

The evolution of electoral competition in Victorian England

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Abstract

We develop a model in which the rise of literacy contributes to the onset of electoral competition in early periods of democratization. Our model predicts literacy to spark electoral competition by reducing the electoral advantage enjoyed by incumbents. A counterintuitive product of our model is a positive correlation between literacy and the marginal effect of candidates' spending on their probability of winning. We test our model against data on electoral competition in English and Welsh parliamentary districts between 1820 and 1906; our empirical results are consistent with the predictions of our model.

1 Introduction

The onset of electoral competition marks an important step in the political development of a society. Electoral competition is a fundamental aspect of political contestation and therefore of democracy itself (Dahl (1973)). In as much as electoral competition offers voters viable alternatives to incumbent office-holders, it is also integral to electoral accountability (Przeworski, Stokes, and Manin 1999). The territorial extent and uniformity in the partisan pattern of political competition also defines the degree to which a country's politics are nationalized (Rokkan 1970; Caramani 2004).

Historically speaking, the evolution of European democracy was characterized by periods of when elections were largely non-competitive (Caramani 2004). This was also true in spatial terms, with electoral competition coming later to some countries and some regions within countries than others. This can be appreciated by noting that an average of 40 percent of districts in England and Wales went uncontested at the twelve parliamentary elections held between 1832 and 1880 (Gash 1953; Lloyd 1965).

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Uncontested elections were far more likely to occur in the larger, agricultural county districts than in the more urbanized boroughs. This contrast has contributed to a long-running debate among historians as the degree to which the extension of the suffrage and reform of the electoral system in 1832 disrupted traditional political relationships, especially outside the larger cities and towns. A parallel can be drawn between this historiographic debate and debates in political science and economics regarding the capacity of *de jure* institutions to alter *de facto* inequalities in the distribution of power (see, e.g., Robinson and Acemoglu 2008).

We consider the emergence of electoral competition from the perspective of modernization theory. Specifically, we develop a model in which the voter's literacy plays a key role in the emergence of electoral competition. Candidates in our model appeal to voters on the basis of both financial transfers and their intrinsic quality (variously conceived of as talent, social status, etc.) Voters value both money and quality, but they can only imperfectly observe the latter. The voters' risk aversion combines with their familiarity with the incumbent to give the incumbent an electoral advantage. Challengers do not contest the election if this incumbency advantage is too great or the cost of transfers is too high. Literacy, however, improves the voters' knowledge of the candidates' qualities, and in this way levels the field between incumbents and challengers. Our model thus predicts literacy to spark electoral competition by reducing the electoral advantage enjoyed by incumbents. A concomitant and counterintuitive product of our model is a positive correlation between literacy and the marginal effect of candidates' spending on their probability of winning.

The thesis that literacy was crucial to the emergence of electoral competition in Victorian England connects our work to a longstanding and diverse literature on political and economic modernization. It is useful for our purposes to highlight two views on the means by which literacy fosters political modernization.

The first is that literacy alters the individual's perceptions and values. Lerner's (1958) *Passing of Traditional Society* takes this line of argument. The joint effect of literacy and media, Lerner contended, was to shift the individual's attention from the local to the national sphere. In this way, literacy and the media combined to break down traditional bonds and to forge a national consciousness. Anderson (1983) makes a similar argument about the critical role of literacy and the press in creating "imagined communities". The relevant aspect of this literature for our purposes is the capacity of literacy to alter the psychological boundaries of community and to redefine who is an insider or outsider.

The second perspective is that literacy allows large numbers of people to coordinate and mobilize for political action. Tocqueville (2000, 493) was an early proponent of this thesis, arguing that newspapers were the central means by which citizens in a diverse and transient society could share ideas, coordinate their actions, and engage in associational life. This was not a psychological phenomenon as far as Tocqueville was concerned; he denied that teaching a man to read and write was sufficient to make him a citizen. It was rather that literate people could employ media technology to coordinate, and mobilize across distances. Reuschemeyer, Stephens, and Stephens (1992), Putnam, Leonardi, and Nanetti (1994), and Caramani (2004) make similar arguments.

This line of argument (i.e., that literacy allows people to coordinate and mobilize) is

closely related to literature on the emergence of modern political parties and electoral democracy in Victorian England. Many of the contributors to this literature noted the close connection between rise of the mass media and the development of political parties. Ostrogorski's critical observation was that the primary effect of rise of the penny press was to confirm the voter in his prejudices, maintain his loyalty to the party, and inspire hatred for the opposite party. The broad thesis that the spread of newspapers helped to configure the English electorate along partisan and programmatic lines is shared by Vincent (1966) and Cox (1987, 120-121). The relevant aspect of this literature for our purposes is the argument that effect of literacy was to facilitate partisan and increasingly programmatic political competition. We do not dispute this argument, but we point out that another key effect of literacy was to undercut the electoral advantages enjoyed by incumbents of every partisan stripe.

We test our model against data on electoral competition in English and Welsh parliamentary districts between 1820 and 1906. We show that the probability of a contested election increased with literacy levels in a district. This effect is independent of the district's size and level of economic development, and the presence of "proprietary" aristocratic interests. We also find that the electoral advantage enjoyed by incumbents at contested elections declined as literacy levels rose. Our model predicts that a concomitant result of the decline in the incumbency advantage is that the marginal effect of candidates' spending on their vote shares should increase alongside literacy levels. We find exactly this pattern. In other words, campaigns became more capital-dependent as literacy levels rose.

Our results are consistent with arguments that literacy facilitated the emergence of partisan and programmatic electoral competition (e.g., Lipset 1959; Dahl 1973). However, we go beyond this general argument to show that a central effect of literacy was to erode the advantage that incumbents enjoyed at elections. This encouraged challengers to enter previously uncontested electoral districts. This is an important insight in as much the development of partisan, and programmatic electoral competition hinges both temporally and logically on the prior emergence of electoral competition.

