who lost (the first one).

I include an interaction term between the loss margin and whether the Conservatives lost in 1906. According to Table **??**, the incumbency advantage appears to have a significant effect on whether the Conservatives change the type of candidate they run in the 1910 elections. The second row illustrates the

Table 5: Incumbents and Losing Candidates

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	0.188	0.140	-0.071	-0.087
	(0.267)	(0.239)	(0.220)	(0.174)
1906 Conservative Defeat × 1906 Loss Margin	-0.649**	-0.577**	0.213	0.400**
	(0.298)	(0.268)	(0.247)	(0.194)
1906 Conservative Defeat	-0.639	1.911	-1.282	-0.886
	(5.636)	(5.031)	(4.640)	(3.667)
Adjusted R^2	0.096	0.212	0.106	0.168
N	468	468	468	468

This table reports the estimates of the effects of the 1906 loss margin in a constituency on the type of candidate the Conservatives select in 1910, for different outcomes in 1906. The dependent variable in Column 1 is the elite index variable as defined by the Support Vector Machine, in Column 2 it is the dummy variable of whether the candidate's previous occupation included being a labourer, in Columns 3 and 4 it is the probability that the candidate is a member of the political elite or the working-class groups as defined by the Latent Dirichlet Allocation, respectively. The explanatory variables reported are the 1906 loss margin and the 1906 loss margin interacted with whether the Conservatives lost in 1906. The 1906 loss margin is the Conservative loss to the winning party, as a percentage of total votes cast in the constituency (negative if the Conservatives won). The lagged dependent variables are the values of the dependent variables in 1906. The 1900 loss margin and lagged dependent variable are also included, as well as a dummy variable that takes value of one if the Conservatives lost in that constituency in 1906. The dependent variables are multiplied by 100 and are standardised by the sample average, so that the estimates report the percentage change in the likelihood of the candidate having that characteristic in the average constituency, in response to a one per cent loss margin in 1906. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

effect of the loss margin on constituencies where the Conservatives won in 1906. This is insignificant across the different outcome variables summarising the working-class and political elite candidates. The first row reports the coefficient estimates for the constituencies where the Conservatives lost. The estimates are positive, significant, and larger than those in the baseline results in Table **??**. For example, Column 3 implies that the average loss margin of 8.9 per cent decreases the probability of selecting a candidate from the political elite of around 10.2 per cent and increases the probability of choosing a political outsider by 17.4 per cent. Table **??** confirms that the replacement of candidates, as a response to the loss margin in 1906, only occurs in constituencies where the Conservatives lost in 1906.

7.2 Greater Shock: Conservative Strongholds

I investigate whether the response varies with the perceived threat to the political elite, where one would expect a greater change in candidate identity where a given loss margin would have been perceived as greater. For example, a given defeat may be seen as more concerning if the Conservatives had traditionally performed well in the constituency. Therefore I interact the 1906 loss margin with a binary variable indicating whether the Conservatives had won in the constituency three or more times in the four elections before 1900[15] (defined as a Conservative stronghold) or not. This is a good measure of how comfortable the Conservatives were in that seat, and therefore how much of a shock a given 1906 result was perceived.

Table **??** reports the results of including this interaction term. Columns 1 and 3 report the effects on selecting candidates from the political elite, which appear to suggest mixed results. While the decrease in selecting a candidate from the political elite (when defined by the Support Vector Machine) in response

[15]Elections before 1885 were contested on different constituency boundaries.

Table 6: Conservative Strongholds

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.209	-0.247**	0.178*	0.060
	(0.131)	(0.117)	(0.106)	(0.085)
Conservative Stronghold × 1906 Loss Margin	-0.174	0.039	-0.338**	0.331**
	(0.199)	(0.177)	(0.160)	(0.129)
Adjusted R^2	0.087	0.205	0.123	0.171
N	468	468	468	468

This table reports the estimates of the effects of the 1906 loss margin in a constituency on the type of candidate the Conservatives select in 1910, for different types of constituencies. The dependent variable in Column 1 is the elite index variable as defined by the Support Vector Machine, in Column 2 it is the dummy variable of whether the candidate's previous occupation included being a labourer, in Columns 3 and 4 it is the probability that the candidate is a member of the political elite or the working-class groups as defined by the Latent Dirichlet Allocation, respectively. The explanatory variables reported are the 1906 loss margin interacted with whether the constituency is a Conservative stronghold and the 1906 loss margin interacted with whether the constituency is one of the other constituencies. The 1906 loss margin is the Conservative loss to the winning party, as a percentage of total votes cast in the constituency (negative if the Conservatives won). The lagged dependent variables are the values of the dependent variables in 1906. The 1900 loss margin and lagged dependent variable are also included. The dependent variables are multiplied by 100 and are standardised by the sample average, so that the estimates report the percentage change in the likelihood of the candidate having that characteristic in the average constituency, in response to a one per cent loss margin in 1906. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

to 1906 is driven by the Conservative strongholds, this is not supported by the evidence when the political elite are defined by the Latent Dirichlet Allocation. It is somewhat unclear why this difference would exist other than the in the different definitions of the political elite. However, Columns 2 and 4 show that the increase in working-class representation at the 1910 elections as a response to 1906 was driven by replacing candidates in Conservative strongholds, responding to a further one percentage point loss in 1906 with increasing the probability of selecting a labourer by 26 per cent and a working-class candidate (as defined by the Latent Dirichlet Allocation) by almost 2 per cent.

7.3 Strategic Behaviour: Working Class Constituencies

The change in candidates may be driven by the type of constituency. One may expect that the Conservatives are less likely to change the type of candidate in an upper-class constituency compared to a working-class constituency. This may be for two reasons. The first is demand-side and strategic. The Conservatives may expect that the increase in the vote share from changing a candidate from a political elite to a working-class candidate may be greater in constituencies where the electorate are predominantly the working class. This may be because a given policy platform is better received by the constituents if communicated by a candidate more similar to them.

The second is supply-side. It may simply be the case that in an upper-class constituency there may not exist many potential working-class candidates. Furthermore, the Conservatives may also be concerned about the 'ability' of the candidate (for example ability to campaign). A larger pool of potential candidates from the political elite compared to a small pool of potential candidates from the working class may result in the best candidate from the political elite group having a much greater political ability than the best candidate from the working-class group, even if the distribution of abilities are the same for both groups. The greater political ability may be enough to offset the incentive to field a working-class

candidate. Therefore the replacement of political elite candidates may primarily occur in working-class constituencies where the supply of working-class candidates is greater.

Table 7: Working Class Constituencies

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.074	-0.162	0.094	0.082
	(0.123)	(0.111)	(0.102)	(0.080)
Working Class × 1906 Loss Margin	-0.478***	-0.205	-0.056	0.245**
	(0.165)	(0.149)	(0.137)	(0.108)
Adjusted R^2	0.103	0.206	0.106	0.169
N	468	468	468	468

This table reports the estimates of the effects of the 1906 loss margin in a constituency on the type of candidate the Conservatives select in 1910, for different types of constituencies. The dependent variable in Column 1 is the elite index variable as defined by the Support Vector Machine, in Column 2 it is the dummy variable of whether the candidate's previous occupation included being a labourer, in Columns 3 and 4 it is the probability that the candidate is a member of the political elite or the working-class groups as defined by the Latent Dirichlet Allocation, respectively. The explanatory variables reported are the 1906 loss margin interacted with whether the constituency is a defined as a working-class constituency and the 1906 loss margin interacted with whether the constituency is one of the other constituencies. The 1906 loss margin is the Conservative loss to the winning party, as a percentage of total votes cast in the constituency (negative if the Conservatives won). The lagged dependent variables are the values of the dependent variables in 1906. The 1900 loss margin and lagged dependent variable are also included. The dependent variables are multiplied by 100 and are standardised by the sample average, so that the estimates report the percentage change in the likelihood of the candidate having that characteristic in the average constituency, in response to a one per cent loss margin in 1906. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

The results in Table 7 suggest that the replacement effect may have been greater in working-class constituencies. For example, the associated decrease in the likelihood of a candidate from the political elite being chosen was around 4.5 to 5.9 per cent. Besides Column 4, the effect appears to be insignificant in other constituencies. Column 4 suggests that the replacement effect was not as large in working-class constituencies, although in some other specifications in the Appendix (such as changing the number of groups, for example in Tables E.6, E.8, and E.10) the interaction term is significantly positive.

8 A Winning Strategy? Implications for the 1910 Elections

The discussion of the results provide evidence of the political elite responding to the 1906 election by changing representation within the candidates in the Conservative party in 1910. One following question may be whether this strategy actually benefited them, as the previous section suggests the Conservatives may have expected by placing more working-class candidates in working-class areas.

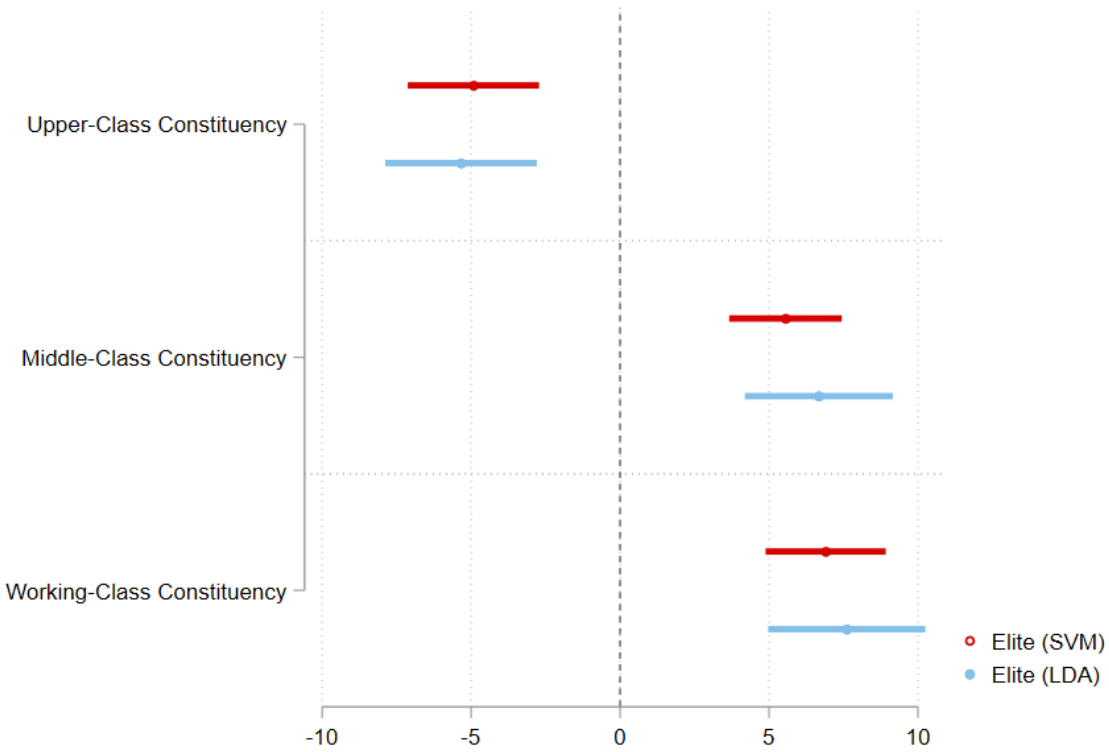
I investigate whether replacing candidates aided the Conservatives in the 1910 elections. I implement a different empirical strategy which is outlined below:

$$VoteShare_{i,1910} = \alpha + \beta_1 elite_{i,1910} + \beta_2 elite_{i,1906} + \beta_3 VoteShare_{i,1906} \tag{2}$$

$VoteShare_{i,1910}$ is the proportion of the vote that the Conservatives won in 1910 in constituency i, while $elite_{i,1910}$ is elite variable as defined by the Support Vector Machine and the Latent Dirichlet Allocation

- the probabilities that the candidate is part of the political elite. Similar to (1), I also include controls of past performance $VoteShare_{i,1906}$ and past candidate characteristics $elite_{i,1906}$.

