

# Does “Being Chosen to Lead” Induce Non-Selfish Behavior? Experimental Evidence on Reciprocity\*

**Allan Drazen**  
*University of Maryland,*  
*NBER, CEPR*

**Erkut Y. Ozbay**  
*University of Maryland*

This draft: November 7, 2017

**ABSTRACT:** We present experimental evidence that policies chosen by leaders depend on whether they were elected or appointed, and that this difference stems from how they are chosen *per se*, rather than on other explanations given in empirical studies. We find that elected leaders are significantly more likely to choose a non-selfish policy than leaders who are appointed. Elected leaders who act non-selfishly will favor the voter over the losing candidate, while appointed leaders show no tendency to favor the voter over the losing candidate. Our results provide support for the view that non-selfish behavior of leaders reflects a reciprocity motive; candidates do not simply implement their own preferences once in office, as suggested by the basic citizen-candidate model.

**JEL classification:** C91, D64, D72

**Keywords:** Leaders, Reciprocity, Citizen-Candidate

\* We wish to thank Marina Agranov, Prateik Dalmia, Matthew Ellman, Tom Palfrey, Leeat Yariv, seminar participants at the European University Institute, the Collegio Carlo Alberto, the Vancouver School of Economics, University of Michigan, UT Dallas, the CalTech Conference on Experimental Political Economy, Barcelona GSE Summer Forum, and the University of Maryland for very useful comments. Danyan Zha, Ozlem Tonguc and Ian Chadd provided excellent research assistance. Previously circulated as “*How Do Elected and Appointed Policymakers Act When in Office? Experimental Evidence on Citizens, Candidates, and Leaders.*”

## 1. Introduction

Individuals often act in “other-regarding” ways in choosing their actions, taking account of the welfare of others, rather than simply their own welfare. This may be especially true when individuals are put in positions where they are explicitly tasked with making decisions that affect others. That is, knowing they have been chosen for a position where the welfare of other people depends on their decisions may cause them to be more other-regarding. For example, a political leader may feel responsible toward citizens simply *because* of her position, that is, independent of any incentives or other reasons (such as ‘screening’ to weed out candidates who aren’t socially minded) that would induce good behavior. In other words, the fact of holding a position of responsibility may induce one to take account of others, akin to the argument that one chosen as a fiduciary will act in the best interests of the beneficiary due to her position.

One may then ask whether the *way* in which a leader was chosen for her position may affect her behavior towards those for whom she is responsible. More specifically, does a leader who was elected by those for whom she makes decisions act more in their interest than one who was appointed by others? Both election and appointment are commonly used not only in politics and government, but also in many other organizations: student organizations, religious hierarchies, businesses, academic departments, etc. Because our interest is in discovering whether the way in which a leader is chosen may *in itself* affect a leader’s behavior, we design an experiment to eliminate other explanations of why elected leaders may be more other-regarding – which is what we find – such as re-election concerns, selection of different types of leaders via election versus appointments, ‘messaging’ by or greater ‘legitimacy’ of elected leaders, etc.

There are a number of empirical studies on differences in outcomes when policy-makers are elected versus appointed, but the results often do not shed light on whether it is the way that policy-makers came to office *per se* that accounts for these differences as opposed to some of the explanations given just above. Many studies suggest differences may be due to re-election or re-appointment incentives, so that differences reflect how policy-makers are retained in office rather than how they originally came to office. In the case of judges, Gordon and Huber (2007) find that near elections, judges facing re-election give harsher sentences, which they argue represents an obvious electoral motive. Lim (2013) presents evidence strongly supporting the importance of such electoral incentives in explaining different outcomes for elected versus

appointed judges. In our experiment, however, there is only a single “term of office” so that re-election or re-appointment concerns cannot play a role.

Second, there is evidence that differences in behavior may reflect selection effects, that is, different characteristics of policy-makers due to the process by which they are chosen, rather than effects of the choice process *per se*. In the case of judges, Lim (2013) argues that appointed judges are of higher quality, as do Choi, Gulati, and Posner (2010) and Iaryczower, Lewis and Shum (2011). Besley and Payne (2013) find that when judges are appointed, there are significantly fewer anti-discrimination charges being filed, which they argue is due to elected judges being more likely to rule in favor of plaintiffs in such cases. This is because elected judges are more likely to have pro-employee preferences due to selection, as well as more likely to find in favor of employees due to re-election incentives. Lim also finds that different ways of choosing judges affects the homogeneity of their preferences as well as the apparent ability of judges. Besley and Coate (2003) find that decisions of elected regulators are more likely to reflect preferences of voters (as opposed to the regulated industry) than are decisions of appointed regulators. As in the case of judges, the selection and incentives of the former type of regulators are central to explaining different outcomes.<sup>1</sup> Burden, et al. (2010) find that election officials who are elected are more in favor of policies thought to promote voter turnout than those who are appointed, as the latter are more insulated from voter preferences, while “elected officials are more likely to express attitudes and generate outcomes that reflects their direct exposure to the policy preferences of voters”. Their study does not address the question of whether this reflects selection effects or attitudes generated by the method by which the officials came to their job.<sup>2</sup> To summarize, existing empirical literature, while documenting differences in outcomes under elected versus appointed policy-makers, gives little insight into the effect of the method of coming to office in itself on their behavior. By eliminating other influences, our

---

<sup>1</sup> They point out that electoral effects on appointed regulators are diffused in that while voters elect the politicians who appoint the regulators (so that there are disciplining and selection effects in theory), regulatory decisions are only one of many issues on which voters choose directly elected officials.

<sup>2</sup> Baldwin and Mvukiyehe (2011) and Martinez-Bravo (2014) find that when elections are introduced in previously non-democratic settings, elected leaders choose more community-oriented policies. Grossman (2014) ran a field experiment in Uganda with the leaders of farmer associations and residents of the counties they cover, and found that elected leaders of farmer associations act more pro-socially than the appointed leaders to the residents who are members of the association, but both elected and appointed leaders act equally selfishly against a non-member resident.

experimental framework allows us to address this question.

In so doing, our framework allows us to focus on another explanation for greater other-regarding behavior by elected than appointed leaders, namely *reciprocity* of an elected leader to the voter who elected her. Reciprocity is known to be an important motivator of individual behavior in general (see Rabin [1993], Dufwenberg and Kirchsteiger [2004], as well as Fehr and Gächter [2000] for a survey on the relevance of reciprocity in economics). Although some might argue that politicians are (by their nature?) purely self-interested, behavioral motives for leaders' actions are certainly reasonable, but largely unexplored in the political economy literature. The possibility of reciprocity by an elected leader to voters is certainly recognized in political discourse. For example, in the 2012 U.S. presidential election, politicians in Philadelphia felt that the large vote share for Obama might be rewarded.<sup>3</sup>

Reciprocity by leaders to the voters who elected them is absent in formal modeling in political economy. Consider the widely used "citizen-candidate" model (see Osborne and Slivinski [1996] and Besley and Coate [1997] as the seminal papers), which assumes that once elected, leaders make the same choices they would have made as private citizens – leaders choose (and are known to choose) the policies that maximize their own individual utility. It is simply assumed that elected leaders display no reciprocity towards the voters, nor, for that matter, any other regarding behavior per se.<sup>4</sup> (In contrast, reciprocity by voters has been well documented in the literature.<sup>5</sup>) Hence, the question of whether elected leaders reciprocate to the voters who elected them not only addresses the general issue of whether leaders should be modeled as having behavioral motivations rather than simply self-interested ones – both by

---

<sup>3</sup> "Will Philly reap rewards for big Obama turnout?", *Philadelphia Inquirer*, November 8, 2012

The city's support for Obama was again impressive - more than 557,000 votes were cast for the president, representing more than 85 percent of the city's total. "People in Washington will take note of that," said political consultant Larry Ceisler. At the traditional day-after luncheon at the Palm restaurant, labor leader John J. Dougherty - whose electricians union runs its own formidable get-out-the-vote operation - echoed that sentiment. "The numbers coming out of Philly were really significant," he said. "I don't know how much [federal] money is going to be available, but I would think that Mayor Nutter and the congressional delegation should be at the front of the list."

