Supplementary Appendix to “Reciprocity versus Reelection”

Not for Publication

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October 9, 2019

A Theory

Reciprocity Theory

Let us define what we mean by an equilibrium. Candidates choose strategies contingent on their type (τ, θ) to maximize their two-period utility. Thus, a candidate of type $(1, \theta)$ and $(2, \theta)$ solves the below programs respectively:

$$\max \; {x_1}^{\theta}{x_1}^{1-\theta} \; + \; \pi(x_1) \; {y_2}^{\theta}{y_1}^{1-\theta} \tag{1a}$$

$$\max \; {x_1}^{\theta}{x_2}^{1-\theta} \; + \; \pi(x_1) \; {y_2}^{\theta}{y_2}^{1-\theta} \tag{1b}$$

such that $x_1 + x_2 = X$ and $y_1 + y_2 = Y$, where $\pi(x_1)$ denotes C's probability of reelection. $\pi()$ is a function of observed benefits x_1 in the signalling game, while $\pi()$ is necessarily independent of x_1 in the no information game since V_2 cannot base her voting decision on the distribution of benefits in the first election. We denote V_2's posterior beliefs of a type (τ, θ) contingent on observing benefits x_1 by $p\,(\tau, \theta|x_1)$, where $p\,(\tau, \theta|x_1)$ must satisfy Bayes Rule on the equilibrium path (in the signalling game). V_2 maximizes her expected utility given her posterior beliefs.

As in many signalling games, a multiplicity of equilibria arises. From now on, we restrict attention to *pure strategy* Perfect Bayesian equilibria satisfying the following off equilibrium beliefs (henceforth, referred to simply as "equilibria"): $p\,(1, \theta|x_1) = 0$ for all $x_1 < X - Y$ and all θ. These off-equilibrium beliefs are reasonable since a policy preference 1 candidate always prefers $x_1 = X$ and foregoing reelection to $x_1 < X - Y$ (even if doing so implies reelection). They are implied, for example, by the intuitive criterion of Cho and Kreps (1987).

V_1's behavior is trivial. V_1 votes if and only if the expected benefits of voting are weakly higher than the cost of voting. Since V_1's behavior is the same in any equilibrium for which this holds, we do not mention V_1 in our characterization of equilibria, focusing instead on behavior after the first election. All proofs are in the next section.

As background, suppose all candidates are selfish, that is, there are only $(1, 0)$ and $(2, 0)$ type candidates.

Proposition 1. In the signalling game with only selfish candidates (i.e. $\theta = 0$) there exists a unique equilibrium where:
$(1, 0)$: $x_1 = X$ and $y_2 = 0$ if reelected.
$(2, 0)$: $x_1 = 0$ and $y_2 = Y$ if reelected.
V_2: Vote if $x_1 < X - Y$. Otherwise, abstain.

Next, let's turn to the main motivation of the paper, the case where candidates may be reciprocal and are motivated to signal type. We show that under reasonable conditions we get an equilibrium where the more selfish (low θ) $\tau = 1$ candidates mimic the highly reciprocal (high θ) $\tau = 2$ candidates, and the latter constrain their reciprocity to ensure their reelection.

If reciprocity motives are too low, $\overline{\theta} < \frac{X-Y}{X}$, then $\tau = 1$ candidates have no incentive to mimic a $\tau = 2$ candidate since the latter's first-best $x_1 = \theta X$ is always less than $X - Y$.[1] To

[1] In other words, like in the selfish case, there is a unique equilibrium in which all candidate-types play their first-best.

allow for mimicking motives, let's assume $\overline{\theta} > \frac{X-Y}{X}$ so that some are willing to mimic highly reciprocal $\tau = 2$ candidates for reelection at the latter's first-best.

Let's call x_1^* ($\geq X - Y$) the value at which some $\tau = 1$ candidates possibly mimic $\tau = 2$ candidates for reelection. Notice that any $\tau = 1$ candidates who do not pool (who separate) with $\tau = 2$ candidates will choose their first-best $x_1 = X$ and cannot be reelected. Given this, let's define more precisely what we mean by an equilibrium characterized by "constrained reciprocity."

Definition 1. An equilibrium is characterized by *constrained reciprocity at* $x_1^* \in [0, X]$ if players' strategies satisfy the following conditions:

$(1, \theta)$: $x_1 = x_1^*$ if $\theta < \theta_1$ for some $\theta_1 \in [0, \overline{\theta}]$ and $x_1 = X$ otherwise.
$y_2 = \theta Y$ if reelected.

