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Varieties of Clientelism: Machine Politics During Elections*

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Abstract

Clientelist parties (or political machines) engage in a variety of strategies during elections. Most studies focus exclusively on “vote buying,” a strategy that rewards opposing voters for switching their vote choices. Yet in many countries, machines also adopt other strategies, such as activating their passive constituencies through “turnout buying.” What factors explain variation in patterns of clientelism during elections? We develop an analytical framework and formal model that emphasize the role of *individual* and *contextual* factors. Political machines focus on two key attributes of individuals — political preferences and inclination to vote — when choosing their mix of clientelist strategies. Machines also tailor their mix to at least five contextual factors: compulsory voting, machine support, political polarization, salience of political preferences, and strength of ballot secrecy. Evidence from Argentina, Brazil, and Russia is consistent with these findings.

Introduction

During elections in many countries, clientelist parties (or political machines) offer selective benefits to citizens in exchange for political support. Such parties compete not only on the basis of policy platforms, but also with material inducements given directly to individuals. These inducements often include food, medicine, and other forms of sustenance. In contexts where citizens are highly dependent on such handouts, including countries where the state fails to provide a social safety net, this pattern of machine politics can have particularly important consequences for democratic accountability and responsiveness (Kitschelt & Wilkinson 2007).

In the past, prominent scholars viewed clientelism as a pre-industrial political phenomenon that would wane as societies modernized (e.g., Scott 1969). But the evolution of machine politics is often remarkably different than in the U.S., where powerful machines such as Tammany Hall in New York and the Dawson machine in Chicago lost considerable influence over time. In many advanced democracies, such as Greece, Italy and Spain, clientelist parties continue to attract substantial numbers of votes using direct material inducements (Kitschelt & Wilkinson 2007; Piattoni 2001). The influence of clientelism is even more pronounced in many developing countries, where a growing body of evidence reveals the remarkable extent to which parties engage in machine politics. In Brazil, the prevalence of inducements during campaigns motivated over one million citizens to sign a petition in 1999 for stricter legislation, leading to the recent prosecution of over 660 politicians (Movimento de Combate à Corrupção Eleitoral 2010).

Despite the major role of clientelism in many contemporary societies, we continue to lack a thorough understanding of how political machines distribute benefits during campaigns. Most studies focus exclusively on “vote buying,” a strategy that rewards opposing voters for switching their vote choices (e.g., Lehoucq 2007, 33; Stokes 2005, 315). Yet in many countries, machines also adopt other strategies, such as activating their passive constituencies through “turnout buying” (Nichter 2008; Cox 2006). What factors explain variation in patterns of

clientelism during elections?

The present study provides an analytical framework and a formal model that highlight how clientelism is shaped by both *individual* and *contextual* factors. Political machines focus on two key attributes of individuals — (1) political preferences and (2) inclination to vote — when deciding how to distribute benefits during elections. They find it relatively expensive to influence the vote choices of strongly opposed citizens, or to induce turnout of citizens who are strongly inclined to stay home on Election Day. Machines also tailor their mix of clientelist strategies to at least five characteristics of political environments: (1) compulsory voting, (2) machine support, (3) political polarization, (4) salience of political preferences, and (5) strength of ballot secrecy.

Overall, our analysis suggests that clientelism is far from a homogeneous political phenomenon, and helps to explain variation in patterns of machine politics. We examine evidence from Argentina, Brazil, and Russia, drawing on fieldwork interviews, local media accounts and academic studies. Each country exhibits a distinct mix of clientelist strategies: (1) predominantly vote buying in Brazil, (2) predominantly turnout buying in Russia, and (3) a relatively balanced mix of vote buying and turnout buying in Argentina. Evidence suggests that factors highlighted by our study help to explain this variation.

Understanding variation in clientelist strategies has important normative implications. Consider, for example, the distinction between vote buying and turnout buying. Vote buying may be seen as unambiguously pernicious for democracy, as the strategy interferes with free and fair elections, and undermines political equality by allowing those who have resources to buy the votes of the poor (Stokes 2005, 316; see also Schaffer & Schedler 2007). By contrast, Hasen (2000, 1357–58, 1370) contends that the normative implications of turnout buying are more ambiguous because it may increase equality of political participation by inducing the poor to vote. Such normative questions challenge scholars to deepen their understanding of how political machines distribute benefits during campaigns.

The present study does not claim to provide an exhaustive analysis of all varieties of

clientelism. We restrict our analysis to *electoral* clientelism; that is, strategies that exclusively involve the distribution of benefits during electoral campaigns. We acknowledge that clientelism often involves a broader set of strategies than just elite payoffs to citizens before elections. For example, studies such as Scott (1969), Levitsky (2003), and Lawson (2009) discuss other forms of clientelism that involve ongoing relationships of mutual support and dependence. Nevertheless, our explicit focus on electoral clientelism facilitates analysis of numerous strategies that remain poorly understood.

The findings of this study also contribute to the broader literature on distributive politics. Vigorous scholarly debate continues over how parties distribute targetable goods, such as infrastructure projects and particularistic benefits. Two seminal formal studies offer conflicting predictions: whereas Cox & McCubbins (1986) argue that parties will distribute targetable goods to core supporters, Lindbeck & Weibull (1987) contend they will target swing voters. A more recent conceptual paper by Gary Cox (2006) argues that these and other studies focus too narrowly on persuasion (changing voters' preferences); when strategies such as mobilization (affecting whether citizens vote) are considered, the core-supporter hypothesis is substantially strengthened. The present study contributes to this literature by developing an analytical framework and a formal model that investigate how clientelist parties *combine* strategies of persuasion and mobilization.

The present study also advances formal studies of clientelism. Previous models rely on a one-dimensional voter space, in which citizens are arrayed along a spectrum of political preferences as in the classic Downsian spatial model of political competition. We introduce a second dimension, such that citizen types are defined both by political preferences and voting costs. This innovation facilitates the integration of nonvoters into our analyses. As a result, the present study addresses a major limitation in almost all existing models of clientelism — they examine only *one* strategy. For example, Stokes (2005) provides a model of vote buying, and Nichter (2008) develops a model of turnout buying. By contrast, we analyze the tradeoffs that parties face when combining strategies. One recent study by Morgan & Vardy

(2009) also begins to tackle the key issue of how parties combine strategies, but focuses narrowly on the impact of introducing the secret ballot. The present paper offers a more exhaustive analysis of the range of strategies employed by political machines and, through the model’s comparative statics, a fuller assessment of the factors that influence variation of clientelist strategies.¹

Analytical Framework

In order to develop an analytical framework of how political machines distribute benefits during campaigns, we first build on a conceptual typology introduced by Nichter (2008). Figure 1 presents five clientelist strategies, emphasizing the importance of two key attributes of individuals: (1) political preferences and (2) inclination to vote. Each strategy targets different types of individuals and induces distinct actions.

[Insert Figure 1 here]

The vast majority of studies focus on “vote buying,” a strategy by which parties reward opposing (or indifferent) voters for switching their vote choices. Vote buying is considered to be prevalent in many countries; for example, over 70 percent of Nigerians in a recent survey believed that vote buying occurs “all of the time” or “most of the time” during elections, with nearly 40 percent reporting that a close friend or relative was offered benefits in exchange for voting for a particular candidate in the 2003 presidential election.² Recent publications on vote buying focus on countries including Argentina (Stokes 2005), Benin and São Tome (Vicente & Wantchekon 2009), Japan (Nyblade & Reed 2008), Mexico (Diaz-Cayeros, Estevez & Magaloni forthcoming), and Thailand (Bowie 2008). Such studies typically assume — either implicitly or explicitly — that political machines distribute benefits to voters in exchange for voting against their preferences.

¹Dunning & Stokes (2009), an unpublished paper on the topic, examines only two strategies.

²Survey of 2,410 Nigerians in all 36 states and the federal capital territory in February 2007. See “Nigerians: Vote Buying a Common Occurrence,” International Foundation for Electoral Systems, 2007.

Although scholars frequently assume that machines reward citizens for vote-switching, in reality machines adopt a broader set of strategies. For example, parties often engage in “turnout buying,” distributing rewards to unmobilized supporters in exchange for showing up at the polls. During the 2004 US election, five Democratic Party operatives in East St. Louis were convicted in federal court for offering cigarettes, beer, medicine, and \$5 to \$10 rewards to increase turnout of the poor (Nichter 2008). One party official pleaded guilty and testified that operatives offered individuals rewards “because if you didn’t give them anything, then they wouldn’t come out” (cf Nichter 2008, 19). In the case of Argentina, Nichter argues that although both strategies coexist, survey data in Stokes (2005) are more consistent with turnout buying than vote buying. Evidence of turnout buying has also been found in the case of Venezuela (Rosas & Hawkins 2008), as well as Argentina and Mexico (Dunning & Stokes 2009).

Another strategy involving mobilization is “double persuasion,” which targets indifferent or opposing nonvoters. The broader literature on clientelism suggests that many individuals have little in the way of ideological preferences or reasons to vote, other than material rewards offered by clientelist parties (e.g., Chubb 1982, 171). With double persuasion, machines distribute benefits to such citizens in order to induce their electoral participation *and* influence their vote choices. Double persuasion targets nonvoters, but is distinct from turnout buying because recipients do not inherently prefer the machine on ideological or programmatic grounds. Although studies typically ignore double persuasion, we find that machines optimally devote some resources to this strategy whenever they distribute selective benefits during campaigns.

Parties may also engage in “negative turnout buying,” which rewards indifferent or opposing individuals for *not* voting (Cox & Kousser 1981; Morgan & Vardy 2009).³ Historically, Cox & Kousser (1981) find that negative turnout buying increased substantially after the introduction of the secret ballot in the United States. While evidence shows that negative

³This strategy is often termed “negative vote buying,” but the term “negative turnout buying” is more precise as the strategy influences turnout, not vote choices.

turnout buying exists in some developing countries, this demobilizational strategy is not possible in many contemporary political environments. As Schaffer (2007, 188) argues: “For a variety of reasons ... buying abstention is not a widespread form of vote buying around the world.” Negative turnout buying may be considered normatively less acceptable, and in contexts such as Brazil involves higher penalties for convicted politicians. Given that machines engage in negative turnout buying only in relatively few political environments, we explore this strategy as an extension of our base model.

Another potential strategy is “rewarding loyalists,” in which clientelist parties offer rewards to supporters who would vote for them anyway. By definition, such rewards do not influence vote choices or induce turnout during a contemporaneous election. Scholars typically understand such benefits as part of ongoing, long-term relationships between politicians and citizens (e.g., Auyero 2000; Kitschelt & Wilkinson 2007). In one explanation of rewarding loyalists, Diaz-Cayeros, Estevez & Magaloni (forthcoming, ch. 4) argue that parties offer selective benefits to core supporters during elections in order to “prevent the erosion of partisan loyalties” over time. Given that we focus on short-term electoral clientelism, such ongoing relationships are outside of the scope of our analysis, and we do not incorporate rewarding loyalists in the present paper.

Combining Strategies

When distributing benefits during campaigns, political machines frequently combine several of the strategies in Figure 1. To provide intuition and motivate formal analysis of how political machines combine strategies, we first present a stylized example.

Assume that a political machine has \$75 to distribute to citizens during a campaign. The machine seeks to maximize its electoral prospects by influencing vote choices and/or inducing turnout. There are nine citizens whom the machine can target:

- **Opposing Voters:** Veronica (\$10), Victor (\$30), Virginia (\$50)
- **Supporting Nonvoters:** Tomas (\$10), Teresa (\$15), Tonia (\$20)
- **Opposing Nonvoters:** Debora (\$10), David (\$20), Diego (\$30)

We focus here on vote buying (targets opposing voters), turnout buying (targets supporting nonvoters), and double persuasion (targets opposing nonvoters). Observe that different payments (in parentheses) are required to buy each citizen using the relevant strategy. The required payments vary because citizens differ with respect to two key attributes: (1) political preferences and (2) inclination to vote. For example, vote buying is more expensive when a citizen strongly opposes the machine on ideological grounds. Likewise, turnout buying and double persuasion are more costly if the citizen is strongly inclined not to vote.