Figure 4: Selecting Working-Class Candidates and the 1910 Elections



This figure illustrates the estimated impact of replacing a candidate who is part of the political elite ($elite$=1 as defined by the Support Vector Machine and the Latent Dirichlet Allocation) with a political outsider or working-class candidate ($elite = 0$), for different types of constituencies.

Figure 4 illustrate the results reported in Table XXXX. For a more intuitive explanation, Figure **??** show the effect of switching from a candidate who is defined as elite=1 to elite=0 (as defined by both the Support Vector Machine and the Latent Dirichlet Allocation): effectively replacing a political elite candidate with a political outsider from the working class. The effects are interacted across different types of constituencies, and the variation is considerable, but expected. In upper-class constituencies, this replacement would cost the Conservatives around 5 per cent of the vote. The contrast to middle-class and working-class constituencies is significant: the Conservatives vote share increase by around 6 and 7 percentage points by this replacement, respectively. Figure **??** suggests that the Conservatives were responding rationally to the threat in 1906, and the shift from political elite to the working class candidates was targeted strategically to where the electoral benefits would be greatest.

9 Conclusion

While there are many factors influencing political representation of traditionally under-represented groups, I find that the selection of candidates by political parties may be influenced by previous election outcomes. Using a unique historical case study of Britain at a political crossroads, I find that

the Conservatives responded to electoral defeat in 1906 by replacing candidates from the political elite with outsiders, such as those form the working class. Further study would investigate whether this replacement effect is salient in the long run: the extension of the franchise in 1918 and changes to the constituency boundaries make this difficult to analyse in this historical context. Political representation of the working class remains low in many countries and for this to change the signal from the electorate to political parties may need to be as loud and clear as it was in 1906.

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Appendices

A Definitions, Sources, and Descriptive Statistics

A.1 Description of Characteristics

Unless otherwise stated, the characteristics listed below are coded as binary variables: taking a value of one if the candidate has that attribute or characteristic, and a value of zero otherwise.

Titles

- *Honorary Title:* The candidate has been awarded an honorary title, such as an OBE, an MBE or a knighthood. This includes the investiture of peerages where the title has not been inherited from family members.
- *Hereditary Title:* The candidate has inherited a title from a family, most commonly their father or brother. This includes titles such as Earl, Lord, Baron, and Baronet.
- *Military Title:* The candidate has been given a significant military honour. This includes both the appointment to a high-ranking military position such as Colonel or General and awards for notable military service such as the Victoria Cross.
- *Title:* The written name of the candidate on the ballot includes a title beyond 'Mr.'. This includes titles such as Sir, Dr., Lord, Viscount, and Reverend.
- *Family Hereditary Title:* A member of the candidate's family holds a title that is inherited - this does not necessarily mean that the candidate themselves ever inherits this title (for example it may be held by their uncle who passes the title down to their son, the candidate's cousin).

Education

- *Eton:* The candidate attended Eton School.
- *Public School:* The candidate attended one of the schools included in the Public Schools Act 1868. The schools (Charterhouse, Eton, Harrow, Rugby, Shrewsbury, Westminster, Winchester) are among the most elite fee-paying schools.
- *Fee Paying School:* The candidate attended a school that required fees for attendance. This would not be the case for grammar or local state schools.
- *Oxbridge:* The candidate attended at least one of the University of Cambridge and the University of Oxford.
- *University:* The candidate attended university, whether in the United Kingdom or abroad.

Occupations

- *Family Occupations:* These include the notable occupations (as mentioned in the biographies) of the

candidate's family members. In most cases this will include the occupation(s) of their father, but in addition may also include the occupation(s) of other family members such as their grandparents or uncles/aunts.

- *Previous Occupations:* These include the candidate's previous occupations before running for office, and therefore may include more than one occupation. In some cases the timing of some employment is unclear so the author's judgement was used to determine whether such employment was before or after their candidacy.

Occupational Groups

- *Professionals:* These include the professions below, primarily consisting of white-collar workers or administrators.
  - *Academia:* One is defined as being part of academia if they hold an academic or teaching post, for example a Fellow or Lecturer at a university. In addition, this may include those with no formal post but are notable for their prolific publications, for example literary writers.
  - *Civil Service:* The civil service includes most appointed public office, whether in an administrative or managerial capacity. Recurring examples include diplomats or high-ranking non-partisan Whitehall advisers.
  - *Journalism:* This includes work as a journalist or editor for a newspaper. Notably this excludes those who are newspaper proprietors, who are classified as involved in business.
  - *Law:* Working in the legal profession whether as a barrister or a solicitor.
  - *Church:* Religious occupations, the vast majority of these cases are local vicars or priests.
- *Business and Finance:* This is the collective term for those who work in business or finance.
  - *Business:* This includes any management or ownership of a company from any sector/industry.
  - *Finance:* This is defined as the work in the financial sector, such as investment banking.
- *Working Class:* This is the collective term for working-class or blue collar occupations.
  - *Engineering:* A catch-all term for more technical blue-collar work, such as foremen or technicians.
  - *Manual Labour:* For example manual work in factories.
  - *Trade Union:* Activity in supporting or running a trade union, whether locally or nationally.
- *Military:* Any military occupation at any level in the army or navy.
- *Politics:* Involvement in politics at either a local or national level.
  - *Local Politics:* Examples include being on the board of a local school or committee, or local council. In many cases not this work is not necessarily affiliated with a political party.

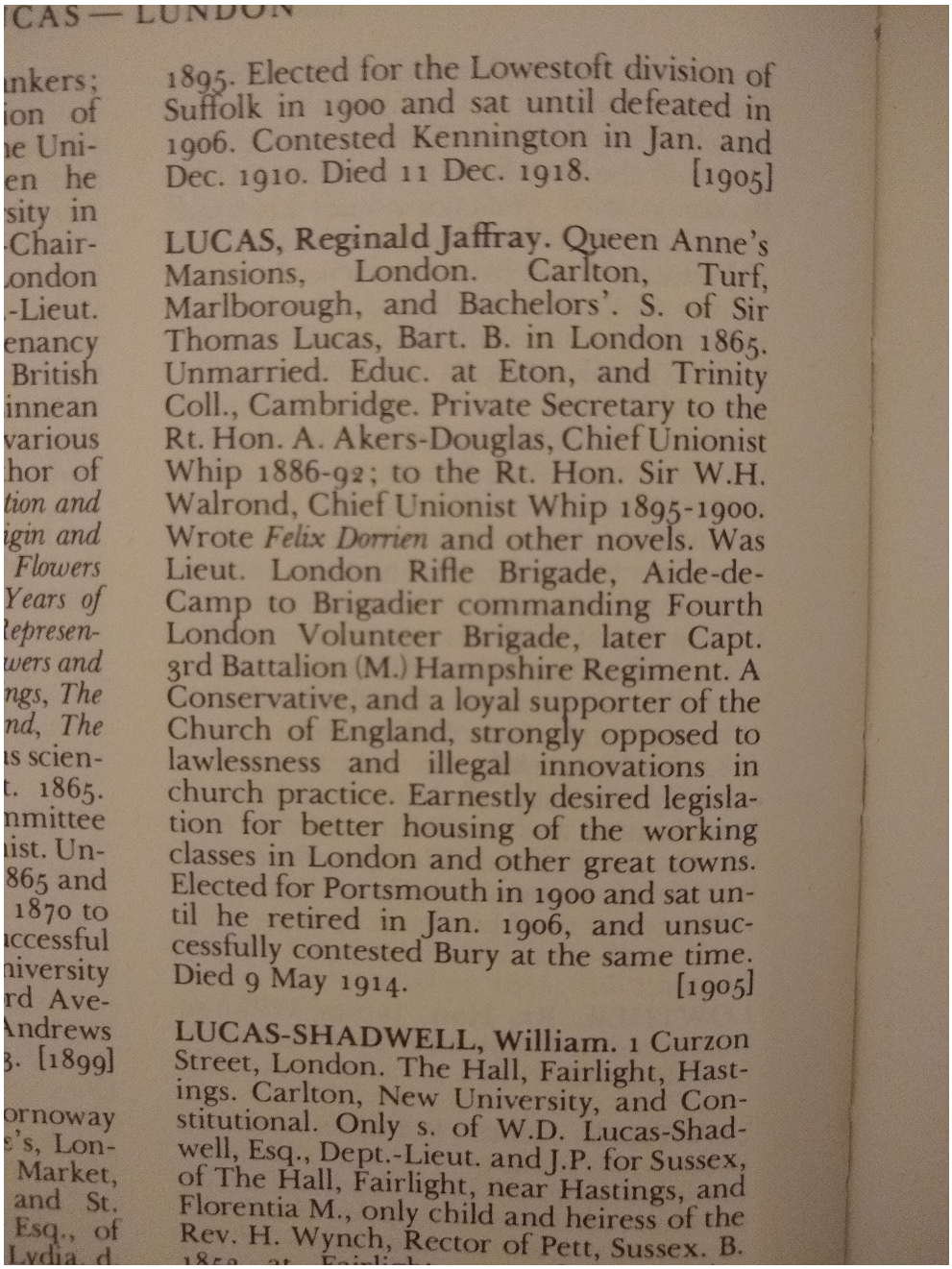
- *Politics/Party Politics:* This includes work in party politics, whether in the organisation of a political party or in the aid of MPs at Westminster (such as an assistant).

Social Connections

- *Number of Clubs:* The number of social clubs the candidate is a member of as listed in their biographies. Social clubs played a significant role in not only the social lives of those in the upper/upper-middle class, but also their political lives.
- *Brooks, Carlton, National Liberal, Reform:* These constitute the social clubs who are most represented among politicians. For example, the National Liberal and Reform clubs include central members of the Liberal Party, while the Brooks and Carlton those of the Conservative Party. Membership is not automatic, so inclusion in one of these is a good marker of social and political status.
- *Inner Temple, Middle Temple, Lincoln's Inn, Gray's Inn:* Membership of the London law houses. The vast majority of lawyers in the sample are a member of one of these, with the exception of practising in Scotland.
- *School Connections:* The number of connections to other candidates via the school that they attended.
- *University Connections:* The number of connections to other candidates via the university that they attended.
- *Legal Connections:* The number of connections to other candidates via the law house they practised in.
- *JP:* Whether the candidate was appointed as a Justice of the Peace. A local legal occupation, but the appointment itself indicates local political influence.

