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The University of Iowa

EDWIN CAMP
Yale University
AVINASH DIXIT
Princeton University
SUSAN STOKES
Yale University

Catalyst or Cause? Legislation and the Demise of Machine Politics in Britain and the United States

In the nineteenth century, British and American parties competed by hiring electoral agents to bribe and treat voters. British parties abruptly abandoned this practice in the 1880s. The conventional explanation is that legislation put an end to agent-mediated distribution. But this explanation leaves many questions unanswered. Why did the parties use agents for decades, even though they imposed great expense on candidates and were viewed as untrustworthy? And why, after decades of half-hearted reforms, did the House of Commons pass effective antibribery reforms only in 1883? In our formal model, parties hire agents to solve information problems, but agent-mediated distribution can be collectively suboptimal. Legislation can serve as a credibility device for shifting to less costly strategies.

Competitive Machine Politics in Britain and America

In the vernacular of the nineteenth century, British parties relied on *agents* to carry out *electoral bribery*, and American parties distributed benefits through *machines*. In Britain in the decades following 1832, Liberal and Conservative parties sent agents out "through the boroughs to discover the private circumstances of the voter and make use of any embarrassment as a club to influence votes." Party agents carried ledgers with "a space for special circumstances which might give an opportunity for political blackmail, such as debts, mortgages, need of money in trade, commercial relations, and even the most private domestic matters" (Seymour [1915] 1970, 184).

In the mid-nineteenth century United States, Bensel writes that for many men, "the act of voting was a social transaction in which they

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handed in a party ticket in return for a shot of whiskey, a pair of boots, or a small amount of money" (Bensel 2004, ix). As in Britain, these transactions required myriad party agents. Unlike Britain, where agent-mediated distribution vanished suddenly in the 1880s, decades before the birth of the welfare state, the American political machine lingered longer and coincided with the early welfare state.

Indeed, the emerging welfare state in the 1930s was superimposed on a system of brokers and ward-heelers. In Pittsburgh, one-third of Democratic ward and precinct captains became project supervisors in the Works Progress Administration (WPA). In Jersey City, the Hague machine appropriated a percentage of WPA workers' salaries to pay for campaign expenses (Erie 1988, 129–30). New York's Tammany Hall machine required party affiliation for applicants for another early New Deal program, the Civil Works Administration (CWA).[1]

A puzzle is that British and American parties hired agents to channel material benefits to voters despite the leaders' distrust of agents and complaints about the expense involved. Liberal and Conservative party leaders viewed their agents as "treacherous" and as "electioneering parasites;" their counterparts in the Democratic and Republican parties viewed their own local machines as "a source of insubordination and untrustworthiness" (O'Leary 1962, 229; Reynolds and McCormick 1986, 851). The resolution of the puzzle is not that, despite these disadvantages, agent-mediated distribution conferred an advantage on one or the other party. Many party leaders were long aware that the parties' common deployment of this strategy neutralized its electoral advantage, in national if not always in local contests.

Why were party leaders unhappy with their electoral agents? Why did they retain the agents despite this unhappiness? And how did they manage, eventually, to shift away from agent-mediated distributive politics? The relevant scholarship has not clearly formulated the first two questions, but it has offered an answer to the third—at least in the British context. The answer has been that effective legislation put an end to electoral "bribery" through agents. Traditional scholarship has focused principally on the 1883 Corrupt and Illegal Practices Act and to a lesser extent on the 1872 adoption of the written ballot (Hanham 1959; O'Leary 1962; Seymour [1915] 1970; for a more skeptical view, see Rix 2008). Recent writers have underscored the importance of the 1868 judicialization of petitions claiming electoral fraud (Eggers and Spirling 2011) and of the 1885 shift to single-member districts (Kam 2009).

It is not wrong to emphasize the role of legislation in this context. But legislation was a catalyst, not a cause, of the shift away from agent-mediated distribution in Britain. British political leaders managed to

agree to antiagent legislation in a context in which agents were becoming increasingly ineffective, and alternative campaign strategies, which involved direct communication between candidates and voters, were appearing increasingly cost effective. Legislation, in particular the 1883 Act, allowed the parties to exit a costly prisoner's dilemma earlier than they otherwise would have, not an insignificant achievement. But it is likely that the same factors that made agents less effective and hence legislation more attractive would eventually have shifted parties away from this strategy, even absent legislation. This, indeed, was the case in the United States, where machine politics eventually fell into disuse, despite the absence of effective antibribery legislation.

Hence, to understand why a legislative solution finally became viable in the 1880s, we must broaden our gaze. Changes in British economy, society, and the voting public meant that electoral agents were even less effective. Legislative leaders eventually had strong incentives to do away with the agents and their corrupt ways.

This is the lens through which to view legislation that undermined the role of electoral agents. The model set forth in the following sections explains individual parties' incentives, in a two-party system, to hire agents. They do so to solve information problems, even though paid agents introduce some agency losses. But when *both* parties hire agents, they frequentely find themselves in a prisoner's dilemma.[2] Their most preferred outcome would be to make exclusive use of agent-mediated distribution. But instead they find themselves in a decidely second-best situation: both parties make the costly investment in agents, but agents yield neither party an electoral edge. The worst outcome is to be the only party not using agents; and so they are stuck.

That British parties found themselves in a prisoner's dilemma was explained in 1915 by Seymour:

> The average member [of the House of Commons] might really prefer a free election; bribery meant expense, and it meant that the skill of the election agent was trusted as more efficacious than the candidate's native powers, an admission that few members liked to make. But there was always a modicum of candidates who preferred to insure their seats by a liberal scattering of gold; in self-protection the others must place themselves in the hands of their agents, thus tacitly accepting, if not approving, corrupt work. ([1915] 1970, 199)

Our model suggests that the dilemma becomes less acute when agents become less effective. At some point credible punishments can deter the use of agents. Legislation that mandates these punishments becomes an attractive credibility device by giving each party confidence that the other party will not seek a unilateral advantage by hiring agents.

The prisoner's dilemma arises mainly in settings in which both competitors have the ability and incentives to hire agents—settings with dueling machines. This model captures party competition in nineteenth-century Britain and America. These were basically two-party systems. Both parties traded material benefits for votes and did so through agents. One party might dominate a constituency or a city for a while, but control and party orientation shifted frequently. For example, the borough of Beverley in Yorkshire changed party control six times between 1835 and 1865; some cities in Ohio were controlled by a Democratic machine and others by a Republican one; Pittsburgh's old Republican machine was replaced by a Democratic one in 1930s.[3]

Our model is not relevant to asymmetrical agent-mediated distribution, where a single party—usually the one in power—has the dominant machine, as in Mexico under the PRI, southern Italy under the Christian Democratic Party, and so on.[4] We will develop modification of the model to situations of asymmetry in a separate forthcoming article.

Dueling British parties found a legislation solution to their dilemma and effectively eliminated party agents as distributive intermediaries. Their American counterparts did not. The absence of a legislative fix weighed heavily on American reformers in the Progressive era, who asked themselves why their country never accomplished the equivalent of the British Corrupt Practices Act of 1883 (Rocca 1928; Sikes 1928).

Our model helps explain this divergence. In a setting of dueling machines, agents escalate campaign costs. In Britain, these costs were borne by candidates themselves or by small numbers of wealthy backers. In America in the early decades of the twentieth century, the practice arose of campaign financing by "trusts"—banks, insurance companies, manufacturers, and railroads (Heard 1960; Mayhew 1986; Mutch 1988). The injections of generous external campaign monies and the shifting of burdens away from those who sought office weakened politicians' incentives to pursue cost-saving reforms, including ones that would undercut party machines.

Though after the 1883 Act political parties were still able to treat constituents outside the period of campaigns, and though economic interest groups did make substantial contributions to political parties, these expenditures did not sustain an army of party agents. Coetzee, who has studied the financial investment of pro-Unionist interest groups before the First World War, concludes that the sums expended were more modest than commonly assumed. The Tariff Reform League's "millions," for instance, were "a myth" (Coetzee 1986, 845).

