Electoral Risk and Vote Buying, Introducing Prospect Theory in the Experimental Study of Clientelism

Hector Bahamonde [*1] and

Andrea Canales [†2]

[1]Senior Researcher, University of Turku, Finland

[2]Assistant Professor, O'Higgins University, Chile

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[*]hibano@utu.fi; www.HectorBahamonde.com.

[†]andrea.canales@uoh.cl; http://sites.google.com/view/andrea-canales-g.

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Abstract

Leveraging on the expected utility theory framework, most research asserts that parties in need of securing electoral support invest in vote buying. We consider this framework is limited in a number of ways. First, it assumes that losses and gains affect party's decision-making process in a comparable way—i.e., winning elections feels good as losing one hurts. Second, it assumes that the decision-making process of clientelist political parties focuses only on incremental outcomes while overlooking prior outcomes. Whether these assumptions hold is very important for understanding why parties buy votes. By introducing prospect theory in the clientelism literature, we hypothesize that parties are risk averse in the domain of gains and risk-seeking in the domain of losses—i.e., losing an election hurts more than winning an election pleases. This explains why clientelism is most likely when parties are probable winners or have experienced important losses in the past. These results are invariant to the political identity of voters. Unfortunately, the expected utility theory (wrongly) predicts that under these scenarios clientelism should not occur. After formalizing a theory of vote buying and vote selling within the expected utility theory, we tested it in the lab by designing an economic experiment. The voting experiment was carefully designed to capture different domains of gains/losses as well as varying reference points. Exploiting these novel experimental data, we show that prospect theory provides a better explanation of clientelism than do other theories based on the expected-utility theory. As the statistical analyses suggest, because of risk-seeking with respect to losses, experimental subjects adopt a more risky alternative buying votes in a way that is unpredicted by standard expected-value calculations.

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I. Parties With a Gambling Problem: Vote Buying as a Risky Yet Persistent Strategy

Vote buying is a very risky strategy.[1] First, it is illegal.[2] Buying votes requires extra care to avoid both reputational, electoral and legal costs. For instance, due to stigma associated with vote buying, clientelist political parties might risk electoral support from the wealthy (Weitz-Shapiro 2012) or from society in general (González-Ocantos, Kiewiet de Jonge, and Nickerson 2014). Second, vote choices are secret, thus preventing parties from effective monitoring and enforcing (Nichter 2008). Even in developing contexts such as Africa (Wantchekon 2003; Vicente 2014), the Philippines (Hicken, Leider, et al. 2018) and Latin America (Hidalgo and Nichter 2015; Oliveros 2019; Murillo, Oliveros, and Zarazaga 2021), voters might accept the private benefit but then secretly vote for another party (Stokes 2005; Nichter 2008; Szwarcberg 2013; González-Ocantos, Kiewiet de Jonge, and Nickerson 2014; Vicente 2014), making the risks taken by the clientelist party worthless.[3]

If clientelism is risky (Szwarcberg 2013, p. 43), expensive (Zarazaga 2014, p. 35) and uncertain (Rueda 2017), *How do political parties allocate scarce resources efficiently, targeting the "right" clients, and thus preventing waste?* In this paper we address two related but more specific questions about strategic vote-buying (i.e., clientelist targeting and political contestation). First, *Do political parties buy votes to reassure electoral loyalties (core voters) or to flip voters (swing voters)?* Second, *How risk-tolerant are parties when facing contested elections?* These are important questions as they speak about a party's decision-making process under risk. Unfortunately we find that the literature provides conflicting answers. This paper posits that these conflicting views about clientelist targeting and political contestation originate in the wrong understanding about the party's decision-making processes under risk implicit in the expected utility theory, as formalized by Neumann and Morgenstern (1947).[4]

Leveraging on the expected utility theory framework, most research asserts that parties in need of securing electoral support invest in vote buying. We consider this framework is limited in a

[1] Vote buying is defined as the distribution of rewards during elections in contingent exchange for vote choices (Nichter 2014, p. 316).

[2] Bahamonde (2020) explains that in the United States vote buying was illegal as early as the 1700s.

[3] In fact, since clientelism may also work even with low levels of enforcement and monitoring (Hicken and Nathan 2020), investments in clientelism are always done in contexts of very high risk.

[4] For the purposes of this paper, I focus exclusively on quantitative research. Just to name a few important qualitative contributions who are not necessarily framed in the EUT paradigm, see Scott (1972), Auyero (2000) and Szwarcberg (2013).

number of ways. First, it assumes that losses and gains affect party's decision-making process in a comparable way—i.e., winning elections feels good as losing one hurts. Second, it assumes that the decision-making process of clientelist political parties focuses only on incremental outcomes while overlooking prior outcomes. Whether these assumptions hold is very important for understanding why parties buy votes. By introducing prospect theory in the clientelism literature, we hypothesize that parties are risk averse in the domain of gains and risk-seeking in the domain of losses—i.e., losing an election hurts more than winning an election pleases. This explains why clientelism is most likely when parties are probable winners or have experienced important losses in the past. These results are invariant to the political identity of voters. Unfortunately, the expected utility theory (wrongly) predicts that under these scenarios clientelism should not occur. After formalizing a theory of vote buying and vote selling within the expected utility theory, we tested it in the lab by designing an economic experiment. The voting experiment was carefully designed to capture different domains of gains/losses as well as varying reference points. Exploiting these novel experimental data, we show that prospect theory provides a better explanation of clientelism than do other theories based on the expected-utility theory. As the statistical analyses suggest, because of risk-seeking with respect to losses, experimental subjects adopt a more risky alternative buying votes in a way that is unpredicted by standard expected-value calculations.