Given the different required payments, how does the machine allocate its budget? The first crucial consideration is that vote buying benefits the machine more than other strategies. Vote buying provides two net votes — it adds a vote to the machine’s tally, and subtracts one from the opposition. By contrast, turnout buying and double persuasion provide only one net vote because they target nonvoters. To allocate its budget efficiently, the machine should target citizens who offer the most net votes per dollar spent.

Using this metric, the machine should start by vote buying Veronica. For \$10, it earns two net votes (i.e., \$5 per net vote). To vote buy an additional citizen, the machine would need to pay Victor \$30 (\$15 per net vote). Thus, the machine would be better off turnout buying Tomas and double persuading Debora, as each provides one net vote for \$10. The machine now has \$45 remaining, and considers costlier citizens. It should vote buy Victor for \$30 and turnout buy Teresa for \$15. Both options are equally cost-effective (\$15 per net vote), and preferable to the alternative of double persuading David (\$20 per net vote).

This stylized example provides several insights for further investigation: (1) machines optimally combine clientelist strategies; (2) their mix includes turnout buying and double persuasion; (3) their mix depends on citizens’ political preferences and inclination to vote; and (4) machines are willing to pay more for vote buying relative to other strategies. We now develop a model that confirms the intuition gleaned above, and also suggests how machines tailor their mix of clientelist strategies to specific political environments.

Model

Setup

Consider two political parties, an incumbent machine party (M) and an opposition party (O). Each party offers a platform, x^M and x^O , respectively, on a one-dimensional ideological spectrum ranging from \underline{X} to \overline{X} . Without loss of generality, let $x^O < x^M$, and for simplicity, assume that the parties' platforms are symmetric around zero (that is, $x^O = -x^M$).⁴

Both parties' platforms are fixed for the duration of our analysis. This simplifying assumption is consistent with our focus on electoral clientelism, and accurately reflects reality during many electoral campaigns: parties may have attributes that cannot be credibly transformed in the short run, such as the personal or ideological characteristics of their leaders.

Each citizen i is defined by her political preferences x_i and voting costs c_i , where x_i and c_i are independent. The citizens' ideal points x_i are distributed over $[\underline{X}, \overline{X}]$ according to $F(x)$, where F has a strictly positive and continuously differentiable density f over $(\underline{X}, \overline{X})$. Costs of voting c_i are distributed over $[0, \overline{C}]$ according to $G(c)$, where G has a strictly positive and continuously differentiable density g over $(0, \overline{C})$. For ease of explication, we focus on the case where the parties' platforms are the endpoints of the citizens' ideological spectrum (i.e., $\underline{X} = x^O$ and $\overline{X} = x^M$), but results are not affected if some citizens have more extreme political preferences (i.e., $\underline{X} < x^O$ and $\overline{X} > x^M$).⁵

A citizen's utility equals the difference between her expressive value from voting and her voting costs.⁶ Formally, a citizen of type (x_i, c_i) who votes for party $P \in \{M, O\}$ receives utility:

$$U^P(x_i, c_i) = -|x^P - x_i| - c_i \tag{1}$$

⁴This assumption simplifies the algebra but qualitatively does not affect our results.

⁵A proof is available upon request.

⁶Morgan & Vardy (2009) offer a formal justification for the assumption that voters receive only expressive utility, not instrumental utility (i.e., utility derived from affecting the outcome of the election). Given reasonable assumptions, a citizen's probability of being pivotal converges to zero as the electorate size increases.

The first term, $-|x^P - x_i|$, captures the notion that the closer the citizen's ideal point to the platform of the party for which she votes, the more utility she receives from casting a ballot. The second term, c_i , represents voting costs, such as transportation, lost wages, or child care needed to reach the polls. A citizen who chooses not to vote receives no expressive utility from voting and also incurs no direct voting costs. However, in most societies citizens who fail to vote face abstention costs. Such abstention costs range from social disapprobation to fines and penalties in countries with compulsory voting laws. We thus assume that a non-voter incurs a cost $a > 0$.⁷

The objective of the machine is to maximize its net votes — the number of votes it receives minus the number of votes the opposition party receives. Since the machine cannot adjust its platform during the campaign, its task is to acquire additional votes by distributing selective benefits. We assume the machine cannot afford to buy all citizens, because it has limited resources given by a budget B . Thus, the machine must decide how to allocate its budget optimally across different types of citizens.⁸

We assume that the machine observes citizens' political preferences and voting costs. To illustrate the basic logic of our model, we initially ignore the risk of opportunistic defection by citizens (e.g., a citizen receives a vote-buying payment and still votes against the machine). An extension of the model then considers opportunistic defection. In addition, given that in many contexts parties cannot pay citizens to stay home on Election Day (e.g., Schaffer 2007: 188), we initially assume that machines cannot engage in negative turnout buying. We later relax this assumption to analyze how the machine's optimal allocation of resources changes when negative turnout buying is allowed.

Finally, the model assumes that only the machine, and not the opposition party, has the

⁷We make two realistic assumptions that ensure an interior solution to the machine's optimization problem and monotonicity of comparative statics: (1) some indifferent citizens vote (formally, this requires $a > x^M$); and (2) even with electoral clientelism, there exist strong supporters who do not vote (formally, this requires $\bar{C} - a > b^*$, where b^* is defined below as the most-expensive payment to nonvoters).

⁸Formally, the machine's problem is to maximize its net votes by assigning a reward $b_i \geq 0$ to every citizen, such that total expenditures, $N \int \int b_i g(c) f(x) dc dx$, are less than or equal to budget B , where N is the total number of citizens.

capacity to offer rewards to citizens. This assumption, which follows models of clientelism such as Stokes (2005) and Nichter (2008), reflects the reality in many contexts where only one party has the infrastructure, access to state resources, and social networks necessary to engage in clientelism. Stokes (2009, 12, 20) offers two explanations for what she calls the “single-machine” assumption: (1) the incumbent party has exclusive access to public coffers, from which clientelist payments are made; and (2) only one party has invested in the “dense organizational structure” and “social proximity” that define a machine. In many contexts where only the dominant machine has party operatives embedded in neighborhoods, other parties find it exceedingly difficult to collect information about citizens’ preferences and voting costs, as well as to enforce clientelist exchanges.

Classifying Citizens

Given its knowledge of preferences and voting costs, the machine can classify citizens. If a citizen shows up at the polls, she will vote for the machine if doing so provides (weakly) greater utility than voting for the opposition. That is, a citizen votes for the machine if $U_i^M \geq U_i^O$, or equivalently, if $x_i \geq 0$.⁹ Thus, citizens with political preferences $x_i \geq 0$ are supporters of the machine, while those with political preferences $x_i < 0$ are opposers. If a citizen chooses not to vote, she receives no expressive utility from voting and faces no voting costs. However, she incurs abstention costs. Hence, a citizen will choose to vote if she receives (weakly) greater utility from voting than from abstaining. That is, she votes if $\max[U_i^M, U_i^O] \geq -a$, or equivalently, if $\max[-|x^M - x_i| - c_i, -|x^O - x_i| - c_i] \geq -a$. Overall, the machine can classify the population into four groups of citizens:

- **Supporting Voters:** Citizens with $x_i \geq 0$ and $-|x^M - x_i| - c_i \geq -a$
- **Supporting Nonvoters:** Citizens with $x_i \geq 0$ and $-|x^M - x_i| - c_i < -a$
- **Opposing Voters:** Citizens with $x_i < 0$ and $-|x^O - x_i| - c_i \geq -a$
- **Opposing Nonvoters:** Citizens with $x_i < 0$ and $-|x^O - x_i| - c_i < -a$

⁹To ensure that the party’s optimization problem is well-defined, we assume that citizens who are indifferent between the two parties vote for the machine and that citizens who are indifferent between abstaining and voting come to the polls.

Figure 2a presents a graphical depiction of these four groups of citizens (from the perspective of the machine). Political preferences are represented on the horizontal axis, while voting costs are represented on the vertical axis. The vertex lines represent citizens who are indifferent between voting and not voting, because they receive the same utility from voting as they do from abstaining.¹⁰ All citizen types on or below line l_1 vote for the machine; those on or below line l_2 vote for the opposition. All citizen types above l_1 and l_2 are nonvoters.

[Insert Figure 2 here]

The vertex shape of the cutoff line between voters and nonvoters reflects the fact that citizens with intense political preferences (i.e., voters for whom x_i approaches either x^M or x^O) receive greater expressive utility from voting, as can be observed in the utility function (Equation 1). They are thus more inclined to incur voting costs and turn out to support their favored party. By contrast, citizens who have weak political preferences (i.e., citizens for whom x_i approaches 0) receive lower expressive utility from voting, and thus are less inclined to incur voting costs. Additionally, the vertex intercepts the vertical axis above the origin, which reflects the fact that some indifferent citizens vote.

Payments

In order to determine the machine’s optimal mix of clientelist strategies, we first identify how much the machine would need to pay to buy each citizen type. For each strategy, the required payments (\bar{b}_i) are as follows:

Vote Buying: Vote buying targets opposing voters, who have a reservation utility of U_i^O . To induce an opposing voter of type $t_i = (x_i, c_i)$ to switch her vote, the machine must therefore pay \bar{b}_i^{VB} such that $U_i^M + \bar{b}_i^{VB} \geq U_i^O$. In an optimal allocation, the machine sets payments equal to a citizen’s reservation value, because it will not “overpay” (pay a citizen more than her reservation value) or “underpay” (pay a citizen less than her reservation value).¹¹ Thus,

¹⁰Formally, these are supporters for whom $-|x^M - x_i| - c_i = -a$ and opponents for whom $-|x^O - x_i| - c_i = -a$. It thus follows that $l_1 = x - x^M + a$ and $l_2 = -x + x^O + a = -x - x^M + a$, where the second equation follows from the assumption of symmetric party platforms, $x^M = -x^O$.

¹¹A proof is available upon request.

the inequality binds. Substituting the identities of U_i^M and U_i^O from Equation 1 yields: $-|x^M - x_i| - c_i + \bar{b}_i^{VB} = -|x^O - x_i| - c_i$. Then, solving for \bar{b}_i^{VB} :¹²

$$\bar{b}_i^{VB} = -2x_i \quad (2)$$

With vote buying, the machine must compensate a citizen for casting a vote against her political preferences. As shown in Equation 2, the machine can vote buy all opposing voters with a given ideal point for the same price, even if they have different costs of voting. Because they already show up at the polls, opposing voters only need to be compensated for voting against their political preferences.

Turnout Buying: Turnout buying targets supporting nonvoters, who have a reservation utility of $-a$ (where a is the cost of abstention). To induce turnout of a supporting nonvoter of type $t_i = (x_i, c_i)$, the machine must pay \bar{b}_i^{TB} such that $U_i^M + \bar{b}_i^{TB} = -a$. Substituting the identity of U_i^M from Equation 1 yields: $-|x^M - x_i| - c_i + \bar{b}_i^{TB} = -a$. Then, solving for \bar{b}_i^{TB} :

$$\bar{b}_i^{TB} = c_i - x_i + x^M - a \quad (3)$$

Supporting nonvoters receive more utility from abstaining than from voting. Thus, with turnout buying, the machine must compensate such citizens for the difference between the utility received from staying home and the utility received from voting for the machine.

Double Persuasion: Double persuasion targets opposing nonvoters, who neither participate in elections nor support the machine. Their reservation utility is $-a$. To induce an opposing nonvoter of type $t_i = (x_i, c_i)$ to turn out *and* vote for the machine, the party must therefore pay \bar{b}_i^{DP} such that $U_i^M + \bar{b}_i^{DP} = -a$. Substituting the identity of U_i^M from Equation 1 yields: $-|x^M - x_i| - c_i + \bar{b}_i^{DP} = -a$. Then, solving for \bar{b}_i^{DP} :

$$\bar{b}_i^{DP} = c_i - x_i + x^M - a \quad (4)$$

Observe Equations 3 and 4 are identical, except that double persuasion targets opposing nonvoters ($x_i < 0$), while turnout buying targets supporting nonvoters ($x_i \geq 0$). With double persuasion, the machine must compensate opposing nonvoters for: (1) voting against their political preferences; and (2) their disutility from voting relative to abstaining.

¹²Recall that by the assumption of symmetric party platforms, $x^M = -x^O$.