<sup>4</sup> Empirical evidence on elected candidates maintaining their positions is mixed. For example, Lee, Moretti, and Butler (2004) supports the basic citizen-candidate model's assumption, while other papers, for example, Bardhan and Mookherjee (2010) find evidence argued not to support the citizen-candidate model.

<sup>5</sup> Hahn (2009) theoretically investigates a two-period voting model where the voters have a reciprocity motive and shows that the past behavior of the chosen parties will affect voter behavior. Finan and Schechter (2012) find – based on survey information on vote buying in a municipal election combined with experiment-based measure of reciprocity – the individuals targeted for vote buying are those who have shown reciprocal behavior

virtue of having been chosen to lead in itself, and also depending on how they were chosen. It also induces us to rethink basic assumptions about existing political economy models of leader behavior.

To study these issues, we focus on a two-stage citizen-candidate model with two citizens who are candidates and one other “ordinary” citizen, who votes for one of the candidates in the case of elections. All the individuals have single-peaked preferences on a (Downsian) line around a most preferred point, the individual’s “type.” In the first stage the leader is determined by either election or appointment; in the second stage, the leader chooses a policy position on the line (which needn’t be her type) that yields a payoff to each of the three individuals negatively proportional to the distance between the policy and the person’s type. We hypothesize several possible sorts of leader behavior. A **self-interested** leader implements her type as the policy, consistent with the standard citizen-candidate model. According to simple **altruism**, a leader implements a policy different from her type, but with no difference across treatments. In contrast, **reciprocity** means that an elected leader would choose policy favoring the voter – who is known to be pivotal to the winning candidate’s election, whereas an appointed leader would not favor the ordinary citizen over the losing candidate.

Our main results are as follows. Consistent with other experimental results on the dictator game<sup>6</sup>, we find that leaders (i.e., proposers) do not always implement their own preferences once in office, as assumed by the standard citizen-candidate model. However, the extent of non-selfish behavior depends on how the leader was chosen. Elected leaders are less likely to choose policies to maximize their own material payoff than appointed leaders. The direction of non-selfish behavior also differs between elected and appointed leaders. Consistent with reciprocal behavior, elected leaders choose policies that favor the voter rather than the losing candidate, while when a leader is appointed there is no statistically significant tendency to favor the voter over the losing candidate. Hence, we can conclude that “being *elected* to lead” is in itself sufficient to induce pro-social behavior, but not because elected leaders differ in their underlying characteristics from appointed ones.

---

<sup>6</sup> In a dictator game a “proposer” is given a sum of money that he can keep or share with a passive “receiver”, after which the game ends (for a survey see Camerer [2003], and for giving under uncertainty see Brock et al. [2013]).

In addition to our main question, our experimental design allows us to address a further central issue in reciprocity, namely whether material sacrifice is required for an action to be considered kind, and thus generate reciprocity. This is the case in the experimental literature. For example, in a typical gift-exchange experiment, the employer's wage offer increases the payoff of the worker while it decreases her own payoff (see e.g. Fehr, Kirchsteiger and Riedl [1993]). In our experiment, since voting is costless, voters make no material sacrifice in voting for the leader (which increases the leader's utility by allowing her to decide the policy). Nonetheless, the elected leader reciprocates to the voter. It is also important to note that voting for the candidate whose views are closest may simply reflect the voter's self-interest, but a winning candidate gets a higher payoff nonetheless. Therefore, any reciprocity by that candidate – as is observed in our experiment – cannot be argued to be driven by the voter's good intentions (see e.g. Charness and Levine [2007], and Falk, Fehr and Fischbacher [2008]).

The rest of the paper is organized as follows. Section 2 reviews the related experimental literature. In Section 3, we present our experimental design. In Section 4, we present our results. In Section 5, we interpret our results, and Section 6 concludes. The instructions used in the experiments can be found in Appendix.

## **2. Related Experimental Literature**

The second stage of our experiment resembles the standard dictator game. Although the payoff of the dictator is maximized by acting selfishly in both the one-stage and in our two-stage game, the effects of selfish and non-selfish behavior on other people are different. First, in our set-up in which the leader chooses a point on the policy line rather than a transfer, even acting selfishly would yield a positive payoff to others, and this amount varies depending on the type of the others and the policy choice. When the type of one individual is the same as the leader's, it is even possible that person benefits more from the selfish behavior of the leader. Secondly, by acting non-selfishly in our set-up, the leader may hurt someone as compared to acting selfishly. For example, if the leader's type is in between the types of the citizen and the losing candidate, any policy toward one person's type is worse for the other person than the leader choosing her own type as the policy. Additionally, by acting non-selfishly, the leader may unavoidably increase the payoff of one individual while trying to increase the payoff another

one (this occurs when two individuals are on the same side). There are a number of experimental papers that use the dictator game to study the implications of delegating decisions by election versus appointment. These papers may be characterized along two dimensions: the delegation alternatives considered; and the mechanism through which an election is found to produce better outcomes.

On the first, the closest papers to ours in comparing elected to randomly appointed leaders are Brandts, Güth, and Stiehler (2006), Corazzini, *et al.* (2014), and Brandts, Cooper, and Weber (2015). The first paper, like ours, considers a one-shot 3-person game where one player chooses either of the other two to divide a pie, where the allocation is compared to the one chosen by a randomly selected leader. Corazzini, *et al.* (2014) also compares division of a pie by an elected versus a randomly selected leader, but where subjects are divided into groups of seven, two candidates and five voters. Each voter gets an equal share of any allocation made to voters as a group. Brandts, *et al.* (2015) are interested in “turnaround” of a firm due to workers increasing their effort levels in a common production task. They consider a group of five “employees” in a firm choosing effort levels in the first stages of a game, where subsequently a leader (who may try to motivate them) is chosen by them either by election or random appointment (or there is no leader chosen). There are also other papers that consider the effect of delegation, but in different games (such as a public goods game with contributions) and different set-ups (see e.g. Charness, *et al.* [2012]).

Perhaps more important than the form of the game *per se* is the difference between our paper and others in the mechanism behind the effect of elections on voter welfare. There are three general lines of argument on why elections produce better results: selection of leader types seen as “better” *ex ante* by voters; leader actions once elected not clearly tied to leader characteristics; and, voter behavior.