Importantly, in this paper we follow Levy (1992b, p. 297) as we carefully try to not only show that the observed behavior of political agents is consistent with prospect theory but that prospect theory provides a better explanation of vote buying than do clientelism descriptions based on expected-utility theory.

add this paper proceeds as follows

II. The Unexpected Findings of the Expected Utility Theory

As its core, the expected utility theory considers that the value of an outcome is equal to its payoff times its probability, and that agents choose the option with the highest weighted sum (McDermott 1998, p. 15, Levy 1992a, p. 173, Levy 1997, p. 88). Importantly, it is commonly assumed that all political agents obey the maxims of invariance, dominance, and transitivity leading to the maximization of utility (McDermott 2004, p. 291, Quattrone and Tversky 1988, p. 719).

complete references

Since the expected utility theory (EUT) "was one of the first theories of decision making under risk" (McDermott 1998, p. 15), EUT has dominated political science for the most part (McDermott

2004, p. 289, Levy 1997, p. 87), and the vote buying literature has been no exception. Just to name a few examples, Nichter (2008) used game-theoretical techniques to introduce the concept of "turnout buying," suggesting that parties deliver private benefits even when monitoring is absent. Gans-Morse, Mazzuca, and Nichter (2013) offer a formal model to explain that clientelist parties offer a mix four clientelist strategies during elections (vote buying, turnout buying, abstention buying, and double persuasion), while Rueda (2015, p. 428) "present[s] a model of vote buying in which a broker sustains bribed voters' compliance by conditioning future bribes." Similarly, Gallego (2014, p. 401) "presents a game-theoretical model of political clientelism in which a candidate disciplines a majority of voters through the promise of a future flow of benefit."

We contest this traditional approach focused on gains by shifting the attention to losses and context-dependent decision-making processes. It actually seems rather interesting that most vote-buying theories are framed within the EUT without even declaring it, as it if were the default or go-to framework. It needs to be clarified that the root of the problem is *not* methodological (i.e., the use of game theory), but analytical, that is, the assumed decision-making process under risk present in the EUT. For instance, electoral explanations based on the EUT contend that voters see elections as "investments" (Downs 1957; Bassi, Morton, and Williams 2011), a notion that also holds for clientelist political parties under risk (Diaz-Cayeros 2008). In this paper we challenge this approach by offering an alternative theory of the political economy of vote buying, but taking prospect theory as a starting point (Kahneman and Tversky 1979).

We believe that this shift in focus is a valuable exercise because theories based on the EUT contain descriptions of political behaviors that are "unrealistic" (Aldrich and Lupia 2011, p. 124). In effect, a large body of experimental research finds that the behavioral expectations under risk do not comport with the EUT (Battalio, Kagel, and Jiranyakul 1990, p. 25, Mercer 2005, p. 1). As a matter of fact, Bernoulli—the forefather of the EUT (Fishburn 1977)—"was the first to see [...] that people would not always bet solely on the basis of the expected value of a game" (McDermott 1998, pp. 15–16). From a decision-making standpoint, many find that "the assumptions underlying the classical theory of risky choice are systematically violated" (Quattrone and Tversky 1988, p. 719) and that both "variance and semivariance ideas of risk [...] have been shown to be inconsistent with von Neumann axioms" (March and Shapira 1987, p. 1405). Moreover, from an empirical perspective, there seems to be a strong consensus on the idea that "expected utility theory [...] continually failed empirically" (Vis 2011, p. 335), while others have explained that "[e]xperiments [...] have revealed

that actual behavior and decisions frequently deviate from the neoclassical predictions" (Fatas, Neugebauer, and Tamborero 2007, p. 167). In sum, the empirical literature consistently finds that "people systematically violate the predictions of expected utility theory" (Barberis 2013, p. 173). In fact, Levy (1997, p. 87) finds "ironic" that just as rational choice has become the most influential paradigm in political science, EUT has come under heavy attacks by experimental *and* empirical evidence.

To be clear, much progress has been made in the understanding of clientelism and vote buying (Hicken 2011). Yet, there are several inconsistencies that authors tend to ignore or treat as unimportant empirical deviations. In this paper we address two important inconsistencies relevant to the understanding of vote buying. We concentrate on these two aspects because both directly speak to the party's decision-making process under risk.