The experiences against which we test our model are historical. Yet our findings are by no means irrelevant to twenty-first century democra-

cies. Machine politics remains prevalent in today's developing democracies and has not been fully abandoned even in some advanced ones. As recently as 2004, the Italian parliament prohibited the introduction of mobile phones into voting booths; voters were taking pictures of their ballots to prove to party operatives that they had complied with their end of a vote-buying arrangement. Our theoretical model and historical cases underline the possibility that parties will retain costly strategies even though they do not derive any clear electoral advantage from them and would be better off if both sides abandoned them. Perhaps vast expenditures on television advertising and on enormous databases about voters obey a similar logic.

Related Literature

Our article contributes to scholarship on political development and the prehistory of the welfare state in Britain and the United States (e.g., Banfield and Wilson 1966; Bensel 2004; Cox 1987; Eggers and Spirling 2011; Kam 2009; Skowronek 1982; Mayhew 1986). We mentioned earlier discussions of the role of legislative reforms in ending agent-mediated distributive politics in Britain, to which our article lends a new perspective. Explanations for the transition from party agents to programmatic politics in Britain have emphasized the crucial role played by key pieces of legislation, without asking why Parliamentary leaders were able to pass legislation when they did and why earlier attempts failed. In addition, earlier studies describe the tensions between party leaders and agents and the decline of machine politics, but they do not link the dynamics of decline to the agency losses that mediated distribution imposed on parties. No one, to our knowledge, has identified the puzzling differences between the British and American experiences of agent-mediated distributive politics, much less attempted to explain these differences.[5]

We also contribute to a formal literature on distributive politics, exemplified by Cox and McCubbins (1986), Lindbeck and Weibull (1987), Dixit and Londregan (1996), and Stokes (2005). Our model is closely related to formal theories of political parties as internally differentiated into actors who pursue conflicting goals, in contrast, most classically, to Downs (1957).[6]

Closer to our model are ones that distinguish party leaders and brokers/agents; the latter monitor voters, make distribution more credible, and target benefits in a fine-grained way (e.g., Camp 2010, 2012; Keefer 2007; Keefer and Vlaicu 2008; Stokes et al. 2013). These models simply assume that agents are hired. We endogenize the choice of

whether to hire agents and therefore can identify plausible reasons why historical actors shifted from mediated to unmediated distributive strategies.

Finally, the model makes a more general contribution by adding an agency problem to the Tullock contest function. In particular, this analysis complements Hirsch and Shotts (2013) who use a Tullock contest function to, in part, model a trade off for parties that seek to implement ideological goals and minimize campaign spending. Our model uses a Tullock contest function to capture a different set of trade offs for parties by allowing parties to hire agents whose goals diverge from the party leaders but who make campaign expenditure more efficient. Many contemporary political parties do not rely on party agents but still must confront many relevant agency problems.

The Model

The timing of our model is as follows. First, party leaders choose whether to hire agents or pay uniform benefits to all voters in an unmediated way. If they choose unmediated distribution, they then decide a level of transfers. If they opt for agent-mediated distribution, they choose how much to transfer to voters through agents and how much to offer agents as a bonus. On the path where agents are hired, the agents choose how much to allocate to core constituents versus swing voters. Nature then delivers a shock that influences voter opinion. Finally, voters observe their party affinities, their transfers, and the shock and decide which party to vote for. The party that wins a majority of votes is victorious in the election and pays a bonus to any agents it has employed. In the background is the idea that the process then repeats itself, though we confine our analysis to a single iteration. The model we analyze focuses on the most strategic part of this story: parties' choices of whether to hire or forgo agents and the welfare they derive from these choices.

We consider a two-party polity and label the parties L and R. In Britain, L and R represent the Liberal and Conservative parties, while in the United States L and R represent the Democratic and Republican parties. There are three groups of voters, labeled L, R, and S. The first two types are core supporters of the Left and Right parties, respectively, while the S are swing voters—those whose lack of partisan attachment leaves them more responsive to distributive goods. There are N_c core supporters of each party, and N_s swing voters; the total population is $N = 2N_c + N_s$; these numbers are exogenous to the model.

As explained above in the discussion of dueling machines, we assume symmetry between the two parties in the sense that they have equal numbers of core supporters—voters whose partisan affinities or ideological preferences leave them predisposed to support the party. We also assume the parties have access to identical methods of campaigning and vote winning.

Specification of Win Probabilities

To increase their chances of winning elections, the parties give transfers to the various types of voters. For party L, denote the amount given to each of its core supporters by l_c and that to each swing voter by l_s; similarly r_c and r_s for party R. With this notation, we assume that the probability π_L that party L will win the election is given by

$$\pi_L = \frac{f(l_c, l_s)}{f(l_c, l_s) + f(r_c, r_s)}, \tag{1}$$

where $f(c, s)$ is a function specified and explained below. The R party's victory probability is given by $\pi_R = 1 - \pi_L$.[7]

Contest success functions of this form are used in many applications including R&D competition, rent seeking, and political campaigns. Skaperdas reviews this literature and shows in his Theorem 2 that the only form satisfying certain desirable axioms is that when players 1 and 2 expend scalar efforts x_1 and x_2, respectively, the probability of winning for the first player should take the form

$$\pi_1 = \frac{x_1^\theta}{x_1^\theta + x_2^\theta},$$

and of course $\pi_2 = 1 - \pi_1$ is the probability that player 2 wins (Skaperdas 1996). The parameter θ captures the marginal (incremental) returns to expending effort. To be more precise, θ is the percentage by which the odds ratio π_1/π_2 will change if the relative effort ratio x_1/x_2 changes by 1%; see Appendix D for the derivation.

In our application, the "effort" is two-dimensional: parties or their agents can transfer to core voters and to swing voters. Therefore, we use the obvious generalization where the function $f(c, s)$ takes the Cobb-Douglas form

$$f(c,s) = Ac^{\theta\alpha}s^{\theta(1-\alpha)}. \quad (2)$$

The constant A multiplies the effect of transfers to both the core and the swing voters, l_c and l_s, on the odds ratio π_l/π_r by the same factor. The α measures the relative importance of core supporters toward victory, and θ and α combine to determine the marginal returns to various kinds of transfers. More precisely, from (1) and (2) we have

$$\frac{\pi_L}{\pi_R} = \left(\frac{l_c}{r_c}\right)^{\theta\alpha}\left(\frac{l_s}{r_s}\right)^{\theta(1-\alpha)}.$$

Therefore,

$$\frac{d\ln(\pi_L/\pi_R)}{d\ln(l_c/r_c)} = \theta\alpha, \quad \frac{d\ln(\pi_L/\pi_R)}{d\ln(l_s/r_s)} = \theta(1-\alpha).$$

That is, a 1% relative shift in the transfers given by each party to its own core supporters shifts the odds ratio of victory by $\theta\alpha$%; the corresponding effect of transfers to swing voters is $\theta(1-\alpha)$%.

The intuition behind the specification in (1) and (2) is as follows. The swing voters are not committed to either party and consider targeted transfers from both parties as one consideration among many when making their decision. But swing voters are heterogeneous in their preferences over other issues, and these preferences are also subject to idiosyncratic random shocks. When one party increases its transfers, that induces some swing voters to turn out and to vote for it rather than the other party. But the magnitude of this effect is uncertain; therefore we can only speak of the effect of transfers on the probability of victory.

As for core supporters, those who side with party L are never going to vote for party R. But transfers to them increase the probability of L's victory in at least two ways. First, there may be unobserved heterogeneity within the core supporters as regards the strength of their support, which makes them more or less likely to turn out on the day despite competing claims on their time; transfers may tip some on the margin into voting. Second, core supporters who feel taken care of, and given some cash or appropriate in-kind transfers, are more likely to be energized and become activists who provide extra services such as holding meetings, going door-to-door before elections, volunteering as observers at polling stations, giving rides to others who need to get to and from voting, which

may help persuade some swing voters into supporting this party and turning out to vote.[8]

Agents

Transfers to core supporters and to swing voters have different effects on the probability of victory; therefore parties want freedom to choose unequal levels of the two. However, keeping $l_c \neq l_s$ requires them to identify core supporters and swing voters, and they usually lack the information. They can use local agents who have or acquire this expertise and then channel the transfers through them in various forms of targeted benefits.[9] The advantages of such agency appear in three ways in our model. The first two are in the form of the function $f(c, s)$:

$$f(c,s) = \begin{cases} A_p c^{\theta_p \alpha} s^{\theta_p (1-\alpha)} & \text{without agent,} \\ A_a c^{\theta_a \alpha} s^{\theta_a (1-\alpha)} & \text{with agent,} \end{cases} \tag{3}$$

where $A_a > A_p$ and $\theta_a > \theta_p$. Using the interpretations of A and θ following (2), this says that both the average and the marginal effects of transfers made through local agents are higher than those of transfers made directly by the party leaders. Thus, voters are more responsive to resources distributed through agents.