A.2 Data Sources

Figure A.1: Sample Extract: Who's Who of British Members of Parliament: 1886-1918



CAS — LONDON

1895. Elected for the Lowestoft division of Suffolk in 1900 and sat until defeated in 1906. Contested Kennington in Jan. and Dec. 1910. Died 11 Dec. 1918. [1905]

LUCAS, Reginald Jaffray. Queen Anne's Mansions, London. Carlton, Turf, Marlborough, and Bachelors'. S. of Sir Thomas Lucas, Bart. B. in London 1865. Unmarried. Educ. at Eton, and Trinity Coll., Cambridge. Private Secretary to the Rt. Hon. A. Akers-Douglas, Chief Unionist Whip 1886-92; to the Rt. Hon. Sir W.H. Walrond, Chief Unionist Whip 1895-1900. Wrote *Felix Dorrien* and other novels. Was Lieut. London Rifle Brigade, Aide-de-Camp to Brigadier commanding Fourth London Volunteer Brigade, later Capt. 3rd Battalion (M.) Hampshire Regiment. A Conservative, and a loyal supporter of the Church of England, strongly opposed to lawlessness and illegal innovations in church practice. Earnestly desired legislation for better housing of the working classes in London and other great towns. Elected for Portsmouth in 1900 and sat until he retired in Jan. 1906, and unsuccessfully contested Bury at the same time. Died 9 May 1914. [1905]

LUCAS-SHADWELL, William. 1 Curzon Street, London. The Hall, Fairlight, Hastings. Carlton, New University, and Constitutional. Only s. of W.D. Lucas-Shadwell, Esq., Dept.-Lieut. and J.P. for Sussex, of The Hall, Fairlight, near Hastings, and Florentia M., only child and heiress of the Rev. H. Wynch, Rector of Pett, Sussex. B.

Figure A.2: Sample Extract: Oxford Dictionary of National Biography

Burns, John Elliott

(1858–1943)

Kenneth D. Brown

https://doi-org.ezp.lib.cam.ac.uk/10.1093/ref:odnb/32194

Published in print: 23 September 2004 **Published online:** 23 September 2004

This version: 26 May 2016

Previous version

John Elliott Burns (1858–1943)

by John Collier, 1889

© National Portrait Gallery, London

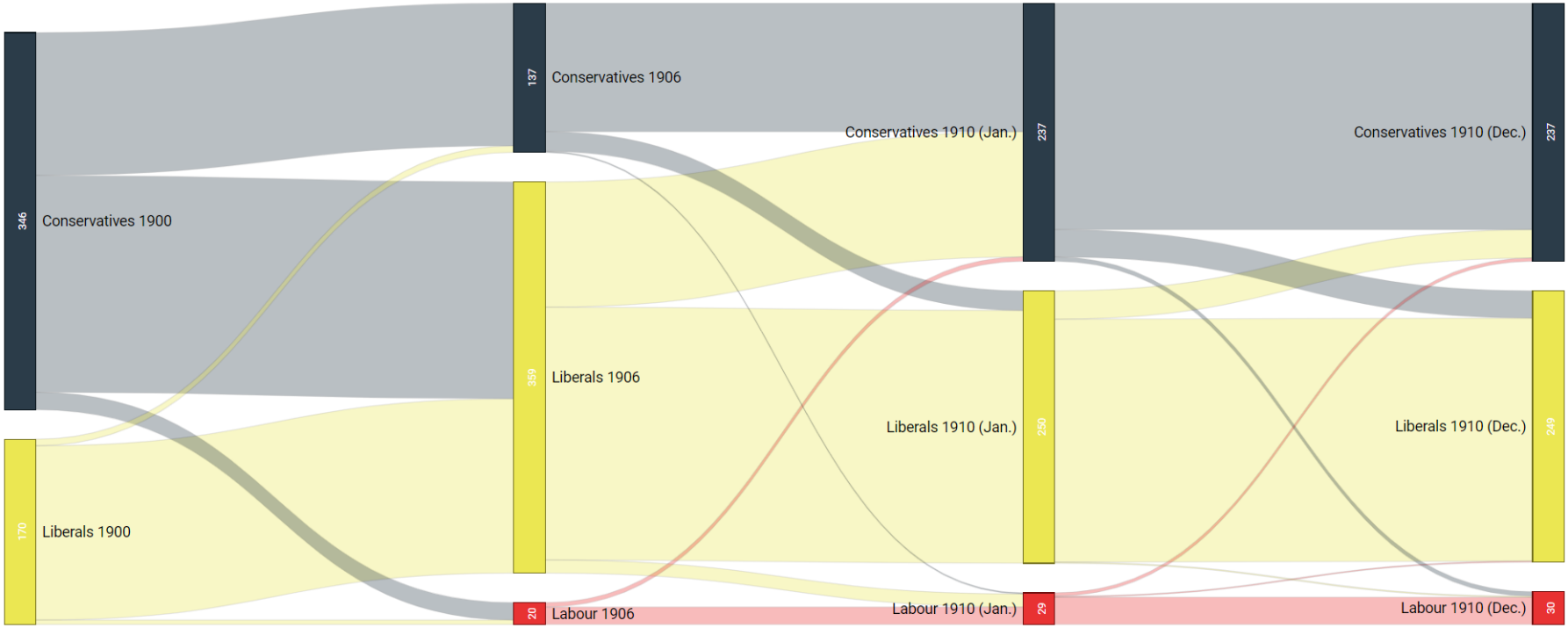
Burns, John Elliott (1858–1943), labour leader and politician, was born in South Lambeth, London, on 20 October 1858, the sixteenth child of Alexander Burns, a Scottish fitter, and Barbara Smith. He left St Mary's national school when he was about ten and after a series of short-term jobs was apprenticed as an engineer.

Burns spent his childhood in relative poverty. Apparently deserted by his father, his mother took in washing and the family moved to a basement dwelling in Battersea. Despite his brief schooling Burns attended night classes and became an avid consumer of radical literature. A useful boxer, he was a pugnacious and combative individual, and insubordination twice resulted in the cancellation of his indentures by irate employers before he finally completed his apprenticeship at Mowlems, a major London contractor. There he came under the influence of Victor Delahaye, an exiled former communard and member of a French Marxist group, committed to the view that in the absence of effective physical force and organization, the working class could throw off capitalism only through the ballot box. In 1878 Burns had his first encounter with the law when he was arrested for holding a

A.3 Descriptive Statistics

A.3.1 Electoral Background: Parliamentary Composition by Party

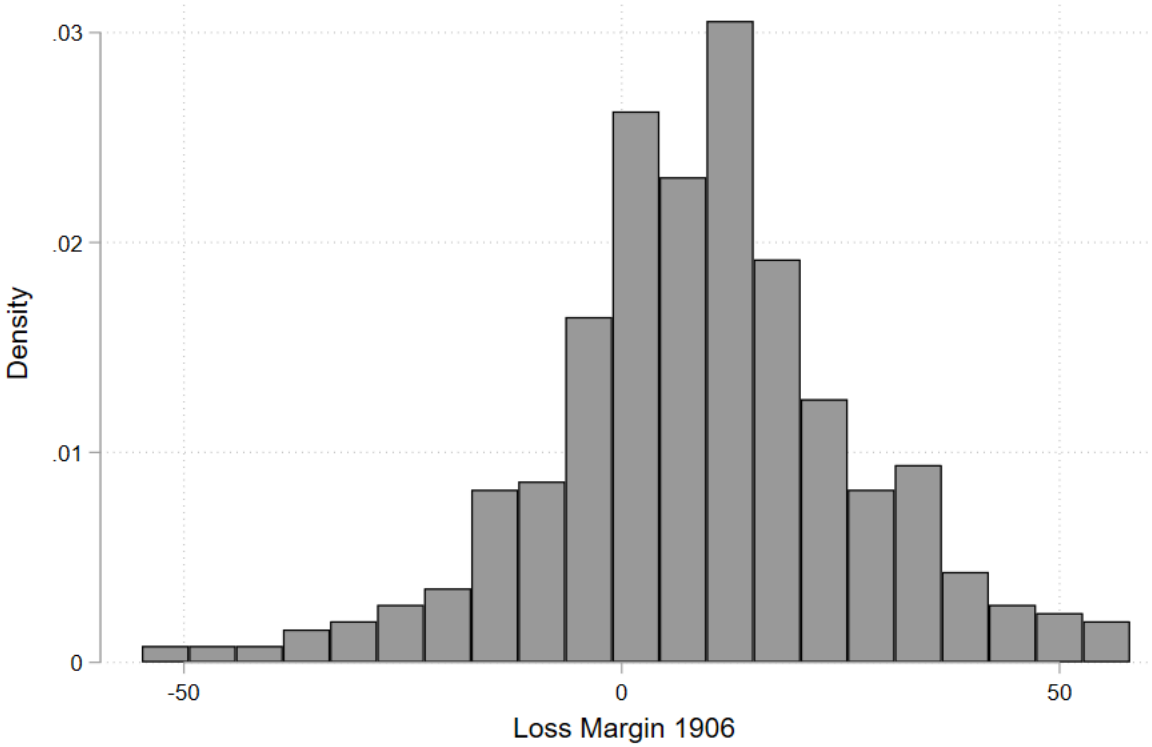
Figure A.3: Composition of Parliament from the 1900 to 1910 (Dec.) General Elections



This figure illustrates the changing power balances between political parties from the 1900 election to the December 1910 election (for simplicity by-elections are not included). The number of seats is noted in each box.

A.3.2 Distribution of Conservative 1906 Election Losses

Figure A.4: Conservative Margin of Defeat in the 1906 UK Election



This figure illustrates the distribution of the Conservative loss margin (the proportion of the vote won by the Conservatives minus the proportion of the vote won by the most successful other party in the constituency) across constituencies in 1906.

A.3.3 Education, Titles, and Family Backgrounds

Table A.1: Summary Statistics: Education, Titles and Family Backgrounds (All Candidates)

	(1) Whole Sample mean	(2) 1906 (Jan.) mean	(3) 1910 (Dec.) mean	(4) Difference mean
Honorary Title	48.9	49.4	44.9	-9.2
Hereditary Title	20.0	21.8	16.0	-26.3
Military Title	10.4	9.8	10.0	2.3
Title	22.0	23.0	20.1	-12.9
Family Hereditary Title	25.7	26.2	23.9	-8.7
Eton	15.5	16.3	14.4	-11.4
Public School	28.0	29.3	26.0	-11.2
Fee Paying School	81.3	81.2	79.9	-1.6
Oxbridge	34.7	35.5	32.1	-9.5
University	51.4	52.4	48.7	-7.1
Professional (Family)	28.8	30.4	27.6	-9.4
Academia (Family)	9.1	9.9	9.3	-6.3
Civil Service (Family)	3.8	3.9	3.9	-2.1
Journalism (Family)	0.4	0.6	0.3	-45.8
Law (Family)	6.2	6.3	6.3	0.1
Church (Family)	12.8	13.5	11.5	-14.8
Business and Finance (Family)	17.7	17.6	16.7	-5.2
Business (Family)	14.5	14.1	13.8	-1.9
Finance (Family)	3.8	4.2	3.1	-26.0
Working Class (Family)	10.1	10.4	10.6	1.4
Engineering (Family)	2.2	2.1	2.2	3.5
Labourer (Family)	8.1	8.5	8.6	1.1
Trade Union (Family)	0.0	0.0	0.0	.
Military (Family)	14.4	14.5	14.4	-0.9
Politics and Local Politics (Family)	27.8	28.6	26.4	-7.6
Local Politics (Family)	15.1	15.4	14.9	-3.1
Politics (Family)	13.9	14.5	12.3	-14.7
Observations	3938	1038	957	905

This table reports summary statistics for a range of characteristics for all candidates in the sample, which are explained in more detail in Appendix A.1. Columns 2 and 3 focus on the the 1906 and December 1910 (the last election in the sample) elections, and Column 4 reports the percentage change in the proportion from 1906 to December 1910.