Clientelist Targeting The first inconsistency that causes confusion in the literature is targeting: Where do rational clientelist political parties should invest their scarce clientelist resources, core or swing voters?[5] Intuitively, from a portfolio-diversification standpoint, investing in both swing and core voters should be the best response: the more diversified the targeted electorate (i.e., the "portfolio"), the less risk of losing the election (particularly in contexts of secret voting and monitoring and enforcing problems—Hicken and Nathan 2020). In fact, according to the financial market, portfolio choice and investment decision-making literatures in economics, "[m]ost rational models of portfolio choice suggest that investors hold diversified portfolios to reduce or eliminate non-compensated risk" (Goetzmann and Kumar 2008). In the same vein, Goyal and Santa-Clara (2003, p. 978) "find a significant positive relation between average stock variance and the return on the market."

That is, if traditional vote-buying theories conformed with the EUT, we should see that both voter types are targeted. Yet, the vote-buying literature seems to be quite divided on an issue that—following the expectations of the EUT—should be clear. In fact, Carlin and Moseley (2015, p. 14) state that "our knowledge of who parties target remains incomplete." On the one hand, Cox and Mccubbins (1986) and Zarazaga (2016, p. 7) explain that since constituencies are well known to clientelist parties, they allocate resources to core voters. On the other hand, Lindbeck and Weibull

[5]We only discuss these two ideal types of voters. There are others that for simplicity we do not discuss. For instance, Zarazaga (2016, p. 7) introduces yet another category ("conditional supporters") who "will vote for the party machine only as long as unexpected events do not persuade them to do otherwise."

(1987), Dixit and Londregan (1996), and Stokes (2005) argue that since allocating resources to individuals who *ex-ante* vote for the party is a waste, parties target swing voters.

Why would clientelist parties invest in vote buying on swing *or* core voters, exclusively? Moreover, can parties even identify either type of voters? We believe that the clientelism literature expects and assumes too much of the party's monitoring capacities. Parties operate in very uncertain environments, particularly due to vote secrecy and social stigma, making both monitoring and enforcing very hard to accomplish (González-Ocantos, Jonge, et al. 2012; González-Ocantos, Kiewiet de Jonge, and Nickerson 2014; González-Ocantos, Kiewiet de Jonge, and Nickerson 2015; Kiewiet de Jonge 2015; Corstange 2018; Hicken and Nathan 2020; Bahamonde 2020). Hence assuming that parties can "surgically" discern who is a swing or a core voter, exceeds the real capacities of clientelist brokers. Ethnographic evidence for the Latin American case seems to suggest similar ideas (Gay 1993; Gay 1998; Auyero 2000; Luna et al. 2011; Szwarcberg 2013).[6] Thus, it is very reasonable that parties not knowing *exactly* who is who allocate clientelist resources to both types of voters.

Moving forward, recent contributions suggest that clientelist parties "may simultaneously target both swing and core groups of voters" (Albertus 2013, p. 1083), while in a similar vein Diaz-Cayeros (2008, p. 148) explains that long-lasting hegemonic parties (such as the PRI in Mexico) seek "to prevent core voters from defecting in the future," but newly elected incumbents in need of forging a new majority coalition target swing voters. In turn, and also considering the role of political contestation on vote buying, Corstange (2018) explains that parties "target clientelistic payoffs to inexpensive voters in their strongholds [i.e., core voters], but that head-to-head competition compels them to bid for more expensive voters [i.e., swing voters]." However, as we explain below, the latter finding on political contestation seems to run counter to expectations derived from the EUT.

Political Contestation Another inconsistency that causes confusion in the clientelism literature is political contestation. Intuitively, the more contested an election, the more risks of losing the election, the more incentives to resort to vote buying to prevent that from happening (Scott 1972; Shefter 1977; Diaz-Cayeros 2008; Corstange 2018). Yet González-Ocantos, Jonge, et al. (2012, pp. 205–206) report that while in the 2008 Nicaraguan elections the incumbent party enjoyed 40%

cite van de Walle 2007

[6] Even normative scholars explain that parties have a hard time identifying voter's electoral intentions. For instance, Dixit and Londregan (1996, p. 1147) explain that clientelist parties track "constituents' likes and dislikes, *compulsively* participating in a spectrum of events [such as] baptisms and bar mitzvahs." Similarly, Stokes (2005, p. 317) argues that parties develop skills that allow them to infer whether clients voted for their party by *looking at them in the eyes* (emphasis is mine).

of the electoral support, 24% of registered voters were offered a clientelist gift in an election that "[was] not heavily contested." Why would a party buy such a massive amount of votes in a safe and uncontested election? Answering this question Weitz-Shapiro (2012, p. 570) suggests that "there is no consensus about the relationship between high levels of political competition and the phenomenon of clientelism." Exploiting the assumptions of the EUT, some have argued that vote buying should be higher in contexts of *low* political contestation. For instance, Medina and Stokes (2002) explain that political parties that hold an electoral monopoly tend to offer clientelist goods to deter the entry of political challengers. Similarly, Magaloni (2008) explains that hegemonic autocracies such as the PRI in Mexico have survived thank to successful deterrence strategies and clientelism.