Optimal Mix of Clientelist Strategies

Given this information about required payments, we now determine the optimal mix of clientelist strategies. This section provides intuition about how a machine optimally allocates resources across vote buying, turnout buying, and double persuasion in order to maximize its electoral prospects. The appendix provides proofs of each proposition.

The machine conditions the size of rewards on citizens' ideal points and voting costs (in accordance with Equations 2–4), and targets those citizens who deliver net votes most cheaply. Otherwise, the machine would be better off shifting resources to obtain additional electoral support. Observe that the machine is willing to pay twice as much to the most-expensive vote-buying recipient (a payment of b_{VB}^*) as it is willing to pay to the most-expensive turnout-buying and double-persuasion recipients (payments of b_{TB}^* and b_{DP}^* , respectively). After all, vote buying delivers twice as many net votes as the other two strategies. By the same logic, the machine is willing to pay the most expensive turnout-buying recipient exactly as much as it pays the most expensive double-persuasion recipient, because they both yield one net vote. In sum, as shown formally in the appendix:

Proposition 1: In an optimal allocation of resources, the machine sets $b_{VB}^* = 2b_{TB}^* = 2b_{DP}^*$.

For notational simplicity, analysis below drops the subscripts, letting $b_{VB}^* = b^{**}$ and $b_{TB}^* = b_{DP}^* = b^*$. An important finding follows immediately. Observe in Proposition 1 that if b_{VB}^* , b_{TB}^* , or b_{DP}^* is greater than 0, then all three terms must be greater than 0. Therefore:

Proposition 2: If a machine engages in electoral clientelism, then optimally it allocates resources across *all* three strategies of vote buying, turnout buying, and double persuasion.

Proposition 2 reveals that mobilization is fundamental to understanding the logic of how machines distribute selective benefits during elections. Whereas most studies focus exclusively on vote buying, the model suggests that machines *never* optimally expend all their resources on one strategy. Beyond vote buying, machines should also seek nonvoters who can be induced to deliver votes in exchange for small rewards.

Another important implication pertains to double persuasion. This strategy might not

seem intuitive — why distribute benefits to citizens who neither vote nor support the machine? Indeed, Dunning & Stokes (2009) even call double persuasion a “perverse strategy.” Yet our model suggests that it is *always* optimal for machines to engage in double persuasion. When operatives distribute rewards, they find that targeting weakly opposing nonvoters through double persuasion is often more cost-effective than buying votes of strongly opposed voters, or buying turnout of supporting nonvoters with high voting costs.

Given that the machine optimally combines all three strategies, how does it determine *which* citizens to buy? Figure 2b provides intuition about whom the machine optimally buys, building on the vertex shown in Figure 2a. First, consider who will receive the most-expensive vote-buying payment (b^{**}). Given that the machine neither overpays nor underpays, it delivers b^{**} to opposing voters who require exactly that level of benefits to switch their vote choices. In accordance with Equation 2, these are opposing voters of type $t_j = (x_j, c_j)$ for whom $b^{**} = -2x_j$. Such voters are located on line segment l_3 in Figure 2b.¹³

For turnout buying, the machine delivers the most-expensive payment (b^*) to supporting nonvoters who require exactly that level of benefits to come to the polls. In accordance with Equation 3, these are supporting nonvoters of type $t_k = (x_k, c_k)$ for whom $b^* = c_k - x_k + x^M - a$. Such supporting nonvoters are located on line segment l_4 , to the right of the vertical axis.¹⁴ Observe that l_4 is parallel to l_1 , and the vertical distance between the two line segments is b^* . In other words, all voters along l_4 receive the same payment, because the higher voting costs of some citizens on this line segment are balanced by their stronger preferences for the machine’s platform.

For double persuasion, the machine delivers the most-expensive double-persuasion payment (b^*) to opposing nonvoters who require exactly that level of benefits to turn out and vote for the machine. In accordance with Equation 4, these are opposing nonvoters of type $t_l = (x_l, c_l)$ for whom $b^* = c_l - x_l + x^M - a$. Such opposing nonvoters are located on line

¹³The line segment l_3 is given by the equation $x = -\frac{b^{**}}{2}$, on the range from the horizontal axis to the point where l_3 intersects with l_2 .

¹⁴The line segment l_4 is given by the equation $c = x - x^M + a + b^*$, on the domain from the vertical axis to X^M .

segment l_5 , to the left of the vertical axis.¹⁵ Observe that l_4 and l_5 intercept the vertical axis at the same point, because the most-expensive payments for double persuasion and turnout buying are the same.

Thus far, graphical analysis suggests whom the machine buys with its most-expensive payments (b^* and b^{**}): citizens on l_3 receive vote-buying payments of b^{**} , citizens on l_4 receive turnout-buying payments of b^* , and citizens on l_5 receive double-persuasion payments of b^* . Another key insight is that the machine optimally buys *all* citizens whose required payments are less than or equal to the most-expensive payments for each respective strategy. That is, the machine buys all citizens in the shaded areas in Figure 2b. For further intuition, assume that a voter X weakly opposes the machine and requires a vote-buying payment b' , which is smaller than b^{**} . If the machine vote buys an opposing voter Y for b^{**} , then it must also vote buy X, because she provides the same number of net votes for a smaller payment. Otherwise, the machine would be better off buying X instead of Y, and reallocating the savings. Note that the machine optimally pays X exactly her required payment, as it does not “overpay” in equilibrium. Such logic also applies for turnout buying and double persuasion.

The model also provides insight about whom the machine does *not* buy. In an optimal allocation of resources, the machine distributes *no* benefits to opposing voters who require payments greater than b^{**} , or to nonvoters who require payments greater than b^* . That is, the machine buys no citizens outside the shaded areas in Figure 2b. For further intuition, assume that a voter Z strongly opposes the machine and requires a vote-buying payment b'' , which is greater than b^{**} . Observe that even the most-expensive vote-buying payment b^{**} “underpays” Z and is not enough to persuade her to switch her vote. Thus, it cannot be optimal for the machine to expend resources on citizens requiring vote-buying payments larger than b^{**} . The logic is analogous for turnout buying and double persuasion.

Taken together, these findings suggest the optimal mix of clientelist strategies:

¹⁵The line segment l_5 is given by the equation $c = x - x^M + a + b^*$, on the domain from the point where l_5 intersects with l_2 to the vertical axis.

Proposition 3

- **Vote Buying:** If $\bar{b}_i^{VB} \leq b^{**}$, the machine pays an opposing voter \bar{b}_i^{VB}
- **Turnout Buying:** If $\bar{b}_i^{TB} \leq b^*$, the machine pays a supporting nonvoter \bar{b}_i^{TB}
- **Double Persuasion:** If $\bar{b}_i^{DP} \leq b^*$, the machine pays an opposing nonvoter \bar{b}_i^{DP}
- **No Payment:** The machine makes no payment to all other citizens

The appendix provides a formal derivation of these equilibrium conditions, and shows how the machine determines b^* and b^{**} . In order to explore why this optimal mix differs across electoral contexts, we now examine comparative statics.

Comparative Statics

Formal analysis reveals how contextual factors shape patterns of clientelism during elections. Machines optimally tailor their mix of clientelist strategies to at least five characteristics of political environments: (1) compulsory voting, (2) machine support, (3) political polarization, (4) salience of political preferences, and (5) strength of ballot secrecy. This section provides intuition about how each factor influences the optimal mix, based on analytical solutions derived in the appendix. More specifically, the formal analysis indicates how machines optimally change the quantity of citizens bought with each strategy in response to parameter shifts in the model. In response to such changes, machines alter which citizens they buy by reallocating resources *across* and *within* strategies of electoral clientelism. Changes in the political environment affect the number of cheap targets that the machine can buy with each strategy. Thus, machines reallocate resources towards strategies that now offer additional cheap targets. In addition, machines reallocate resources within a given strategy to ensure that they continue to buy the cheapest citizens. For tractability, comparative statics examine the case where x_i and c_i are distributed uniformly.

[Insert Figure 3 here]

The introduction of *compulsory voting* increases vote buying ($\frac{\partial VB}{\partial a} > 0$), decreases turnout buying ($\frac{\partial TB}{\partial a} < 0$), and decreases double persuasion ($\frac{\partial DP}{\partial a} < 0$). Within the model, the pa-

parameter through which compulsory voting affects electoral clientelism is increased abstention costs (*a*). Higher abstention costs boost turnout and shift the vertex upwards (compare Figure 3a to Figure 2b). This upward shift increases the number of cheap vote-buying targets, who are weak opposing voters clustered along the vertical axis under the vertex. In order to buy these newly introduced cheap targets for vote buying, the machine: (1) reallocates resources from turnout buying and double persuasion towards vote buying, and (2) reallocates resources within vote buying from the most-expensive recipients towards the newly introduced cheap targets. An important substantive implication is that efforts to boost electoral participation through compulsory voting may well lead to the unintended consequence of increased vote buying, which induces citizens to vote against their partisan preferences.

An increase in *machine support* decreases vote buying ($\frac{\partial VB}{\partial \bar{x}} < 0$), increases turnout buying ($\frac{\partial TB}{\partial \bar{x}} > 0$), and decreases double persuasion ($\frac{\partial DP}{\partial \bar{x}} < 0$). We conceptualize machine support as the proportion of citizens who prefer the machine's platform over the opposition party's platform. To analyze this comparative static, we unpack citizens' political preferences such that $x_i = \bar{x} + \epsilon_i$, where \bar{x} represents the political preferences of the median voter, and ϵ_i captures individual-specific deviation from the median voter.¹⁶ A rise in support for the machine's platform increases \bar{x} and shifts the vertex left (see Figure 3b). This leftward shift increases the number of cheap turnout-buying targets, who are supporting nonvoters clustered just above l_1 . In order to buy these newly introduced cheap targets for turnout buying, the machine: (1) reallocates resources from vote buying and double persuasion towards turnout buying, and (2) reallocates resources within turnout buying from the most-expensive recipients towards the newly introduced cheap targets. Substantively, this comparative static suggests that a machine operating in several political districts will optimally tailor its clientelist mix according to political support. When distributing benefits in districts with many loyalists, the machine employs relatively more turnout buying. But

¹⁶The utility function for machine supporters (Equation 1) thus becomes: $U_i^M = -|x^M - (\bar{x} + \epsilon_i)| - c_i$. Observe that Equation 1 is a special case of this setup, in which $\bar{x} = 0$ (i.e., in the original setup, the machine party and opposition party have equal levels of political support).

in opposition bailiwicks, it employs relatively more vote buying.

An increase in *political polarization* decreases vote buying ($\frac{\partial VB}{\partial(x^M - x^O)} < 0$), increases turnout buying ($\frac{\partial TB}{\partial(x^M - x^O)} > 0$), and increases double persuasion ($\frac{\partial DP}{\partial(x^M - x^O)} > 0$). We conceptualize political polarization as the ideological distance between parties (formally, $|x^M - x^O|$). Observe that as polarization increases, voters with moderate ideological preferences receive less expressive utility from voting, because the ideological distance from their preferred party grows. As a result, some voters no longer come to the polls, and the vertex shifts down (see Figure 3c). This downward shift decreases the number of cheap vote-buying targets, who are weak opposing voters clustered along the vertical axis under the vertex. As the number of cheap vote-buying targets decreases, the machine: (1) reallocates resources from vote buying to turnout buying and double persuasion, and (2) reallocates resources within vote buying from the lost cheap targets towards costlier opposing voters. Overall, the model suggests that machines rely relatively more on mobilizational strategies where political polarization is high, and rely relatively more on vote buying where political polarization is low.

An increase in the *salience of political preferences* decreases vote buying ($\frac{\partial VB}{\partial \kappa} < 0$), increases turnout buying ($\frac{\partial TB}{\partial \kappa} > 0$), and increases double persuasion ($\frac{\partial DP}{\partial \kappa} > 0$). To analyze this factor, we introduce a parameter $\kappa > 0$ to the utility function of citizens (Equation 1): $U_i^M = -\kappa|x^M - x_i| - c_i$.¹⁷ The parameter κ represents the importance of expressing one's political preferences, relative to the cost of voting. As the salience of political preferences rises (i.e., κ increases), the vertex becomes steeper and shifts down (see Figure 3d). This downward shift reduces the number of cheap vote-buying targets, who are weak opposing voters clustered along the vertical axis under the vertex. Given that the number of cheap vote-buying targets declines, the machine: (1) reallocates resources from vote buying to turnout buying and double persuasion, and (2) reallocates resources within vote buying from the lost cheap targets towards costlier opposing voters. Overall, when political preferences are more salient, it is relatively more expensive to induce citizens to vote against their

¹⁷Observe that Equation 1 is a special case of this setup, in which $\kappa = 1$.

preferences, and thus machines shift resources away from vote buying.