Table A.2: Summary Statistics: Education, Titles and Family Backgrounds (Conservative Candidates)

	(1) Whole Sample mean	(2) 1906 (Jan.) mean	(3) 1910 (Dec.) mean	(4) Difference mean
Honorary Title	50.9	54.5	45.1	-17.2
Hereditary Title	29.3	34.3	23.0	-32.7
Military Title	14.7	14.3	14.2	-0.3
Title	25.3	32.4	18.3	-43.4
Family Hereditary Title	34.0	35.0	31.2	-11.1
Eton	24.5	26.4	23.2	-12.4
Public School	40.0	42.2	37.1	-12.2
Fee Paying School	91.6	91.1	91.3	0.2
Oxbridge	41.4	41.0	39.2	-4.5
University	55.2	54.7	53.1	-3.0
Professional (Family)	28.4	29.9	27.6	-7.8
Academia (Family)	8.7	9.4	9.5	0.5
Civil Service (Family)	3.8	3.3	3.8	15.6
Journalism (Family)	0.4	0.6	0.2	-65.8
Law (Family)	6.0	6.1	6.5	6.2
Church (Family)	12.9	13.7	11.8	-14.1
Business and Finance (Family)	14.2	14.3	12.2	-14.9
Business (Family)	11.4	11.1	10.1	-8.7
Finance (Family)	3.5	3.9	2.3	-40.5
Working Class (Family)	3.3	2.7	3.6	34.3
Engineering (Family)	1.8	1.6	1.7	2.7
Labourer (Family)	1.5	1.0	1.9	84.9
Trade Union (Family)	0.0	0.0	0.0	.
Military (Family)	19.4	18.9	20.2	7.2
Politics and Local Politics (Family)	27.5	28.3	24.6	-12.9
Local Politics (Family)	15.2	15.4	14.5	-5.5
Politics (Family)	14.0	14.5	11.4	-21.9
Observations	1973	488	475	459

This table reports summary statistics for a range of characteristics for Conservative candidates in the sample, which are explained in more detail in Appendix A.1. Columns 2 and 3 focus on the the 1906 and December 1910 (the last election in the sample) elections, and Column 4 reports the percentage change in the proportion from 1906 to December 1910.

A.3.4 Previous Occupations and Social Connections

Table A.3: Summary Statistics: Previous Occupations and Social Connections (All Candidates)

	(1) Whole Sample mean	(2) 1906 (Jan.) mean	(3) 1910 (Dec.) mean	(4) Difference mean
Professional	55.5	56.3	52.2	-7.1
Academia	15.7	17.1	14.4	-15.9
Civil Service	32.5	33.6	27.8	-17.3
Journalism	3.5	4.1	3.6	-14.2
Law	24.7	24.0	24.2	1.1
Church	1.3	1.5	1.1	-25.4
Business and Finance	29.4	29.7	27.9	-6.0
Business	26.2	26.2	24.7	-5.9
Finance	5.5	5.6	5.5	-0.9
Working Class	8.0	8.5	8.3	-2.6
Engineer	2.4	2.2	2.5	13.2
Labourer	5.1	5.8	5.0	-13.2
Trade Union	5.5	6.4	5.9	-8.0
Military	24.4	24.8	23.7	-4.2
Politics and Local Politics	36.0	36.6	34.5	-5.8
Local Politics	34.9	35.6	33.0	-7.4
Politics	1.5	1.4	2.2	51.8
Number of Clubs	1.6	1.7	1.5	-6.5
Athenaeum Club	6.4	6.8	5.4	-20.6
Brooks Club	7.6	8.3	6.6	-20.5
Carlton Club	29.1	27.5	27.9	1.6
National Liberal Club	17.0	18.8	16.1	-14.3
Reform Club	17.1	18.8	15.2	-19.3
Inner Temple	8.5	8.6	7.6	-11.0
Middle Temple	4.3	4.0	4.5	11.0
Lincoln's Inn	3.4	3.9	2.9	-24.1
Gray's Inn'	0.8	0.3	1.1	297.7
School Connections	61.3	64.0	57.2	-10.6
University Connections	135.2	138.4	126.2	-8.8
Legal Connections	20.9	21.0	19.2	-8.6
JP	36.6	37.9	31.6	-16.8
Observations	3938	1038	957	905

This table reports summary statistics for a range of characteristics for all candidates in the sample, which are explained in more detail in Appendix A.1. Columns 2 and 3 focus on the the 1906 and December 1910 (the last election in the sample) elections, and Column 4 reports the percentage change in the proportion from 1906 to December 1910.

Table A.4: Summary Statistics: Previous Occupations and Social Connections (Conservative Candidates)

	(1) Whole Sample mean	(2) 1906 (Jan.) mean	(3) 1910 (Dec.) mean	(4) Difference mean
Professional	52.3	53.5	48.0	-10.3
Academia	11.1	12.7	9.5	-25.4
Civil Service	30.9	33.2	24.6	-25.8
Journalism	1.9	2.9	1.7	-41.3
Law	24.6	22.7	25.1	10.1
Church	0.9	1.0	0.4	-58.9
Business and Finance	24.8	25.2	21.5	-14.8
Business	21.4	21.3	18.3	-14.1
Finance	5.0	4.9	4.4	-10.1
Working Class	2.6	1.4	2.9	105.5
Engineer	1.7	1.0	1.5	43.8
Labourer	0.9	0.4	1.3	208.2
Trade Union	0.7	0.4	0.8	105.5
Military	35.6	36.7	34.5	-5.9
Politics and Local Politics	35.4	36.7	31.2	-15.1
Local Politics	34.1	35.2	29.7	-15.8
Politics	1.9	2.0	2.3	13.0
Number of Clubs	1.8	1.8	1.8	-4.2
Athenaeum Club	7.3	8.4	5.5	-34.8
Brooks Club	4.7	4.9	3.8	-22.9
Carlton Club	56.6	56.8	54.3	-4.3
National Liberal Club	0.7	0.8	0.8	2.7
Reform Club	1.6	1.8	0.4	-77.2
Inner Temple	10.2	9.6	9.3	-3.8
Middle Temple	3.3	3.1	4.0	30.1
Lincoln's Inn	3.3	3.9	2.7	-29.7
Gray's Inn'	0.7	0.2	1.3	516.4
School Connections	92.8	98.6	87.6	-11.2
University Connections	158.4	157.9	150.7	-4.6
Legal Connections	22.8	22.0	21.5	-2.6
JP	37.6	39.1	31.1	-20.5
Observations	1973	488	475	459

This table reports summary statistics for a range of characteristics for Conservative candidates in the sample, which are explained in more detail in Appendix A.1. Columns 2 and 3 focus on the the 1906 and December 1910 (the last election in the sample) elections, and Column 4 reports the percentage change in the proportion from 1906 to December 1910.

A.4 Manifestos

B Classification: Aggregation Methods

This section illustrates the correlation between different characteristics and the group classification that the two machine learning sorting algorithms undertake. Correlations between characteristics and membership of different groups match prior expectations in the vast majority of cases.

B.1 Support Vector Machine (SVM)

Table B.1: Characteristics of the Elite Index (Support Vector Machine)

	Elite Index (SVM)
Academia (Family)	0.0201
	(0.0298)
Business (Family)	-0.140***
	(0.0313)
Civil Service (Family)	0.000751
	(0.0190)
Engineer (Family)	-0.0300**
	(0.0137)
Finance (Family)	-0.0119
	(0.0160)
Journalism (Family)	0.00215
	(0.00477)
Law (Family)	-0.0379
	(0.0250)
Local Politics (Family)	0.0307
	(0.0370)
Military (Family)	0.0676
	(0.0413)
Church (Family)	0.0370
	(0.0339)
Academia	0.000468
	(0.0298)
Business	-0.386***
	(0.0382)
Civil Service	0.0588
	(0.0444)
Engineer	-0.0525***
	(0.0133)
Finance	-0.0135
	(0.0225)
Journalism	0.0110
	(0.0142)
Labourer	-0.0690***
	(0.0103)
Law	0.0921**
	(0.0448)
Local Politics	-0.130***
	(0.0466)
Military	0.438***
	(0.0459)

	Elite Index (SVM)
Politics	0.00388
	(0.0160)
Church	0.00209
	(0.00584)
Trade Union	-0.0489***
	(0.00874)
Oxbridge	0.692***
	(0.0428)
University	0.569***
	(0.0436)
Eton	0.540***
	(0.0396)
Public School	0.844***
	(0.0393)
Published Author	0.000672*
	(0.000394)
Athenaeum Club	0.0765***
	(0.0249)
Brooks Club	0.0909***
	(0.0206)
Carlton Club	0.284***
	(0.0466)
National Liberal Club	-0.0216**
	(0.00887)
Reform Club	-0.00628
	(0.00824)
Number of Clubs	0.0120***
	(0.00129)
School Connections	2.014***
	(0.113)
University Connections	2.645***
	(0.157)
Legal Connections	0.308***
	(0.0537)
Honorary Title	0.00891
	(0.0490)
Hereditary Title	0.349***
	(0.0407)
Military Title	0.168***
	(0.0348)
JP	0.0893**
	(0.0451)

This table illustrates the characteristics of the elite index, reporting the coefficient results of simply regressing the characteristic variable on the elite index created by the Support Vector Machine. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

B.2 Latent Dirichlet Allocation (LDA)

Table B.2: Characteristics of the Elite Index (Latent Dirichlet Allocation)

	Elite Index (LDA)
Academia (Family)	-0.169***
	(0.0302)
Business (Family)	-0.231***
	(0.0317)
Civil Service (Family)	-0.0105
	(0.0196)
Engineer (Family)	-0.0583***
	(0.0141)
Finance (Family)	-0.0262
	(0.0164)
Journalism (Family)	-0.00917*
	(0.00490)
Law (Family)	-0.160***
	(0.0252)
Local Politics (Family)	-0.0354
	(0.0381)
Military (Family)	0.222***
	(0.0420)
Church (Family)	-0.101***
	(0.0348)
Academia	-0.220***
	(0.0298)
Business	-0.364***
	(0.0398)
Civil Service	0.0256
	(0.0458)
Engineer	-0.0594***
	(0.0136)
Finance	0.00702
	(0.0232)
Journalism	-0.0333**
	(0.0146)
Labourer	-0.0451***
	(0.0108)
Law	-0.561***
	(0.0421)
Local Politics	-0.124***
	(0.0480)
Military	0.817***
	(0.0411)

	Elite Index (LDA)
Politics	0.0286*
	(0.0164)
Church	-0.00438
	(0.00601)
Trade Union	-0.0330***
	(0.00910)
Oxbridge	0.297***
	(0.0494)
University	0.0654
	(0.0492)
Eton	0.727***
	(0.0375)
Public School	1.032***
	(0.0357)
Published Author	-0.00124***
	(0.000404)
Athenaeum Club	-0.0910***
	(0.0256)
Brooks Club	0.110***
	(0.0211)
Carlton Club	0.260***
	(0.0483)
National Liberal Club	-0.0263***
	(0.00912)
Reform Club	-0.0256***
	(0.00845)
Number of Clubs	0.00841***
	(0.00136)
School Connections	2.589***
	(0.104)
University Connections	1.020***
	(0.184)
Legal Connections	-0.354***
	(0.0550)
Honorary Title	-0.178***
	(0.0501)
Hereditary Title	0.486***
	(0.0403)
Military Title	0.335***
	(0.0345)
JP	0.0750
	(0.0466)

This table illustrates the characteristics of the political elite group as defined by Latent Dirichlet Allocation, reporting the coefficient results of simply regressing the characteristic variable on the probability that the Latent Dirichlet Allocation defines the candidate as being part of the political elite. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

Table B.3: Characteristics of the Working-Class/Political Outsider Group (Latent Dirichlet Allocation)