Unfortunately, these explanations seem at odds with normative theories in the risk-management and insurance-buying literatures in economics. If we think of vote buying as an insurance against political losses, then utility-maximiser parties should "buy insurance" only in risky scenarios, that is, in cases when there is a high probability that the expected electoral outcome is a loss. As Arrow (1996, p. 111) explains, "those most at risk will buy more insurance than the others," a behavior that he describes as "adverse selection." This is in line with others that find that young individuals do not buy long-term care insurance (Meier 1999). In other words, if traditional theories of vote buying conformed with the EUT, clientelist political parties should buy votes only in cases of risking the election. Yet, they do when risks are low (González-Ocantos, Jonge, et al. 2012). To put it differently, parties should prefer the certain outcome (winning the election) rather than the gamble (buying votes). As March and Shapira (1987, p. 1405) explain, rational agents in the EUT framework, "when faced with one alternative having a given outcome with certainty, and a second alternative which is a gamble but has the same expected value as the first, [agents] will choose the certain outcome rather than the gamble."

In sum, the way in which the literature assesses clientelist targeting and political contestation seems to suggest that clientelist political parties waste valuable resources, dramatically departing from the predictions made by the EUT. We interpret this "misbehavior" (Thaler 2015) as an analytical problem, particularly, a wrong understanding of how political parties make decisions under risk. To solve this misunderstanding, next section introduces PT (Kahneman and Tversky 1979) to the study of vote buying. Importantly, this section sheds light on why parties do buy votes under contexts of low risk, that is when the most likely scenario is an electoral victory (as found in González-Ocantos, Jonge, et al. 2012), and also why they buy votes from both swing and core

voters (as found in Albertus 2013 and Diaz-Cayeros 2008).

III. Prospect Theory and its Implications for Clientelism: When Losses Loom Larger than Gains

Prospect theory was developed by Kahneman and Tversky (1979) as a way "to incorporate the observed violations of expected utility into an alternative theory of risky choice" (Levy 1992a, p. 179), one that is based on empirical data (McDermott 2004, p. 290). Since its development, prospect theory has emerged as a "leading alternative" (Levy 1992a, p. 171), "best available description" (Barberis 2013, p. 173) and "empirically correct theory" (Vis 2011, p. 334) about how people evaluate risk (Ackert et al. 2006, p. 5), particularly "[excelling] in providing a model that offers descriptively accurate formulations of the human decision-making process" (McDermott 2004, p. 292).

The theory is based on two main empirically-derived concepts (Vieider and Vis 2019, p. 334). First, utilities are defined over changes in outcomes respect to a reference point ("reference dependence"). Note the sharp contrast with EUT where the focus is on absolute levels of wealth (Ackert et al. 2006, pp. 5–6). Second, individuals distort probabilities in an asymmetrical non-linear S-shaped way when making risky decisions ("likelihood dependence"). Note also another important difference with EUT where agents are assumed to treat probabilities linearly, "even with training and effort" (McDermott 2004, p. 293). As McDermott (1998, p. 18) clearly puts it, "prospect theory predicts that individuals tend to be risk averse in a domain of gains [when things are going well], and relatively risk seeking in a domain of losses [in the midst of a crisis]." This distinction also separates prospect theory from EUT where the latter assumes that "whether we are in a domain of gain or loss should not affect our attitude toward risk" (Mercer 2005, p. 1).

Reference dependence is the central idea in prospect theory (Barberis 2013, p. 178, McDermott 1998, p. 40). And such, prospect theory pays special attention to the situation in risky decision-making environments (McDermott 2004, p. 293). In simple, prospect theory "allows people's preferences to depend on the circumstances they face" (Fatas, Neugebauer, and Tamborero 2007, p. 168, see also March and Shapira 1987, p. 1412), which is usually (Vis 2011, p. 335) but not always (Levy 1992a, p. 174) the *status quo*,[7] and how it shifts over time (McDermott 1998, p. 28,

[7]Levy (1992a, p. 174) explains that the reference point could be an "aspiration level." In a similar way, Koszegi and Rabin (2006, p. 1135) develop the idea of a reference point which consists of "expectations rather than the status quo." I owe this point to Salomo Hirvonen. Importantly, the location of the reference point emerges "as critical factors in the analysis of decisions" (Kahneman and Tversky 1979, p. 288).

McDermott 2004, p. 301).[8] As Kahneman and Tversky (1979, p. 273) put it more clearly, "the carriers of value or utility are changes of wealth, rather than final asset positions that include current wealth." In fact, contrary to the assumption of invariance (Barberis 2013, p. 186), a shift in the reference point should also lead to reversals of preferences (Quattrone and Tversky 1988, p. 719). For instance, there is strong support for the idea that prior losses (or "sunk costs") influence decisions, contrary to what normative theorists propose (Thaler and Johnson 1990, p. 643).

In sum, prospect theory pays considerable attention to losses. The idea that "losses loom larger than gains" has been developed in other areas of political science (McDermott 2004, p. 298). For instance, Lau (1985, p. 132) explains that "negative information is more influential than comparable positive information."

Prospect theory "is a theory of decision making under conditions of risk" (McDermott 1998, p. 15).