Ballot Secrecy

We also examine how machines tailor their mix of clientelist strategies to a fifth contextual factor — the strength of ballot secrecy. Ballot secrecy affects the risk of opportunistic defection when machines reward citizens for voting against their political preferences. To investigate the effects of ballot secrecy on electoral clientelism, we extend the base model by relaxing the assumption that transactions are fully enforceable.

Machines employ a variety of tactics to compromise the secret ballot. For example, parties in the Philippines give out carbon paper so voters can copy their ballots, and Italian parties lend mobile phones with cameras so reward recipients can photograph how they vote (Schaffer & Schedler 2007, 30–31). The strength of ballot secrecy affects the machine’s ability to monitor vote-buying and double-persuasion agreements. Both of these strategies require some ability to violate ballot secrecy, in order to ensure that reward recipients comply by voting against their preferences. By contrast, the strength of ballot secrecy does not affect the machine’s ability to monitor turnout-buying agreements. As Nichter (2008) emphasizes, turnout buying involves only monitoring whether — not for whom — a supporter votes.

To capture the effect of ballot secrecy, we build on Stokes (2005) and Nichter (2008), adopting a simpler setup that provides the same analytical leverage. If a citizen does not comply with an agreement to vote against her preferences, with probability $p \in [0, 1]$ the machine monitors her vote choice and rescinds the reward. Stronger ballot secrecy reduces p . Employing this setup, we now determine the payments required for vote buying and double persuasion when contracts are not fully enforceable. To prevent defection when engaging in vote buying, the following incentive-compatibility condition must hold:

$$\begin{aligned} U_i^M + \tilde{b}_{VB}(x_i, c_i) &\geq pU_i^O + (1 - p)[U_i^O + \tilde{b}_{VB}(x_i, c_i)] \\ \tilde{b}_{VB}(x_i, c_i) &\geq \frac{1}{p}[-2x_i] = \frac{1}{p} \bar{b}_i^{VB} \end{aligned} \tag{5}$$

In words, vote buying will be effective when the payoff from complying with the agreement is

greater than or equal to the expected value of defecting and voting against the machine. As above, the machine will not overpay or underpay, so the inequality binds. Observe that \bar{b}_i^{VB} is the required vote-buying payment when contracts are fully enforceable (the base model), whereas \tilde{b}_i^{VB} is the required vote-buying payment when contracts are *not* fully enforceable. When opportunistic defection is possible, the machine pays a premium on every dollar spent on vote buying (that is, $\frac{1}{p} \geq 1$). Analogous logic is employed to determine the required payment for double persuasion when contracts are not fully enforceable: $\tilde{b}_i^{DP} = \frac{1}{p} \bar{b}_i^{DP}$.

These payment equations indicate the party's optimal allocation strategy under the condition of ballot secrecy. The logic underlying Propositions 1-3 continues to apply, and the form of the optimal allocation is unchanged except that the ratio of most-expensive payments reflects the premium payments for vote buying and double persuasion: $\frac{1}{p} \tilde{b}_{VB}^* = \frac{2}{p} \tilde{b}_{DP}^* = 2b_{TB}^*$.¹⁸

To examine how ballot secrecy affects the optimal mix, we analyze comparative statistics. Enhanced ballot secrecy decreases vote buying ($\frac{\partial \tilde{VB}}{\partial p} > 0$), increases turnout buying ($\frac{\partial \tilde{TB}}{\partial p} < 0$), and decreases double persuasion ($\frac{\partial \tilde{DP}}{\partial p} > 0$). As ballot secrecy increases, the machine's probability p of catching citizens who defect on vote-buying or double-persuasion agreements declines, so it must pay a larger premium to ensure compliance when using these two strategies. Thus, the party optimally shifts resources away from vote buying and double persuasion, and relies relatively more heavily on turnout buying.

Historical studies suggest that the introduction of the secret ballot reduced vote buying, as predicted by our model. Proponents of the secret ballot argued that it would reduce monitoring of vote choices and thereby decrease vote buying, which was relatively common with open voting (Campbell 2005, 97; Lehoucq 2002, 6). For example, a US newspaper commented in 1888 that “if the act of voting were performed in secret, no bribed voter could or would be trusted to carry out his bargain when left to himself” (cf Campbell 2005, 97). The broad consensus is that vote buying did in fact decrease with secret ballot (e.g., Cox 2006, 5; Hasen 2000: 1328). As Hasen (2000, 1328) explains, “with the rise of the secret

¹⁸The proof is identical to the proof for Proposition 1, substituting \tilde{b}_{VB} and \tilde{b}_{DP} for b_{VB} and b_{DP} .

ballot and the concomitant increase in the cost of verifying that vote buyers were getting what they paid for, vote buying almost certainly has declined.” Of course, machines still buy votes in many contexts, using various (albeit more costly) methods to monitor vote choices.

Negative Turnout Buying

In some contexts, machines also engage in negative turnout buying, which rewards opposing voters for *not* coming to the polls. To examine how the inclusion of negative turnout buying affects the optimal mix of clientelist strategies, we adopt the same approach as above. First, the machine determines required payments for negative turnout buying (\bar{b}_i^{NTB}). The strategy targets opposing voters, who have a reservation utility of U^O . If such citizens do not vote, they receive payoff $-a$ of a nonvoter. In order to convince an opposing voter of type $t_i = (x_i, c_i)$ to stay home, the machine must offer a reward \bar{b}_i^{NTB} such that: $\bar{b}_i^{NTB} - a \geq U_i^O$. The machine optimally neither overpays nor underpays, so this inequality binds. Substituting U_i^O from Equation 1 yields: $\bar{b}_i^{NTB} = -|x^O - x_i| - c_i + a$. Then, solving for \bar{b}_i^{NTB} :¹⁹

$$\bar{b}_i^{NTB} = -x_i - x^M - c_i + a \quad (6)$$

With negative turnout buying, the machine must compensate opposing voters for: (1) the forgone utility of voting for their preferred party; and (2) the cost they incur by abstaining.

Given these required payments, we now determine the optimal mix of clientelist strategies. Observe that whereas vote buying yields two net votes, negative turnout buying (as with turnout buying and double persuasion) yields only one net vote. As a result, the machine is willing to pay the most-expensive vote-buying recipient twice as much as it is willing to pay the most-expensive citizens purchased with negative turnout buying, turnout buying, and double persuasion. Thus, when negative turnout buying is a viable strategy, the machine again optimally sets $b_{VB}^* = 2b_{NTB}^* = 2b_{TB}^* = 2b_{DP}^*$.

An important finding follows immediately for contexts where negative turnout buying is possible. Observe that if the most-expensive payment for any strategy is greater than zero, then the most-expensive payments for all four strategies must be greater than zero.

¹⁹Recall that by the assumption of symmetric party platforms, $x^M = -x^O$.

Therefore, in such contexts, machines distributing benefits during campaigns will optimally engage in *all* four strategies of vote buying, turnout buying, double persuasion, and negative turnout buying.

[Insert Figure 4 here]

To provide intuition about how the machine optimally combines all four strategies, Figure 4 builds on the vertex shown in Figure 2b. The logic for turnout buying and double persuasion, which target nonvoters, remains the same as in the base model. By contrast, the machine now faces a triple choice with each opposing voter — reward her for staying home (negative turnout buying), reward her for voting against her preferences (vote buying), or provide her with no reward. The machine’s decision for each opposing voter can be analyzed in two steps: (1) identify whether vote buying or negative turnout buying is more cost-effective; and then (2) identify whether the more cost-effective strategy is preferable to providing no reward. To examine the first step, assume the machine rewards an opposing voter W of type $t_w = (x_w, c_w)$. Intuitively, vote buying yields double the net votes, so it is more attractive to pay W to switch her vote, unless doing so is more than twice as expensive as paying W to stay at home. Therefore, given the required payments for each strategy (Equations 2 and 6), the machine chooses negative turnout buying under the following condition:²⁰

$$\begin{aligned} -2x_w &> 2[-x_w - x^M - c_w + a] \\ c_w &> x^O + a \end{aligned} \tag{7}$$

This condition is shown in Figure 4 as horizontal line segment l_6 .²¹ If the machine rewards an opposing voter located above l_6 , negative turnout buying is more cost-effective. If the machine rewards an opposing voter located on or below l_6 , vote buying is more cost-effective.

The next step is to determine whether the more cost-effective strategy is preferable to providing no reward. To this end, we consider the most-expensive payments for each strategy.

²⁰We assume that if both strategies are equally cost-effective, the machine engages in vote buying.

²¹The line segment l_6 is given by the equation $c = x^O + a$, on the range from X^O to the vertical intercept.

The machine pays the most-expensive vote-buying payment b^{**} to opposing voters who are located on or below l_6 , and who require exactly b^{**} to switch their votes. Similar to Figure 2b, such voters are located on the vertical line segment l_3 in Figure 4. With respect to negative turnout buying, the machine pays the most-expensive payment b^* to opposing voters who are located above l_6 , and who require exactly b^* to stay at home. In accordance with Equation 6, these are opposing voters of type $t_h = (x_h, c_h)$ for whom $b^* = -x_h - x^M - c_h + a$. Such opposing voters are located on line segment l_7 , which extends from X^O to the point where l_7 intercepts with l_6 .²² The shaded areas in Figure 4 reflect the same logic as the base model: the machine buys citizens if and only if their required payments are less than or equal to the most-expensive payment. Taken together, these findings suggest how the machine optimally allocates resources across clientelist strategies, when negative turnout buying is viable:

- **Vote Buying:** Pay \bar{b}_i^{VB} to opposing voters if $\bar{b}_i^{VB} \leq b^{**}$ and $c \leq x^O + a$
- **Negative Turnout Buying:** Pay \bar{b}_i^{NTB} to opposing voters if $\bar{b}_i^{NTB} \leq b^*$ and $c > x^O + a$
- **Turnout Buying:** Pay \bar{b}_i^{TB} to supporting nonvoters if $\bar{b}_i^{TB} \leq b^*$
- **Double Persuasion:** Pay \bar{b}_i^{DP} to opposing nonvoters if $\bar{b}_i^{DP} \leq b^*$
- **No Payment:** Make no payment to all other citizens

Empirical Evidence

The model of electoral clientelism developed above offers insights into how characteristics of political environments affect the strategies that machines employ. Empirical evidence from Brazil, Russia, and Argentina is consistent with the model's predictions. Given space constraints, we focus specifically on how two factors — compulsory voting and machine support — affect the relative prevalence of vote buying and turnout buying in each country.

The model predicts, *ceteris paribus*, that whereas machines vote buy more citizens when voting is compulsory, they turnout buy more citizens when voting is optional. Compulsory voting increases overall turnout, including that of weakly opposed voters, who are the cheap-

²²The line segment l_7 is given by the equation $c = -x - x^M + a - b^*$, on the range from X^O to the point where l_7 intercepts with l_6 .

est targets for vote buying. The model also predicts, *ceteris paribus*, that whereas machines vote buy more citizens when there is low support for its policy platform, they turnout buy more citizens when there is high support for its policy platform. A popular policy platform increases the number of machine supporters, some of whom do not vote and can be induced to turn out with small payments. Consistent with these predictions, evidence suggests that:

- **Brazil:** Strict Compulsory Voting, Low Machine Support — Vote Buying Predominates
- **Russia:** Optional Voting, High Machine Support — Turnout Buying Predominates
- **Argentina:** Weak Compulsory Voting, Moderate Machine Support — Balanced Mix

We now examine each case, analyzing fieldwork interviews, academic research, and local media accounts. In the Discussion section, we propose further research strategies for testing the impact of a broader set of political characteristics on electoral clientelism.