As we observe in previous sections, parties in Britain and the United States hired agents precisely to achieve these advantages. In Britain, agents gathered fine-grained information about voters, including "debts, mortages, need of money in trade, commercial relations, and even the most private domestic matters" (Seymour [1915] 1970, 184). Agents can deploy their detailed knowledge of constituents and neighborhoods to match distributive benefits to people's needs and leverage individual circumstances for votes. Agents can also monitor voters' actions—whether someone who received benefits actually went to the polls and whether that voter is likely to have voted for the machine party. The extensive literature on clientelism has shown that, even when balloting is secret, party agents are often able to infer the voting behavior of individuals, and many voters are aware of this ability (Stokes et al. 2013, Chap. 4).

The third advantage of agency or machine politics appears in constraints on the parties' optimization. Without an agent, the party cannot distinguish between different types of voters and can only make uniform transfers to all voters via programmatic policies. Thus, party L can offer a uniform amount, say l, to all N voters. This not only imposes a constraint $l_c = l_s = l$, but also entails giving the same common per capita

amount l to the core supporters of the R party, who are never going to vote for L. A similar restriction applies to party R when it does not use an agent.

Payoffs

We denote by V the value that party leaders place on winning electoral offices. In the historical cases we consider, winning these offices provided parties with more power to implement their desired policies and may have provided politicians with access to state largesse. We assume that each party wants to maximize the expected value of victory net the costs of making the transfers and also net of payments to agents when agents are used. The source of these transfers and payments crucially distinguishes Britain and the United States. While corporate financing eased the pain of campaign spending in the United States, politicians in Britain often paid these expenses from their own pockets.

We denote by I_L and I_R the expenditures of the parties on the transfers to the electorate. When agents are used, the parties will have to promise them bonuses contingent on victory; we denote these by B_L and B_R. Thus party L's net payoff or utility is

$$U_L = \begin{cases} \pi_L V - I_L & \text{without agent,} \\ \pi_L (V - B_L) - I_L & \text{with agent,} \end{cases} \tag{4}$$

where π_L and I_L are to be expressed in terms of the choice variables l_c, l_s etc. A similar expression holds for party R.

Parties pay agents a bonus, contingent on the party's winning, as an incentive for the agents to work for victory. Historically, parties often awarded these bonuses as jobs that were contingent upon the party winning office. For example, Wolfinger observes, "A New York state senator explained this point bluntly, 'My best captains, in the primary, are the ones who are on the payroll. You can't get the average voter excited about who's going to be an Assemblyman or State Senator. I've got two dozen people who are going to work so much harder because if I lose, they lose' " (1973, 395).

However, agents also get some private utility from cultivating, organizing, and leading a group of core voters who are loyal to the agent—regularly meeting with them, giving them instructions during election campaigns, being treated with respect by them, and so on. The party leaders cannot identify core supporters or observe how much of the budget is channeled toward them; therefore the agent has the temptation to

favor the core supporters too much and build a larger group of these personal followers. That is the source of the agency problem in the model.

We express the expected payoff of the agent of party L as

$$A_L = \pi_L B_L + \beta l_c N_c, \tag{5}$$

where the victory probability π_L is given by (1) as above. The term $\beta\, l_c\, N_c$ represents the local agent's private benefit. The idea is that as agents channel more resources to core voters, the agents are able to expand their personal power base; the linearity is for mathematical tractability. Of course, a similar expression obtains for the expected payoff of party R's agent.[10]

In what follows we compare subgames. The first one begins with the assumption that neither party employs agents (No Agent, No Agent). The second one assumes that both employ agents (Agent, Agent). The third assumes that one party employs agents and the other does not (Agent, No Agent).[11] We use the payoffs of each of these subgames to generate a payoff matrix, which allows us to identify Nash equilibria.

Choice of Whether to Use Agents

Party leaders lack the information to implement targeted transfers and must decide whether to use local agents who have this information, bearing in mind the agency cost—bonus payments and the distortion of transfers toward core supporters by the agent—as well as the benefit of more effective targeting. This is a two-stage game. At the first stage, each party decides whether to use an agent. If a party decides not to hire agents, it determines the total level of uniform transfers to voters that will maximize its payoffs, given the other party's strategy. If a party decides to hire agents, it chooses a level of transfers and bonuses to agents, again to maximize its payoffs, given the other party's strategy. Then the agent chooses levels of transfers to core and swing voters. We look for a subgame perfect Nash equilibrium in pure strategies.

There are four possible subgames at the second stage corresponding to each of the four possible combinations of the binary choices of the two parties at the first stage: (No Agent, No Agent), (Agent, Agent), (Agent, No Agent), and (No Agent, Agent), where the first-stage strategy of party L is listed first and that of party R is listed second. The last subgame need not be solved separately; it suffices to reverse the party labels in the third listed subgame and the two symmetric versions of (Agent, No Agent).

The details of solutions of each of the subgames are in online Appendixes A–D. The (Agent, Agent) and (No Agent, No Agent) subgames permit an explicit algebraic solution for the resulting payoffs.[12] For the (Agent, No Agent) game and its counterpart, we get a set of algebraic equations for the equilibrium; these must be solved numerically. The result is a game payoff table schematically shown below. In the formula, Ω is an endogenous variable that relates to the severity of the agency problem.[13] It equals zero if the agent does not have divergent interests ($\beta = 0$), and positive otherwise.

Schematic Payoff Matrix

		R: *NoAgent*	R: *Agent*
L	*NoAgent*	$U_L = U_R = \frac{2-\theta_p}{4} V$	U_L, U_R computed numerically
	Agent	U_L, U_R computed numerically	$U_L = U_R = \frac{1}{2}\left[1 - \frac{\theta_a}{2+\theta_a \Omega}\right]$

Which of these is an equilibrium depends on the underlying parameters of the problem, most importantly the parties' valuation of victory V, and the agent's informational advantage reflected in the difference $\theta_a - \theta_p$ between the marginal productivity of the agent's and the party's expenditures. The purpose of the analysis is to understand how changes over time in these parameters shift the equilibrium.

The parameter β is the agent's private valuation of transfers to core supporters and therefore captures the severity of the agency problem. In Appendix A, we show how this affects the (Agent, Agent) subgame. The agency bias of favoring core supporters will be smaller, other things equal, if (1) the bonus is larger, (2) the budget is smaller, (3) the number of core supporters N_c is larger, and (4) the coefficient β is smaller.[14] Of

particular interest for the comparative statics below, low values of β—meaning agents' interests are well-aligned with those of party leaders—cause parties to retain agents even when agents are not especially efficient[15] and even when parties place a low value on electoral victory relative to campaign costs.[16]

When (Agent, Agent) or (No Agent, No Agent) is the equilibrium of the full game, the most important question is whether it is a prisoner's dilemma: would the other outcome have given higher payoffs to both parties? Let U_n denote the common value of U_L and U_R in the (No Agent, No Agent) subgame, and U_b that in the (Agent, Agent) subgame. Using the formulas in the table, we have

$$U_b - U_n = \frac{\theta_a \theta_p \Omega - 2(\theta_a - \theta_p)}{4(2 + \theta_a \Omega)} V. \tag{6}$$

If θ_a is sufficiently larger than θ_p, we can have $U_b < U_n$. What this means is that it is possible that using agents is the dominant strategy even though the parties' utilities would be higher if neither used agents. Numerical solutions given below indicate the parameter space in which parties would prefer to shed their agents but are kept from doing so by this agent-agent PD. The intuition is that the higher marginal productivity of the agents makes it attractive for each party to hire them, but when both parties do so, the effects cancel out and neither gains an electoral advantage. And they are left with the increased expenditures associated with hiring agents.