Others have provided excellent reviews of prospect theory

Levy (1992a), Levy (1992b), Levy (1997), McDermott (1998), McDermott (2004), Mercer (2005), Mercer (2005), Vis (2011), Barberis (2013), Linde and Vis (2017), and Vieider and Vis (2019) provide an excellent overview of prospect theory.

Kahneman and Tversky (1979, p. 279)

(Downs 1957) the value of voting decreases as the size of the electorate increases.

IV. Formal Model

We consider an electorate of n voters. Voters vote for a leader to implement a common policy γ from the set $\Gamma = \{1, 2, ..., 100\}$. Each citizen i has an ideal point x_i which is an *iid* draw from an uniform distribution Γ. When policy γ is implemented, payoffs of citizen i are given by $u(D, x_i, \gamma) = D - |x_i - \gamma|$, where D represents completar acá. This payoff can be incremented by transferences from both parties to voter i.

In this election, there are two candidates. One "left-wing" party and one "right-wing" party. The left-wing (right-wing) candidate represents a policy γ_L (γ_R) which is an *iid* draw from an uniform distribution over $\{1, ..., 50\}$ ($\{51, ..., 100\}$). The location of this policy give us the number of voters n_L leaning towards the left-wing candidate, while the number of voters leaning towards

[8] While we do not focus on the role of emotions, others have found that "sad people will take more risk when trying to avoid a certain loss" (Campos-Vazquez and Cuilty 2014, p. 6).

the right-wing party is given by $n_L + n_R = n$. While we consider that voters are attached to an ideological continuum, we do so with the sole purpose of modeling preferences—both formally and experimentally.[9]

Moving forward, both parties negotiate with only one of these n voters. That voter is randomly selected from the total population n. Observe that the higher the n, the lower the representation in the election of this voter. That is, a larger n necessarily implies that every individual electoral choice matters less. However, if n is small, negotiating with this voter may be more attractive to political parties. This is because negotiating with a large number of voters is costly. We assume that each party has a budget (B) that they can use to buy votes. If a party decides not to negotiate with the voter (or the voter does no accept the offer), the party keeps this budget. The profits of party i is given by,

$$\pi_i(W, e_i, s_i) = W \cdot e_i + (1 - s_i \cdot a_j) \cdot B$$

where W ($W \geq B$) is a constant that represents how much each party values winning the election, $e_i = 1$ if party i wins the election, 0 otherwise, s_i is the fraction of B that the party offers to voter j who can accept the offer ($a_j = 1$) or not ($a_j = 0$). We study two versions of this party-voter interaction. One is where both parties make simultaneous offers to the voter, and she decides whether to accept the offer (vote-buying case). Another one is where the voter can make private offers to both parties, and then the party decides if to pay or not for that voter's vote (vote-selling case).

The timing of the game is as follows: at the beginning of the game n voters and two political parties are randomly located on their respective ideal points: voters along Γ, the "left-wing" candidate along $\{1, ..., 50\}$, and the "right-wing" candidate on $\{51, ..., 100\}$. All locations are public information, as well as every party's budget B, the total number of voters (n) and the number of supporters of each party (n_L and n_R). What follows then, depends on the specific game. On the vote-buying case, each party simultaneously decides if making an offer to the voter. If a party decides to negotiate with the voter, privately offers him to buy his vote (i.e. accept the offer and vote for the party).

[9]Ultimately, experimental subjects are not told anything about ideology. They only observe that there are a number of "points" associated with the victory of party A or party B. In this sense, voters lean ("ideologically") towards the party that gives them more points.

Then the voter decides if to take the offer, or which one accept if he receives two offers. If he accepts an offer, he should vote for that candidate.[10] On the vote-selling case, the voter may privately propose a certain amount to each party in exchange for her vote. Then the parties decide if to pay or not the offer. The voter then decides which one to accept, if any. In this case, the voter offers to one or both parties, and each proposed amount might be different.

I. Equilibrium in Vote-Buying Case

In this case, both parties can offer certain amount in exchange for electoral support. Note that parties only have incentives to negotiate with a voter if he is the pivotal voter. That means that $|n_L - n_R| \leq 1$, and that voter i supports the ex-ante winner of the election ($i \in max\{n_L, n_R\}$). The voter prefers the party closer to her ideal point. If both parties are located at the same distance, the voter is indifferent. Denote by $i^* \in \{L, R\}$ the preferred party of the voter, and $-i^*$ the other party.