2 Historical Context

We begin our description of the historical context of Victorian election by setting out the challenges that the prospective Victorian candidate faced in finding a district and winning election. The thrust of our argument is that aspiring candidates faced a variety of entry barriers at Victorian elections. We present data to show that in consequence of these entry barriers a chronically high proportion of constituencies went uncontested at the general elections of the period. Reading the extant literature would suggest that the high proportion of uncontested districts was due either to 1) the continuing *deference* of English voters to their elites or to 2) to the electoral advantages of *party organization*. These are not mutually exclusive arguments. Indeed, we argue that the rising literacy and the spread of print media allowed outsiders more effectively enter and contest "deference communities". We also argue that the electoral impact of improvements

in media technology necessarily hinged on the literacy of the electorate; only if the bulk of the electorate was literate could newspapers and printing offer campaigns an economy of scale relative to person-by-person recruitment.

Entry barriers at Victorian elections

The aspiring Victorian candidate's challenges began with the fact that there was no central party organization to assign candidates to districts or to fund local campaigns; this was only gradually and fitfully built up over the course of the nineteenth century. Indeed, the governing presumption was in favor of local independence in both the selection of candidates and the conduct of the campaign. The system of matching candidates to districts was in this sense highly decentralized. This did not imply that securing the nomination for a district was wholly chaotic; it was rather a system of custom than defined procedure.

The time-honored way to be nominated as a candidate was to build up an "interest" in a district. Owning property in the locality—an estate or, later in the period, a factory—was the main way in which candidates acquired an interest in a district. East India traders and other "new men" would frequently use their fortunes to buy an estate, establish an interest in a district, and then go on to represent it in the House of Commons (Cox, 1987, 114). Interest was not reducible solely to property, however; the term also implied a connection to the social and political life of the community. It meant socializing with local elites *and being accepted as one of them*, donating to local charities, and involving oneself in local institutions, serving as a justice of the peace or as the commander of the local militia, for example. Many candidates, of course, simply inherited their family's "proprietary" interest in district, and with it the representation of the district.¹

The overall effect of the Great Reform Act of 1832 was to weaken this sort of hereditary political control. The Act did so by eliminating many of the smallest "rotten" boroughs. This directly undercut the wholesale trade in parliamentary seats that had marked the pre-Reform era (Seymour 1915, 61; Gash 1953, 67). The wholesale redistribution of parliamentary seats and electoral boundaries that accompanied the Act also freed many other boroughs from aristocratic influence (Seymour 1915, 98). The Great Reform Act also reduced polling period from one week to just two days in 1832, and to a single day thereafter. In as much as candidates were traditionally expected to pay for their supporters' travel, lodging, and food and drink, the reduction of the polling period effected a proportionate reduction in candidate's campaign costs (Kam 2011) and encouraged electoral contestation.

The impact of these effects should not be exaggerated, however. If the cost of electioneering fell after 1832, fighting a contested election remained a very expensive undertaking. Candidates could expect to spend £2,000 contesting a borough, and easily twice as much contesting a county. Aristocratic influence, moreover, continued to suppress

¹Inheritance and purchase of interest were by no means mutually exclusive, of course, as the Peel family's history at Tamworth indicates.

electoral competition, especially in the counties. Even as late as 1868 there existed approximately 30-40 “proprietary” boroughs where the interest of single individual or family was so dominant as to preclude an electoral challenge by an outsider (Gash 1953, 438-439; Hanham 1959, 412). In another 20-25 districts political influence was exercised by a small number of dominant families (Hanham 1959, 43-45).² Familial rivalries within these local oligarchies would occasionally generate electoral competition, but the potential expense of a contested election tended to induce all sides to compromise to avoid a contest (Gash 1953, 239-269). Such compromises were aided by the fact that the modal English district of this era held two seats, thus allowing both sides to partake of a share of the district’s representation.

If the first proposition of the Great Reform Act was to effect a redistribution of parliamentary seats, its second proposition was to extend the suffrage (Fraser 2013, 79). If the former aspect of the Act tended to increase electoral competition, the latter aspect of the Act arguably diminished it—at least indirectly and inadvertently. The Great Reform Act established two property franchises, the £10 householder franchise in the boroughs and the 40-shilling freeholder franchise in the counties. These franchises were not automatically extended to the voter in the sense the voter was required to register for them annually. This entailed providing the relevant local authorities with proof of residence and payment of rates and, if necessary, appearing before the revising barrister to defend one’s right to vote if it was challenged (as it frequently was) (Salmon 2002, 20-22). The parties quickly realized that it was to their advantage to assist their supporters in their registration efforts (hence Peel’s call to “Register, register, register!” [Evans 1991, 41]) and, equally, to throw up objections to the registration of their opponent’s supporters. The registration process was in this way transformed from a bureaucratic transaction into a partisan struggle. Moreover, precisely because of the highly partisan character of the electorate (Phillips 1992; Phillips and Wetherell 1995) it was often sufficient to win the registration battle; an election offered the side that lost the registration only a slight chance of victory at a very great expense.

This historical narrative suggests two models by which constituencies went uncontested at parliamentary elections:

1. The first model casts uncontested elections as a function of the continuing political power of the aristocracy. We label this the *deference* model of elections. Proponents of this perspective (notably Gash (1953) and Moore (1967; 1976)) contend that the mid-Victorian electorate was largely indifferent to partisan and ideological appeals. Most voters, and especially those in agricultural communities, remained “locked into” (to use Scott’s (1972) evocative phrase) a web of traditional, hierarchical deference relationships that molded their (parochial) political concerns and electoral behavior. On this model, the Great Reform Act did little to disrupt these traditional deference communities. Landed proprietors—the putative leaders of these deference communities—retained tremendous political

²At Grantham, for example, the Welby family’s powerful interest was counterpoised by those of Tollemache and Cholmeley families (<http://www.historyofparliamentonline.org/volume/1832-1868/member/tollemache-algernon-gray-1805-1892>). Hanham Hanham (1959, 52-53) also discusses the distribution of influence at Grantham.

influence such that incumbents who enjoyed their favor were largely insulated from electoral challenges.