Even though we are assuming symmetry of structure between the parties, the full game can have asymmetric equilibria (Agent, No Agent) and (No Agent, Agent). These are of the chicken kind: if one party is using agents (the aggressive strategy), it is better for the other party not to use one (the passive strategy), and vice versa. However, numerical solutions show that these types are relevant only for a small portion of the parameter space and may appear only in brief transitional phases between symmetric equilibria.

We present the numerical results in the next section, and use them in the following section to interpret the different paths of machine politics in Britain and America in the nineteenth century.

Numerical Solutions

Numerical solutions allow us to identify sets of parameter values that determine parties' equilibrium strategic choices—whether to distribute

resources to voters through agents or to distribute them directly, without the mediation of agents. To compute numerical solutions, we fix a set of parameters at particular values. We then calculate the payoffs for each subgame, to generate a payoff matrix, and we use this payoff matrix to identify a pure strategy Nash equilibrium. A Nash equilibrium consists of one of four strategy profiles: (No Agent, No Agent), (Agent, Agent), (Agent, No Agent), and (No Agent, Agent).

Over much of the parameter space, a decline in the value that a party places on victory relative to the money needed to win (V) induces it to abandon its agents and shift to agent-free distribution. And over much of the parameter space, a decline in the relative efficiency of agents—how effective their distributive work is in helping their party win (θ_a relative to θ_p)—also causes parties to abandon them.

Each party's choice of strategies is, of course, conditioned by the decisions made by the other party. Parties frequently find themselves caught in prisoner's dilemmas, and the nature of these dilemmas depends on the degree of agency loss. Consider the agent-agent equilibrium. When agents, interested in boosting their own local power, place a high priority on giving resources to core voters, both parties would be better off if they got rid of their agents: neither party would hurt its chances of winning, and both would reduce expenditures. But the dilemma is that each party is better off retaining its agents when the other side also retains its agents. By the same token, if neither side uses agents, either one of them would gain by hiring them—as long as the other side did not follow suit. For relatively high values of β—when both parties' agents squander a lot of resources on core voters—every equilibrium in which parties use agents is a PD.

The dynamics that generate this PD are clearly illustrated in the British city of Macclesfield. Macclesfield was enfranchised in 1832 and therefore did not have a pre-Great Reform Act history of electoral corruption. Bribery occurred only on a small scale in the 1840s and 1850s (Hanham 1959, 263). No petitions were filed until 1880. In 1865, a Liberal candidate, David Chadwick, introduced bribery on a larger scale by using electoral agents in public houses. His strategy was adopted as well by the other Liberal candidate in that election, W. C. Brocklehurst. But, the agent-centered strategy did not afford the Liberals control over the constituency, and the eventual outcome has the look of a PD. In 1868, both Conservative candidates followed suit, and in 1880 bribery was widespread. During the 1880 election, Liberals employed 870 canvassers, Conservatives 950. In a single ward, candidates offered bribes to 560 of the 817 voters; these bribers were proffered by 103 Conservative canvassers and 157 Liberal canvassers. In the borough as a whole, 4,000 voters out of a total of 10,556 who cast votes received bribes.[17]

Despite the escalation of campaign expenditures, neither party significantly improved its vote share from the elections held in the 1840s and 1850s. Bribery did not give the leading Liberal candidate, W. C. Brocklehurst, a definitive edge. In fact, his margin of victory dropped from at least 6 percentage points in the 1850s to 2.5 percentage points in 1880. Both parties were forced to bribe voters, but neither party established dominance.[18]

A *no-agent* equilibrium can also be a prisoner's dilemma. But the parameter space giving rise to the no-agent PD is much smaller than the space giving rise to the agent-agent PD. The no-agent PD obtains only when agents have interests that coincide fairly closely with those of the party.

To discern the effects of different parameter values on equilibrium outcomes, we conduct simulations. We set the agent's multiplicative return from distributing resources to core voters, β, to 0.5. Recall that β represents the degree to which agents prioritize growing their own local power base at the expense of winning more votes for the party. For given values of the other parameters, the party prefers an agent with a smaller β, the ideal being $\beta = 0$.

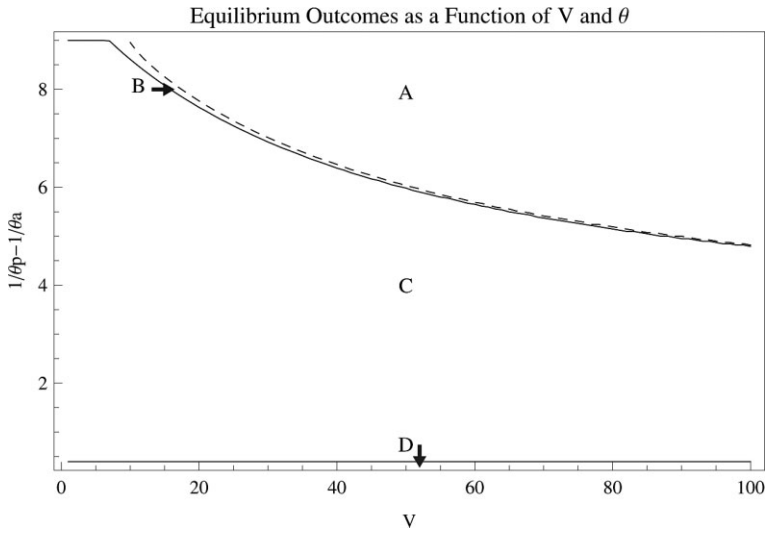
In the simulations we vary the value that the parties place on victory relative to expenditures, V, as well as the marginal returns from resource expenditures when a party employs agents, θ_a.[19]

Figure 1 depicts equilibria as a function of V and of the relative efficiency of agents, as captured by $\frac{1}{\theta_p} - \frac{1}{\theta_a}$. The straight line at the bottom of the figure represents equilibria in which parties derive the same utility when they both hire agents and when neither does. In all equilibria above this line, the parties derive higher payoffs when they both do not employ agents than when they both employ them. In all equilibria below this line, the parties derive higher payoffs when they both employ agents than when they do not employ them.

The regions A, B, C, and D indicate whether parties use agents as an equilibrium strategy and whether the equilibrium is a prisoner's dilemma.

- **Region A**: both parties use agents. These equilibria are prisoner's dilemmas: parties would be better off when neither party employs agents, but employing agents is a dominant strategy.
- **Region B**: one party uses agents and one party does not. These equilibria are games of chicken. Each party prefers to retain its agent as long as the opposing party plays a no-agent strategy.

FIGURE 1
Equilibria Outcomes for $\beta = 0.5$



- **Region C**: neither party uses agents. These equilibria are not prisoner's dilemmas: parties are better off when neither employs agents than when both do.
- **Region D**: neither party uses agents. These equilibria are prisoner's dilemmas: parties would be better off when both employ agents but not employing agents is a dominant strategy.

To clarify the structure of the game in each region, we generated four payoff matrices, displayed below. Each number in the matrices represents a numerically calculated payoff for one of the parties. The pair of numbers in a cell correspond to a particular strategy profile. The payoffs correspond to the same set of parameter values that were used to generate Figure 1, except we also set $V = 35$, while $\theta_a - \theta_p$ assumes a distinct value for each payoff matrix. V is set to represent an environment, in which parties do not place a high value on electoral victory relative to campaign expenditures. Setting $V = 35$ simulates the British case, in which politicians often financed their own campaigns. The values of $\theta_a - \theta_p$ are selected to illustrate how the game between the parties changes as agents become less efficient. The game in regions A and D are prisoner's dilemmas. Region B is a game of chicken. Consider that exogenous changes in parameter values shifted the parties from region

A—where both employ agents—to region B—where both want to avoid the (Agent, Agent) strategy profile. With the shift to region B, both would prefer that the opposing party be the one to fire its agent.

Region C is neither a prisoner's dilemma nor a game of chicken. In region C, parties attain the highest payoffs by following the equilibrium strategy of not using agents. In regions A and B, parties would require external enforcement to forego the use of agents. In region C, not hiring agents is a dominant strategy. External enforcement would be unnecessary; direct distribution is self-enforcing.