Note that, naturally, both parties want to make different offers. If the voter is pivotal, the less preferred party has incentives to offer him a certain amount m_{-i^*} such that the he perceives more utility voting for that party rather than voting for the opposite party, that is:

$$\begin{aligned} m_{-i^*} &\geq (D - |x_{i^*} - \gamma_{i^*}|) - (D - |x_{i^*} - \gamma_{-i^*}|) \\ &= |x_{i^*} - \gamma_{-i^*}| - |x_{i^*} - \gamma_{i^*}|. \end{aligned}$$

Parties expect winning the election but have limited budgets. Hence, they want to win the election at a minimum cost. If party $-i^*$ offers the voter $m_{-i^*} = |x_{i^*} - \gamma_{-i^*}| - |x_{i^*} - \gamma_{i^*}|$, he will be indifferent between voting for party i^* or party $-i^*$. Both offers $m_{i^*} = 0$ and $m_{-i^*} = |x_{i^*} - \gamma_{-i^*}| - |x_{i^*} - \gamma_{i^*}|$ are the minimum amount, but enough to make the pivotal voter indifferent between both political parties. Indifference gives the party some electoral advantage of winning of the election. Voter indifference gives two possible Nash equilibria. In one equilibrium the voter rejects the offer and votes for i^*. In the other equilibrium, the voter accepts the offer and the elected party is $-i^*$. If individuals are utility maximizers, they should be indifferent between these two equilibria.

[10] It is important to consider that to simplify the game (and the experiment), accepting the offer necessarily implies compliance. That is, accepting the offer means voting for the party the voter accepted the offer from. We leave for future research the case where the voter may defect.

II. Equilibrium in Vote-Selling Case

In the case that the voter can set the a price of his vote, he may negotiate with one or both parties setting the price that he is willing to accept in exchanging of voting for that party. In this setting, the voter has incentives to set the highest price each party can pay. In our model this is given by B (which is public knowledge). When the voter is pivotal, he may swing towards party $-i^*$ only if the budget is big enough to compensate what he looses when voting for his less prefer policy ($B > |x_{i^*} - \gamma_{-i^*}| - |x_{i^*} - \gamma_{i^*}|$). When the voter decides to negotiate with both parties, and both accept to pay the price set by him, he chooses one offer, voting for his preferred political party i^*.

Since the parties-voter negotiation does not change the electoral outcome, vote-selling is not efficient to parties. When a party wins the election due to vote-selling, the party's payoff is $\pi_i(W, 1, 1) = W$, while the loser party obtains $\pi_i(W, 0, 0) = B$. If the pivotal voter decides to negotiate with both political forces, parties i^* and $-i^*$ have to decide if accept to pay B to the voter. This strategic situation is represented as follows,[11]

		$-i^*$: Accept	$-i^*$: Reject
i^*: Accept		W , B	W , B
i^*: Reject		B , W	$W + B$, B

Thus, we can observe that there exists an unique equilibrium where both parties are willing to pay B to the voter.

V. Experimental Design

Building on the game theory model, a lab economic experiment was designed. The experiment was conducted at O'Higgins University and Centre for Experimental Social Sciences (CESS) of *Universidad de Santiago*, Chile. Subjects received a minimum of $5,000 Chilean pesos. The maximum depended on the quality of individual decisions. summary statistics here. The basic flow is depicted in Figure 1.

The experiment has two parts, with four stages each. The first part is the vote-buying portion. During the first stage, participants are assigned a role at random. They can be either *party A*, *party*

[11] This situation is considering that, if both parties accept to pay the price set by the voter, he prefers the party i^*.

B, or *voter*. Voters are assigned at random an "ideological" position. That is, voters receive a certain amount of points (at random) depending on whether party A or B wins the election. For instance, if party A wins election, a voter might receive 2,400 points, whereas if party B wins the election, the voter might receive 200 points. It is in this sense that the voter is "ideologically" closer to party A. The substantive correlate is that voters perceive some utility when, for instance, their preferred fiscal policies are implemented. During the first stage, both parties receive different endowments too. The idea is to reflect the fact that some parties are wealthier than others. Note that voters receive zero endowments. The clientelism literature is consistent in that both poor and rich voters are prone to receive clientelist offerings (Bahamonde 2018).

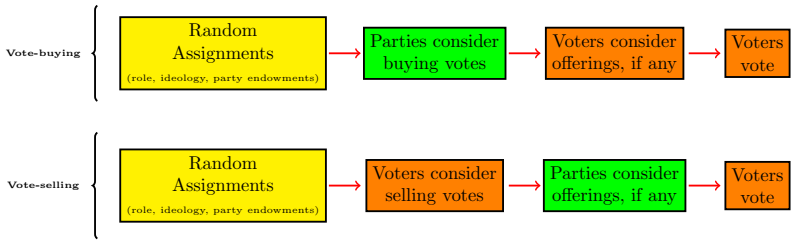

Figure 1: Experimental Flow.
Note*: Note here.*

During the second stage of the first part, parties decide whether to go out and buy votes by making clientelist offerings. Experimental subjects playing the party role enter an amount of points, which ranges from zero to the maximum assigned budget. They are told that offering zero means they do not want to buy votes. Importantly, both budgets (for party A and B) are the same. However, given that the voter-party distance is assigned at random, both parties have *relative* "different" budgets.

In the third stage voters evaluate whether to take that offer or not. If the party decided that it did not want to make an offer at that time, the voter is told that the party did not make an offer. Voters are told that accepting the offer necessarily implies voting for that party (no defecting in this experimental design). In this regard, the third and fourth stage are in reality one stage.