2. A second model casts uncontested elections as a logical implication of the extension of the franchise and voter registration requirements mandated by the Great Reform Act (Salmon 2002). We label this the *organizational* model of elections. This model originates in the fact that the expanded electorates of many boroughs and counties were too large for candidates to effectively canvass on a personal basis after 1832 (Salmon 2002, 98; Cox 1987, 128-129). Growth in the size and partisanship of the electorate combined with the importance of the registration process to place a premium on party organization. The side that managed to establish an effective local organization enjoyed a decisive advantage at elections. Indeed, as we noted above, the election itself was often rendered moot once one side had established a decisive advantage on the register.

Both models stand as potential explanations for the chronically high proportion of uncontested constituencies at the parliamentary elections of the period. This is reflected in Figure 1, which shows the percentage of parliamentary constituencies that were contested (i.e., candidates outnumbered seats) at general elections held between 1825 and 1885.³ In the three elections (1826, 1830, 1831) held prior to the Great Reform Act less than 40 percent of constituencies were contested. The percentage of contested constituencies increased sharply at the 1832 election to 69 percent. This high level of contestation was not sustained, however. At the eight general elections held between 1835 and 1865, the percentage of contested elections averaged just 53 percent (albeit with much election-to-election variability). The 1868 election that followed immediately on the significant expansion of the franchise effected by the Second Reform Act saw the percentage of contested elections surge to 76 percent. Despite a slight dip at the 1874 election, the trend in contestation was upward from 1868 onward. At the 1885 election, all but 2 percent of constituencies were contested.

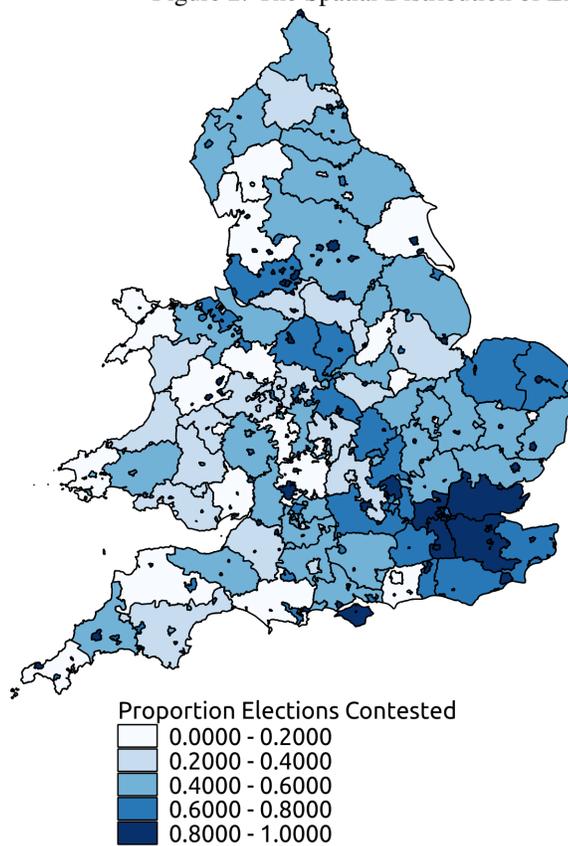
The spatial distribution and expansion of electoral competition (Figure 2) was not even, however. Borough electorates—smaller and more economical for candidates to contest—were always more heavily contested than the larger county electorates. Even among the counties, however, there was an ostensible connection between urbanization and industrialization, on one hand, and electoral competition, on the other. Two-thirds of parliamentary elections in the southeastern counties in the vicinity of London were contested, for example, a significantly higher proportion than for counties farther from the metropolis. Similarly, a vein of electoral competition extended northwards along the rapidly industrializing spine of the country. Parliamentary elections in the counties of this region (e.g., Derbyshire, Warwickshire, and Staffordshire) were more likely to be contested than counties in more agricultural areas (e.g., Devonshire, Dorsetshire, and Shropshire).⁴

³Note that the percentage of seats contested at these general elections could vary somewhat from the percentage of contested constituencies because the modal district was a multi-member constituency, with two-member districts being the most common sort. The deviation between the two percentages is never very large, however. In 1841, for example, 52 percent of English and Welsh districts were contested as compared

Figure 1: The percentage of contested constituencies in England and Wales at general elections, 1825-1885



Figure 2: The Spatial Distribution of Electoral Competition



Literacy and the changing nature of the election campaign.

Figures 1 and 2 also make clear that neither the lack of an established interest nor the high cost of electioneering were sufficient to scare off all candidates or suppress all competition. Candidates who decided to contest an election would typically enter a district a few weeks in advance of an election and issue their address. The address was in effect the candidate's introduction to the local electorate. Like all pieces of political communication, the campaign address was formulaic and ambiguous. It would often begin by establishing the candidate's connections to the area and its people. Incumbents would stress how they had assiduously cared for the district's interests; challengers would vow to work tirelessly on the district's behalf. Yet there was also an informative dimension to candidates' addresses. Addresses would also list the candidate's virtues (or vices) of the incumbent government, and set out his views on the issues of the day. The language in this section of the address was guarded and qualified, but it provided voters with clues as to the candidate's positions and his partisan inclination. Incumbents, of course, were personally familiar to their constituents and had parliamentary track records, but in an era without formal electoral parties challengers were something of an enigma. Thus when a candidate expressed concerns about "concessions to Rome"⁵ or that he would support reforms to the constitution such as were "consistent with the preservation of its ancient landmarks," for example, it was highly significant; it identified him as a Conservative⁶

The address would be reprinted and circulated in local newspapers or handed out as broadsheets. Other materials—posters, notices of meetings, etc.—would also be printed and circulated. Campaigns were thus heavily reliant on the print media, and more so as the electorate grew in size (Cox 1987, 129). The registration process was similarly reliant on literacy: voters needed to be communicated with and motivated to register; the register itself had to be printed and circulated to party agents to track the ebb and flow of potential support, and the like. The impact of technological innovations in printing and the removal of various duties and taxes on newspapers in 1855 was therefore politically significant (Aspinall 1974; Vincent 1966). The hundreds of newspapers that sprang up after these duties were removed were cheap, popular and highly partisan, all of which contributed to the development of a party-oriented electorate, that is, an electorate that was increasingly inclined to view candidates as interchangeable standard bearers for one party or the other and vote on the basis of those party labels (Cox 1987).