Sample Payoff Matrix: Region A

		R: NA	R: A
L	NA	17, 17	12, 19
	A	19, 12	14, 14

$V = 35, \theta_a - \theta_p = .8$

Sample Payoff Matrix: Region B

		R: NA	R: A
L	NA	16.63, 16.63	15.16, 16.64
	A	16.64, 15.16	15.11, 15.11

$V = 35, \theta_a - \theta_p = .2$

Sample Payoff Matrix: Region C

		R: NA	R: A
L	NA	16.6, 16.6	15.9, 16.2
	A	16.2, 15.9	15.5, 15.5

$V = 35, \theta_a - \theta_p = .15$

Sample Payoff Matrix: Region D

		R: NA	R: A
L	NA	16.6, 16.6	17.6, 15.7
	A	15.7, 17.6	16.7, 16.7

$V = 35, \theta_a - \theta_p = .004$

Figure 1 provides theoretical intuition into why parties abandon agents. Recall that the advantage of using agents is that they can target an appropriate mix of core and swing voters, while avoiding the waste entailed in targeting voters who are core supporters of the opposing party. The main *disadvantages* are that agents are prone to waste resources by spreading them among too many core voters and that they must be paid. One factor that will induce parties to abandon agents is an erosion of agents' efficiency. Holding V constant, a decline in the relative efficiency of agents eventually causes a shift from both parties using agents, to one party using them, and finally to neither party using them.

The same can be said of declines in the value of office relative to the cost of attaining it. Holding the efficiency of agents constant, a decline in the value of victory net expenses causes parties to make the same transition: from one party dropping agents to both of them dropping them.

In sum, parties will shift to direct distribution to voters when agents fail to make resource expenditure substantially more efficient. And if the relative efficiency of agents declines over time, parties that place a lower

value on electoral victory or face higher costs will abandon agents earlier than will parties that place a higher relative value on electoral victory or face lower costs.

Figure 1 also provides theoretical intuition into the prisoner's dilemmas that parties face. In every equilibrium in regions A, B, and C, the parties derive more utility when neither party uses agents than when both use them. Hence, in these regions of the parameter space, every equilibrium in which both parties use agents is a prisoner's dilemma. Empirically, then, it should not be surprising that party leaders would abhor agents and view them as a drain on the party, even while they continued to employ them. For every equilibrium in region D, parties derive more utility when both parties use agents than when neither party uses them. Hence, some of the equilibria in which neither party uses an agent are also prisoner's dilemmas. But these prisoner's dilemmas arise in a much smaller area of the parameter space. Over a much larger area, the equilibria in which neither party uses agents is not a prisoner's dilemma.[20]

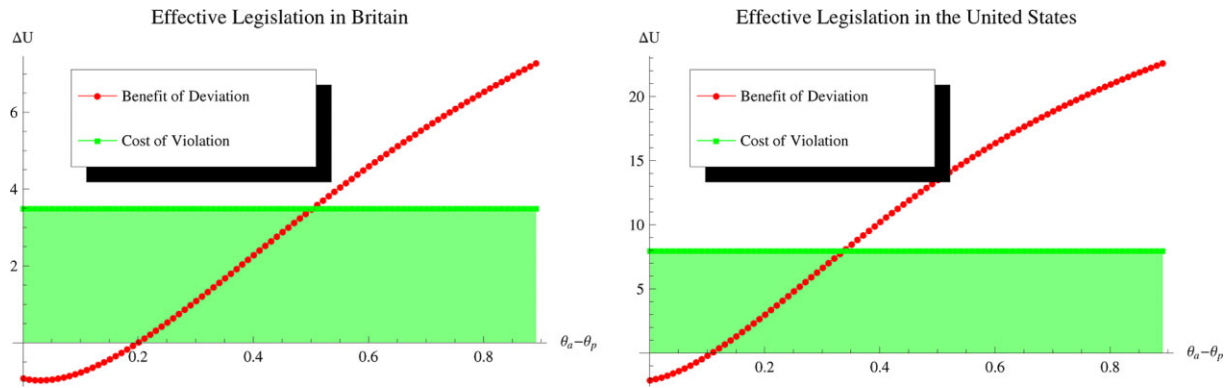
The finding that parties face a prisoner's dilemma when agents are efficient suggests that parties may seek legislation that bans agents. Simple notation and simulations clarify the feasibility of enforcing such a ban. In its simplest form, legislation creates a cost, via a punishment, for candidates who chose to distribute resources through agents. Define the largest punishment that can be passed through legislation as $\bar{C}$. Yet there is also a positive probability that candidates can use agents and evade punishment. Therefore, define r as the probability that a candidate would be caught, if she hired agents. Without loss of generality, define the payoff that party L receives from the (No Agent, No Agent) strategy profile as U_n and the payoff that party L receives from the (Agent, No Agent) strategy profile as U_{an}. Then party L will not break the law nor hire an agent when:

$$U_{an} - U_n < r\bar{C}. \tag{7}$$

Equation (7) implies that the candidates will follow an electoral law only when the benefit from unilaterally hiring an agent is smaller than the cost of the punishment discounted by the probability of getting caught. When electoral agents are efficient, legislation is not effective because many candidates will rationally break the law. Thus, the legislation will incur costly investigations and expensive enforcement without significantly curtailing vote buying or resolving the prisoner's dilemma.

Figure 2 illustrates this idea. In the left panel in this figure, $V = 35$; in the right panel, $V = 80$. The difference in the values of V allows us to

FIGURE 2
Benefit from Unilaterally Hiring Agents versus the Cost of Noncooperation



evaluate the contrasting problems that British and U.S. legislatures faced, given that parties in the United States experienced declining direct financial burdens in seeking office, holding the value of office constant. $\theta_a - \theta_p$ varies from 0 to .9, which allows us to evaluate the full effects of the diminishing efficiency of electoral agents. We also set $\beta = .5$: the evidence points toward a notable divergence of interests between party leaders and agents in both countries. The curve labeled *Benefit of Deviation* measures the utility that a party gains by deviating from a (No Agent, No Agent) strategy profile by hiring an agent and entering the (Agent, No Agent) profile; this benefit is $U_{an} - U_n$. We set the cost of violating electoral laws equal to the value that the candidates place on winning office. Thus, $\bar{C} = V = 35$ in the Britain and $\bar{C} = V = 80$ in the United States. The reason for this is that at least in the United Kingdom often a punishment for bribing voters consisted of nullifying the electoral results. Since the state's capacity to detect vote buying was weak during this period, we set the probability of being caught at 10%, $r = 0.1$. The curve labeled *Cost of Violation* measures the cost of violating antibribing electoral laws discounted by the probability of being caught.

Figure 2 shows that legislation banning the use of agents becomes effective as agents become less effective. Both candidates will respect the legislation and not hire agents when the benefits of deviation are less than the costs of violation. This occurs when the *Benefit of Deviation* curve crosses the *Cost of Violation* curve into the shaded region. The points on the *Benefit of Deviation* curve within the shaded region represent equilibria in which legislation is necessary and sufficient to prevent parties from using agents. In this region legislation effectively rescues parties from a prisoner's dilemma or a game of chicken. When the *Benefit of Deviation* curve crosses below the *x-axis*, legislation is no longer necessary to prevent parties from using agents. Note that even though the punishment is more severe in the United States in absolute terms, legislation becomes effective at a lower threshold of agent effectiveness.

The costs of violation could increase with an increase in penalties or an increase in the state's capacity to detect and punish violators of the legislation. This would have the effect of raising the line that defines the *Cost of Violation* on the *y-axis*, which would make legislation effective for more effective agents. If party leaders truly were facing a prisoner's dilemma with extremely effective agents, what prevented party leaders from implementing sufficiently severe punishments that deterred them from using even the most effective agents?

First, legislators in the United Kingdom believed that if punishments were too severe they would be unenforcible. For example, consider the 1883 Corrupt Practices Act, which imposed strong penalties on

bribery and other corrupt practices. Rix observes, "while MPs were keen to reduce expenditures, they were less enthusiastic about the strict regulations and severe penalties which the Bill deployed to achieve this" (2008, 74). A proposed two-year imprisonment with hard labor and a £500 fine was reduced to imprisonment of one year with hard labor and a £200 fine. One fear motivating greater clemency was that "overly severe penalities would be self-defeating, with juries refusing to convict" (74).