*Selection*, standard in analysis of elections, refers to the argument that elections lead to choice of better leaders relative to random appointment, for example, leaders who are more competent or who are more socially-minded. The latter possibility is important in Brandts, Güth, and Stiehler (2006) and in Hamman, Weber and Woon (2011). In the former paper, all three group members answer a personality questionnaire whose results are then distributed before election of the leader, so that potential candidates can signal (falsely or not) their

benevolence. They find (as we do) that elected leaders give more of the pie than randomly selected ones, with the selector (analogous to the voter in our model) being treated more generously than the third player. The latter paper considers a public goods game played for a number of periods with voluntary contributions. Participants were informed about the average individual public good contributions of each group member in these rounds before voting on a leader who then decides on the level of the public good.

In terms of *leader actions*, a key paper is Brandts, Cooper, and Weber (2015), where leaders (elected or randomly selected) can send messages to group members. They find that elected leaders are able to improve group member effort more than randomly selected ones because they put more effort into messaging, sending more messages relevant to “employee” effort than do randomly selected leaders.<sup>7</sup> Corazzini, *et al.* (2014) gives a different type of argument about the effect of messages and leader behavior. Candidates make non-binding “campaign promises” on the amount they would distribute if elected. The paper finds that such promises affect voting and that promises, though non-binding, are partially fulfilled. Hence, the ability to send messages before elections improves voter welfare relative to random selection and to elections where no messages can be sent. It is argued that promises lead to higher payoffs to voters because leaders have a cost of lying.

The argument that elections lead to better outcomes because of *voter behavior* concerns the greater legitimacy conferred on leaders who are elected. This argument is explored by Dal Bó, Foster and Putterman (2010) (and by Olken [2010] in a field experiment). Dal Bó, *et al.* consider a game where participants vote whether to modify the payoffs of a Prisoners' Dilemma game, after which a computer decides whether to consider the vote or not. (If the computer decides not to consider, then Prisoner's Dilemma game or modified game are determined randomly). Then, the subjects play the chosen game, where cooperative behavior is higher when the payoff structure is decided by election. On the other hand, while Brandts, *et al.* (2015) discuss legitimacy in motivating greater effort put into messaging by elected leaders, they reject the hypothesis that such messages are more effective because receivers of messages respond differently to elected versus appointed leaders.

---

<sup>7</sup> “Leaders who see themselves as legitimately selected to improve their group’s outcome exert themselves more to exercise effective leadership (in the context of our experiment, working “harder” by sending more relevant messages).”



In our paper the voter has no information about the candidates other than their most preferred positions, allowing us to rule out a selection effect reflecting intentions of leaders. (As far as any selection in terms of choosing the closer candidate, we show that distance between the chosen candidate and the voter has no significant effect on the leader’s behavior once one controls for whether the leader was chosen by election or random appointment.) There is also no response of voters to an elected leader’s actions. Hence, it is the second channel – leader behavior – that would account for the election of leaders resulting in better outcomes for followers than random selection. However, in our set-up leaders do not send messages (as in Brandts, *et al.* [2015]) or feel the need to fulfill campaign promises (as in Corazzini, *et al.* [2014]); instead they only make policy choices that uniquely determine the payoff of all the players. We argue that it matters how the leader came to office because of *reciprocity* by an elected leader to the voter who put her in office, an effect not present when the leader is randomly appointed.

### 3. Experimental Design

The aim of our experiment is to investigate whether policy concerns change when one is chosen to be leader. We implemented two treatments differing in the procedure for the determination of the leader. In one, the leader was appointed [Appointment Treatment]; in the other, the leader was elected [Election Treatment]. Instructions for each treatment are in the appendix.

The experiment was run at the Experimental Economics Lab at the University of Maryland. There were 120 participants, all undergraduate students at the University of Maryland. We conducted four sessions for each treatment (15 participants per session, i.e. 60 participants per treatment). No subject participated in more than one session. Participants were seated in isolated booths. The experiment was programmed in z-Tree (Fischbacher [2007]).

At the beginning of each session, each subject was randomly assigned one of two roles: “candidate” or “citizen.” There were twice as many candidates as citizens. The assigned roles stayed fixed for all 20 rounds (until the end of the experiment). At the beginning of each of the 20 rounds in a session, all participants were randomly put into groups of 3 people. Hence, there could be no “reputation” effects as the session proceeded. Each group consisted of two candidates and one citizen. Independent from the assigned role (candidate and citizen), every

participant was randomly assigned a *type* in each round. A type was any integer number from 0 to 100 drawn from a uniform distribution, which is essentially the participant's most preferred policy. Unlike the fixed roles, assigned types changed from one round to the next. We balanced the random draws by using the same sequence of random numbers for each treatment, so the random value draws for each session in Election Treatment are matched with the random draws for the corresponding session of the Appointment Treatment.

After informed about the type of each candidate, in the Election Treatment, the citizen chose one of the candidates. In the Appointment treatment, one of the candidates was randomly appointed. The elected candidate in the Election Treatment, or the appointed candidate in the Appointment Treatment was informed about the types of both the opponent candidate and the citizen and was then given the authority to decide which policy would be implemented. A policy was required to be an integer number from 0 and 100, where individuals learned the outcome of each round before the next took place.

Earnings in each round depended on the distance between type and policy. Formally, the earnings in a round were  $100 - |\text{TYPE} - \text{POLICY}|$  Experimental Currency Units (ECU) where  $1 \text{ USD} = 5 \text{ ECU}$ . It is important to note that all participants, both citizens and candidates, have their earnings computed in this fashion, and the policy choice of the winning candidate affected the earnings of both opponent candidate and the citizen. Once all 20 rounds were finished, one round out of the 20 was randomly picked, and the earnings in that round were the final earnings of the experiment in addition to a \$5 participation fee.

## 4. Experimental Results

### 4.1 Do leaders behave non-selfishly?

Our first question is: Do leaders act selfishly and pick their own type as policy? In Table 1, we present the fraction of policies different from the leader's type. In the appointment treatment, 26.25% of policies are different from the leader's type (105 out of 400 cases). In the election treatment, this percentage is 40% (160 out of 400 cases). The Mann-Whitney test indicates that the difference in behavior between elected and appointed leaders is statistically significant. Hence, as in earlier studies of the dictator game, we reject universal selfish behavior, but note that non-selfish behavior is significantly greater for elected than appointed leaders.

**Table 1: Do Leaders Behave Non-Selfishly?**  
(Fraction of Observations where Policy is not Leader's Type)

	Election	Appointment	Difference	Mann-Whitney test
<b>Policy is not Leader's Type</b>	0.4 (0.025)	0.2625 (0.022)	0.1375 (0.033)	$z=4.13$ $p=0.00$
Number of observations	400	400		

Standard errors in parentheses.

Additionally, as shown in Table 2, individual level random effect regressions confirm that being in the election treatment is the sole significant variable on choosing a non-selfish policy. Neither the type (position on Downsian line) of the player nor the voter being closer to the elected than the losing candidate are significant.