In logical terms, the impact of these improvements in media technology hinged on the literacy of the electorate. Certainly, the illiterate voter was not entirely isolated from

to 53 percent of English and Welsh seats.

⁴That said, such patterns were themselves internally varied and it was not uncommon for one of a county's districts to be contested far more frequently than its other (e.g., Derbyshire Southern versus Derbyshire Northern). Often this was due to the factors we discuss below, that is, the presence of powerful "proprietary" interests.

⁵The phrase is from Glynne Welby's address at the 1847 Grantham election. See <http://www.historyofparliamentonline.org/volume/1832-1868/member/welby-glynne-earle-1806-1875>.

⁶The phrase is from John Holloway's address at the 1859 Boston election. See *The Poll Book of the Contested Election for the Borough of Boston, Saturday 30th April 1859*.

these developments; Ostrogorski (1902) describes how the more literate workers would read pamphlets and newspapers to their illiterate colleagues. However, from candidate's perspective a literate electorate implied significant economies of scale: he was not confined to meeting the voters person-by-person but could communicate cheaply and quickly with many of them at once. Furthermore, to the extent that a literate electorate was party-oriented, it allowed the candidate to appeal to voters on the basis of party affiliation. This eased candidates' reliance on personal connections and the possession of a traditional interest in the district. Put differently, a literate electorate placed the challenger on more even footing vis-a-vis the incumbent.

3 Model

Common to both the deference and organizational models is that some form of incumbency advantage combines with the high cost of contested elections to generate uncontested elections. In the deference model, for example, the incumbent's advantage lies in his status as (or close relation to) a leader of a deference community. In the organizational model, the incumbent benefits from an organizational advantage that allows him to control the electoral register and more effectively mobilize electoral support. Our model builds on this basic insight, that is, that Victorian incumbents must have enjoyed a significant electoral advantage. Specifically, we develop a model of incumbency advantage when campaigns operate on clientelistic frameworks and literacy decreases the incumbency advantage by improving information on the challenger's characteristics. We then derive predictions for the effect of literacy on transfers and contestation.

We employ the probabilistic voting framework of Tabellini (2009) where voters see candidates as intrinsically distinct along two dimensions. The first is an individual-specific preference for candidates, as in Tabellini, which we call ideology. We add a second dimension that represents a common perception or belief of candidate efficacy, which we call quality. Similar to the diminishing returns to public goods in Tabellini's framework, we assume that voters have risk-averse preferences over this quality dimension, reflecting the idea that voters are reluctant to gamble on a challenger of unknown ability. We model the difference in the information available to the electorate about the incumbent and challenger quality by assuming that an election and subsequent term in office resolves uncertainty, so that the electorate knows the quality of the incumbent but not the challenger. The electorate forms its belief of the challenger's quality based on a noisy but unbiased signal. Given this, candidates choose transfer levels to voters. The final key assumption is that literacy reduces the uncertainty surrounding the challenger's quality, with the intuition that the spread of information facilitated through a literate electorate has the net effect of consolidating a narrative among electors as to challenger quality. From these assumptions we model election probability, and generate predictions on the interaction between transfers and literacy, and literacy and contestation.

The timing of the game is as follows: 1) the potential challenger makes the entry decision given his type, 2) the challenger and incumbent make spending decisions, and 3) the signal of challenger quality is realized, and the election is resolved. Let θ_K , with K indexing the incumbent I and challenger C , represent quality, and τ be the signal of challenger's quality, given by

$$\tau = \theta_C + \varepsilon$$

where noise variable ε is distributed uniformly over $[-\frac{1}{2\phi}, \frac{1}{2\phi}]$. The assumption that literacy reduces signal uncertainty is modeled through a positive correlation between ϕ and literacy. Voter i 's preferences when θ_C is known by the electorate are given by

$$\begin{aligned} U_I^i(T_I, \theta_I) &= T_I - e^{-r\theta_I} \\ U_C^i(T_C, \theta_C) &= T_C - e^{-r\theta_C} + \delta + \sigma^i \end{aligned}$$

where T_K represent transfers, σ^i represents relative ideological preference for the challenger, distributed uniformly over $[-\frac{1}{2\psi}, \frac{1}{2\psi}]$, and δ is the mean ideological preference for the challenger among the electorate.⁷

To generate the probability that the incumbent wins the election, we identify the ideological location of the voter indifferent between the challenger and the incumbent given the quality signal, and then we find the *ex ante* probability that this voter is to the left or right of the median voter before the quality signal is realized. The voter who is indifferent between the two candidates, indexed by d , has ideological preference for the challenger σ^d that satisfies