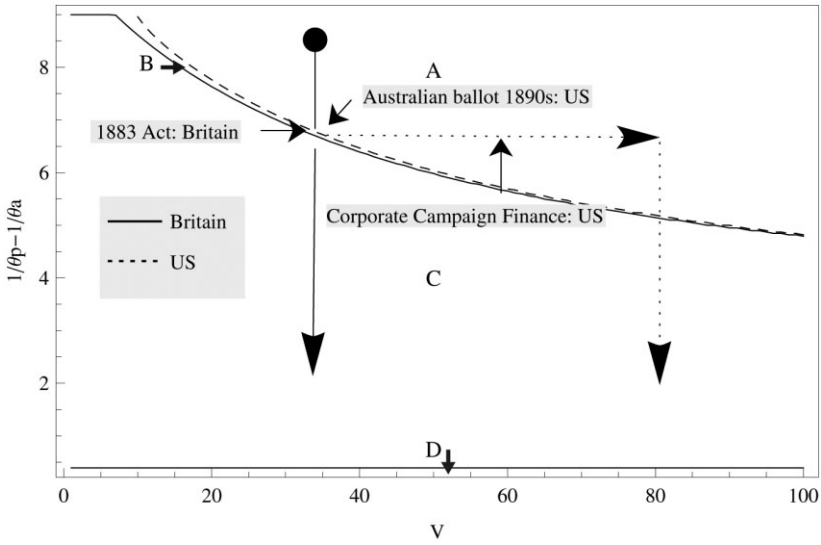
Second, throughout much of the nineteenth century many considered bribery to be inevitable. Before 1883 candidates were forced to incur the costs of petitioning an election that suffered from alleged bribery. Yet Hanham notes, ". . . an appreciable proportion of the party managers, aristocracy, and middle classes who could have afforded the cost thought that corruption was inevitable and that a law like the Corrupt Practices Prevention Act of 1854 . . . should not be enforced" (1959, 275–76). It was precisely campaigns like Gladstone's or that of Henry Fawcett's 1874 campaign, in which he won 18,000 votes while refusing to pay agents, that allowed others to believe elections could be won with strategies that explicitly forewent agents.

Finally, electoral laws banning bribery and the institutions enforcing these laws were relatively recent; this created challenges of legitimacy and legal puzzles that made enforcement less certain. Hanham (1959) observes that in 1868 election courts were created in the United Kingdom, which replaced the more partisan election committees. Yet even with courts, judges were forced to decide cases that often lacked precedent. Moreover, judges made bad decisions, and some judges acted in a partisan manner, which prompted further reforms.[21] Again the institutions that would enforce electoral laws came under scrutiny during the debates of the 1883 Corrupt Practices Act, but it was decided that the system worked sufficiently well in 1880 to leave it unaltered (see Rix 2008, 75). Incremental improvements gave institutions enforcing electoral laws more legitimacy, but they still left considerable uncertainty.

The Dynamics of Machine Politics in Britain and America

Figure 3 summarizes our explanation for the use of agent-mediated distribution in Britain and the United States in the nineteenth century, its relatively early abandonment in Britain and its greater endurance—but eventual demise—in the United States. The figure reproduces our simulated results from Figure 1, and superimposes a stylized trajectory of distributive politics in the two countries.

FIGURE 3
Stylized Trajectories of Party Strategies
in Britain and the United States



Focusing first on Britain, we locate the situation of Liberals and Conservatives after the 1832 Great Reform Act in the "A" region of the figure: using agents was a dominant strategy, but both endemic agency losses and the prisoner's dilemma explain parties' less-than-enthusiastic view of their electoral agents.

Industrialization in the second half of the nineteenth century transformed the electorate and eroded the efficiency of agents, as we explain in more detail below. We represent this shift graphically in a downward descent in Figure 3. Recall that as the efficiency of agents declines, party leaders reach a situation in which legislation can effectively prevent the use of agents.

As agents become less efficient, the House of Commons passed anti-agent legislation throughout the final quarter of the nineteenth century. Parliament introduced the written ballot in 1872, making it harder for electoral agents to hold individual voters accountable for their actions at the polls. By contemporary accounts, the ballot damaged but did not destroy the market for votes and left an important role for party agents (Seymour [1915] 1970, 433; see also Hanham 1959, 274).

Party leaders had some inkling that the electorate was ever less susceptible to the agent's bribe, perceiving in the 1880s that "the new

mass electorate, through increased education and a cheap press, would become politically free and independent in a sense that their predecessors would not have thought possible" (O'Leary 1962, 231). For example, through powerful rhetoric and shrewd use of the press, Gladstone won a seat, lodged serious charges against the government led by his perennial rival, Benjamin Disraeli, and reached tens of thousands of voters throughout the land—all in a race to win a majority of some 3,000 constituency electors (see Hoppen 2000; Jenkins 2002). At the same time, the perception that the election of 1880 was a particularly corrupt one was a stimulus for the House of Commons to take up serious antibribery legislation (see Hanham 1959, 273; Rix 2008, 67; Seymour [1915] 1970, 440).[22]

But party leaders were increasingly aware of the costs that electoral agents imposed on them and of less costly alternatives. The officially recorded total expenditures in the 1880 elections were £1,737,300, £750,000 more than in 1874; the press speculated that the real amount may have been as high as £3 million.[23] The costliness of campaigning exposed Liberal and Conservative politicians alike; in the latter case, a motive behind the reform was to ward off the outsider who would "defeat and impoverish his resident landowning opponent" (Rix 2008, 70).

In 1883, Parliament took even more effective and direct action against its agents. The aim of party leaders with the 1883 Act was to do away with their agents: in O'Leary's phrase, "to wipe out the tribe of electioneering parasites" (cited in Rix 2008, 70). Hence there was a "surprising degree of accord between the leaders of the [Liberal and Conservative] parties during the debates between 1880 and 1883"—surprising given the intensity of party conflict in this period (O'Leary 1962, 229). The Corrupt and Illegal Practices Act of that year imposed strict regulations on campaign spending, barred the use of paid canvassers, and put in place procedures for investigating and punishing violators. We interpret the 1883 Act as legislation that successfully specified sufficiently severe but also credible punishments that dramatically reduced the use of party agents.

In the United States as well, industrialization eroded the efficiency of party agents in the later nineteenth century. The adoption of the Australian ballot by most states in the 1890s was parallel to the anti-agent legislation in the House of Commons: it represented party leaders' moving against their agents and their machines. American machines were on the same path toward extinction as their British counterparts.

But a crucial change happened at the end of the nineteenth and beginning of the twentieth centuries. State and national parties began tapping corporate entities to finance campaigns, as discussed below.

Whereas British politicians had chafed—before 1883—under the burden of expensive campaigns which the candidates, or individual sponsors, had to bear, many U.S. politicians were freed of such financial burdens. In the terms of our model, U.S. parties enjoyed an increase in V, the value of office in relation to the costs of attaining it. The result is captured by a rightward shift in Figure 3, which delayed the drive to adopt antimachine reforms.

The Declining Efficiency of Party Agents $\left(\frac{\theta_a}{\theta_p}\right)$

What caused parties' preferences for agents to shift in the first place? If they started out in an equilibrium like the ones in region A, why did they move? A fundamental explanation for the demise of agent-mediated distribution in both countries has to do with the changing nature of the electorates under the stimulus of the industrial revolution. In the terms of our model, the impact of industrialization in nineteenth-century Britain and the United States was to depress θ_a relative to θ_p.

The crucial changes, in both countries, were that the electorates became larger, more urban and thus more difficult to monitor, and wealthier.[24]

It is clear from contemporary descriptions, as well as from the incidence of petitions, that electoral bribery was not practiced to equal degrees across different constituencies, in either country. Focusing on Britain, there were constituencies which were seen as pure and others in which bribery was endemic—indeed, where citizens had come to expect to be paid for their votes and would demand payment even from hesitant candidates. Variation across constituencies is suggestive of the kinds of factors we have pointed to, most obviously to the factor of constituency size.

Agents' roles of providing individualized information about voters and monitoring their actions meant that each agent was responsible for a small number of voters—usually his neighbors. With growing electorates, ever more agents had to be hired. Though we go here somewhat beyond our model, it is not hard to see that parties facing ever-larger electorates would turn to programmatic campaigning, which scaled more easily.