**Table 2: Random Effect Regressions**

Dependent variable: Choosing non-selfish policy (i.e. a policy different than leader's own type)

	(1)	(2)	(3)	(4)
Election	0.160** (0.0753)	0.159** (0.0754)	0.160** (0.0760)	0.169** (0.0771)
Leader's type		-0.000 (0.0004)	-0.000 (0.0005)	-0.000 (0.0005)
Losing candidate's type			-0.000 (0.0004)	-0.001 (0.0004)
Ordinary citizen's type			-0.000 (0.0005)	-0.000 (0.0005)
Leader being the closest				-0.024 (0.0293)
Constant	0.077 (0.1189)	0.088 (0.1214)	0.112 (0.1256)	0.117 (0.1263)
Observations	800	800	800	800

Standard errors (clustered at the individual level) in parentheses. Leader being the closest is the dummy variable that indicates that the absolute difference between the leader's type and the ordinary citizen's type is smaller than the absolute difference between losing candidate's type and the citizen's type. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

A question that may arise is whether the difference in outcomes across treatments may reflect "selection" in the election treatment. Though voters have no information on candidates

other than their most preferred position, in the election treatment chosen leaders are on average closer to the citizen. Interpreting candidate position as “type” in terms of behavior, a selection effect would be present only to the extent that leader behavior towards the voter depended on the distance from leader to voter. First, as a robustness check, we also looked at the set of observations restricted to chosen leaders who are closer to the citizen in both treatments. The result in the Table 1 is robust: the fraction of leaders choosing a policy different than her own type is .3919 in the election treatment and .2398 in the appointment treatment ( $z=3.6$ ,  $p=0.00$ ). Second, as can be seen in Table 2, neither the types of the candidates and the citizen, nor the voter being closer to the winning than the losing candidate are significant on choosing non-selfish policies.

**Table 3: Random Effect Regressions**

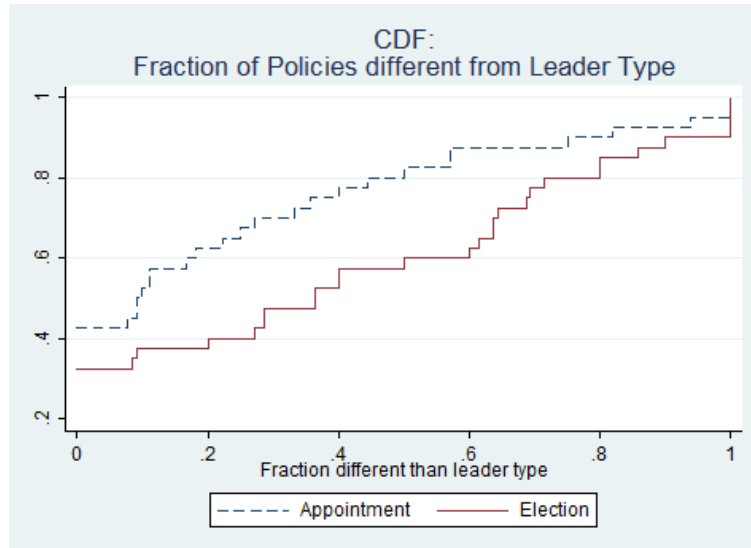
Dependent variable: Choosing non-selfish policy (i.e. a policy different than leader’s own type)

	(1)	(2)
Distance	0.000 (0.0006)	0.000 (0.0006)
Election		0.163** (0.0755)
Constant	0.308*** (0.0419)	0.062 (0.1214)
Observations	800	800

Standard errors (clustered at the individual level) in parentheses. Distance is the absolute difference between leader’s type and citizens type. \*  $p<0.1$ , \*\*  $p<0.05$ , \*\*\*  $p<0.01$

To further consider this question, in Table 3 above we show the results of a regression of distance between the citizen and the leader on the likelihood of reciprocity. The results indicate that once we control for the treatment, this distance has no statistically significant effect on the likelihood of reciprocity. In terms of magnitude of reciprocity, the correlation between the distance of the citizen to the winning candidate and the amount the winning candidate moves away from her own position (when she does move) is not significantly different across treatments: 0.261 in the election treatment and 0.206 in the appointment treatment (using a Fisher transformation,  $z=0.46$ ,  $p=0.646$ ). Moreover, in contrast to the implication of a selection

bias argument, note that this correlation is *positive* – the closer is the winning candidate to the voter, the *less* by which she reciprocates. Hence, there is no evidence of any “selection” effect in elections.



**Figure 1.** For each treatment-leader, cumulative distribution functions of the fraction of observations in which policy is different from the leader’s type.

In order to investigate heterogeneity in individual leaders’ behavior, we classify each subject into one of three categories based on their choice of a policy: (i) always choosing her own type, (ii) sometimes choosing her own type, sometimes not, and (iii) never choosing her own type. Clearly, the ones in first category are selfish and the ones in the third category are fully non-selfish individuals. The ones in the second category exhibit some level of non-selfish behavior. In the appointment treatment, 42.5% of the subjects are identified to be selfish, and 5% were identified to be fully non-selfish. In the election treatment, 32.5% of the subjects are identified to be selfish, and 10% were identified to be fully non-selfish. Also, for each leader, we calculated the fraction of cases in which the leader chooses a policy different than the leader’s own type (e.g. 0 corresponds to always selfish behavior and 1 corresponds to always non-selfish behavior); each fraction can be thought of as a measure of how non-selfish the leader is. Figure 1 provides the cumulative distribution functions of the non-selfishness. As it can be seen in Figure 1, there is a first-order stochastic dominance, and Kolmogorov-Smirnov test yields a

significant difference between the distributions ( $p < 0.001$ ). Hence, more non-selfish behavior is observed in the election treatment.

#### 4.2 To whom do leaders respond?

We next ask to whom leaders respond. Does the leader respond to the losing candidate in addition to the voter? Does the response depend on where the voter and other candidate are located relative to the leader? And, by how much does the leader respond?

We begin by asking: when leaders choose a policy other than their own type, do they respond only to voters or to all citizens, that is, including the losing candidate? To investigate this question, we generated two dummy variables. The first equals 1 if the absolute difference between the losing candidate's type and the policy is less than the absolute difference between the losing candidate's type and the leader's type (i.e. when the leader picks a policy to favor the losing candidate). The second equals 1 if the absolute difference between the citizen's type and the policy is less than the absolute difference between the citizen's type and the leader's type (i.e. when the leader picks a policy to favor the citizen's type).

**Table 4: Toward Whom Do Leaders Move When They Move?**

	Voter	Losing Candidate
<b>Election</b> (N=160)	.763 (.034)	.563 (.039)
<b>Appointment</b> (N=105)	.8 (.039)	.705 (.045)
<b>Election</b> Leader is in between (N=70)	.771 (.050)	.229 (.050)
<b>Appointment</b> Leader is in between (N=30)	.6 (.089)	.4 (.089)

Standard errors clustered at subject level are in parentheses. Since we allow for integer amounts, Leader is in between is defined as: *Citizen's type - 1 > Leader's type > Loser's type + 1 or Citizen's type + 1 < Leader's type < Loser's type - 1 so that there is always room for the leader to compromise if she wants.*

The results are shown in the first two rows of Table 4. When the leader picks a policy other than her own type, in the appointment treatment, 80% of policies favor the citizen and 70.5% favor the losing candidate ( $p = 0.15$ ). When the leader picks a policy other than her own

type in the election treatment, 76.25% of policies favor the citizen and 56.25% favor the losing candidate ( $p=0.00$ ).<sup>8</sup> In other words, in the appointment treatment the policy favors losing candidate and the citizen equally, while in the election treatment the chosen policy favors the voter. The difference in behavior looks especially clear when we restrict attention to cases where the leader chooses a policy other than her type, and her type is *between* the losing candidate and the ordinary citizen (voter). If the policy she chooses is closer to the losing candidate's type, then we can say that she favors the losing candidate, while if it is closer to the voter's type we can say that she favors the ordinary citizen. The appointed leader favors the citizen 60% of the time and the losing candidate 40% of the time ( $z=1.095$ ,  $p=0.27$ ,  $N=30$ ). In contrast, the elected leader favors the citizen 77.1% of the time and the losing candidate 22.9% of the time ( $z=4.535$ ,  $p=0.00$ ,  $N=70$ ).<sup>9</sup> These results are summarized in the last two rows of Table 4.