	Working (LDA)
Academia (Family)	-0.00504
	(0.0425)
Business (Family)	0.494***
	(0.0419)
Civil Service (Family)	-0.0457*
	(0.0270)
Engineer (Family)	0.101***
	(0.0193)
Finance (Family)	0.0801***
	(0.0226)
Journalism (Family)	0.0119*
	(0.00678)
Law (Family)	-0.108***
	(0.0354)
Local Politics (Family)	0.00505
	(0.0527)
Military (Family)	-0.170***
	(0.0587)
Church (Family)	-0.0408
	(0.0483)
Academia	-0.0445
	(0.0425)
Business	0.929***
	(0.0480)
Civil Service	0.0258
	(0.0633)
Engineer	0.149***
	(0.0184)
Finance	0.110***
	(0.0318)
Journalism	0.0514**
	(0.0201)
Labourer	0.118***
	(0.0146)
Law	-0.489***
	(0.0617)
Local Politics	0.434***
	(0.0649)
Military	-0.517***
	(0.0664)

	Working (LDA)
Politics	-0.0232
	(0.0227)
Church	-0.00876
	(0.00831)
Trade Union	0.0973***
	(0.0122)
Oxbridge	-0.986***
	(0.0610)
University	-0.826***
	(0.0619)
Eton	-0.634***
	(0.0583)
Public School	-1.004***
	(0.0604)
Published Author	-0.00142**
	(0.000560)
Athenaeum Club	-0.161***
	(0.0352)
Brooks Club	-0.105***
	(0.0295)
Carlton Club	-0.229***
	(0.0674)
National Liberal Club	0.0531***
	(0.0125)
Reform Club	0.0122
	(0.0117)
Number of Clubs	-0.0104***
	(0.00189)
School Connections	-2.363***
	(0.171)
University Connections	-3.697***
	(0.225)
Legal Connections	-0.579***
	(0.0753)
Honorary Title	-0.00363
	(0.0698)
Hereditary Title	-0.325***
	(0.0593)
Military Title	-0.218***
	(0.0497)
JP	-0.0497
	(0.0644)

This table illustrates the characteristics of the working-class/political outsiders group as defined by Latent Dirichlet Allocation, reporting the coefficient results of simply regressing the characteristic variable on the probability that the Latent Dirichlet Allocation defines the candidate as being part of the working class/political outsiders. Standard errors are reported in parentheses and are clustered at the constituency level. ***, **, and * denote statistical significance at 1, 5, and 10 percent level, respectively.

C Regression Results Tables

C.1 Baseline Results

Table C.1: Baseline Results

	Loss 1906	Loss 1900	Lag. D.V.
Honorary Title	-0.716***	-0.269	0.344***
	(0.261)	(0.253)	(0.0429)
Military Title	-1.031	1.023	0.423***
	(0.684)	(0.668)	(0.0465)
Family Hereditary Title	-0.974***	-0.371	0.293***
	(0.288)	(0.312)	(0.0357)
Eton	-0.654*	-0.203	0.336***
	(0.360)	(0.391)	(0.0363)
Public School	-1.027***	-0.348	0.316***
	(0.251)	(0.276)	(0.0357)
Fee Paying School	-0.376***	0.132	0.214***
	(0.117)	(0.103)	(0.0519)
Oxbridge	-0.709***	-0.284	0.256***
	(0.256)	(0.283)	(0.0379)
University	-0.388*	-0.480**	0.259***
	(0.201)	(0.220)	(0.0384)
Military (Family)	-1.040**	0.528	0.297***
	(0.454)	(0.491)	(0.0388)
Military	-1.075***	0.178	0.259***
	(0.294)	(0.316)	(0.0376)
Politics (Family)	-1.588***	0.140	0.260***
	(0.328)	(0.354)	(0.0362)
Number Of Clubs	-0.675***	-0.425**	0.243***
	(0.183)	(0.198)	(0.0406)
Brooks Club	-2.078**	-1.028	0.285***
	(0.809)	(0.871)	(0.0309)
Carlton Club	-0.962***	-0.309	0.192***
	(0.195)	(0.216)	(0.0391)
School Connections	-0.693**	-0.158	0.365***
	(0.290)	(0.317)	(0.0362)
University Connections	-0.644***	-0.301	0.283***
	(0.247)	(0.272)	(0.0385)
Legal Connections	-1.846***	0.410	0.339***
	(0.479)	(0.517)	(0.0370)
JP	-1.214***	0.416	0.232***
	(0.336)	(0.328)	(0.0424)
Working Class	2.941*	-0.273	0.0662
	(1.567)	(1.695)	(0.0568)
Labourer (Family)	7.607***	-2.458	-0.0154
	(1.619)	(1.749)	(0.0420)
Labourer	11.50***	-3.927	0.238***
	(2.756)	(2.982)	(0.0544)

This table reports .

C.2 Conservative Party Effect

Table C.2: Baseline Results

	Other × Margin 1906	Cons. × Margin 1906	Loss Margin 1900	Lagged D.V.
Honorary Title	-0.200	-0.487	-0.123	0.491***
	(0.177)	(0.304)	(0.149)	(0.0270)
Military Title	-0.0633	0.0723	-0.392	0.451***
	(0.566)	(0.973)	(0.477)	(0.0278)
Family Hereditary Title	-0.924***	0.131	-0.778***	0.500***
	(0.297)	(0.465)	(0.241)	(0.0235)
Eton	-1.038**	0.693	-0.794*	0.319***
	(0.508)	(0.796)	(0.412)	(0.0248)
Public School	-0.139	-0.990**	-0.320	0.461***
	(0.309)	(0.485)	(0.250)	(0.0253)
Fee Paying School	0.0798	-0.358**	0.00932	0.729***
	(0.0905)	(0.169)	(0.0757)	(0.0250)
Oxbridge	-0.0368	-0.562	-0.180	0.464***
	(0.229)	(0.360)	(0.186)	(0.0241)
University	-0.260	-0.121	-0.222	0.419***
	(0.167)	(0.262)	(0.135)	(0.0258)
Military (Family)	0.463	-0.866	-0.0207	0.461***
	(0.421)	(0.661)	(0.341)	(0.0233)
Military	-0.476	-0.0552	-0.201	0.516***
	(0.330)	(0.519)	(0.266)	(0.0234)
Politics (Family)	-0.183	-1.124***	-0.191	0.417***
	(0.265)	(0.415)	(0.214)	(0.0246)
Number Of Clubs	-0.255*	-0.251	-0.255**	0.546***
	(0.151)	(0.237)	(0.122)	(0.0248)
Brooks Club	-1.148**	-0.627	-1.475***	0.372***
	(0.581)	(0.914)	(0.471)	(0.0220)
Carlton Club	1.444	-3.824**	1.171	0.461***
	(1.231)	(1.924)	(0.992)	(0.0503)
School Connections	-0.539	-0.0297	-0.639**	0.343***
	(0.364)	(0.572)	(0.295)	(0.0247)
University Connections	-0.0811	-0.471	-0.202	0.445***
	(0.214)	(0.337)	(0.174)	(0.0247)
Legal Connections	-0.0213	-1.266**	0.280	0.443***
	(0.397)	(0.625)	(0.322)	(0.0245)
JP	-0.0931	-0.842**	0.255	0.452***
	(0.233)	(0.401)	(0.196)	(0.0264)
Working Class	-0.761	4.071**	-0.543	0.268***
	(1.033)	(1.621)	(0.837)	(0.0337)
Labourer (Family)	-1.826*	7.393***	-0.162	0.0900***
	(1.065)	(1.673)	(0.863)	(0.0299)
Labourer	-2.525	12.59***	-1.137	0.290***
	(1.739)	(2.731)	(1.410)	(0.0348)

This table reports .

C.3 Replacing Losing Candidates

Table C.3: Baseline Results

	Loss Margin 1906	Defeat	Defeat × Margin	Loss Margin 1900	Lagged D.V.
Honorary Title	-0.0595	-18.18	-0.613	-0.181	0.339***
	(0.708)	(14.99)	(0.791)	(0.262)	(0.0431)
Military Title	1.227	35.45	-3.695*	0.943	0.422***
	(1.860)	(39.14)	(2.074)	(0.691)	(0.0464)
Family Hereditary Title	0.236	-11.45	-1.517*	-0.257	0.289***
	(0.793)	(19.10)	(0.891)	(0.326)	(0.0357)
Eton	1.911*	-13.24	-3.372***	0.00540	0.333***
	(0.982)	(23.69)	(1.103)	(0.407)	(0.0361)
Public School	-0.187	6.805	-1.263	-0.322	0.310***
	(0.691)	(16.68)	(0.777)	(0.288)	(0.0358)
Fee Paying School	-0.271	8.977	-0.317	0.101	0.208***
	(0.273)	(5.993)	(0.318)	(0.108)	(0.0523)
Oxbridge	-0.189	-6.431	-0.630	-0.231	0.255***
	(0.707)	(17.05)	(0.794)	(0.296)	(0.0380)
University	-0.0587	-10.68	-0.305	-0.423*	0.260***
	(0.552)	(13.34)	(0.621)	(0.231)	(0.0385)
Military (Family)	-1.022	11.68	-0.192	0.492	0.296***
	(1.252)	(30.22)	(1.407)	(0.515)	(0.0389)
Military	-0.481	49.16**	-1.540*	0.0642	0.241***
	(0.797)	(19.24)	(0.900)	(0.328)	(0.0376)
Politics (Family)	0.116	-21.40	-2.062**	0.318	0.257***
	(0.898)	(21.71)	(1.010)	(0.370)	(0.0362)
Number Of Clubs	-0.752	-1.157	0.124	-0.426**	0.244***
	(0.501)	(12.08)	(0.564)	(0.207)	(0.0408)
Brooks Club	-1.913	-100.0*	1.173	-0.702	0.279***
	(2.223)	(53.89)	(2.502)	(0.912)	(0.0311)
Carlton Club	-0.680	8.286	-0.513	-0.328	0.182***
	(0.537)	(13.03)	(0.606)	(0.227)	(0.0398)
School Connections	1.238	-3.807	-2.627***	-0.0245	0.360***
	(0.793)	(19.12)	(0.891)	(0.329)	(0.0361)
University Connections	-0.180	-5.764	-0.562	-0.253	0.282***
	(0.681)	(16.45)	(0.765)	(0.285)	(0.0387)
Legal Connections	-2.350*	-13.11	0.886	0.418	0.341***
	(1.317)	(31.77)	(1.481)	(0.542)	(0.0371)
JP	-1.119	0.326	-0.137	0.417	0.232***
	(0.929)	(19.77)	(1.037)	(0.340)	(0.0428)
Working Class	-7.829*	50.01	14.23***	-1.153	0.0698
	(4.287)	(103.5)	(4.817)	(1.765)	(0.0565)
Labourer (Family)	-0.847	-60.74	12.58**	-2.832	-0.0130
	(4.431)	(107.0)	(4.977)	(1.823)	(0.0418)
Labourer	-1.365	-74.13	18.89**	-4.561	0.240***
	(7.556)	(182.3)	(8.488)	(3.112)	(0.0542)

This table reports .