Vote Buying in Brazil

When political operatives distribute benefits during elections in Brazil, they engage in more vote buying than turnout buying. Consistent with the model’s predictions, two characteristics of the Brazilian political environment contribute to this pattern of machine politics — strictly enforced compulsory voting and low machine support.

During elections in Brazil, politicians often distribute particularistic benefits. In a recent national survey, over 13 percent of respondents admitted voting for a candidate in exchange for a benefit.²³ Between 2000 and 2008, at least 660 politicians in Brazil were prosecuted and found guilty of distributing benefits during electoral campaigns (Movimento de Combate à Corrupção Eleitoral 2010). During the 2008 electoral campaign, we conducted 110 interviews of elites and citizens in the Northeast state of Bahia.²⁴ Interviewees suggested that vote buying is far more prevalent than turnout buying. For example, a local party

²³Survey conducted by research firm Datafolha in August 2009 included 2,133 respondents across 150 municipalities.

²⁴Interviews conducted by Simeon Nichter in municipalities in each of Bahia’s seven “mesoregions” (defined by Brazil’s national census bureau as areas that share common geographic characteristics). Interviews were conducted in municipalities with 100,000 citizens or fewer; even though 49 percent of Brazilians live in such municipalities, most recent research focuses only on clientelism in urban areas.

leader explained that vote buying is most prevalent, and that turnout buying represents only “a small proportion” of rewards.²⁵ A former mayor explained that because voting is an “obligation,” politicians “leave turnout to the law.”²⁶ Citizens also suggest that vote buying is predominant: whereas 87 percent (47 of 54 citizens responding) reported that vote buying happens in their municipality, only 14 percent (7 of 51 citizens responding) reported that turnout buying occurs.

The model suggests that strict compulsory voting, as in the case of Brazil, contributes to this predominance of vote buying. The 1988 Constitution compels all Brazilians aged 18 to 70 years to vote, unless they are illiterate. As a politician explains, “everyone knows that if you don’t vote, you harm yourself ... your voting document becomes irregular.”²⁷ With irregular voting documents, Brazilians cannot obtain identification cards, work in the public sector, qualify for government loans, or enroll in public educational institutions. Citizens exert substantial effort to avoid such consequences. For example, if voters are out of town and cannot report to their designated polling places, they frequently report to other locations on Election Day to fill out “justification” forms. Although voters cannot cast ballots while away (no absentee voting exists), they avoid all abstention penalties by submitting such forms. Over 7.8 million voters took the time to justify their absence in the 2008 election (TSE 2010), suggesting that voting is indeed considered obligatory. Partly due to strict enforcement of compulsory voting, electoral participation in Brazil is remarkably high: turnout reached 83.2% of registered voters in the most recent presidential elections of 2006, and 85.5% in the most recent municipal elections of 2008 (TSE 2010).

In addition to strict compulsory voting, the model suggests another factor contributing to the predominance of vote buying in Brazil — low machine support on the basis of policy platforms. Clientelism was traditionally the dominant form of electoral competition and political representation in Brazil (Hagopian 1996, 71–72), and continues to eclipse the role

²⁵Interview with party leader in Bahia conducted by Simeon Nichter on November 5, 2008 (1105-H-003).

²⁶Interview with former mayor in Bahia, who held office from 2000 to 2004, conducted by Simeon Nichter on December 18, 2008 (1218-P-004.)

²⁷Interview with city councilman in Bahia conducted by Simeon Nichter on January 13, 2009 (0113-V-001).

of policy platforms in many areas of the country (Nichter 2010). Political machines in Brazil are regionally based and often controlled by conservative elites who rely heavily on material inducements (Ames 2001, 97; Hagopian 1996, 27). For example, the politician Antonio Carlos Magalhaes led the dominant machine in the Northeast state of Bahia until his death in 2007, and explained that “I win elections with a bag of money in one hand and a whip in the other” (cf Ames 2001, 77). Such machines rarely attract voters on the basis of policy platforms, despite their affiliation with political parties. In the Brazilian context, parties are relatively weak and mass partisanship is low, and partisan labels often do not convey effective policy platforms. Various factors, such as open-list proportional representation and high levels of party switching (the latter to some extent mitigated by 2009 reforms), constrain the ability of parties to control what policies their politicians promise or adopt (Ames 2001; Mainwaring 1999). In part due to low credibility of policy platforms, partisanship is low in Brazil (Ames, Baker, & Renno 2009; Mainwaring 1999): in national surveys, almost two-thirds of Brazilians express no partisan preference (Samuels 2006, 5), and fewer than 10 percent of Brazilians are affiliated with a political party (TSE 2009, 93). Such characteristics of the Brazilian political environment undermine machines’ ability to obtain support on the basis of policy platforms.

Overall, Brazil exhibits strictly enforced compulsory voting and low machine support. Consistent with the model, in this context vote buying is the predominant form of electoral clientelism.

Turnout Buying in Russia

In stark contrast with Brazil, turnout buying is the predominant form of electoral clientelism in Russia. Consistent with the model’s predictions, two characteristics of the Russian political environment contribute to this pattern of machine politics — non-compulsory voting and strong support for the dominant machine party, United Russia.

In Russia, political elites employ various methods to manipulate elections, including clientelism, fraud, and coercion (Myagkov, Ordeshook & Shakin 2009). With respect to electoral

clientelism, although some vote buying exists, turnout buying is more prevalent. During campaigns, United Russia often distributes rewards in an effort to mobilize its passive constituencies. Such rewards are often financed from the coffers of federal and local government, and include food, alcohol, haircuts, concert tickets, legal and medical services, and subsidized utility bills.²⁸ As one campaign strategist revealed, party operatives frequently “hire” supporters by offering small payments to ensure that they turn out, with additional rewards provided to constituents who bring relatives and friends to the polls with them. The strategist explained that turnout is the primary focus when distributing particularistic rewards during elections, because “we work according to the principle that it’s more expensive to convince someone to change their mind than to encourage those who already support you.”²⁹ Both election officials and media sources further confirm the key role of turnout buying in recent elections. For instance, Sergei Lunev, head of the Kaliningrad Electoral Commission, warned that much of the recent growth in turnout is due to “the money representatives of various candidates so actively give to voters” and emphasized the need to “alleviate the situation.”³⁰ Likewise, the newspaper *Kommersant* used the succinct headline “Buying Turnout” (“*Podkup Radi Yavki*”) in an exposé about mobilization efforts during elections for executive office in Yakutsk.³¹

The model suggests that non-compulsory voting, as in the case of contemporary Russia, contributes to this relative focus on turnout buying. Russians now have far more latitude to stay home on Election Day than they did in the past. Voting in the former Soviet Union was not legally required, but in practice Communist Party officials employed “intense psychological and social pressures” to mobilize voters (Karklins 1986, 453). For example, Communist Party activists were assigned 20 to 30 voters each, and held responsible for

²⁸Anatoly Medetsky, “Getting Out the Vote with Ads, Food, SMS,” *The Moscow Times*, March 5, 2004. “*Regionalnye vlasti budut besplatno prikarmlivat izbiratelei kolbasoi, khlebom, kashei, i molokom?*” [Regional Authorities to Feed Voters Sausage, Bread, Cereal, and Milk for Free?], www.bankfax.ru, November 20, 2007; Natalya Krainova, “Campaign Violations Rife in Krasnoyarsk,” *The Moscow Times*, April 17, 2007.

²⁹Interview with Moscow-based campaign consultant conducted by Jordan Gans-Morse on July 19, 2010.

³⁰Vadim Smirnov, “*Skupka golosov — nedorogo, zakonno...*” [Votes for sale — cheap, legal...], *Kaliningradskaya Pravda*, September 25, 2008.

³¹Tuyara Filippova, “*Podkup Radi Yavki*” [Buying Turnout], *Kommersant*, December 21, 2001.

ensuring they came to the polls. Citizens would almost always comply, as many feared that abstention could result in serious repercussions such as poor career advancement (Karklins 1986, 453). By contrast, such pressures to turn out dramatically declined following the collapse of the Soviet Union, and many citizens even came to perceive abstention as a way of exercising a newly acquired democratic right (Rose et al. 2001, 427–428). Far fewer Russians now participate in elections: whereas Western analysts estimated that 90 to 95 percent of the electorate in the former Soviet Union voted (and official turnout reached as high as 99.9%) (Karklins 1986, 454), turnout in Russia over the last two decades averaged 69% for presidential elections and 60% for parliamentary elections (Moraski & Reisinger 2008, 16). Especially given that turnout is viewed as a crucial symbol of regime legitimacy by Russian political elites (McAllister & White 2008, 932; Sakwa 2005, 387), turnout buying plays a key role in combating abstention in recent elections.

Beyond non-compulsory voting, the model also suggests another factor that contributes to the predominance of turnout buying in Russia: strong support for the policy platform of United Russia (UR), the dominant machine party. UR has dominated Russian politics: since 2003, it has controlled approximately two-thirds of the seats in the Duma (the lower house of parliament), and since 2008, it has held a majority in nearly all regional legislatures (McAllister & White 2008, 947; Reuter & Remington 2008, 518–520). Riding the coattails of the popular former president and current prime minister, Vladimir Putin, UR has cultivated substantial support in part through policies that address pragmatic concerns of voters. UR and Putin’s broad policy objectives have included economic growth, political and social stability, and the revival of Russia’s prominence on the international stage. Following the chaos, economic depression, and loss of Russia’s great power status in the 1990s, such policy goals have struck a chord with Russian citizens (McAllister & White 2008, 950–951; Smyth et al. 2007, 124). Throughout the 2000s, UR’s approval ratings increased, reaching 67% in October 2007 after Putin announced that he would officially become the party’s leader. Putin himself has maintained extraordinary levels of political support, with approval ratings

in the 70 to 80% range throughout most of the 2000s.³² Overall, high support for UR's policy platform has contributed to the predominance of turnout buying in Russia.

In summary, Russia is a political environment with non-compulsory voting and strong machine support. Consistent with the model, in this context turnout buying is the predominant form of electoral clientelism.

The Intermediate Case of Argentina

In comparison with Brazil and Russia, the dominant machine in Argentina employs a relatively balanced mix of vote buying and turnout buying. Consistent with the model's predictions, two characteristics of Argentina's political environment contribute to this pattern of machine politics — weakly enforced compulsory voting and moderate machine support.

Electoral clientelism is prevalent in Argentina. Over 44 percent of survey respondents reported that political operatives distributed goods in their neighborhood during a recent campaign, and 7 percent admitted personally receiving goods (Brusco, Nazareno & Stokes 2004). Studies suggest that the Peronist party, the dominant machine in Argentina, frequently engages in both vote buying and turnout buying (Dunning & Stokes 2009; Nichter 2008; Zarazaga 2010). In a recently televised interview, two brokers openly admit to vote buying in a Buenos Aires shantytown: they give citizens boxes of food and 50 pesos (approximately US \$15) in exchange for casting pre-filled ballots, folded in a specific manner to circumvent the secret ballot.³³ Meanwhile, recent interviews of Argentine political operatives conducted by Rodrigo Zarazaga highlight the important role of turnout buying: for example, a broker explained that distributing rewards is important for mobilizing Peronist support, because “whether you win the ‘school’ [precinct] depends on whether you are able to make them turn out” (Zarazaga 2010). Overall, evidence suggests that when compared with Brazil and Russia, Argentina exhibits a relatively balanced mix of vote buying and turnout buying.

³²Approval ratings are from the Levada Centre and University of Aberdeen's Centre for the Study of Public Policy “Russia Votes” Project. See <http://www.russiavotes.org/president> and <http://www.levada.ru/reitingi2006.html>.

³³Interview by Teresa Bo, *Al-Jazeera*, October 28, 2007.

The model suggests that compulsory voting increases vote buying, while optional voting increases turnout buying. Argentina’s weakly enforced compulsory voting falls in the middle of these two extremes, which contributes to the relatively balanced mix of both strategies. Voting has been compulsory in Argentina since the introduction of the Sáenz Peña Law in 1914. Yet the current fines for abstention were set in 1983 and never adjusted for years of hyperinflation. According to the calculations of a leading newspaper, *La Nacion*, the total fines if an adult were to abstain for her entire life would be 25 cents. Scholars of voter turnout in Argentina have concluded that “compulsory voting is not particularly enforced any more” (Canton and Jorrat 2003, 199). Similarly, the International Institute for Democracy and Electoral Assistance (IDEA 2006) codes Argentina’s enforcement of compulsory voting as “weak” in its international comparison of electoral systems. Partly due to such weak enforcement, Argentina has one of the lowest levels of turnout among the 32 countries with compulsory voting: electoral participation reached lows of 71.8% of registered voters in the most recent presidential election of 2007 (IDEA 2010; Ministerio del Interior 2007).