$$U_I^d(T_I, \theta_I) = E[U_C^d(T_C, \theta_C) | \tau]$$

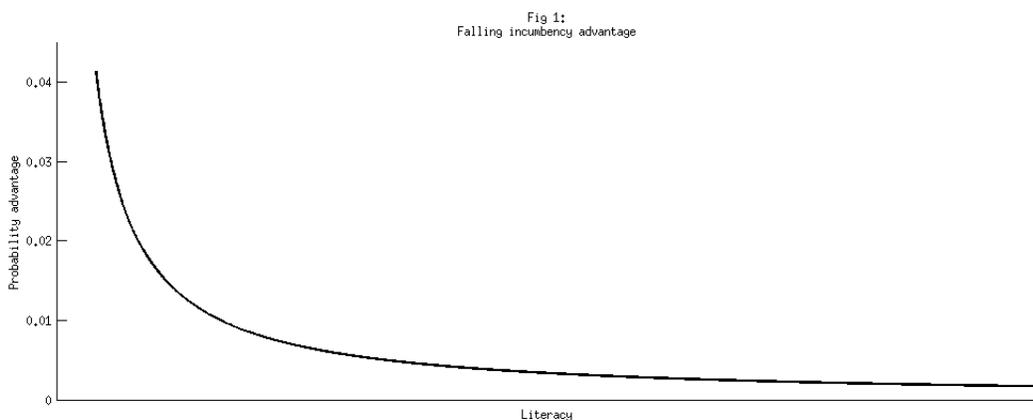
Using the uniform distribution of σ^i , we can write the probability that the mass of voters with $\sigma^i < \sigma^d$ exceeds .5, which is the probability that the incumbent wins the election, as

$$P \left\{ \frac{1}{2} + \psi \left(W_I^d - E[W_C^d | \tau] - \delta \right) > \frac{1}{2} \right\}$$

where $W_K^d = T_K - e^{-r\theta_K}$. This is equivalent to the probability $P \{ W_I^d > E[W_C^d | \tau] + \delta \}$, which can be solved for ε to obtain

⁷The preferences over candidate quality above are chosen to satisfy the Constant Absolute Risk Aversion (CARA) property with coefficient of risk aversion r . This means that voter attitudes about risk are completely characterized by their risk aversion r and signal variance (a function of ϕ) and so are unchanged when considering a challenger of lower or higher quality (the level effect). This property simplifies the analysis and facilitates exposition of the main points without adding the complication of considering a change in risk-aversion due to the level of challenger quality.

Figure 3: Incumbency advantage as a function of literacy



$$P \left\{ \frac{1}{r} \left[\log \left(T_C - T_I + \delta + e^{-r\theta_I} \right) - \log k(r, \phi) \right] + \theta_C < \varepsilon \right\}$$

where $k(r, \phi) = \frac{\phi}{r} e^{\frac{r}{2\phi}} \left(1 - e^{-\frac{r}{\phi}} \right)$ represents the disutility to voters from taking a risk on the challenger. Next, using the distribution of the noise variable ε , the probability the incumbent wins can be written as

$$p(T_C, T_I) = \frac{1}{2} - \frac{\phi}{r} \log \left(\frac{T_C - T_I + \delta + e^{-r\theta_I}}{k(r, \phi)} \right) - \phi\theta_C$$

This probability exhibits incumbency advantage that declines as literacy increases. Fig 1 shows the incumbency advantage for an unbiased district as a function of literacy. We consider a range for literacy that reduces the variance in the signal from 30% of challenger quality to 1%

Furthermore, the effect of increasing literacy on the marginal effect of transfers is positive for both candidates: $\frac{\partial^2 p}{\partial r \partial \phi} > 0$. This reflects the idea that as literacy rises and the incumbency advantage falls, transfers become more important, and so competition for votes intensifies.

Next we use $p(T_C, T_I)$ to obtain the incumbent and challenger objective functions, which are given by

$$\begin{aligned}
u^I(T_I, T_C) &= p(T_C, T_I)V - c(T_I) - F_I \\
u^C(T_I, T_C) &= (1 - p(T_C, T_I))V - c(T_C) - F_C
\end{aligned}$$

Here $c(\cdot)$ is a cost function which we assume has $c'' > 0$, reflecting the increasing expense of targeting voters as easier methods are exhausted. F represent fixed costs of mounting a campaign, and V is the value to the candidates of obtaining office. For simplicity we consider the transfer cost function as an implicit function of the total number of voters in the district, rather than number of supporters of either candidate. From the first order conditions we obtain the result that in equilibrium candidates spend amounts $T_C = T_I = T$, which when used in either candidate's first order condition implicitly yields the equilibrium transfer function,

$$c'(T) = \frac{V\phi}{r(\delta + e^{-r\theta_I})}$$

From this relation we obtain that equilibrium transfers are increasing in literacy, seat value, and incumbent quality. We are now ready to consider contestation, which occurs when

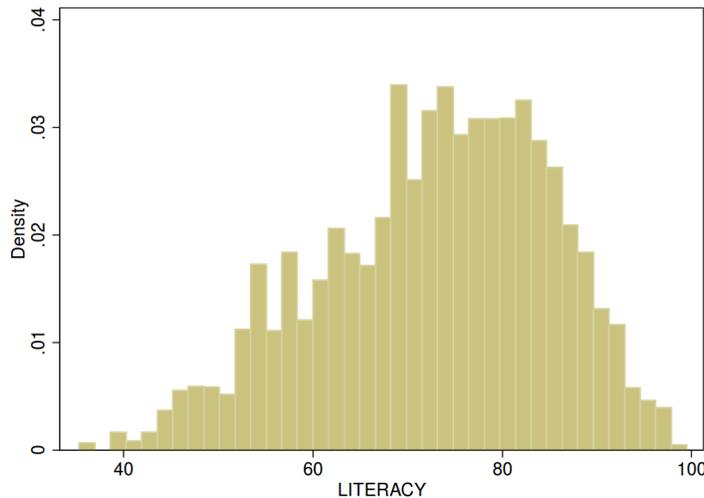
$$1 - p(T_C, T_I) \geq \frac{c(T_C) + F_C}{V}$$

In this model, literacy affects contestation through two channels. The first, which we call the direct effect, is through the decrease in the incumbency advantage: as literacy improves, voters are more willing to vote for the challenger when he is sufficiently qualified; challengers are thus more likely to enter. The second channel, which we call the indirect effect, is through literacy's effect on equilibrium transfers: when voters are more willing to risk voting for the challenger, competition for votes intensifies, which increases transfers. This increases the cost of contesting the election, which may in turn suppress contestation. Which of these forces dominates is an empirical question, but in advancing two channels by which literacy affects contestation, we have a means to explain both the inflection in contestation in Figure 1 and the uneven spatial distribution of electoral competition in Figure 2.