C.4 Constituency Heterogeneity: Conservative Strongholds

Table C.4: Baseline Results

	Other × Loss Margin 1906	Stronghold × Margin	Loss Margin 1900	Lagged D.V.
Honorary Title	-0.355	-0.601	-0.372	0.344***
	(0.368)	(0.431)	(0.263)	(0.0428)
Military Title	-1.905**	1.456	1.278*	0.420***
	(0.965)	(1.136)	(0.696)	(0.0466)
Family Hereditary Title	-0.672*	-0.746	-0.498	0.295***
	(0.344)	(0.466)	(0.321)	(0.0356)
Eton	-0.837*	0.454	-0.124	0.337***
	(0.429)	(0.583)	(0.404)	(0.0363)
Public School	-0.834***	-0.478	-0.430	0.316***
	(0.300)	(0.408)	(0.285)	(0.0357)
Fee Paying School	-0.162	-0.357*	0.0781	0.223***
	(0.163)	(0.190)	(0.107)	(0.0518)
Oxbridge	-0.480	-0.567	-0.378	0.258***
	(0.306)	(0.416)	(0.291)	(0.0379)
University	-0.105	-0.699**	-0.598***	0.261***
	(0.239)	(0.324)	(0.226)	(0.0383)
Military (Family)	-1.782***	1.837**	0.843*	0.298***
	(0.541)	(0.734)	(0.505)	(0.0386)
Military	-1.243***	0.416	0.249	0.259***
	(0.351)	(0.474)	(0.326)	(0.0376)
Politics (Family)	-1.577***	-0.0259	0.135	0.260***
	(0.391)	(0.531)	(0.366)	(0.0362)
Number Of Clubs	-0.501**	-0.427	-0.497**	0.245***
	(0.218)	(0.295)	(0.204)	(0.0406)
Brooks Club	-1.364	-1.771	-1.331	0.284***
	(0.966)	(1.308)	(0.899)	(0.0309)
Carlton Club	-1.017***	0.133	-0.288	0.190***
	(0.234)	(0.318)	(0.222)	(0.0393)
School Connections	-0.804**	0.275	-0.110	0.366***
	(0.347)	(0.471)	(0.328)	(0.0363)
University Connections	-0.421	-0.552	-0.394	0.284***
	(0.295)	(0.401)	(0.280)	(0.0385)
Legal Connections	-1.270**	-1.431*	0.163	0.338***
	(0.571)	(0.774)	(0.533)	(0.0369)
JP	-1.339***	0.212	0.450	0.231***
	(0.471)	(0.559)	(0.340)	(0.0424)
Working Class	-1.305	10.51***	1.524	0.0690
	(1.849)	(2.510)	(1.727)	(0.0561)
Labourer (Family)	2.058	13.79***	-0.104	-0.0365
	(1.896)	(2.584)	(1.768)	(0.0414)
Labourer	0.975	26.07***	0.581	0.224***
	(3.209)	(4.358)	(3.000)	(0.0530)

This table reports .

C.5 Constituency Heterogeneity: Strategic Behaviour: Working Class Constituencies

Table C.5: Baseline Results

	Other × Loss Margin 1906	Working Class × Loss Margin 1906	Loss Margin 1900	Lagged D.V.
Honorary Title	-0.922***	0.456	-0.213	0.344***
	(0.328)	(0.439)	(0.258)	(0.0428)
Military Title	-0.0395	-2.223*	0.734	0.434***
	(0.856)	(1.161)	(0.683)	(0.0468)
Family Hereditary Title	-0.343	-1.245***	-0.603*	0.305***
	(0.373)	(0.473)	(0.322)	(0.0358)
Eton	-0.702	0.0951	-0.185	0.336***
	(0.466)	(0.589)	(0.408)	(0.0363)
Public School	-0.661**	-0.726*	-0.488*	0.316***
	(0.325)	(0.411)	(0.287)	(0.0357)
Fee Paying School	-0.545***	0.455**	0.184*	0.211***
	(0.141)	(0.211)	(0.106)	(0.0516)
Oxbridge	-0.256	-0.901**	-0.449	0.261***
	(0.332)	(0.420)	(0.292)	(0.0378)
University	-0.0696	-0.631*	-0.599***	0.261***
	(0.260)	(0.328)	(0.228)	(0.0383)
Military (Family)	-1.715***	1.337*	0.784	0.295***
	(0.589)	(0.743)	(0.510)	(0.0387)
Military	-0.890**	-0.367	0.108	0.260***
	(0.381)	(0.479)	(0.329)	(0.0376)
Politics (Family)	-1.585***	-0.00513	0.139	0.260***
	(0.425)	(0.536)	(0.369)	(0.0362)
Number Of Clubs	-0.663***	-0.0230	-0.430**	0.243***
	(0.237)	(0.298)	(0.206)	(0.0406)
Brooks Club	-2.844***	1.512	-0.737	0.283***
	(1.050)	(1.322)	(0.908)	(0.0309)
Carlton Club	-0.900***	-0.123	-0.330	0.194***
	(0.254)	(0.322)	(0.224)	(0.0394)
School Connections	-0.583	-0.218	-0.200	0.365***
	(0.376)	(0.475)	(0.330)	(0.0363)
University Connections	-0.103	-1.075***	-0.500*	0.288***
	(0.319)	(0.404)	(0.281)	(0.0384)
Legal Connections	-1.720***	-0.251	0.362	0.340***
	(0.622)	(0.784)	(0.539)	(0.0370)
JP	-1.268***	0.116	0.431	0.231***
	(0.429)	(0.572)	(0.336)	(0.0425)
Working Class	0.580	4.684*	0.618	0.0713
	(2.029)	(2.565)	(1.761)	(0.0567)
Labourer (Family)	1.695	11.73***	-0.207	-0.0168
	(2.069)	(2.613)	(1.795)	(0.0414)
Labourer	2.656	17.54***	-0.580	0.244***
	(3.535)	(4.467)	(3.069)	(0.0538)

This table reports .

C.6 A Winning Strategy? Implications for the 1910 Elections

Table C.6: Baseline Results

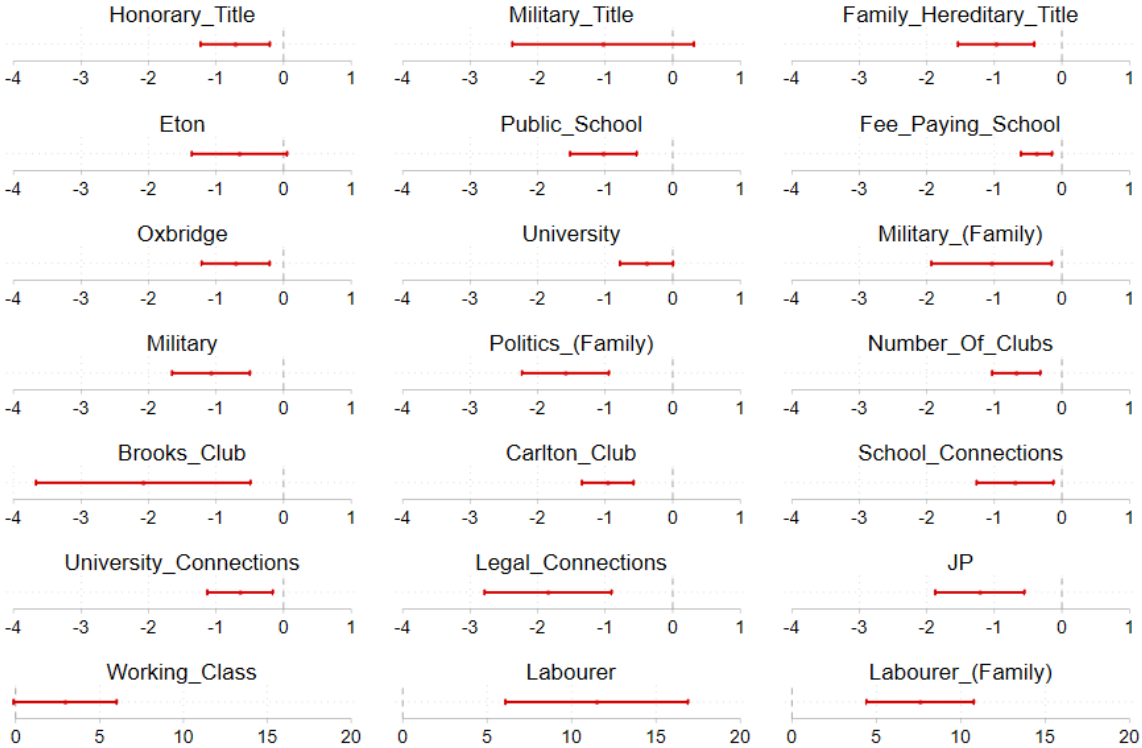
	(1) Win Margin 1910	(2) Win Margin 1910
Elite (SVM) × Upper-Class Constituency	4.923***	
	(1.120)	
Elite (SVM) × Middle-Class Constituency	-5.554***	
	(0.961)	
Elite (SVM) × Working-Class Constituency	-6.902***	
	(1.025)	
Elite (LDA) × Upper-Class Constituency		5.340***
		(1.294)
Elite (LDA) × Middle-Class Constituency		-6.672***
		(1.264)
Elite (LDA) × Working-Class Constituency		-7.611***
		(1.341)
Adjusted R^2	0.391	0.377
N	348	348

This table reports .

D Results Excluding Controls

D.1 Discussion

Figure D.1: Baseline Results



D.2 Regression Tables: Candidate Characteristics

Table D.1: Baseline Results

	Loss 1906
Honorary Title	-1.083***
	(0.164)
Military Title	0.674
	(0.421)
Family Hereditary Title	-1.283***
	(0.219)
Eton	-0.753***
	(0.279)
Public School	-1.074***
	(0.192)
Fee Paying School	-0.117**
	(0.0556)
Oxbridge	-0.674***
	(0.188)
University	-0.508***
	(0.144)
Military (Family)	-0.521
	(0.331)
Military	-0.906***
	(0.214)
Politics (Family)	-1.275***
	(0.249)
Number Of Clubs	-0.884***
	(0.124)
Brooks Club	-3.097***
	(0.680)
Carlton Club	-1.113***
	(0.137)
School Connections	-0.864***
	(0.226)
University Connections	-0.650***
	(0.183)
Legal Connections	-0.900**
	(0.359)
JP	-0.553***
	(0.211)
Working Class	2.320**
	(0.997)
Labourer (Family)	1.817
	(1.369)
Labourer	7.784***
	(1.789)

This table reports .

Table D.2: Baseline Results

	Other × Margin 1906	Cons. × Margin 1906
Honorary Title	-0.356**	-0.699***
	(0.172)	(0.255)
Military Title	-0.192	0.940
	(0.525)	(0.764)
Family Hereditary Title	-1.012***	-0.110
	(0.279)	(0.403)
Eton	-1.129**	0.518
	(0.455)	(0.657)
Public School	-0.493*	-0.494
	(0.281)	(0.406)
Fee Paying School	0.173*	-0.294*
	(0.101)	(0.154)
Oxbridge	-0.146	-0.415
	(0.204)	(0.302)
University	-0.333**	-0.0729
	(0.152)	(0.225)
Military (Family)	0.0881	-0.386
	(0.373)	(0.551)
Military	-0.230	-0.540
	(0.301)	(0.445)
Politics (Family)	-0.838***	-0.379
	(0.295)	(0.436)
Number Of Clubs	-0.732***	-0.0178
	(0.141)	(0.209)
Brooks Club	-1.575**	-1.248
	(0.618)	(0.914)
Carlton Club	1.991**	-3.421**
	(0.932)	(1.372)
School Connections	-0.565*	-0.156
	(0.314)	(0.465)
University Connections	-0.165	-0.369
	(0.191)	(0.282)
Legal Connections	-0.104	-0.712
	(0.346)	(0.512)
JP	-0.456**	-0.0870
	(0.210)	(0.312)
Working Class	-0.853	3.261***
	(0.772)	(1.142)
Labourer (Family)	-0.952	2.941**
	(0.988)	(1.460)
Labourer	-1.869	9.695***
	(1.303)	(1.926)

This table reports .