In addition to weakly enforced compulsory voting, the model suggests another factor contributing to the relatively balanced mix of vote buying and turnout buying in Argentina — moderate machine support on the basis of its policy platform. In Argentina, the Peronist party (PJ) is the dominant machine and by far the most active distributor of rewards (Stokes 2005, 322), with a substantially denser network of political operatives than any other party (Calvo & Murillo 2009, 18). Popular support for policies implemented during the presidency of Néstor Kirchner (PJ) is widely believed to have contributed to the victory of Peronist candidate Cristina Kirchner in the 2007 presidential campaign (e.g., Levitsky & Murillo 2008, 17–18). Yet policy platforms play a less central role in Peronist support than they did in the past. Traditionally, the PJ was a labor-based party that attracted working and lower-class voters on the basis of programmatic appeals, such as an “aversion to free-market capitalism and a commitment to organized labor and a state-led development model” (Levitsky 2003, 28). But the PJ under President Menem undertook dramatic neoliberal reforms, and by the

early 1990s transformed into a machine party that relied increasingly on clientelist networks for support (Levitsky 2003). Today, the PJ enjoys more moderate support on the basis of its policy platform.

In sum, Argentina exhibits weakly enforced compulsory voting and moderate machine support. Consistent with the model, in this context political operatives engage in a relatively balanced mix of vote buying and turnout buying.

Discussion

This article provides insight about variation in patterns of clientelism during elections. Although most studies focus exclusively on vote buying, our analytical framework and formal model suggest that political machines maximize their electoral prospects by combining strategies of electoral clientelism. Machines optimally mix strategies of persuasion and mobilization. Commonly overlooked strategies of mobilization include turnout buying (rewarding nonvoting supporters for turnout) and double persuasion (rewarding opposing nonvoters for vote choices and turnout).

Political machines consider both individual and contextual factors when deciding how to distribute benefits during campaigns. Two attributes of individuals — political preferences and inclination to vote — determine the prevalence of cheap targets for each strategy. Machines also adapt their mix of clientelist strategies to contextual factors. For example, the model suggests that at least five factors increase vote buying: (1) compulsory voting, (2) weak machine support, (3) low political polarization, (4) low salience of political preferences, and (5) weak ballot secrecy. By contrast, five factors increase turnout buying: (1) optional voting, (2) strong machine support, (3) high political polarization, (4) high salience of political preferences, and (5) strong ballot secrecy.

Qualitative evidence suggests that the model helps explain observed variation in electoral clientelism: (1) vote buying is predominant in Brazil, a context with strictly enforced compulsory voting and weak machine support; (2) turnout buying is predominant in Russia,

a context with optional voting and strong machine support; and (3) a balanced mix exists in Argentina, a context with weakly enforced compulsory voting and moderate machine support. Such findings are consistent with the model and suggest that this line of analysis deserves further empirical investigation.

Future research, relying on both quantitative and qualitative methods, would be greatly facilitated by enhanced data collection and identification strategies. To date, analysis of varieties of clientelism has been hampered by data collection efforts that focus exclusively on vote buying. To address this issue, survey and interview research should explicitly attempt to ascertain whether rewards are used to influence vote choices or induce electoral participation. For example, panel surveys could help identify the relative prevalence of strategies by capturing *ex ante* partisan preferences and inclination to vote (i.e., before receiving rewards). Another potentially fruitful approach to studying varieties of clientelism would involve more rigorous analysis of aggregate data. For instance, to help identify how turnout levels affect patterns of electoral clientelism, it might be feasible to use rainfall during previous elections as an exogenous source of variation in precinct-level turnout (Horiuchi and Saito, 2009).

A second direction for future research on electoral clientelism involves extensions of our model. For example, our analysis of comparative statics assumes that political preferences and voting costs (i.e., x_i and c_i) are distributed uniformly. This simplifying assumption facilitates analysis of whether changes in contextual factors increase or decrease the prevalence of each strategy. Varying the distribution of x_i and c_i to reflect specific countries would further advance research on varieties of clientelism. For example, analyzing such distributions would enable scholars to estimate the effect of contextual factors on the *overall* prevalence of electoral clientelism; that is, the total number of citizens bought using all strategies examined in this article.

Third and finally, expanding analysis beyond elections is crucial to deepening our understanding of machine politics. The present paper focuses exclusively on electoral clientelism, which involves the distribution of benefits during campaigns. This focus provides valuable

insights about strategies that remain poorly understood, but clientelism obviously involves a broader set of strategies than just elite payoffs to citizens at election time. A key task for future formal and empirical research is examining the relationship between electoral clientelism and other forms of machine politics. For example, do longer-term clientelist relationships typically represent substitutes for — or complements to — strategies such as vote buying and turnout buying?

Understanding how political machines choose among different clientelist strategies has important policy implications. Policy shifts may affect the mix of strategies that political machines employ, and different forms of clientelism often entail distinct political and social consequences. For example, our model predicts that the introduction of compulsory voting decreases turnout buying and increases vote buying. Yet the normative implications of rewarding unmobilized supporters may well be less pernicious than rewarding citizens for voting against their true preferences (Hasen 2000, 1375–8, 1370). Given such normative considerations, further research on how different policies affect patterns of clientelism could help inform policy debates.

Appendix

We refer to opposing voters, who are potential targets for vote buying, as C^{VB} ; to nonvoting supporters, who are potential targets for turnout buying, as C^{TB} ; and to nonvoting opponents, who are potential targets for double persuasion, as C^{DP} . Also, for notational simplicity, let $h = g(c)f(x)dc dx$, $r = x - x^M + a$, and $s = -x - x^M + a$. The proofs to Propositions 1 and 3 make use of the following lemma:

Lemma 1: For any allocation of budget B , a machine could buy more citizens if it had additional resources of any positive amount.

Proof. Let A be an allocation of budget B . Define $M(A)$ to be the set of citizens who vote for a machine given this allocation: $M(A) \equiv \{(x_i, c_i) : b_i \geq \bar{b}_i\}$, where b_i is the payment received by citizen i under allocation A and \bar{b}_i is the payment required to buy this citizen. Limited resources means that for any allocation A , a machine cannot afford to buy all citizens: $\int \bar{b}_i h > B$. It

follows that there exists a set $Q \notin M(A)$ of positive measure such that $\bar{b}_i > b_i$ for all $(x_i, c_i) \in Q$. Let (\hat{x}_i, \hat{c}_i) be any point on the interior of Q and select η sufficiently small such that $\Delta(\eta) \equiv [\hat{x}_i, \hat{x}_i + \eta] \times [\hat{c}_i, \hat{c}_i + \eta] \subset Q$. Let $\theta > 0$ represent some nonzero amount of resources. Then by the continuity of $f(x)$ and $g(c)$, there exists a $\eta_0 < \eta$ such that for any θ , a machine can afford to buy all citizens in $\Delta(\eta_0)$: $\int_{\Delta(\eta_0)} \bar{b}_i h \leq \theta$. \square

Proposition 1: In an optimal allocation of resources, a machine sets $b_{VB}^* = 2b_{TB}^* = 2b_{DP}^*$.

Proof. We will show (i) $b_{TB}^* = b_{DP}^*$ and (ii) $b_{VB}^* = 2b_{TB}^*$.

(i) Let b_{TB}^* and b_{DP}^* be the upper bounds on a machine's payments to C^{TB} and C^{DP} , respectively. For contradiction, assume A is an optimal allocation in which $b_{TB}^* \neq b_{DP}^*$. Without loss of generality, say $b_{TB}^* > b_{DP}^*$. We will show there exists an allocation A' that is affordable and produces a strictly greater number of net votes. Thus, A cannot be optimal.

Let S be a set with positive measure of C^{TB} such that all citizens in set S have a required payment $\bar{b}_i = b_{TB}^*$. Let (\hat{x}, \hat{c}) be any point on the interior of S and take δ small enough such that $\Delta(\delta) \equiv [\hat{x}, \hat{x} + \delta] \times [\hat{c}, \hat{c} + \delta] \subset S$. Recall from Lemma 1 that Q is a set of citizens who remain unbought under allocation A . Let $R \subset Q$ be a set with positive measure of C^{DP} such that all citizens in set R have a required payment $b_{TB}^* > \bar{b}_i > b_{DP}^*$. Let (\tilde{x}, \tilde{c}) be any point on the interior of R such that $(\tilde{x}, \tilde{c}) \notin \Delta(\eta_0)$, where $\Delta(\eta_0) \subset Q$ as defined in Lemma 1. Take μ small enough such that $\Delta(\mu) \equiv [\tilde{x}, \tilde{x} + \mu] \times [\tilde{c}, \tilde{c} + \mu] \subset R$ and $\Delta(\mu) \cap \Delta(\eta_0) = \emptyset$. By the continuity of $f(x)$ and $g(c)$, there exists a $\delta_0 < \delta$ and a $\mu_0 < \mu$ such that $\int_{\Delta(\delta_0)} h = \int_{\Delta(\mu_0)} h$ (call this Equation A1). Observe that $\Delta(\delta_0)$ and $\Delta(\mu_0)$ have the same number of C^{TB} , so buying either set produces the same net votes. Let $\theta \equiv \int_{\Delta(\delta_0)} \bar{b}_i h - \int_{\Delta(\mu_0)} \bar{b}_i h$ and note $\theta > 0$ because citizens on $\Delta(\delta_0)$ are more expensive than those on $\Delta(\mu_0)$. Consider an allocation A' in which a machine buys all citizens in $\Delta(\mu_0)$, reduces payments to citizens on $\Delta(\delta_0)$ to zero, and redistributes the savings to citizens in $\Delta(\eta_0)$. Recall from Lemma 1 that citizens on $\Delta(\eta_0)$ can be bought with resources θ . Formally, define $\Omega \equiv [\underline{X}, \overline{X}] \times [0, \overline{C}] - (\Delta(\delta_0) \cup \Delta(\mu_0) \cup \Delta(\eta_0))$. Let $A' = A$ for all (x_i, c_i) on Ω , $A' = 0$ for all (x_i, c_i) on $\Delta(\delta_0)$, and $A' = \bar{b}_i$ for all (x_i, c_i) on $\Delta(\mu_0)$ and for all (x_i, c_i) on $\Delta(\eta_0)$. The cost of A' is \leq the cost of allocation A , and A' buys $\int_{\Delta(\eta_0)} h$ more citizens. Thus A cannot be an optimal allocation.

(ii) To show $b_{VB}^* = 2b_{TB}^*$ (or, equivalently, $b_{VB}^* = 2b_{DP}^*$), we repeat the proof that $b_{TB}^* = b_{DP}^*$,

replacing Equation (A1) with $\int_{\Delta(\delta_0)} h = 2 \int_{\Delta(\mu_0)} h$, where $\Delta(\delta_0)$ is a subset of C^{VB} for whom $\bar{b}_i = b_{VB}^* > 2b_{TB}^*$, and where $\Delta(\mu_0)$ is a subset of C^{TB} for whom $\frac{1}{2}b_{VB}^* > \bar{b}_i > b_{TB}^*$. \square

Proposition 2: If a machine engages in electoral clientelism, then optimally it allocates resources across all three strategies of vote buying, turnout buying, and double persuasion.

Proof. Let $b_{VB}^* = b^{**}$ and $b_{TB}^* = b_{DP}^* = b^*$. In an optimal allocation, the number of vote-buying recipients is $VB = N \int_{-\frac{b^{**}}{2}}^0 \int_0^s h$ (Equation A2), the number turnout-buying recipients is $TB = N \int_0^{\bar{X}} \int_r^{r+b^*} h$ (Equation A3), and the number of double-persuasion recipients is $DP = N \int_{-\frac{b^*}{2}}^0 \int_s^{r+b^*} h$ (Equation A4). By Proposition 1, $b^{**} = 2b^*$, so $b^* > 0 \iff b^{**} > 0$. It then follows from equations A2, A3, and A4 that $VB > 0 \iff TB > 0 \iff DP > 0$. \square

Proposition 3 If $\bar{b}_i^{VB} \leq b^{**}$, a machine pays \bar{b}_i^{VB} to a C^{VB} . If $\bar{b}_i^{TB} \leq b^*$, a machine pays \bar{b}_i^{TB} to a C^{TB} . If $\bar{b}_i^{DP} \leq b^*$, a machine pays \bar{b}_i^{DP} to a C^{DP} . All other citizens receive no payment.