Regarding rising incomes, our model does not deal with the impact of voters' incomes on the effectiveness of agents. Other related models do, several of them incorporating the assumption of diminishing marginal utility of incomes (Dixit and Londregan 1996; Stokes et al. 2013). And this assumption enjoys some empirical support. Vote selling today is more common among poor people within countries and more

widespread in poorer countries. It is more pervasive in Africa than in Latin America, more pervasive in Latin America than in Europe, and more pervasive in Eastern and Central Europe than in Western Europe (Kitschelt 2011; Stokes et al. Forthcoming). And diminishing marginal utility of incomes, leading parties with limited budgets to favor the highly responsive poor, is likely to be the explanation.[25]

It should not be surprising, then, that as populations and (eventually) electorates became wealthier, the direct offers of material rewards by party agents became less effective. And electorates did get wealthier.[26] In Britain, real wages in manufacturing grew by more than 60% between 1850 and the turn of the century (Lindert 2000; Hoppen 2000). In the United States, per capita income grew about 20% between 1820 and 1850 and roughly doubled between the end of the Civil War and 1900 (Lindert 2000).

And, indeed, rising incomes were part of the story of the declining effectiveness of party agents—the reason why, even eventually in the United States, minor campaign gifts became regarded as "a joke" (Banfield and Wilson 1963, 121).

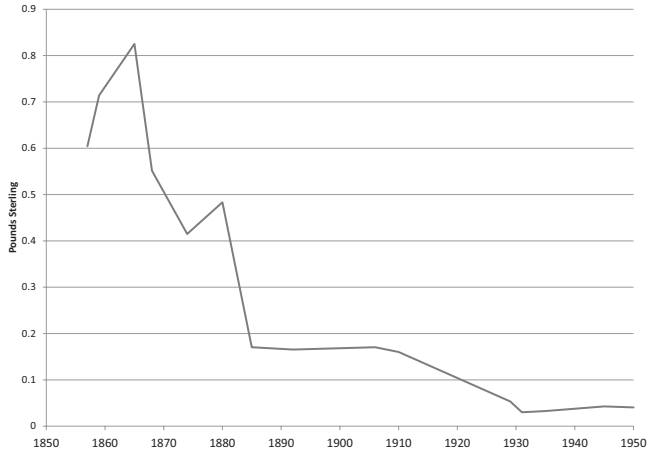
The Declining Value of Office Relative to Campaign Expenses (V)

Persistently Expensive Campaigns in Britain. British politicians often complained that their agents were bleeding them dry. The vast sums that agents prodded candidates into spending often came out of the candidates' own pockets. Or they came out of the pockets of a local aristocrat or notable who sponsored the candidate. Candidates and party leaders' unhappiness with electoral agents notwithstanding, they found themselves in a prisoner's dilemma. Recall Seymour's assertion—cited earlier—that "a modicum of candidates" who preferred "to insure their seats by a liberal scattering of gold," and thus eliciting the same strategy by many others, "in self-protection" (Seymour [1915] 1970, 199).

Effective antibribery legislation had to await a moment when the transformation of the electorate—outlined earlier—had undermined the effectiveness of the electoral agent. At that point, legislation could serve as a credibility device by detering parties from seeking advantages by unilaterally employing agents. In 1883, the House of Commons adopted such legislation that basically eliminated electoral agents as they had operated for decades.

In the debates leading to the passage of the 1883 Anti-Corrupt Practices Act, some Conservative backbenchers objected to the bill's proposed campaign spending limits. Significantly it was John Gorst, a

FIGURE 4
Campaign Expenditures Per
Voter in Britain, 1857–1950



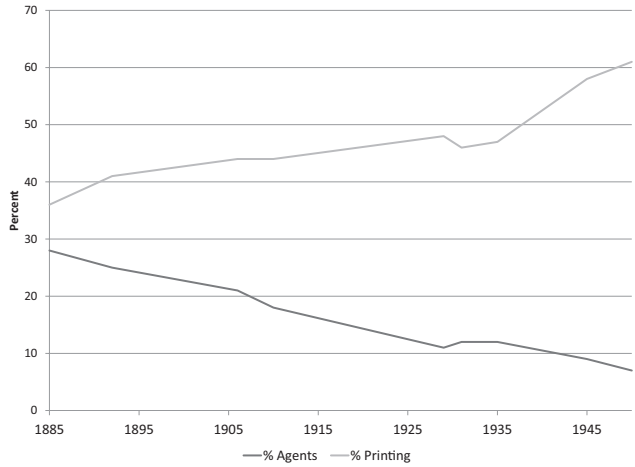
Source: Data are from Craig (1989).

former Tory head agent, who reassured them. We mentioned earlier Gorst's encouragement to his fellow Conservatives that they could run campaigns by simply informing voters "of the character, qualifications and political views of the candidates" (op. cit., from O'Leary 1962, 165).

Gorst's arguments make clear that a central motivation for finally passing effective anti-agent reforms was to reduce the costs of campaigns. And in this sense, too, the reforms were effective. Figure 4 shows that per-voter costs were brought down with the introduction of the written ballot in 1872, and they came down even more sharply, and irreversibly, after the 1883 Act. Of course, with a growing electorate one might well expect per-voter costs to fall. (Though this would not be the case in the United States.) But Figure 5 shows that not just the total sum but also the composition of expenditures shifted. Expenditures on agents declined after the 1883 Act, as they were intended to do, while expenditures on publicity increased—the latter reflecting the late-century shift to unmediated party appeals.

In sum, in the context of the declining effectiveness of party agents and financially costly campaigns, Parliamentary leaders passed legislation that eased their parties' transition to unmediated distributive competition.

FIGURE 5
Trends in British Campaign Spending on Agents and Printing, 1885–1950



Source: Data are from Craig (1989).

The Rise of Externally Funded Campaigns in the United States. Democratic and Republican leaders in the nineteenth-century United States were no fonder of their agents than were their British counterparts. They saw them as unreliable and ineffective. About "treacherous" electoral agents in New York and New Jersey in the last two decades of the nineteenth century, Reynolds and McCormick write that, "To the partisan leaders the local machine was a source of insubordination and untrustworthiness" (1986, 851).[27] And the machine's efforts were decreasingly effective: "Perhaps in an earlier day when the electorate was smaller and more deferential, the party organization had been able to deliver the vote with fewer hitches, but if that had ever been the case, it was no longer true by the 1880s" (848).

Like their British counterparts, American political leaders undertook reforms aimed at dislodging their untrustworthy agents. The most effective and widely enacted reform, as we have seen, was the adoption of the Australian or "official" ballot. In New Jersey and in other states, "the Democratic and Republican leadership used the official ballot to wrest control over the election from the hands of machine operatives" (Reynolds and McCormick 1986, 49). The period between 1880 and 1920 saw the introduction of other regulatory measures over elections, such as voter registration laws and primaries. The Pendleton Act was also

a product of this period (1883), its provisions including a ban on soliciting campaign contributions from federal employees (Heard 1960; Mayhew 1986; Mutch 1988).

Yet despite these regulations and reforms, machine politics persisted—as we saw at the outset of this article—into the early days of the welfare state and beyond. If at the end of the nineteenth century America was on the same course toward eliminating machines as the one recently travelled by the British parties, their paths were soon to diverge. The crucial difference were new infusions of cash to finance American political campaigns in the early twentieth century—money that came not from candidates or local sponsors but from large business organizations. These were the "trusts": railroad and insurance companies, banks, and utilities. Their bankrolling of state party organizations reduced the urgency that politicians felt to cut out costly agents. The role of corporate money in politics was a source of scandal, at least since the muckrakers uncovered it in 1904–1908 (McCormick 1981). But because candidates were less in danger of being personally bankrupted by their agents, the latter were more irritant than threat to the candidates and party leaders.

The shift toward corporate financing of campaigns was in part a response to the 1883 Pendleton Act, which barred federal employees from contributing to political campaigns. Though unevenly enforced and applying only to a subset of public employees (Sikes 1928, 183), still the Pendleton Act deprived candidates and campaigns of funds. To make up the difference, parties turned to banks, insurance agencies, and manufacturers.