Table D.3: Baseline Results

	Loss Margin 1906	Defeat	Defeat × Margin
Honorary Title	-0.225	-37.80***	-0.448
	(0.382)	(9.952)	(0.471)
Military Title	0.592	60.90**	-1.452
	(0.982)	(25.57)	(1.211)
Family Hereditary Title	0.706	-33.37**	-2.370***
	(0.540)	(13.81)	(0.649)
Eton	1.474**	-30.87*	-2.814***
	(0.689)	(17.62)	(0.828)
Public School	-0.0417	1.087	-1.681***
	(0.475)	(12.15)	(0.571)
Fee Paying School	0.0561	4.115	-0.430***
	(0.122)	(3.333)	(0.157)
Oxbridge	0.752	-23.92**	-1.699***
	(0.465)	(11.90)	(0.559)
University	0.437	-19.94**	-1.027**
	(0.357)	(9.132)	(0.429)
Military (Family)	0.587	7.225	-1.952**
	(0.820)	(20.97)	(0.986)
Military	0.692	22.89*	-3.120***
	(0.522)	(13.35)	(0.628)
Politics (Family)	1.184*	-46.48***	-2.803***
	(0.612)	(15.64)	(0.735)
Number Of Clubs	0.0802	-14.14*	-1.200***
	(0.305)	(7.803)	(0.367)
Brooks Club	-2.739	-87.57**	1.566
	(1.685)	(43.07)	(2.025)
Carlton Club	0.0616	-11.26	-1.607***
	(0.336)	(8.602)	(0.404)
School Connections	0.841	-18.59	-2.278***
	(0.557)	(14.24)	(0.669)
University Connections	0.752*	-26.05**	-1.610***
	(0.453)	(11.57)	(0.544)
Legal Connections	-0.583	-13.22	-0.185
	(0.892)	(22.81)	(1.072)
JP	0.437	-12.39	-1.325**
	(0.497)	(12.93)	(0.611)
Working Class	-3.205	-7.232	9.028***
	(2.466)	(63.03)	(2.963)
Labourer (Family)	-3.355	-230.9***	13.93***
	(3.359)	(85.88)	(4.037)
Labourer	1.960	-195.0*	14.10***
	(4.418)	(112.9)	(5.309)

This table reports .

Table D.4: Baseline Results

	Other × Loss Margin 1906	Stronghold × Margin
Honorary Title	-0.835***	-0.421
	(0.251)	(0.322)
Military Title	0.429	0.415
	(0.643)	(0.825)
Family Hereditary Title	-1.239***	-0.0821
	(0.310)	(0.415)
Eton	-1.303***	1.043**
	(0.394)	(0.527)
Public School	-1.212***	0.261
	(0.271)	(0.363)
Fee Paying School	-0.00755	-0.187*
	(0.0851)	(0.110)
Oxbridge	-0.808***	0.255
	(0.266)	(0.356)
University	-0.507**	-0.00254
	(0.204)	(0.273)
Military (Family)	-1.501***	1.858***
	(0.465)	(0.623)
Military	-1.352***	0.846**
	(0.301)	(0.403)
Politics (Family)	-1.591***	0.599
	(0.351)	(0.470)
Number Of Clubs	-0.954***	0.133
	(0.175)	(0.234)
Brooks Club	-2.335**	-1.445
	(0.960)	(1.285)
Carlton Club	-1.499***	0.732***
	(0.192)	(0.257)
School Connections	-1.233***	0.699
	(0.318)	(0.426)
University Connections	-0.761***	0.210
	(0.259)	(0.346)
Legal Connections	-0.919*	0.0362
	(0.508)	(0.679)
JP	-0.861***	0.533
	(0.317)	(0.410)
Working Class	-0.193	4.763**
	(1.405)	(1.880)
Labourer (Family)	0.270	2.932
	(1.933)	(2.588)
Labourer	1.114	12.64***
	(2.510)	(3.360)

This table reports .

Table D.5: Baseline Results

	Loss Margin 1906	Working Class
Honorary Title	-1.086***	0.00710
	(0.205)	(0.325)
Military Title	1.432***	-2.003**
	(0.524)	(0.829)
Family Hereditary Title	-1.046***	-0.635
	(0.270)	(0.423)
Eton	-0.786**	0.0885
	(0.344)	(0.539)
Public School	-1.005***	-0.186
	(0.237)	(0.371)
Fee Paying School	-0.156**	0.111
	(0.0685)	(0.113)
Oxbridge	-0.514**	-0.429
	(0.232)	(0.364)
University	-0.422**	-0.230
	(0.178)	(0.279)
Military (Family)	-0.668	0.395
	(0.407)	(0.639)
Military	-0.795***	-0.300
	(0.263)	(0.413)
Politics (Family)	-1.184***	-0.243
	(0.306)	(0.481)
Number Of Clubs	-0.982***	0.262
	(0.152)	(0.239)
Brooks Club	-3.919***	2.210*
	(0.836)	(1.312)
Carlton Club	-1.211***	0.264
	(0.168)	(0.264)
School Connections	-0.896***	0.0862
	(0.278)	(0.436)
University Connections	-0.432*	-0.588*
	(0.225)	(0.354)
Legal Connections	-0.527	-1.001
	(0.442)	(0.693)
JP	-0.433*	-0.315
	(0.263)	(0.415)
Working Class	0.423	5.102***
	(1.224)	(1.920)
Labourer (Family)	-2.115	10.58***
	(1.672)	(2.623)
Labourer	1.515	16.86***
	(2.176)	(3.414)

This table reports .

D.3 Regression Tables: Elite Index

Table D.6: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.101*	-0.229***	0.179***	0.050
	(0.060)	(0.058)	(0.049)	(0.042)
Adjusted R^2	0.002	0.017	0.015	0.000
N	821	821	821	821

This table reports .

Table D.7: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
Other Parties × 1906 Loss Margin	0.010	-0.063	0.099*	-0.036
	(0.069)	(0.054)	(0.052)	(0.053)
Conservatives × 1906 Loss Margin	-0.111	-0.166**	0.080	0.086
	(0.096)	(0.076)	(0.073)	(0.074)
Adjusted R^2	0.087	0.183	0.015	0.131
N	1623	1624	1624	1624

This table reports .

Table D.8: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	0.378***	0.340**	0.003	-0.343***
	(0.140)	(0.134)	(0.114)	(0.098)
1906 Conservative Defeat × 1906 Loss Margin	-0.723***	-0.905***	0.293**	0.612***
	(0.173)	(0.165)	(0.140)	(0.121)
1906 Conservative Defeat	-2.956	-1.747	0.081	1.666
	(3.651)	(3.482)	(2.964)	(2.554)
Adjusted R^2	0.021	0.050	0.018	0.029
N	821	821	821	821

This table reports .

Table D.9: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.049	-0.235**	0.263***	-0.028
	(0.101)	(0.096)	(0.081)	(0.071)
Conservative Stronghold × 1906 Loss Margin	-0.013	0.131	-0.250**	0.119
	(0.133)	(0.127)	(0.106)	(0.093)
Adjusted R^2	0.003	0.025	0.029	0.000
N	821	821	821	821

This table reports .

Table D.10: Baseline Results

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.085	-0.219***	0.214***	0.005
	(0.076)	(0.073)	(0.061)	(0.053)
Working Class × 1906 Loss Margin	-0.042	-0.025	-0.092	0.117
	(0.119)	(0.115)	(0.096)	(0.084)
Adjusted R^2	0.001	0.016	0.015	0.002
N	821	821	821	821

This table reports .

E Classification Robustness

E.1 Support Vector Machine: Different Initial Labels

This section reproduces the Support Vector Machine results in the main paper, but illustrates the robustness of the findings by altering the initial labelling. I instead initially label the unambiguously elite as those whose families have hereditary titles and also attend a public school, while the unambiguous outsiders or working are those whose families are labourers. These results are reported in Table E.1 below.

Table E.1: Baseline Results

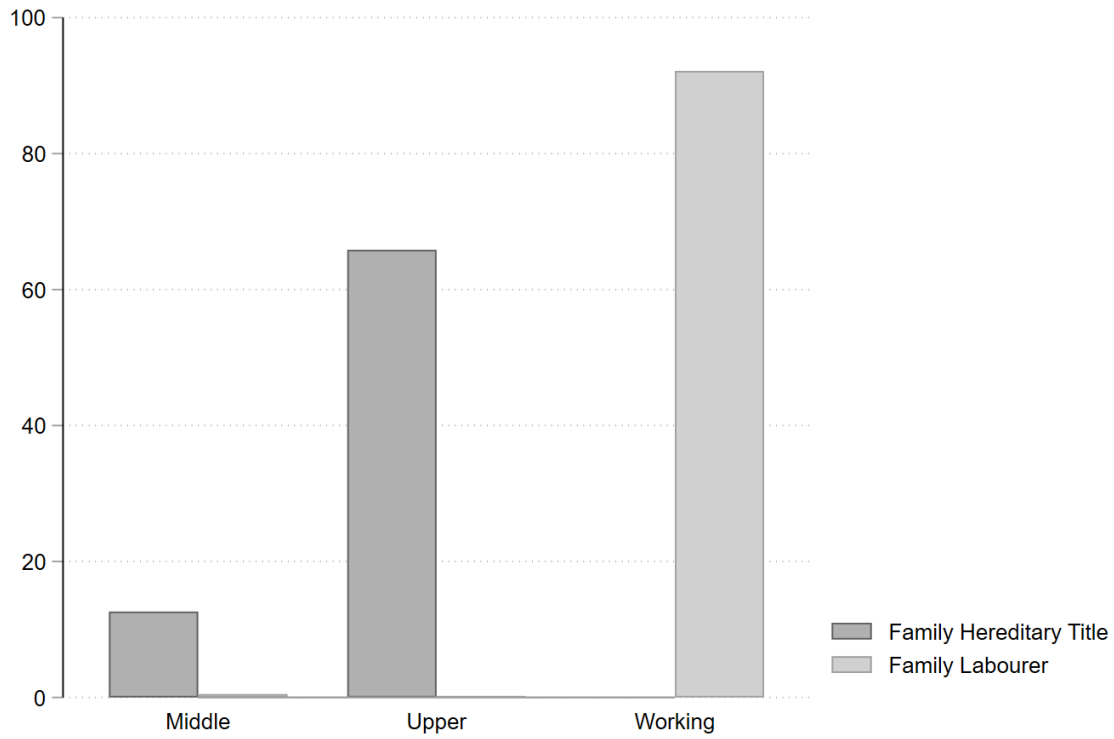
	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-0.401**	0.101	0.383	-0.272	0.00825
	(0.198)	(0.164)	(0.539)	(0.236)	(0.346)
Conservative × 1906 Loss Margin		-0.508*			
		(0.282)			
Conservative Defeat × 1906 Loss Margin			-1.112*		
			(0.602)		
Conservative Stronghold × 1906 Loss Margin				-0.343	
				(0.345)	
Working Class × 1906 Loss Margin					-0.832**
					(0.418)
Adjusted R^2	0.103	0.294	0.107	0.103	0.152
N	468	1038	468	468	238

This table reports .

E.2 K-Means Clustering

Another potential method of clustering is k-means clustering, which has been used for classification in the economics literature, for example by Crone (2005). For a given number of groups (such as three), k-means clustering minimises the within-cluster variances in the space of candidate characteristics. The three groups that are summarised in Figure E.1, which illustrates a clear political elite, working class, and middle class.