Proof. We prove the VB case; identical logic holds for other strategies. We show (i) if $\bar{b}_i^{VB} \leq b^{**}$, a machine pays \bar{b}_i^{VB} to a C^{VB} ; (ii) if $\bar{b}_i^{VB} > b^{**}$, a machine offers $b_i = 0$ to a C^{VB} .

(i) Let b^{**} be the upper bound on payments a machine makes to C^{VB} . Define $M(A)$ to be the set of C^{VB} who vote for the machine given the payment allocation A . For contradiction, assume A is an optimal allocation in which the machine does not buy all C^{VB} who are cheaper than b^{**} . Formally, there exists a set Z with positive measure of C^{VB} receiving $b_i < \bar{b}_i < b^{**}$. We will show there exists a A' that is affordable and produces a strictly greater number of net votes. Thus, A cannot be optimal.

Let (\hat{x}, \hat{c}) be any point on the interior of $M(A)$ and take δ small enough such that $\Delta(\delta) \equiv [\hat{x}, \hat{x} + \delta] \times [\hat{c}, \hat{c} + \delta] \subset M(A)$. Let $(\tilde{x}_i, \tilde{c}_i)$ be any point in Z and select μ sufficiently small such that $\Delta(\mu) \equiv [\tilde{x}_i, \tilde{x}_i + \mu] \times [\tilde{c}_i, \tilde{c}_i + \mu] \subset Z$. By the continuity of $f(x)$ and $g(c)$ there exists a $\delta_0 < \delta$ and $\mu_0 < \mu$ such that $\int_{\Delta(\delta_0)} h = \int_{\Delta(\mu_0)} h$. Observe that $\Delta(\delta_0)$ and $\Delta(\mu_0)$ have the same number of C^{VB} , so buying either set produces the same net votes. Let $\theta \equiv \int_{\Delta(\delta_0)} b_i h - \int_{\Delta(\mu_0)} \bar{b}_i h$ and note that $\theta > 0$ because citizens in $\Delta(\mu_0)$ are cheaper than those in $\Delta(\delta_0)$. Consider an allocation A' in which a machine buys all citizens in $\Delta(\mu_0)$, reduces payments to citizens in $\Delta(\delta_0)$ to zero, and redistributes the savings to citizens in $\Delta(\eta_0)$. Recall from Lemma 1 that $\Delta(\eta_0)$ is a set of citizens

who remain unbought under allocation A , and who could be bought with resources θ . Formally, define $\Omega \equiv [\underline{X}, \overline{X}] \times [0, \overline{C}] - (\Delta(\delta_0) \cup \Delta(\mu_0) \cup \Delta(\eta_0))$. Let $A' = A$ for all (x_i, c_i) on Ω , $A' = 0$ for all (x_i, c_i) on $\Delta(\delta_0)$, and $A' = \bar{b}_i$ for all (x_i, c_i) on $\Delta(\mu_0)$ and for all (x_i, c_i) on $\Delta(\eta_0)$. The cost of A' is less than or equal to the cost of allocation A and A' buys $\int_{\Delta(\eta_0)} h$ more citizens. Thus A cannot be an optimal allocation.

(ii) Recall that b^{**} is the upper bound on payments a machine makes to C^{VB} . Offering b^{**} to a citizen for whom $\bar{b}_i^{VB} > b^{**}$ is insufficient to induce vote switching (i.e., it is an underpayment). Formally, underpayment can be defined as a set of positive measure P of C^{VB} receiving rewards b_i such that $\bar{b}_i > b_i > 0$. For contradiction, assume A is an optimal allocation in which a machine underpays some C^{VB} . We show there exists an affordable allocation A'' that produces strictly more net votes than A . Thus, A cannot be optimal.

Define $\theta \equiv \int_P b_i h$ as the resources the machine devotes to citizens in set P . In allocation A , $\theta > 0$. Observe that since the machine underpays these citizens, it receives 0 net votes in return. Recall from Lemma 1 that a machine can purchase all citizens on set $\Delta(\eta_0)$ for resources θ , where $\Delta(\eta_0)$ are citizens who remain unbought under allocation A . Consider an allocation A'' in which a machine reduces payments to citizens on set P to 0 and uses the savings to purchase citizens on set $\Delta(\eta_0)$. Formally, define $\Omega \equiv [\underline{X}, \overline{X}] \times [0, \overline{C}] - (P \cup \Delta(\eta_0))$. Let $A'' = A$ for all (x_i, c_i) on Ω , $A'' = 0$ for all (x_i, c_i) on P , and $A'' = \bar{b}_i$ for all (x_i, c_i) on $\Delta(\eta_0)$. Then the costs of A'' are \leq the costs of A , and A'' buys $\int_{\Delta(\eta_0)} h$ more citizens. Thus A cannot be an optimal allocation. \square

Comparative Statics

For analysis of comparative statics, we assume f and g are distributed uniformly. The machine's constrained optimization problem, where λ is the Lagrangian multiplier, is: $\max_{b_{TB}, b_{DP}, b_{VB}} V^M - V^O - \lambda(E - B)$. The machine maximizes the difference between its votes (V^M) and opposition votes (V^O), given that total expenditures (E) must be less than or equal to its budget B . Note that $V^O = N \int_{\underline{X}}^{-\frac{b^{VB}}{2}} \int_0^s h$ and $V^M = VB + TB + DP + S$, where: Vote Buying (VB) = $N \int_{-\frac{b^{VB}}{2}}^0 \int_0^s h$, Turnout Buying (TB) = $N \int_0^{\overline{X}} \int_r^{r+b^{TB}} h$, Double Persuasion (DP) = $N \int_{-\frac{b^{DP}}{2}}^0 \int_s^{r+b^{DP}} h$, and Supporters (S) = $N \int_0^{\overline{X}} \int_0^r h$. Total expenditures for the machine party are $E = E_{VB} + E_{TB} + E_{DP}$, where: VB Expenditures (E_{VB}) = $N \int_{-\frac{b^{VB}}{2}}^0 \int_0^s \bar{b}_i^{VB} h$, TB Expenditures (E_{TB}) = $N \int_0^{\overline{X}} \int_r^{r+b^{TB}} \bar{b}_i^{TB} h$, and

DP Expenditures (E_{DP}) = $N \int_{-\frac{b^{DP}}{2}}^0 \int_s^{r+b^{DP}} \bar{b}_i^{DP} h$. Solving the problem yields three first order conditions. Solving all first order conditions for λ yields the results from Proposition 1: $b_{VB}^* = 2b_{TB}^* = 2b_{DP}^*$. For the following analyses, let $\Gamma = \frac{N}{(\bar{X}-\underline{X})\bar{C}}$.

Compulsory Voting

Substitute $b^* = \frac{1}{2}b^{**}$ from the FOCs into the budget constraint. Implicit differentiation yields:

$$\frac{\partial b^{**}}{\partial a} = \frac{-4b^{**}}{8(a-x^M)+4\bar{X}+5b^{**}} < 0. \text{ Substitute } b^{**} = 2b^* \text{ into the budget constraint. Implicit differentiation yields: } \frac{\partial b^*}{\partial d} = \frac{-2b^*}{4(d-x^M)+2\bar{X}+5b^*} < 0. \text{ Comparative statics follow: (1) } \frac{\partial VB}{\partial a} = \frac{\Gamma}{4} [2b^{**} + (2(a-x^M) + b^{**}) \frac{\partial b^{**}}{\partial a}] = \frac{\Gamma}{4} \left[2b^{**} - 2b^{**} \left(\frac{4(a-x^M)+2b^{**}}{8(a-x^M)+4\bar{X}+5b^{**}} \right) \right] > 0. (2) \frac{\partial TB}{\partial a} = \Gamma \bar{X} \frac{\partial b^*}{\partial a} < 0. (3) \frac{\partial DP}{\partial a} = \Gamma \frac{b^*}{2} \frac{\partial b^*}{\partial a} < 0.$$

Machine Support

Substituting FOCs into the budget constraint and implicitly differentiating yields: (1) $\frac{\partial b^{**}}{\partial \bar{x}} =$

$$\frac{-2b^{**}}{4(2(a-x^M)+\bar{X}+\bar{x})+5b^{**}} < 0 \text{ and (2) } \frac{\partial b^*}{\partial \bar{x}} = \frac{-b^*}{2(2(a-x^M)+\bar{X}+\bar{x})+5b^*} < 0. \text{ Comparative statics follow: (1) } \frac{\partial VB}{\partial \bar{x}} = \frac{\Gamma}{4} [(2(a-x^M) + b^{**})(\frac{\partial b^{**}}{\partial \bar{x}})] < 0. (2) \frac{\partial TB}{\partial \bar{x}} = \Gamma [b^* + (\bar{X} + \bar{x}) \frac{\partial b^*}{\partial \bar{x}}] = \Gamma \left[b^* - \frac{b^*(\bar{X}+\bar{x})}{2(2(a-x^M)+\bar{X}+\bar{x})+5b^*} \right] > 0. (3) \frac{\partial DP}{\partial \bar{x}} = \frac{\Gamma}{2} [b^*(\frac{\partial b^*}{\partial \bar{x}})] < 0.$$

Political Polarization

Note that by the assumption of symmetric party platforms, $x^M - x^O = 2x^M$. Substituting FOCs into

$$\text{the budget constraint and implicitly differentiating yields: (1) } \frac{\partial b^{**}}{\partial x^M} = \frac{4b^{**}}{8(a-x^M)+4\bar{X}+5b^{**}} > 0 \text{ and (2) } \frac{\partial b^*}{\partial x^M} = \frac{2b^{**}}{4(a-x^M)+2\bar{X}+5b^{**}} > 0. \text{ Comparative statics then follow: } \frac{\partial VB}{\partial x^M} = -\frac{\Gamma}{2} \left[\frac{4(a-x^M+\bar{X})+3b^{**}}{8(a-x^M)+4\bar{X}+5b^{**}} \right] < 0. (2) \frac{\partial TB}{\partial x^M} = \Gamma [\bar{X}(\frac{\partial b^*}{\partial x^M})] > 0. (3) \frac{\partial DP}{\partial x^M} = \frac{\Gamma}{2} [(b^*)^2(\frac{\partial b^*}{\partial x^M})] > 0.$$

Saliency of Political Preferences

Substituting FOCs into the budget constraint and implicitly differentiating yields: (1) $\frac{\partial b^{**}}{\partial \kappa} =$

$$\frac{b^{**}(12a+5b^{**})}{3\kappa(8a-4\kappa x^M+5b^{**})} > 0 \text{ and (2) } \frac{\partial b^*}{\partial \kappa} = \frac{b^*(6a+5b^*)}{3\kappa(4a-2\kappa x^M+5b^*)} > 0. \text{ (Here we use the fact that } \bar{X} = x^M \text{ and } \underline{X} = -x^M \text{). Comparative statics follow: (1) } \frac{\partial VB}{\partial \kappa} = -\frac{b^{**}N(48a^2+b^{**}(40a+5b^{**}+8x^M\kappa))}{48\bar{C}x^M\kappa^2(8a-4x^M\kappa+5b^{**})} < 0. (2) \frac{\partial TB}{\partial \kappa} = \frac{b^*N(6a+5b^*)}{6\bar{C}\kappa(4a-2x^M\kappa+5b^*)} > 0. (3) \frac{\partial DP}{\partial \kappa} = \frac{b^{*2}N(6x^M\kappa-5b^*)}{24\bar{C}x^M\kappa^2(4a-2x^M\kappa+5b^*)} > 0 \text{ (where } 6x^M\kappa-5b^* > 0 \text{ follows from the fact that } b^* \leq \kappa x^M \text{ given that } b^{**} \leq -2\kappa x^O = 2\kappa x^M \text{ and } b^{**} = 2b^* \text{). Note that given our assumption that some indifferent voters turnout (} a > x^M\kappa \text{), the denominators of all three comparative statics are always positive.}$$