The second part is the vote-selling portion of the experiment. This part is run during the same experimental session, but loading a separate `Ztree` program. Right after the first part is completed, experimental subjects are then asked to continue with the study.

The second part is exactly the same, except that this time voters are first-players: they get to

offer parties an amount of points, and then, parties get to decide whether to take or reject that offer. Note that the experimental currency are "points," which later translated into actual money.[12]

I. Expected Comparative Statics

This experiment randomizes the voter's and party's "ideological" positions, party endowments,[13], and whether the voter is pivotal or not (whether the voters represents $\frac{1}{3}$ or $\frac{1}{5}$ of the electorate). There is one static event, namely, the order of the experiment (the vote-buying part goes first, while the vote-selling part goes second). This aspect is presented to all experimental subjects (both roles) before the second stage (both experimental parts). Exploiting this experimental data, we intend to shed light on the conditions that foster vote-buying/selling. Particularly, we are interested in analyzing the next aspects of a clientelist transaction.

Ideology. Since Downs (1957), spatial theorist have theorized for a long time about the role of political ideology on different electoral aspects (see Enelow and Hinich (1990) for a review). Unfortunately, one of the main criticisms of the Downsian paradigm, is its unidimensionality. That is, the big assumption of voters being concerned only about the spatial distance between their policy preferences and the ones of the available parties. Acknowledging this problem, Adams, III, and Grofman (2005, p. 20) introduce "non-policy" factors. Unfortunately, these factors are mainly socio-demographics traits, such as race, gender, income, among others. While it is true that these traits are not strictly policy-based, they are highly correlated with them. In this paper we try to advance the literature by incorporating clientelism, a non-policy issue (Kitschelt and Wilkinson 2006).

Our experimental design allows us to explore the tipping point at which voters stop caring about ideology. Since the voter-party spatial distance is randomized, our design sheds some light on the elasticity of ideology, clarifying *when* voters renounce to politics (and start selling their votes). Hence, by offering voters a non-policy choice (selling one's vote), we complement the spatial literature, ultimately, by focusing on the question of democratic values too.

[12] Particularly, Chilean pesos.

[13] As explained above, not directly, but by randomizing the ideological position of voters. By doing so, we are able to manipulate the *relative* purchasing power of every party.

Competitiveness. The degree in which elections are contested or not has an important role in explaining clientelism. Competitive authoritarian regimes (Levitsky and Way 2010) survive not due to electoral fraud, but because of the incumbent's capacity to mobilize a large mass of supporters, discouraging likely opposers (Magaloni 2008). Unfortunately, we still do not know at which point likely opposers feel discouraged, and abandon the electoral race. Since the experiment also randomizes the number of likely voters, we will be able to observe at which point is efficient to buy votes (when needed), and at which point is a waste.

Endowments. For the Brazilian case, Bahamonde (2018) explains that parties with access to more resources are also able to buy more expensive goods, even targeting the wealthy. However, Szwarcberg (2013, p. 32) finds that parties with access to material resources does not necessarily imply clientelist targeting. The literature then has not been really able to explain the relationship between having resources and vote-buying: *Do parties with more resources engage in vote-buying?*

Targeting. *Who do political parties target? Swing voters or core supporters?*

Voter's Bargaining Power. By manipulating the relative importance of a voter, we will be able to answer the following question: *Does block voting (i.e. when unions or other civic groups vote coordinately for the same candidate) increase the selling price?*

Sequence. By considering two sequences, one where the party gets to be the first player, and one where the voter does, *Does the order matter?*

VI. Statistical Analyses

Test

	role	variable	n	min	max	median	iqr	mean	sd	se	ci
1	Partido A	left.right	66	1	10	3	4	4	2	0	1
2	Partido B	left.right	66	1	10	4	3	4	2	0	1
3	votantes	left.right	68	1	10	3	3	4	2	0	1
4	Partido A	male	66	0	1	0	1	0	0	0	0
5	Partido B	male	66	0	1	0	1	0	0	0	0
6	votantes	male	68	0	1	0	1	0	0	0	0
7	Partido A	party.id	66	2	9	9	0	8	2	0	0
8	Partido B	party.id	66	1	9	9	0	9	1	0	0
9	votantes	party.id	68	1	9	9	0	8	2	0	0
10	Partido A	party.like	66	0	1	0	1	0	0	0	0
11	Partido B	party.like	66	0	1	0	0	0	0	0	0
12	votantes	party.like	68	0	1	0	0	0	0	0	0
13	Partido A	payoff	73	633	4224	2630	674	2621	670	78	156
14	Partido B	payoff	72	1148	4062	2592	710	2607	665	78	156
15	votantes	payoff	75	633	4224	2674	836	2664	697	80	160
16	Partido A	salary.enough	66	1	4	2	0	2	1	0	0
17	Partido B	salary.enough	66	1	4	2	1	2	1	0	0
18	votantes	salary.enough	68	1	3	2	0	2	1	0	0
19	Partido A	vote.last.election	66	0	1	1	0	1	0	0	0
20	Partido B	vote.last.election	66	0	1	1	0	1	0	0	0
21	votantes	vote.last.election	68	0	1	1	0	1	0	0	0
22	Partido A	vote.next.election	66	0	1	1	0	1	0	0	0
23	Partido B	vote.next.election	66	0	1	1	0	1	0	0	0
24	votantes	vote.next.election	68	0	1	1	0	1	0	0	0