4 Estimation

On our model, literacy facilitates electoral contestation only if the direct effect of literacy on the incumbency advantage dominates the indirect effect of literacy on the cost of elections. It is thus an empirical question whether literacy facilitated electoral contestation. We have, in addition, outlined two forms that an incumbency advantage may assumed in the Victorian era, that is, as a "proprietary" (i.e., aristocratic) influence or an organizational advantage. We begin by investigating these possibilities against data on parliamentary elections in England and Wales between 1820 and 1906. Following that we consider the indirect effect of literacy on the capital intensity of elections.

Figure 4: Distribution of Literacy Rates as Measured by Percentage of Grooms Signing Marriage Register



4.1 Data

Data on electoral competition (notably, the size of district electorates, whether a district was contested at a given election, and candidates' vote shares) are obtained from Craig (1977). Incumbency is coded on the basis of the information in both Craig (1977) and Stenton (1976). We define incumbents as those MPs currently representing a parliamentary seat (though not necessarily the one being contested) when an election is called. We make one exception to this rule: if an MP resigns in mid-term and immediately fights a by-election, we count him as an incumbent. This was a common event because up until the 1930s MPs were constitutionally obliged to seek a new mandate upon assuming an office under the Crown.

Our data on literacy deserve extended comment given their central place in the paper. Our literacy measure is derived from the *Annual report of the Registrar-General of Births, Deaths, and Marriages in England and Wales (AR-BDM)*. From 1939 onward the *AR-BDM* recorded the number of grooms who *marked* the marriage register (i.e., who could not sign their names). From this statistic, we can deduce the percentage of grooms in a locality who *signed* the marriage register in a given year. The distribution of literacy rates across districts and time is shown in Figure 4. Much of the variation in literacy rates is cross-sectional, but cases in which literacy rose by 20-25 percentage points within a district over time are not uncommon in the data.

Marriage registers are often used in this way to measure literacy rates (Ciopolla 1964), but the technique's limitations should be noted. Firstly, this measure elides semi- and non-literacy because many grooms who signed their names may not have been able to read or write with any facility. As a consequence, our measure probably overstates the

literacy rate (albeit consistently given the consistency of our methodology).⁸ Secondly, the marriage register data are aggregated by census registration district not parliamentary constituency. We used the information provided by *A Vision of Britain through Time* (www.visionofbritain.org.uk) to match census registration districts to parliamentary constituencies. This was possible in the vast majority of cases.

The data on candidate spending also deserve comment. These data are taken from Kam (2011), who obtained them by examining election petitions. Election petitions occurred when the losing candidate sued the winning candidate on the basis that the latter had engaged in corrupt practices or that the poll was conducted by irregular or illegal means. The investigations and trials of these election petitions often revealed how candidates had spent on electioneering. These spending data are not numerous (N=538), and hence we augment them with multiple imputation. Key to these efforts is the fact that we condition candidate spending on their reported spending. Candidates were required to submit accounts of their election spending to Parliament from 1854 onward. These published accounts are widely acknowledged to under-report the full amounts that candidates spent at elections (Seymour 1915, 405, 441-42; O’Leary 1962, 24; Gwyn 1962, 84-85), and in some cases to be wholly fraudulent. That said, the published spending figures are numerous (N=3702), and to the extent that they tracked real spending (and our data suggest they did) they provide significant information about real spending levels.⁹ After multiple imputation, our data set contains 8818 candidates in 3465 district elections.

4.2 The impact of literacy on contestation

Econometric Strategy

We employ a linear probability model to test the relationship between literacy and electoral contestation. In addition to district literacy rates ($LIT\%_{jt}$), we include three covariates to test the effects of a generic incumbency advantage and the implications of the deference and organization models of electoral contestation. We capture the effect of an incumbency advantage via a dummy variable, $CLOSED_{jt}$, that denotes that at all seats in the district were occupied by incumbents at the election. We test the deference hypothesis by including in the model a dummy variable ($PROPRIETARY_{jt}$) that indicates whether the constituency was a proprietary district as determined by Gash (1953) and Hanham (1959). We use the size of the district’s electorate in thousands

⁸Even so, the measure is perfectly defensible: Firstly, other measures of literacy (e.g., newspaper circulation) are simply not available for fine grained areas or for much of the period. Secondly, we are applying the resulting literacy rate to an electorate that was defined by a property franchise. The electorate was therefore wealthier and in all likelihood better educated than the average Englishman of the period. Hence our measure of literacy may well overstate literacy in the general population without overstating the literacy rate of the electorate.

⁹We compared 189 cases where both the candidate’s actual and reported spending were observed. Whilst actual spending almost always exceeded reported spending, the correlation between the actual and reported amounts was .83. This suggests that candidates were more inclined to scale down what they truly spent rather than submit wholly fictional accounts.

($ELECTORS_{jt}$) to test the organizational hypothesis on the logic that it costs more time and money to register and mobilize a larger electorate than a smaller one.