It is also illuminating to consider how the likelihood that the leader moves towards the ordinary citizen (i.e., the voter) depends on the position of the voter relative to the leader. (Remember that in the appointment treatment, the leader is chosen at random from the two candidates.) We know from Table 1 that taken over all cases, a policy other than the leader's type is chosen 40% of the time if the leader was elected and 26.25% of the time in the leader was appointed. When the voter is between the two candidates, he usually votes for the closer candidate – the closer candidate is elected in 111 cases but the further candidate is chosen in 19

<sup>8</sup> The  $p$ -values are calculated with McNemar's tests for each treatment based on the following table:

<b>Election Treatment</b>	<b>Voter</b>		
<b>Losing Candidate</b>	<b>Away</b>	<b>Toward</b>	<b>TOTAL</b>
<b>Away</b>	14	56	70
<b>Toward</b>	24	66	90
<b>TOTAL</b>	38	122	160

<b>Appointment Treatment</b>	<b>Voter</b>		
<b>Losing Candidate</b>	<b>Away</b>	<b>Toward</b>	<b>TOTAL</b>
<b>Away</b>	6	25	31
<b>Toward</b>	15	59	74
<b>TOTAL</b>	21	84	105

<sup>9</sup> It is also worth mentioning that when the leader's type is in between the losing candidate's type and the citizen's type, in the appointment treatment, 25.86% of the leaders pick a policy other than their own type; and in the election treatment, this percentage is 35.71%. These percentages are in line with the percentages in Table 1.

cases (representing 14 subjects). In the latter scenario when the voter chooses the further candidate, we see in Table 5 that a much larger proportion of elected leaders move towards the voter (as compared to in the appointment treatment). It is important to note that the small number of cases in which this occurs makes it difficult to place too much weight on this result.

**Table 5: Reciprocity to Citizen**

Percentages Choosing Policies toward Citizen who is Between the Two Candidates

	Election	Appointment	Mann-Whitney test
<b>Leader is the <i>further</i> candidate</b>	.579 (.113) N=19	.228 (.047) N=79	z= 3.00 p= 0.03
<b>Leader is the <i>closer</i> candidate</b>	.345 (.045) N=111	.176 (.053) N=51	z= 2.19 p= 0.03
<b>Mann-Whitney test</b>	z= 1.93 p=0.05	z= 0.70 p= 0.48	

Standard errors clustered at subject level are in parentheses. Since we allow for integer amounts, Citizen being in between two candidates is defined as:  $Leader's\ type-1 > Citizen's\ type > Loser's\ type+1$  or  $Leader's\ type+1 < Citizen's\ type < Loser's\ type-1$  so that there is always room for the leader to compromise if he wants. Also,  $Leader's\ type=0$  and  $Leader's\ type=100$  are excluded to avoid any movement to favor moving toward the Citizen.

We note that with only one voter, the elected leader knows who is responsible for her victory – and hence to whom to respond -- whereas with many voters, she is unable to attribute victory to a single person. We cannot address this in our single voter set-up though our framework does allow us to distinguish a non-voting citizen (that is, the losing candidate) from the voting citizen responsible for the leader's election, and find the response is more towards the latter. (In a separate paper, we are experimentally investigating these issues by allowing more than one citizen.) Nevertheless, it is important to note that limiting the number of citizens to one allowed us to directly test the effect of reciprocal preferences in a voting environment.

### 4.3 How much do non-selfish leaders respond?

Finally, we ask not simply whether the leader chooses a policy other than her type, but by how much she moves. As we have seen, elected leaders are more likely to move toward the voter than the losing candidate, while appointed leaders who move do not distinguish between the two types of citizens. Hence, the question of how much the leader moves is most interesting



when we consider not any movement but movement in the direction of the voter, which accounts for 71.3% of the movements in the election treatment.<sup>10</sup> In considering the amount by which a leader moves, the absolute amount of movement is not really a good indicator of whether the leader moves “a little or a lot” when comparing the appointment and election treatments. To take an example, suppose the ordinary citizen’s type is 18, and the elected leader with a type of 20 picks 18 but the appointed leader with type of 60 implements 57. We would not then conclude based on the size of the movement that the appointed leader favors the ordinary citizen more than the elected leader.

This issue, without excluding any data, can be handled by defining the measure of relative movement:

$$\mu = \frac{\text{policy} - \text{leader type}}{\text{voter type} - \text{leader type}}$$

The ratio  $\mu$  must be between 0 and 1 if the leader picks a policy toward (but not on the other side of) the voter. It is greater than 0 (if the leader chooses her own type as the policy), but no greater than 1 (if the leader chooses voter’s type as the policy), monotonically rising the more the leader moves toward the voter relative to the difference in types.

**Table 6a: How Much Do Leaders Move towards Voters?**

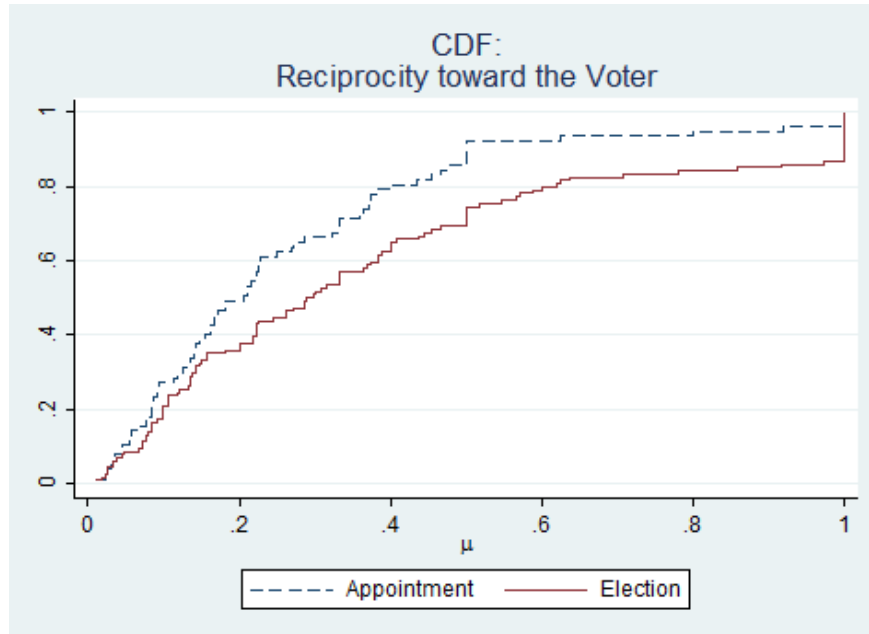
	Average Movement Relative to Initial Distance ( $\mu$ )		
	<b>Election</b> (N=114)	<b>Appointment</b> (N=77)	<b>Mann-Whitney</b> <b>test</b>
<b><math>\mu</math></b>	.381 (.034)	.266 (.030)	$z=2.315$ $p=.021$