Ballot Secrecy

Let $\frac{1}{p} = \alpha$. In the constrained optimization problem above, replace b_{VB}^* and b_{DP}^* with \tilde{b}_{VB} , \tilde{b}_{DP} , \tilde{E}_{VB} with αE_{VB} , and \tilde{E}_{DP} with αE_{DP} . The FOCs become $\alpha \tilde{b}_{VB}^* = 2b_{TB}^* = 2\alpha \tilde{b}_{DP}^*$. Substitute

$\tilde{b}_{DP} = \frac{\tilde{b}_{VB}}{2}$ and $\tilde{b}_{TB} = \frac{\alpha\tilde{b}_{VB}}{2}$ from the FOCs into the budget constraint. Implicit differentiation yields: $\frac{\partial\tilde{b}_{VB}}{\partial\alpha} = -\frac{\tilde{b}_{VB}(12(a-x^M+\alpha\bar{X})+5\tilde{b}_{VB})}{3\alpha(8(a-x^M)+4\alpha\bar{X}+5\tilde{b}_{VB})} < 0$. Substitute $\tilde{b}_{VB} = \frac{2b_{TB}}{\alpha}$ and $\tilde{b}_{DP} = \frac{b_{TB}}{\alpha}$ into the budget constraint. Implicit differentiation yields: $\frac{\partial b_{TB}}{\partial\alpha} = \frac{2b_{TB}(3\alpha(a-x^M)+5b_{TB})}{3\alpha(2\alpha(2(a-x^M)+\alpha\bar{X})+5b_{TB})} > 0$. Substitute $\tilde{b}_{VB} = 2\tilde{b}_{DP}$ and $\tilde{b}_{TB} = \alpha\tilde{b}_{DP}$ into the budget constraint. Implicit differentiation yields: $\frac{\partial\tilde{b}_{DP}}{\partial\alpha} = -\frac{\tilde{b}_{DP}(6(a-x^M+\alpha\bar{X})+5\tilde{b}_{DP})}{3\alpha(4(a-x^M)+2\alpha\bar{X}+5\tilde{b}_{DP})} < 0$. Comparative statics follow: (1) $\frac{\partial\tilde{V}B}{\partial\alpha} = \frac{\Gamma}{4} \left[2(a-x^M) + \tilde{b}_{VB}(\frac{\partial\tilde{b}_{VB}}{\partial\alpha}) \right] < 0$. (2) $\frac{\partial\tilde{T}B}{\partial\alpha} = \Gamma\bar{X}\tilde{b}_{TB}(\frac{\partial\tilde{b}_{TB}}{\partial\alpha}) > 0$. (3) $\frac{\partial\tilde{D}P}{\partial\alpha} = \frac{\Gamma}{2}\tilde{b}_{DP}(\frac{\partial\tilde{b}_{DP}}{\partial\alpha}) < 0$.

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Figure 1: Strategies for Distributing Targetable Goods

		Political Preference of Recipient vis-à-vis Party Offering Goods	
		<i>Favors Party</i>	<i>Indifferent or Favors Opposition</i>
Recipient Inclined to Vote or Not Vote	<i>Inclined to Vote</i>	“Rewarding Loyalists”	“Vote Buying” “Negative Turnout Buying”
	<i>Inclined Not To Vote</i>	“Turnout Buying”	“Double Persuasion”

Source: Adapted from Nichter (2008).

Figure 2: The Vertex

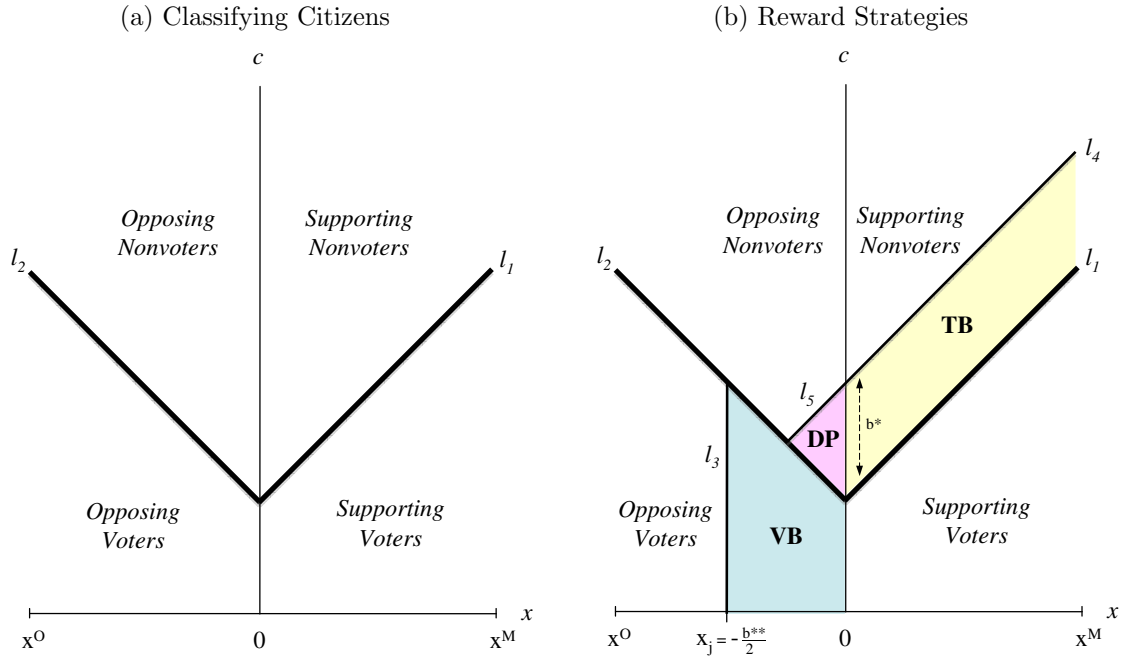
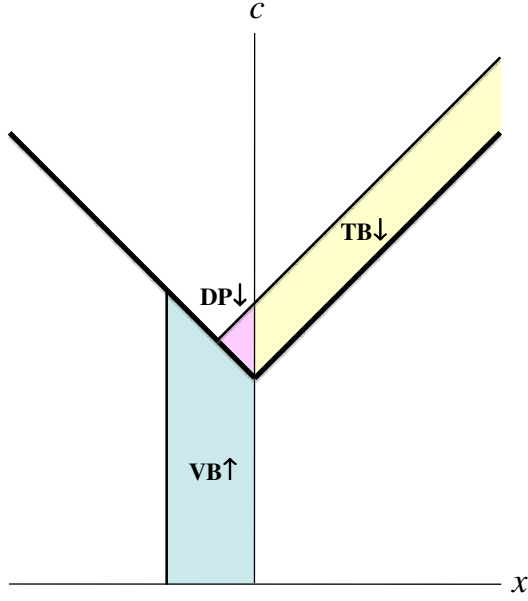
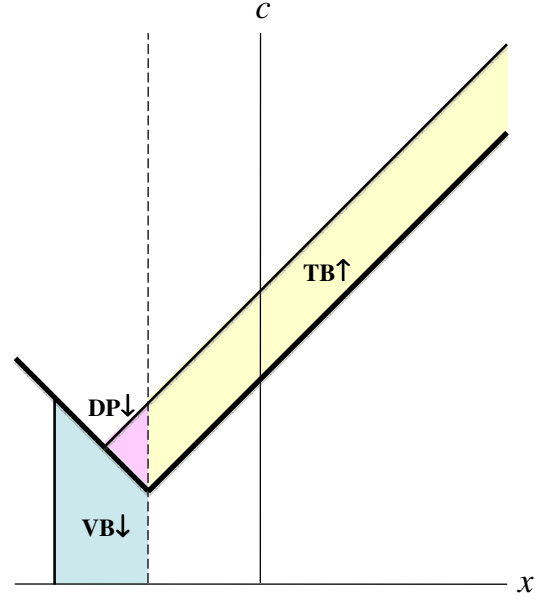


Figure 3: Comparative Statics

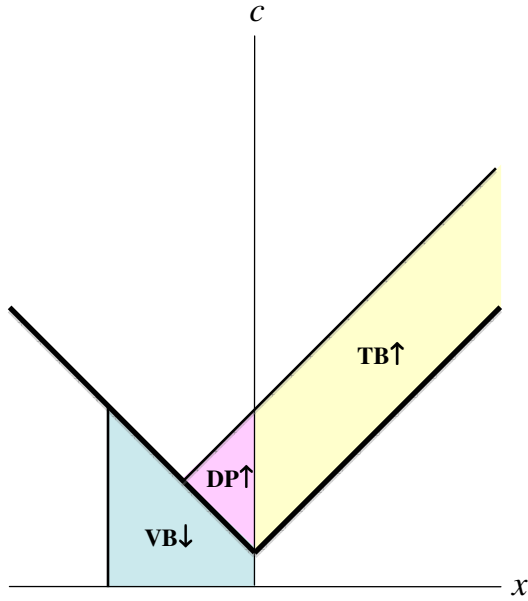
(a) Compulsory Voting



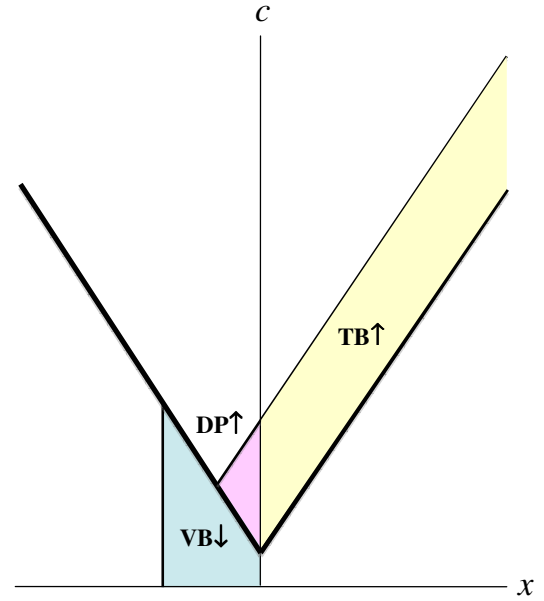
(b) Machine Support



(c) Political Polarization

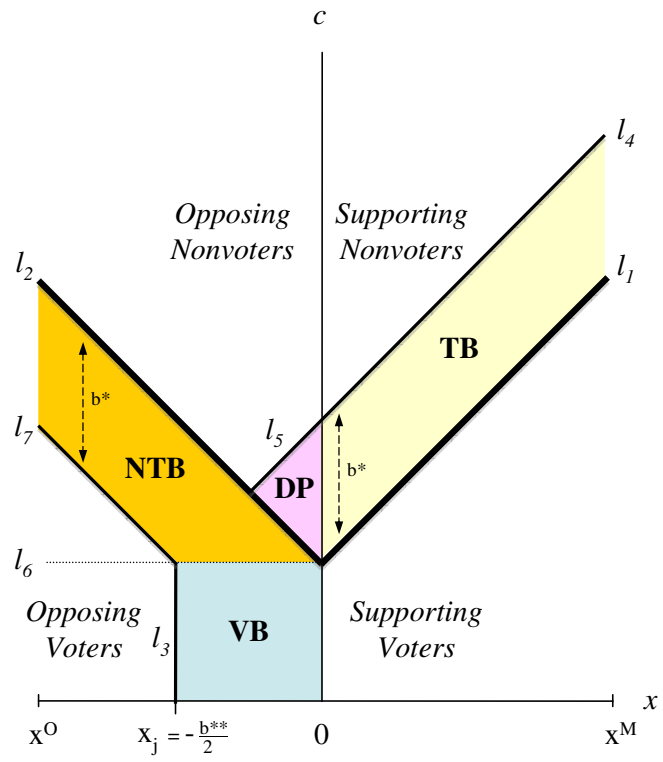


(d) Salience of Preferences



Note: VB = Vote Buying; TB = Turnout Buying; DP = Double Persuasion

Figure 4: Vertex with Negative Turnout Buying



Note: VB = Vote Buying; TB = Turnout Buying; DP = Double Persuasion; NTB = Negative Turnout Buying