We control for the level of economic development of the district via the percentage of the district's labour force engaged in agriculture ($AGRI_{jt}$) and the density of railway track ($TRACK_{jt}$) in the district. Finally, we include the number of years between contested elections ($YRS SINCE CONTEST_{jt-k}$) to control for the history of contestation in the district, and vectors of electoral cycle (i.e., time) (τ_t) and district fixed effects (δ_j) to control for unobserved confounds.¹⁰

Our econometric model is then,

$$\Pr(CONTESTED_{jt} = 1) = \beta_1 LIT\%_{jt} + \beta_2 CLOSED_{jt} + \beta_3 PROPRIETARY_{jt} + \beta_4 ELECTORS_{jt} + \beta_5 TRACK_{jt} + \beta_6 AGRI_{jt} + \beta_7 YRS SINCE CONTEST_{jt-k} + \tau_t + \delta_j + u_{jt} \quad (1)$$

where, in addition to the variables defined above, u_{jt} is a residual. Our primary focus is on the direction of β_1 as that informs us as to whether the direct effect of literacy on competition outweighed the indirect effect of rising literacy increasing the capital intensity of campaigns. However, given the discussion above, we also expect the probability of a contested election to decrease in closed seats, proprietary influence, and electorate size (i.e., $\beta_2 < 0$; $\beta_3 < 0$; $\beta_4 < 0$).

Results

Table 1 shows the results of three specifications of Equation 1. The first specification indicates that electoral competition increases in literacy. This suggests that the direct, competition-enhancing effects of rising literacy outweighed its indirect, anti-competitive effects. The results of the first specification also show a negative relationship between electoral competition and both proprietary influence and electorate size. Closed seats also plainly scared off challengers, a result that is consistent arguments that Victorian incumbents enjoyed an electoral advantage over challengers.

The second specification adds controls for the level of economic development in the district. Once this is done, the effect between electoral competition and electorate size disappears.¹¹ The powerful anti-competitive force of proprietary influence remains intact, however. Even accounting for the level of economic development, the probability of a contested election was 10 percent lower in districts where a proprietary interest

¹⁰Including a lagged dependent variable would also control for history, but it would also violate the assumption of strict exogeneity that is required to produce unbiased estimates. Arguably, $YRS SINCE CONTEST_{jt-k}$ also violates strict exogeneity because it is a function of $CONTESTED_{jt}$ and $CONTESTED_{jt-k}$. However, our results are substantially unaffected if we substitute for $YRS SINCE CONTEST_{jt-k}$ and use instead the number of years between the penultimate and antepenultimate contested elections in the district.

¹¹Employing logged electorate size or the quadratic of electorate size does nothing to alter this result. Adding terms to capture the size or rate of change in the electorate also does nothing to alter the null result.

Table 1: Linear Probability Models of Electoral Competition

	1	2	3
<i>LIT</i> _{jt}	.003* (.002)	.003 (.002)	.005** (.002)
<i>CLOSED</i> _{jt}	-.061*** (.016)	-.061*** (.016)	.079 (.110)
<i>PROPRIETARY</i> _{jt}	-.105** (.044)	-.102** (.044)	-.131** (.053)
<i>ELECTORS</i> _{jt}	-.004** (.002)	-.003 (.003)	-.003 (.003)
<i>YRS SINCE CONTEST</i> _{jt}	.003** (.001)	.003** (.001)	.003** (.001)
<i>AGRI</i> _{jt}	-	.001 (.003)	.001 (.003)
<i>TRACK</i> _{jt}	-	-.130 (.134)	-.130 (.134)
<i>LIT</i> _{jt} × <i>CLOSED</i> _{jt}			-.002 (.001)
<i>PROPRIETARY</i> _{jt} × <i>CLOSED</i> _{jt}			.041 (.037)
<i>ELECTORS</i> _{jt} × <i>CLOSED</i> _{jt}			-.001 (.002)
Constant	.470*** (.166)	.432 (.175)	.348** (.188)
Time Fixed Effects	Yes	Yes	Yes
District Fixed Effects	Yes	Yes	Yes
Adj. R ²	.28	.29	.28
F	15.14***	12.85	13.83
N obs	3166	3064	3075
N clusters	308	308	308

* $p < .01$

** $p < .05$

*** $p < .01$

Robust standard errors cluster by district in parentheses

remained intact. The effect of literacy does not reach conventional levels of statistical significance in the second specification ($p = .107$), but the magnitude of the coefficient on LIT_{jt} and its associated t-statistic remain stable and quite large. It was not uncommon for literacy rates in districts to climb over 20 percent over the course of 40-50 years. The result links an increase in a district's literacy rate of this magnitude to a .06 increase in the probability of electoral competition. This is on par with the anti-competitive impact of a closed seat.

The third specification interacts $CLOSED_{jt}$ with literacy rates, proprietary influence and electorate size in an effort to identify more precisely the nature of electoral advantage that Victorian incumbents enjoyed. There is little evidence to suggest that the anti-competitive effects of a closed seat were compounded or dampened by literacy rates, proprietary influence or electorate size. We are left with three direct effects: the probability of a contested election increased in literacy, decreased in proprietary influence, and was lower in closed seats.

4.3 The impact of literacy on candidate spending and the incumbency advantage

In this section we test the finer-grained predictions of our model. We focus on two specific predictions of the model, that is, that:

1. The incumbency advantage falls in literacy;
2. The marginal effect of transfers on the probability of winning is increasing in literacy

Both hypotheses can be tested within the confines of a single econometric model.

Econometric Strategy

We use candidate's vote shares as a proxy of their winning probabilities. We then test the first two hypotheses by regressing candidate's vote shares at the election in district j at time t ($V\%_{ijt}$) on their logged campaign spending ($\ln \mathbf{\$}_{ijt}$) and incumbency status (INC_{ijt}) and the literacy rate of the district's population $LIT\%_{jt}$. We include interactions between literacy and spending and incumbency, respectively. Our main control variable is the number of candidates per available seat (C/M_{ijt}), which gives the candidates' vote shares in expectation.¹² The econometric model is then:

$$V\%_{ijt} = \beta_1 LIT\%_{jt} + \beta_2 INC_{ijt} + \beta_3 INC_{ijt} \times LIT\%_{jt} + \beta_4 \ln \mathbf{\$}_{ijt} + \beta_5 \ln \mathbf{\$}_{ijt} \times LIT\%_{jt} + \beta_6 C/M_{ijt} + \tau_t + \delta_j + \epsilon_{ijt}. \quad (2)$$

Our formal model predicts that $\beta_3 < 0$ and $\beta_5 > 0$.