*Standard errors clustered at subject level are in parentheses. These values are conditional on moving toward the citizen ( $0 < \mu \leq 1$ ).*

When a leader moves toward the citizen, i.e.  $0 < \mu \leq 1$ , the size of the movement relative to the difference between the leader’s and the citizen’s type is significantly larger in the election than in the appointment treatment (see Table 6a and Figure 2). Hence, not only are leaders

<sup>10</sup> This is a conservative way of counting movement towards the voter. If policy becomes closer to the voter but is on the other side of the voter (for example, if the leader’s type is 10, the voter’s type is 20, and the policy is 21), we did not count it as a movement toward the voter. If we included such cases as movements toward the voter, then the percentage would become 76.3%.

chosen by election much more likely to move policy toward the voter than leaders chosen by appointment, but also the amount by which they move policy towards the voter is considerably larger as predicted by the reciprocity model.



**Figure 2.** Cumulative distribution functions of average movement relative to initial distance toward the voter ( $\mu$ ) for each treatment conditional on moving toward the citizen.

Another prediction of the reciprocity model is that how much the leaders move toward the losing candidate could not be a result of reciprocal motive and hence should not show any difference across treatments. To test this prediction, analogous to  $\mu$ , we could look at how much a leader moves toward the losing candidate:

$$\mu' = \frac{\text{policy} - \text{leader type}}{\text{loser type} - \text{leader type}}$$

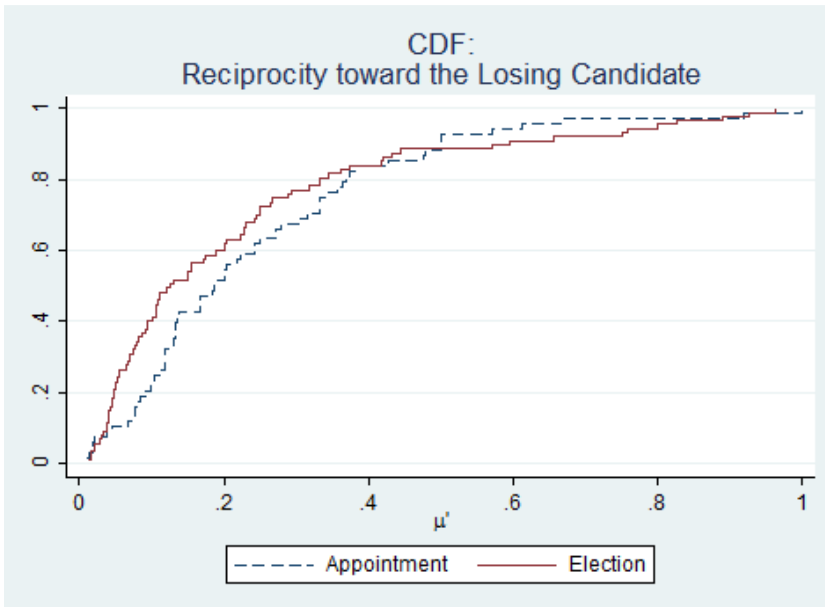
Indeed, when a leader moves toward the voter, i.e.  $0 < \mu' \leq 1$ , there is no statistically significant differences in the relative movement across treatments (see Table 6b and Figure 3).

**Table 6b: How Much Do Leaders Move towards Losing Candidate?**

Average Movement Relative to Initial Distance ( $\mu'$ )

	Election (N=87)	Appointment (N=68)	Mann-Whitney test
$\mu'$	.221 (.025)	.245 (.024)	$z=1.783$ $p=0.07$

Standard errors clustered at subject level are in parentheses. These values are conditional on moving toward the losing candidate ( $0 < \mu' \leq 1$ ).



**Figure 3.** Cumulative distribution functions of average movement relative to initial distance toward the losing candidate ( $\mu'$ ) for each treatment.

## 5. Interpreting the Results

We believe that our results shed light not only on the general question of the behavior of individuals who are chosen to make decisions for others, but also on the citizen-candidate approach itself. Two (related) results stand out on the general question. First, the procedure by which a decision-maker is chosen has a significant effect on her behavior as leader, with elected leaders being significantly more likely than appointed leaders to act non-selfishly. Second, that elected leaders, in their non-selfish behavior, favor the voter (that is, the one who determined they would be leader) over non-voting losing candidates. In contrast, non-

selfish appointed leaders show no statistically significant difference in favoring voters versus non-voters.

Neither result should be surprising, though they should be distinguished. Let's begin with the second result. When a leader is chosen by random appointment, there should be no difference for her between the ordinary citizen and the "losing" candidate. It should therefore not be surprising that the leader treats them symmetrically. In contrast, when the leader is elected, the role of the other two players is crucially different in the leader's eyes. The winning candidate is leader because the voter chose her.

If leaders who did not implement their type as policy were simply acting altruistically or in a fiduciary manner, neither result should hold: there should be no difference between leaders who owe their position to election versus appointment, nor any difference in whom they favor. The fact that more leaders act non-selfishly in the election treatment – where the experiment was designed to try to control for other explanations -- suggests that reciprocity is likely driving non-selfish behavior. Elected leaders owe their position to the voter. They direct their non-selfish behavior much more towards voters than the other citizen; and, they respond much more to voters than appointed leaders do. This suggests that an elected leader should be especially likely to move towards the voter who elected her if she was the candidate farther from the voter. While such an observation would strengthen the conclusion of reciprocity when leaders are elected, it arises in too small a number of cases to be statistically significant.

Additionally, our results indicate that material sacrifice is not necessary to be considered kind; if one's action is improving the well-being of the other he may be still considered kind. Particularly, in the election treatment, although the elected leader does not observe a material sacrifice by the voters, she acts non-selfishly.

The first result – that elected leaders are more likely to be non-selfish than appointed ones – may then be better interpreted in light of the above discussion. As already indicated, simple altruism does not in itself explain why elected leaders display more other-regarding behavior. In contrast, reciprocity can explain not only the direction of kind behavior, but also the difference across treatments. The fact that both appointed and elected leaders display

other-regarding behavior, but the latter do so more, suggests a mixture of altruism and reciprocity.

We believe that our results may be especially relevant to the citizen-candidate model in which elected candidates have the same preferences in office that they had as private citizens, these preferences determining policy choices. What our results indicate is that once chosen to be leaders, citizens do *not* always simply carry over the preferences held as citizens in making policy. The policy carried out is no longer their selfish optimum for a significant number of chosen leaders. This behavior of a leader – both elected and appointed -- is consistent with the “fiduciary” model discussed above, where the *fact* of holding office may affect a leader’s behavior. While this is true of leaders in general in our results, it is even truer of elected leaders. Election having an even greater effect on leaders not choosing their selfish optimum casts further doubt on the underlying premise of the citizen-candidate model as a general description of the behavior of elected candidates.