Table 1: *Summary Statistics*

	OLS	Logit
	Amount of Vote-Buying Offer	Competitive Vote-Buying Offer
(Intercept)	678.24	−0.32
	(1.38)	(1.01)
vote.intention.party	152.03$^{\cdot}$	
	(1.90)	
points.cumul.delta	−0.10**	−0.00
	(−3.04)	(0.00)
ideo.distance	−0.20	−0.00
	(−0.07)	(0.01)
budget	0.03	−0.00
	(0.07)	(0.00)
R^2	0.71	
Adj. R^2	−0.05	
Num. obs.	136	136
AIC		186.58
BIC		198.23
Log Likelihood		−89.29
Deviance		178.58

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{cdot}p < 0.1$. Robust standard errors in parentheses. OLS model with fixed effects (parameteres omitted).

Table 2: *Statistical models*

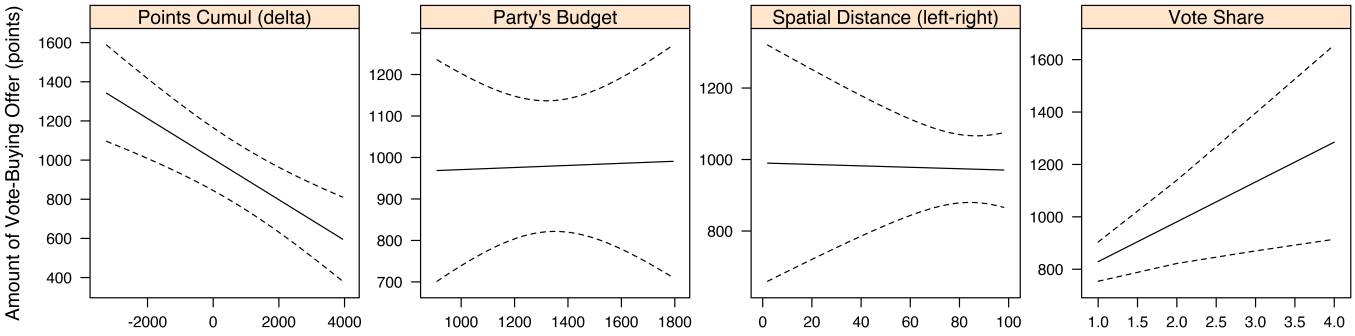

Figure 2: *Predicted Values of Vote-Buying Offer.*

Note*: Based on the OLS estimates in Table 2, the figure shows the predicted values of the offer made by the party expressed in experimental points. Substantively, the figure shows that experimental subjects try to recover losses in the short run by spending more on vote-buying (panel 1) and avoid losses by over-securing electoral support even in favorable contexts (panel 4). However, subjects do not consider their own budgets nor do their take into account ideological/spatial distance with respect to their constituencies when making decisions (panel 2 and 3).*

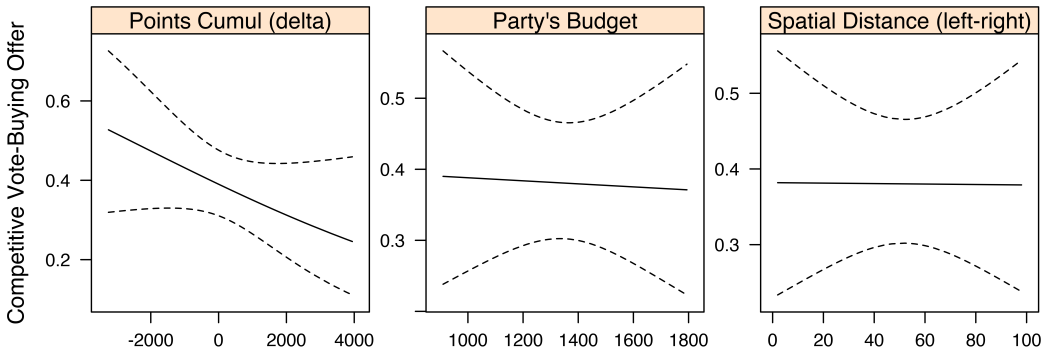

Figure 3: *Predicted Values of Competitive Vote-Buying Offer.*

Note: *"Competitive vote buying" is when both parties try to buy someone's vote at the same time. Having all players complete information, this strategy is more expensive and uncertain. Based on the MLE estimates in Table 2, the figure shows the predicted values of whether parties engage in competitive vote buying strategies. Substantively, the figure shows that experimental subjects acting the "party" role engage in competitive vote buying when they try to recover losses in the short run by engaging in competitive vote buying (panel 1). However, subjects do not consider their own budgets nor their ideological/spatial distance with respect to their constituencies when making decisions (panel 3 and 4).*

VII. Discussion

Discussion — pending.

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