Figure E.1: Characteristics of Candidates in Different K-Mean Clusters



I replicate the results in the main paper, replacing the Latent Dirichlet Allocation variables for the political elite and the working class with indicators from the k-means clustering method, and they are reported in Tables E.2 and E.3.

Table E.2: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-1.121***	-0.454	-0.414	-0.926***	-0.301
	(0.231)	(0.325)	(0.637)	(0.256)	(0.440)
Conservative × 1906 Loss Margin		-0.676			
		(0.510)			
Conservative Defeat × 1906 Loss Margin			-1.100		
			(0.718)		
Conservative Stronghold × 1906 Loss Margin				-0.760*	
				(0.430)	
Working Class × 1906 Loss Margin					-1.099**
					(0.498)
Adjusted R^2	0.168	0.230	0.171	0.171	0.172
N	641	1242	641	641	317

This table reports .

Table E.3: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	7.552***	-1.701	-0.991	8.075***	2.618
	(1.566)	(1.045)	(4.286)	(1.738)	(3.960)
Conservative × 1906 Loss Margin		7.059***			
		(1.641)			
Conservative Defeat × 1906 Loss Margin			12.45***		
			(4.815)		
Conservative Stronghold × 1906 Loss Margin				-2.032	
				(2.921)	
Working Class × 1906 Loss Margin					10.72**
					(4.472)
Adjusted R^2	0.0308	0.0286	0.0412	0.0300	0.0593
N	641	1253	641	641	317

This table reports .

E.3 Latent Dirichlet Allocation: Different Number of Groups

I reproduce the results in the main paper using the Latent Dirichlet Allocation for different number of defined groups. The main paper focuses on three groups, and the following reports the results for two, four, five, and six groups. While the results regarding the political elite are not particularly robust, the results regarding the increasing in working-class representation are consistently positive.

Table E.4: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-0.337***	0.220***	-0.0296	-0.189	-0.285*
	(0.0879)	(0.0632)	(0.238)	(0.124)	(0.159)
Conservative × 1906 Loss Margin		-0.286***			
		(0.106)			
Conservative Defeat × 1906 Loss Margin			-0.499*		
			(0.267)		
Conservative Stronghold × 1906 Loss Margin				-0.245*	
				(0.146)	
Working Class × 1906 Loss Margin					-0.159
					(0.191)
Adjusted R^2	0.209	0.394	0.216	0.212	0.156
N	468	1040	468	468	238

This table reports .

Table E.5: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-0.221***	0.121**	0.284	-0.251**	-0.0663
	(0.0821)	(0.0513)	(0.222)	(0.116)	(0.148)
Conservative × 1906 Loss Margin		-0.179**			
		(0.0867)			
Conservative Defeat × 1906 Loss Margin			-0.738***		
			(0.249)		
Conservative Stronghold × 1906 Loss Margin				0.0494	
				(0.137)	
Working Class × 1906 Loss Margin					-0.272
					(0.180)
Adjusted R^2	0.253	0.376	0.268	0.251	0.158
N	468	1040	468	468	238

This table reports .

Table E.6: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	0.0995***	-0.148***	-0.0117	-0.0228	-0.00711
	(0.0377)	(0.0400)	(0.102)	(0.0527)	(0.0754)
Conservative × 1906 Loss Margin		0.0818			
		(0.0677)			
Conservative Defeat × 1906 Loss Margin			0.219*		
			(0.114)		
Conservative Stronghold × 1906 Loss Margin				0.204***	
				(0.0620)	
Working Class × 1906 Loss Margin					0.293***
					(0.0895)
Adjusted R^2	0.0487	0.472	0.0669	0.0684	0.0817
N	468	1040	468	468	238

This table reports .

Table E.7: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-0.175**	0.0865*	0.267	-0.121	-0.0314
	(0.0777)	(0.0477)	(0.211)	(0.110)	(0.138)
Conservative × 1906 Loss Margin		-0.128			
		(0.0812)			
Conservative Defeat × 1906 Loss Margin			-0.616***		
			(0.237)		
Conservative Stronghold × 1906 Loss Margin				-0.0887	
				(0.130)	
Working Class × 1906 Loss Margin					-0.302*
					(0.168)
Adjusted R^2	0.216	0.315	0.225	0.215	0.135
N	468	1040	468	468	238

This table reports .

Table E.8: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	0.103***	-0.120***	0.0178	-0.0142	0.0152
	(0.0308)	(0.0333)	(0.0832)	(0.0429)	(0.0641)
Conservative × 1906 Loss Margin		0.0987*			
		(0.0567)			
Conservative Defeat × 1906 Loss Margin			0.175*		
			(0.0930)		
Conservative Stronghold × 1906 Loss Margin				0.195***	
				(0.0505)	
Working Class × 1906 Loss Margin					0.245***
					(0.0765)
Adjusted R^2	0.0510	0.486	0.0698	0.0787	0.0913
N	468	1040	468	468	238

This table reports .

Table E.9: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	-0.166**	0.0745*	0.222	-0.0809	-0.0272
	(0.0723)	(0.0443)	(0.197)	(0.102)	(0.128)
Conservative × 1906 Loss Margin		-0.129*			
		(0.0755)			
Conservative Defeat × 1906 Loss Margin			-0.534**		
			(0.220)		
Conservative Stronghold × 1906 Loss Margin				-0.141	
				(0.120)	
Working Class × 1906 Loss Margin					-0.281*
					(0.155)
Adjusted R^2	0.263	0.343	0.270	0.263	0.190
N	468	1040	468	468	238

This table reports .

Table E.10: Baseline Results

	(1)	(2)	(3)	(4)	(5)
1906 Loss Margin	0.143***	-0.0646***	0.0201	0.0402	0.0694
	(0.0263)	(0.0231)	(0.0713)	(0.0367)	(0.0501)
Conservative × 1906 Loss Margin		0.154***			
		(0.0396)			
Conservative Defeat × 1906 Loss Margin			0.188**		
			(0.0797)		
Conservative Stronghold × 1906 Loss Margin				0.171***	
				(0.0432)	
Working Class × 1906 Loss Margin					0.184***
					(0.0605)
Adjusted R^2	0.0995	0.412	0.112	0.127	0.148
N	468	1040	468	468	238

This table reports .

E.4 Missing Data Assumptions

This section provides robustness checks concerning missing biographical data on certain candidates. I explain the potential issues with missing data, and replicate the analysis in the main paper using a variety of different assumptions about the missing data. I find little difference in these results to the results reported in the main paper.

E.4.1 Missing Biographical Data

For example, those with missing biographical data may be more likely to come from working-class backgrounds, as they are less likely to appear in the Oxford Dictionary of National Biography if their sole activity in public life was to run for a seat in Parliament. The bias

If, for some reason, these candidates are more prevalent in constituencies where the Conservatives did in 1906, then

For example, if those with missing biographical data are more likely to be those who are from working class backgrounds, and those candidates are

As shown in Table E.11, there are a non-negligible percentage of observations where there is incomplete biographical data.

Table E.11: Missing Biographical Data (Percentage of Observations)

	Conservatives	Independents	Labour	Liberals	Average
1900 Election	6.5	66.7	10.0	11.7	8.9
1906 Election	10.9	25	8.2	6.3	8.8
January 1910 Election	14.5	10	7.1	11.0	12.5
December 1910 Election	14.1	40	2.2	11.6	12.5
Average	11.5	26.7	6.3	10	10.7

This table reports .

Table E.12: Baseline Results

	(1) Missing=0	(2) Missing=10	(3) Missing=20	(4) Missing=30
1906 Loss Margin	-0.368***	-0.341***	-0.314***	-0.288***
	(0.095)	(0.090)	(0.085)	(0.081)
1900 Loss Margin	-0.102	-0.087	-0.073	-0.059
	(0.104)	(0.098)	(0.093)	(0.088)
Lagged Dependent Variable	0.204***	0.212***	0.219***	0.225***
	(0.040)	(0.039)	(0.039)	(0.038)
Adjusted R^2	0.080	0.081	0.082	0.082
N	641	641	641	641

This table reports .

Table E.13: Baseline Results

	(1) Elite (LDA)	(2) Middle (LDA)	(3) Working (LDA)
1906 Loss Margin	-0.345***	0.020	0.346***
	(0.077)	(0.066)	(0.084)
1900 Loss Margin	-0.037	0.015	0.061
	(0.083)	(0.072)	(0.091)
Lagged Dependent Variable	0.329***	0.253***	0.207***
	(0.037)	(0.041)	(0.041)
Adjusted R^2	0.155	0.053	0.078
N	641	641	641

This table reports .

Table E.14: Baseline Results

	(1) Elite (LDA)	(2) Middle (LDA)	(3) Working (LDA)
1906 Loss Margin	-0.345***	0.045	0.317***
	(0.077)	(0.063)	(0.077)
1900 Loss Margin	-0.037	0.025	0.044
	(0.083)	(0.068)	(0.084)
Lagged Dependent Variable	0.329***	0.269***	0.224***
	(0.037)	(0.040)	(0.040)
Adjusted R^2	0.155	0.063	0.084
N	641	641	641

This table reports .

Table E.15: Baseline Results

	(1) Elite (LDA)	(2) Middle (LDA)	(3) Working (LDA)
1906 Loss Margin	-0.319***	0.045	0.289***
	(0.073)	(0.063)	(0.070)
1900 Loss Margin	-0.025	0.025	0.027
	(0.079)	(0.068)	(0.076)
Lagged Dependent Variable	0.346***	0.269***	0.243***
	(0.036)	(0.040)	(0.039)
Adjusted R^2	0.164	0.063	0.092
N	641	641	641

This table reports .

Table E.16: Baseline Results

	(1) Elite (LDA)	(2) Middle (LDA)	(3) Working (LDA)
1906 Loss Margin	-0.319***	0.069	0.262***
	(0.073)	(0.060)	(0.064)
1900 Loss Margin	-0.025	0.035	0.012
	(0.079)	(0.065)	(0.070)
Lagged Dependent Variable	0.346***	0.281***	0.264***
	(0.036)	(0.040)	(0.039)
Adjusted R^2	0.164	0.073	0.101
N	641	641	641

This table reports .

E.4.2 Uncontested Elections

The baseline analysis in the main paper excludes observations where the Conservative candidate in either the 1900 or the 1906 election ran uncontested, as the 1900 Loss Margin and the 1906 Loss Margin are not unambiguously defined. As a robustness check, I reproduce the baseline results in Table 3, but also code 1900 and 1906 Loss Margins as -100 if the Conservative candidate ran unopposed (a 100 per cent majority). The results are reported in Table E.17. Although the magnitudes are a little smaller than in the main analysis, they still provide significant evidence of an association between a greater loss margin and switching candidates from the political elite to the working class.

Table E.17: Baseline Results: Including Uncontested Elections

	(1) Elite (SVM)	(2) Elite (LDA)	(3) Middle (LDA)	(4) Working (LDA)
1906 Loss Margin	-0.102*	-0.110**	0.026	0.081*
	(0.062)	(0.056)	(0.048)	(0.041)
1900 Loss Margin	-0.022	-0.057**	0.061***	-0.001
	(0.028)	(0.026)	(0.022)	(0.019)
Lagged Dependent Variable	0.355***	0.488***	0.465***	0.439***
	(0.034)	(0.032)	(0.035)	(0.031)
Adjusted R^2	0.133	0.260	0.211	0.208
N	744	744	744	744

This table reports .