The fact that elected leaders do not automatically carry over their preferences as citizens to their choices as leaders does not mean however that these preferences are irrelevant for predicting what a candidate will do once in office. Leaders do not pick policies very different than their type. But, it is clear they often do not simply play their candidate type. They consider citizen preferences in making their choices, even when there is no re-election motive. Hence, voters face the task of predicting what a candidate will do once in office, where her known preferences before being elected are not a perfect indicator. In short, our results suggest modifying the citizen-candidate approach to include the possibility that behavior once in office is a mix of ex ante individual preferences and effects of having been chosen to lead, where the latter effect includes the response of successful candidates to citizens who elected them.

## **6. Conclusions**

In this paper we have considered a simple model in which a leader makes choices for citizens, and the effect on those choices of leaders being elected by voters versus appointed randomly. We found that elected leaders display greater other-regarding behavior than appointed leaders, and, by designing an experiment to eliminate some common explanations

for the behavior of elected leaders, we aimed to isolate the effect of the method of coming to office. By so doing, we argued that the observed difference in behavior of elected and appointed leaders likely reflects reciprocity by the former to the voters who elected them.

Focusing on the importance of the procedure by which a policymaker is chosen sheds light on a number of other issues as well. First, of course, is that the procedure by which one has been chosen for office affects behavior once in office. Perhaps this is unsurprising, but we are unaware of other experimental work that addresses this point and that comes to such a clear conclusion. As discussed in the previous section, our results suggest that the simple model of citizen-candidates is incomplete. Models of the behavior of elected leaders should take into account that being a leader in itself may affect behavior. In models of political economy, leaders are not just social-welfare-maximizers, but are political agents with preferences. But what these preferences are and how leaders behave appears more complicated than simply self-interest which is easy to predict. Models of leaders need to be more developed.

We view this study as only the first step in investigating the question of how leaders act, especially elected leaders. One potential direction for future research is further experimental work, distinguishing perhaps voting and non-voting citizens, or leaders who can and cannot be re-elected. This should be complemented by looking at data on the policies chosen by leaders and whether they favor the voters who voted for them, even when they are term-limited. Our results suggest that further experimental and empirical study of leader responsiveness to citizens and how this is affected by the procedure through which they came to office should yield rich insights.

## REFERENCES

- Baldwin, K. and E. Mvukiyehe (2011), "The Effects of Participatory Processes for Selecting Leaders: Evidence from Changes to Traditional Institutions in Liberia," working paper.
- Bardhan, P. and D. Mookherjee (2010), "Determinants of Redistributive Politics: An Empirical Analysis of Land Reforms in West Bengal, India," *American Economic Review* 100, 1572-60.
- Besley, T. and S. Coate (1997), "An Economic Model of Representative Democracy," *Quarterly Journal of Economics* 112, 85-114.
- Besley, T. and S. Coate (2003), "Elected Versus Appointed Regulators: Theory and Evidence," *Journal of the European Economic Association*, 1, 1176–1206.
- Besley, T. and A. Payne (2013), "Implementation of Anti-Discrimination Policy: Does Judicial Selection Matter?," *American Law and Economics Review* 15 (1), 212-251.
- Brandts, J., D. J. Cooper, and R. A. Weber (2015), "Legitimacy, Communication, and Leadership in the Turnaround Game," *Management Science* 61(11), 2627-2645.
- Brandts, J., W. Güth, and A. Steihler (2006), "I want YOU!: An experiment studying the selection effect when assigning distributive power," *Labor Economics*, 13, 1-17.
- Brock, J. M., A. Lange and E. Y. Ozbay (2013), "Dictating Risks - Experimental Evidence on Giving in Risky Environments," *American Economic Review*, 103(1), 415-437.
- Burden, B., D. Canon, S. Lavertu, K. Mayer, and D. Moynihan (2010), "Comparing Elected and Appointed Election Officials: The Impact of Selection Method on Policy Preferences and Administrative Outcomes," working paper, Department of Political Science, University of Wisconsin-Madison.
- Camerer, C. (2003), *Behavioral Game Theory: Experiments on Strategic Interaction*. Princeton, NJ: Princeton University Press.
- Charness, G. and D. I. Levine (2007), "Intention and Stochastic Outcomes: An Experimental Study," *Economic Journal*, 117(522), 1051-1072.
- Charness, G., R. Cobo-Reyes, N. Jimenez, J. A. Lacomba, and F. Lagos (2012), "The Hidden Advantage of Delegation: Pareto Improvements in a Gift Exchange Game," *American Economic Review*, 102(5), 2358-2379.
- Choi, S. J., G. M. Gulati, and E. A. Posner (2010), "Professionals or Politicians: The Uncertain Empirical Case for an Elected Rather than Appointed Judiciary," *Journal of Law, Economics, and Organization*, 26(2), 290-336.
- Corazzini, L., S. Kube, M. A. Maréchal, and A. Nicolò (2014), "Elections and Deceptions: An Experimental Study on the Behavioral Effects of Democracy," *American Journal of Political Science* 58(3), 579–592.
- Dal Bó, P., A. Foster and L. Putterman (2010), "Institutions and Behavior: Experimental Evidence on the Effects of Democracy," *American Economic Review* 100, 2205–2229.
- Dufwenberg, M. and G. Kirchsteiger (2004), "A Theory of Sequential Reciprocity," *Games and Economic Behavior* 47, 268–298.
- Falk, A., E. Fehr and U. Fischbacher (2008), "Testing Theories of Fairness – Intentions Matter," *Games and Economic Behavior*, 62(1), 287–303.
- Fehr, E. and Gächter, S. (2000), "Fairness and Retaliation: The Economics of Reciprocity," *Journal of Economic Perspectives*, 14(3), 159-81.

- Fehr, E., G. Kirchsteiger and A. Riedl (1993), "Does Fairness Prevent Market Clearing? An Experimental Investigation," *Quarterly Journal of Economics*, 108, 437-459.
- Finan, F. and L. A. Schechter (2012), "Vote-Buying and Reciprocity," *Econometrica*, 80(2), 863-881.
- Fischbacher, U. (2007), "z-Tree: Zurich Toolbox for Ready-made Economic Experiments," *Experimental Economics*, 10(2), 171-178.
- Gordon, S., and G. Huber (2007), "The Effect of Electoral Competitiveness on Incumbent Behavior," *Quarterly Journal of Political Science* 2, 107-138.
- Grossman, G. (2014), "Do Selection Rules Affect Leader Responsiveness? Evidence from Rural Uganda," *Quarterly Journal of Political Science*, 9(1), 1-44.
- Hahn, V. (2009). "Reciprocity and Voting," *Games and Economic Behavior*, 67(2), 467-480.
- Hamman, J. R., R. Weber and J. Woon (2011), "An Experimental Investigation of Electoral Delegation and the Provision of Public Goods," *American Journal of Political Science* 55(4):738-752.
- Iaryczower, M., G. Lewis, and M. Shum (2011), "To Elect or to Appoint? Bias, Information, and Responsiveness of Bureaucrats and Politicians," working paper.
- Lee, D.S., E. Moretti, and M.J. Butler (2004), "Do Voters Affect Or Elect Policies? Evidence From the U. S. House," *Quarterly Journal of Economics* 119, 807-59.
- Lim, C. S H. (2013), "Preferences and Incentives of Appointed and Elected Public Officials: Evidence from State Trial Court Judges," *American Economic Review* 103(4), 1360-97.
- Martinez-Bravo, M. (2014), "The Role of Local Officials in New Democracies: Evidence from Indonesia." *American Economic Review* 104 (4): 1244-1287.
- Osborne, M.J. and A. Slivinski (1996), "A Model of Political Competition with Citizen-Candidates," *Quarterly Journal of Economics*, 111, 65-96.
- Olken, B.A. (2010), "Direct Democracy and Local Public Goods: Evidence from a Field Experiment in Indonesia." *American Political Science Review* 104(2):243-267.
- Philadelphia Inquirer*, November 8, 2012, ("Will Philly reap rewards for big Obama turnout?," [http://articles.philly.com/2012-11-08/news/34995270\\_1\\_president-obama-obama-administration-mayor-nutter](http://articles.philly.com/2012-11-08/news/34995270_1_president-obama-obama-administration-mayor-nutter)).
- Rabin, M. (1993), "Incorporating Fairness into Game Theory and Economics," *American Economic Review* 83, 1281-1302.