Mayhew identifies New York State in the 1890s as a locus of innovation in forging a link between corporate interests and state political parties: "corporate money had been given formerly to individual state legislators, but [Republican senator Tomas C.] Platt, copying an innovation by the state's Democrats, substituted the party organization as recipient" (1986, 213). There was still some novelty to campaign sponsorship of state parties in 1894, when the head of the sugar interest "told a Senate invetigating committee that his corporation regularly contributed to state and local parties, both Democatic and Republican, entering the transactions on the books as business expenses" (Mutch 1988, xvii). In 1896, Mark Hanna extended the growing practice of assessing a percentage of banks' capital to finance the national Republican party.[28]

Hence, rather than a warm-up round soon to be followed by a final blow to the machine, the introduction of the Australian ballot in the states represented a high point of antimachine legislation. Despite active Progressive Era reforms on many fronts, no equivalent of the British Act of 1883 was to follow.

Conclusion

British and American parties found themselves in a costly duel between competing machines. We have shown theoretically that declining agent effectiveness, as well as persistent high costs relative to the value of winning office, increase incentives to shift away from agent-mediated distribution. Historically, industrialization and the changes it wrought in the electorate made agents less effective in both Britain and the United States. In Britain, legislation acted as a catalyst speeding up the shift. The flood of corporate money into American campaigns delayed antimachine reforms in that country by making victory relatively inexpensive for candidates. Ironically, the long-term effect was to encourage escalation of campaign costs—borne, still, in large part by corporate donors—which continues to define American democracy today.

Edwin Camp <edwin.camp@yale.edu> *is a Postdoctoral Associate for the Yale Program on Democracy at Yale University, 115 Prospect St., Room 421, New Haven, CT 06511. Avinash Dixit* <dixitak@princeton.edu> *is the John J. F. Sherrerd '52 University Professor of Economics, Emeritus at Princeton University, Department of Economics, Fisher Hall G-001, Princeton, NJ 08544-1021. Susan Stokes* <susan.stokes@yale.edu> *is the John S. Saden Professor of Political Science & MacMillan Center at Yale University, Department of Political Science, 115 Prospect St, Room 420, New Haven, CT 06511.*

NOTES

We thank Liz Carlson, Ana de la O, Thad Dunning, Andy Eggers, Sigrun Kahl, David Mayhew, Gwyneth McClendon, Arthur Spirling, and Tariq Thachil.

1. See Erie 1988, 131. Wright (1974) shows that distribution of public relief funds across states during the New Deal was partly a function of their "political productivity," which meant that more unemployment-ravaged states in the South received lower levels of relief than did electorally responsive states in the West.

2. Cox and McCubbins (1993, 90) emphasized the prisoner's dilemma that parties find themselves in, in this same context. In contrast to their account, we attribute the feasibility of legislation banning agents and resolving the PD to the declining efficiency agents throughout the nineteenth century.

3. We are grateful to Andy Eggers and Arthur Spirling for the data on which this discussion draws. For more details, see Mayhew (1986, Chap. 2).

4. On Mexico, see Magaloni (2006); on Italy, see Chubb (1982).

5. With the exception of a brief comparative analysis in Sikes (1928, 125).

6. The heterogeneous-party theorists include Hirschman (1970), May (1973) (both authors model parties with leaders and activists), Roemer (2001) (opportunists and militants), and Alesina and Spear (1988) (party leaders from the current and the next generation).

7. The probabilities could be alternatively interpreted as vote shares in a deterministic model. The objective functions stipulated below can then be interpreted as the value the parties place on vote shares, net of the cost of acquiring them. However, that entails assuming that the objective is a linear function of the vote share, which does not seem realistic.

8. The Cobb-Douglas function $f(c, s)$ captures this interaction between activism of core supporters and turnout and voting from the swing group: the cross-partial derivative $\partial^2 f/\partial c \partial s$ is positive; therefore, a larger transfer to core supporters raises their activism, which increases the marginal contribution to victory from promising transfers to the swing voters.

9. Utilizing fine-grained information about voters continues to be a challenge for political parties. See Hersh (2011) for a discussion of how large voter databases affect political campaigns.

10. The people chosen to be agents are local party functionaries who get surplus from this role—payoff higher than their alternative opportunities. Therefore, their participation constraint is slack and can be ignored.

11. Actually, there are two symmetrical subgames of this kind, (Agent, No Agent) and (No Agent, Agent).

12. All mathematical appendices are posted on Edwin Camp's website.

13. It is defined in (C.4) in Appendix C.

14. All these results are quite intuitive; here are some further explanations and comments. (1) A higher bonus makes the agents value the party's victory more and therefore reduces the distortion that would hurt those chances. A larger budget allows the agent to indulge more in his taste for cultivating his core club. Of course, the leaders take these comparative statics into account when choosing their optimal budgets and bonuses in the first stage. (2) High bonuses are costly to the party leaders, so they will have to accept a second best. In the full equilibrium, the leaders are not going to give away the whole value of victory as bonus, so we find $B < V$, so the bias toward core voters will definitely exist. But even if $B = V$, some bias will remain. (3) If the number of core supporters N_c is large, giving them special favors is costly, even to the agent, so less of it will be done. (4) A small β means that the agent's interests are better aligned with those of the principals (the party leaders). The principals can deliberately try to select low-β agents, if they can find suitably competent as well as loyal and self-effacing people who have internalized the party's objective.

15. They have low values of θ_a relative to θ_p.

16. They have low values of V.

17. See Hanham (1959) for a further discussion of this case. The total number of voters for the 1880 election comes from Craig (1977).

18. These data come from Craig (1977).

19. We vary V from 4 to 100 in increments of 1, and θ_a from 0.1 to 0.999 in increments of 0.001. All simulations assume the same mix of core and swing voters in the electorate (N_c and N_s). We hold constant the multiplicative constants to the returns of

resource expenditures, A_a and A_p, and the marginal returns of resource expenditure when a party does not employ an agent, θ_p. We set N_c, to 0.4 and N_s, to 0.2. θ_p, is set to 0.1. A_a and A_p are both set to 1. We set $\alpha = .1$, which means that the marginal return from distributing resources to swing voters is much higher than distributing to core voters. We excluded $\theta_a = 0.8$. 89,901 equilibria were calculated.

20. The findings reported in Figure 1 depend on our assumptions about the distributive preferences of agents. If we instead assumed that agents do not derive much utility from sending resources to core voters, then several key differences would emerge. First, parties are willing to retain agents even when they are inefficient. Secondly, in a small parameter space, parties can employ agents and be better off than if they were both not using agents. These differences show that high agency costs would also generally be the background against which parties abandoned agents in real-world settings.

21. See Hanham (1959, 279–80) for a further description of the evolution of electoral courts.

22. Rix (2008, 67) endorses the notion that elections were getting cleaner over time. But, when compared with 1874, 1880 witnessed a slight uptick in the total number of petitions and the number of those that led to the voiding of the original results. In 1874, there were 22 petitions; in 1880, there were 28 petitions. In 1874, there were 10 successful petitions; in 1880, there were 16 successful petitions (O'Leary 1962; Appendix I).

23. After 1857, candidates were required to report their campaign expenditures. Since these are self-reported data, campaign expenditures are therefore likely to contain inaccuracies (see Hanham 1959, 249; Seymour [1915] 1970, 441–42).

24. There is broad agreement that the increasing size of the British electorate, and of the average size of constituencies, discouraged agent-mediated strategies and bribery, though the explanation for the effect varies across authors. See Hanham (1959), Cox (1987), and Stokes et al. (2013).

25. Stokes et al. (2013, Chap. 7) show that risk-aversion among the poor does not explain the propensity of the poor to sell their votes.

26. They did so despite the fact that successive waves of franchise reform, in particular in Britain, opened the franchise to poorer people and hence, over the short run, depressed the average income of the electorate.

27. The title of Reynolds and McCormick's 1986 essay is "Outlawing 'Treachery': Split Tickets and Ballot Laws in New York and New Jersey, 1880–1910."

28. See Mutch 1988, (xvii). Corporate financing of campaigns was controversial, and campaign finance reform was a major priority in the Progressive era. Hence the period 1904–25 encompasses "much of the history of federal campaign finance regulation" until 1971. The Supreme Court's 1921 decision in *U.S. v. Newberry* invalidated Congressional regulation of primary campaigns.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Table 1. Equilibria Outcomes for $\beta = 0.5$
Table 2. Party Utilities for $\beta = 0.5$