¹²If two candidates enter a single-member district, for example, one would expect the candidates to converge to the median voter and for one candidate to win with a vote share just above 50% and the other to lose with a vote share just under 50%.

Table 2: OLS Model of Candidates' Vote Share at Contested Elections

	1	2	3
$\ln \mathcal{L}_{ijt}$	2.63*** (.491)	-4.01* (2.73)	-3.90 (2.67)
	.12*** (.027)	-.59** (.26)	-.56** (.26)
$\ln \mathcal{L}_{ijt} \times LIT\%_{jt}$.09** (.03)	.08** (.03)
INC_{ijt}	5.03*** (.31)	8.79*** (2.47)	9.01*** (2.47)
$INC_{ijt} \times LIT\%_{jt}$		-.05 (.03)	-.05* (.024)
$(C/M)_{jt}$	-10.13*** (.51)	-10.31*** (.49)	-10.43*** (.47)
$Year_t$		-.10*** (.04)	
$Year_t^2$.003*** (.001)	
Constant		75.93*** (20.58)	73.98 (20.26)
Time Fixed Effects	No	No	Yes
District Fixed Effects	Yes	Yes	Yes
Adj. R ²	.38	.40	.42
F	142.92	77.65	59.76
N obs		6558	6551
N clusters		2133	2117

* $p < .01$

** $p < .05$

*** $p < .01$

Robust standard errors cluster by district election in parentheses

Results

The results of Equation 2 are shown in Table 2. The sample is confined to contested election for which vote shares for the candidates are observed. Three specifications are shown. The first is estimated without the interactions that are of central interest so that the direct effects of spending, incumbency, and the number of candidates per seat are visible. These variables operate as expected: candidates' vote shares increase in spending and decrease in the number of candidates per seat; incumbents enjoy an electoral advantage of approximately 5 percent.

The second specification introduces the interactions between literacy and candidate spending and incumbency, respectively. The specification also includes linear and quadratic time trends. In line with our model's prediction, the marginal effect of incumbency on the candidate's vote share declines as literacy in the district increases. (The interaction is, in fact, significant over much of the range of observed literacy rates.) Also in line with our model's prediction is the result that the marginal effect of candi-

dates' spending on their vote shares increases alongside literacy rates. The impact of literacy on these marginal effects is substantial but not unrealistic. The coefficient on the interaction between incumbency and literacy, for example, is such that such that increasing the literacy rate from 50 to 100 percent reduces the incumbents electoral advantage by 2.5 percent from 6.3 to 3.8 percent. This is not a trivial amount given that the median margin between winning and losing candidates at these elections was 4.8 percent. Correspondingly, the magnitude of the coefficient on the interaction between spending and literacy is such that such that a 10 percent increase in spending at a literacy rate of 50 percent effects an increase of .05 percent in the candidate's vote share. Increasing spending by the same 10 percent when the literacy rate is 100 percent effects a increase of .5 percent in the vote. The third specification replaces the linear and quadratic time trends with time fixed-effects for each general election period. This is a demanding specification in that it controls for unobserved unit and period heterogeneity. The results are largely, unaffected, however.

5 Discussion

Understanding the development of electoral competition is important in as much as electoral competition is a precondition of programmatic contestation and electoral accountability. Voters in our model are uncertain about the challenger's quality, and being risk-averse, they prefer the incumbent *ceteris paribus*. In this model literacy contributes to the onset of electoral competition by increasing voters' awareness of the challenger's quality. This has the effect of reducing the incumbents in-built electoral advantage and inducing the challenger to enter the district and contest the election. The prediction that incumbents electoral advantage declines in literacy is borne out by our data. Also consistent with our model, is that literacy will, indirectly, increase the importance of money at election precisely because it increases competition. Finally, the data bear our prediction that literacy fosters electoral contestation.

Observe that our account of the impact of literacy on political development is subtly different than the typical modernization account of how literacy affects democratic development. The standard account tends to focus on the role of literacy in making citizens amenable to programmatic (as opposed to clientelistic) appeals. This may happen either because literacy travels with economic development (in which case literacy has no causal effect), because literacy enables citizens to grasp higher-levels concepts (e.g., such as a public good), or because literacy and improved media technology combine to make programmatic appeals more efficient than clientelistic appeals. Note that on these accounts:

1. The effects of literacy operate symmetrically on all political actors. For example, if literacy lowers the cost and improves the efficacy of programmatic appeals, then it does so for all candidates and parties.
2. The effect of literacy is mainly to undercut clientelism, not to give impetus to electoral competition per se. In other words, the standard account is that literacy

strengthens partisan rather than individualistic political appeals, and the knock-on effect of partisan politics is programmatic electoral competition.

In contrast, our model makes the case that rising literacy also has an asymmetric effect; it dilutes the in-built electoral advantages that incumbents tend to enjoy in small, close-knit communities where face-to-face relationships dominate. In doing so, rising literacy encourages electoral competition. This competition is not necessarily programmatic in nature; candidates in our model still make financial transfers to voters, and we are silent on the nature of those transfers. Hence, electoral competition in our model may be clientelistic, with candidates providing private goods to the voter, or it may be programmatic, with candidates transferring a public good to the voter.

We do not deny that literacy may also have symmetric effects that are consistent with the standard view of how literacy affects political development, but it strikes us that these symmetric effects (e.g., the increased receptivity of voters to programmatic arguments or the increasing efficiency of programmatic campaigns) do a better job in explaining the transition from clientelistic to programmatic electoral competition than the emergence of electoral competition itself. By comparison, we have shown how literacy encourages electoral competition. This is an important insight in as much the development of partisan, and programmatic electoral competition hinges both temporally and logically on the prior emergence of electoral competition.

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