## Appendix A

### Instructions:

#### [Election Treatment]

#### General

This is an experiment in decision-making. If you follow the instructions and make good decisions, you can earn a significant amount of money, which will be paid to you at the end of the session. The currency in this experiment is called tokens (5 tokens = 1USD). The experiment consists of 20 identical decision rounds. During the experiment it is important not to talk to any other subjects. Please turn your cell phones off and remember that if you have any questions, just raise your hand.

#### Roles

Before the beginning of the experiment you will be randomly assigned a role. The two possible roles you can be assigned are 'Citizen' and 'Candidate'. There will be twice as many candidates as citizens. Your assigned roles will stay fixed for all 20 rounds until the end of the experiment. That is, if at the beginning of the experiment you were assigned the role of a candidate (citizen) you will keep this role for the entire experiment.

In the beginning of each round, all participants will be randomly grouped into groups of 3 people each. Each group will consist of two candidates and one citizen. Since you are most likely to be matched with different participants for each round, it will be impossible to track candidates and citizens between rounds. However, there will always be two candidates and one citizen in every group.

#### Candidate Names

Those who get the role of candidates will also be assigned a name in each round. In each group, names are assigned randomly with each candidate having the same chance to be named 'A' or 'B'. Notice that if you are a candidate, your name could potentially change from one round to another.

#### Types

Independently from the role and name that he/she is assigned, in each round every participant (candidates and citizens) will be assigned a Type randomly. Types can be any integer number from 0 to 100 and will be drawn from a uniform distribution. That means that each participant's type can take any of those integer values with equal probability. Unlike the fixed roles, types assigned will change from one round to another.

#### Policies

A policy is what the winning candidate gets to decide once elected. An admissible policy is any integer number from 0 to 100. The interplay between the value of your type and the policy actually implemented is what determines your earnings.

#### Development of each round

For each group, each of the 20 rounds consists of an independent election process with the following sequence of events:

1. Candidates are informed about their names and types for the current round. Citizens are informed about their types as well.
2. In each group, the citizen is informed about both candidates' types and must decide his/her vote.
3. Once citizen submits his/her vote, a winner is proclaimed and everyone is informed about who is elected candidate.
4. The elected candidate is informed about the types of both the opponent candidate and the citizen and is then given the authority to decide which policy will be implemented.
5. Everybody learns the policy implemented and his/her own earnings for the round. Earnings are computed by the following rule:
  - a. Everybody starts each round with 100 tokens.
  - b. Discount ( $D$ ) for each participant is computed as, the absolute value of the difference between type and policy, i.e.  $D = |\text{TYPE} - \text{POLICY}|$ .
  - c. Final earnings of the round are computed as 100 initial tokens minus the corresponding discount, that is,  $100 - D$  tokens. Notice that all participants, either citizens or candidates get their earnings computed in this fashion.

### Final earnings

Once all 20 rounds are finished, the computer will pick one round out of the 20 randomly. The earnings you made on that round will be your final earnings of the experiment. We will convert tokens you earned in this round into US dollars by dividing them by 5. In addition, you will receive a participation fee of \$5.

Are there any questions?

## [Appointment Treatment]

### General

This is an experiment in decision-making. If you follow the instructions and make good decisions, you can earn a significant amount of money, which will be paid to you at the end of the session. The currency in this experiment is called tokens (5 tokens = 1USD). The experiment consists of 20 identical decision rounds. During the experiment it is important not to talk to any other subjects. Please turn your cell phones off and remember that if you have any questions, just raise your hand.

### Roles

Before the beginning of the experiment you will be randomly assigned a role. The two possible roles you can be assigned are 'Citizen' and 'Candidate'. There will be twice as many candidates as citizens. Your assigned roles will stay fixed for all 20 rounds until the end of the experiment. That is, if at the beginning of the experiment you were assigned the role of a candidate (citizen) you will keep this role for the entire experiment.

In the beginning of each round, all participants will be randomly divided into groups of 3 people each. Each group will consist of two candidates and one citizen. Since you are most likely to be matched with different participants for each round, it will be impossible to track candidates and citizens between rounds. However, there will always be two candidates and one citizen in every group.

### Candidate Names

Those who get the role of candidates will also be assigned a name in each round. In each group names are assigned randomly with each candidate having the same chance to be named 'A' or 'B'. Notice that if you are a candidate, your name could potentially change from one round to another.

### Types

Independently from the role and name that he/she is assigned, in each round every participant (candidates and citizens) will be assigned a Type randomly. Types can be any integer number from 0 to 100 and will be drawn from a uniform distribution. That means that each participant's type can take any of those integer values with equal probability. Unlike the fixed roles, types assigned will change from one round to another.

### Policies

A policy is what the leader gets to decide once appointed. An admissible policy is any integer number from 0 to 100. The interplay between the value of your type and the policy actually implemented is what determines your earnings.

### Development of each round

For each group, each of the 20 rounds consists of an independent appointment process with the following sequence of events:

1. Candidates are informed about their names and types for the current round.
2. Each citizen is informed about his/her type.
3. A citizen has no say in leader appointment. Whether candidate A or B is appointed is determined randomly by the computer with both candidates having the same chance to be appointed. That is, each candidate of a group has 50% percent of probability to win the office.
4. The appointed candidate is informed about the types of both the opponent candidate and the citizen. He/she is then is given the authority to decide which policy will be implemented.
5. Everybody learns the policy implemented and his/her own earnings for the round. Earnings are computed by the following rule:
  - a. Everybody starts each round with 100 tokens.
  - b. Discount ( $D$ ) for each participant is computed as, the absolute value of the difference between type and policy, i.e.  $D = |\text{TYPE} - \text{POLICY}|$ .
  - c. Final earnings of the round are computed as 100 initial tokens minus the corresponding discount, that is,  $100 - D$  tokens. Notice that all participants, either citizens or candidates get their earnings computed in this fashion.

### Final earnings

Once all 20 rounds are finished, the computer will pick one round out of the 20 randomly. The earnings you made on that round will be your final earnings of the experiment. We will convert tokens you earned in this round into US dollars by dividing them by 5. In addition, you will receive a participation fee of \$5.

Are there any questions?