$(2, \theta)$: $x_1 = x_1^*$ if $\theta \geq \frac{x_1^*}{X}$ and $x_1 = \theta X$ otherwise. $y_2 = Y$ if reelected.

V_2: Vote if $x_1 \leq x_1^*$. Otherwise, abstain.

Thus far, we have made few assumptions about the distribution $F()$, besides continuity in its support $[0, \overline{\theta}]$ and the existence of selfish candidates $F(0) > 0$. Before proceeding, we make one additional assumption to allow for well-behaved equilibria. We assume that even if mimicking occurs by all $\tau = 1$ candidates who are willing to mimic *some* $\tau = 2$ candidate for reelection, those leftover at $x_1 = X$ are not reelected. Mathematically, we assume $\frac{Y \int_{\overline{\theta}_1}^{\overline{\theta}} \theta dF(\theta)}{1 - F(\overline{\theta}_1)} \leq k$ where $\overline{\theta}_1$ is implicitly defined by $u^2_{(1,\overline{\theta}_1)}(Y - \overline{\theta}_1 Y, \overline{\theta}_1 Y) = \frac{X}{2}$.[2]

As typical in signalling games, there exists a multiplicity of equilibria. We focus on equilibria satisfying the following intuitive off-equilibrium beliefs: $p(1, \theta | x_1) = 0$ if $x_1 < x_1^*$ for all θ. Since no $\tau = 1$ candidates choose $x_1 < x_1^*$ in a given equilibrium, this is a modest level of sophistication of V_2's off-equilibrium beliefs and is implied by the intuitive criterion of Cho and Kreps (1987). Still, there is a continuum of semi-separating equilibria since there is a continuum of types. Nevertheless, all equilibria are characterized by constrained reciprocity.

Proposition 2. For any k, there exists a $\theta_2(k) \in [\frac{X-Y}{X}, \overline{\theta}]$ such that the set of equilibria satisfying the intuitive off-equilibrium beliefs is non-empty and characterized by constrained reciprocity at $x_1^* \in [X - Y, \theta_2(k) X]$.

In Proposition 2, for a given k, we get a continuum of semi-separating equilibria with $\tau = 2$ candidates facing a reciprocity cut-off at any $x_1^* \in [X - Y, \theta_2(k) X]$. Such a multiplicity of equilibria also arises in Rogoff (1990), and a unique equilibrium is achieved by further requiring dominance by the candidate sending the signal. Similarly, we find the range of equilibria can be drastically reduced (to a unique equilibrium) by focusing on candidate dominant equilibria. We say an equilibrium candidate dominates another equilibrium if it

[2] If this condition is not met, but $Y \int_0^{\overline{\theta}} \theta dF(\theta) < k$ so that *all* type 1 candidates are not reelected at their first-best, then Propositions 2 and 3 still hold. However, Corollary 1 may not hold in this case. If instead $Y \int_0^{\overline{\theta}} \theta dF(\theta) > k$, then there is a unique equilibrium satisfying the intuitive criterion in which all candidate-types play their first-best.

supplies a weakly higher two-period utility to all candidate-types, and a strictly higher two-period utility to some candidate-types.[3] In the candidate dominant equilibrium, the cut-off occurs at its upper bound $x_1^* = \theta_2(k)X$, as described in the proposition below.

Proposition 3. For any k, there exists a *unique* candidate dominant equilibrium satisfying the intuitive off-equilibrium beliefs characterized by constrained reciprocity at $x_1^* = \theta_2(k)X$.

Furthermore, since V_2 is less willing to vote as the cost of voting rises, $\tau = 2$ candidates further constrain themselves at a higher cost of voting to ensure their reelection.

Corollary 1. The amount highly reciprocal policy preference 2 candidates constrain themselves in the equilibrium described in Proposition 3 is weakly increasing in the cost of voting.

Reciprocity and Altruism Theory

Here we study equilibria under a modified version of the utility function where candidates may be also be altruistic and care about giving to the non-voting voter in an election. In addition to holding reciprocity and policy parameters θ and τ respectively, each canddiate is endowed with an altruism parameter α. We assume α is distributed according to some continuous distribution function $G()$ with support $[0, \overline{\alpha}]$, where $G(0) > 0$ and $\overline{\alpha} < 0.5$ so that candidates care more about their self-interest than being altruistic. Furthermore, we assume that $G()$ is independant of $F()$. The utility function of each candidate in the first election is as follows:

$$u^1_{(1,\theta,\alpha)}(x_1, x_2) = x_1^{1-\theta-\alpha} x_1^{\theta} x_2^{\alpha} = x_1^{1-\alpha} x_2^{\alpha} \quad (2a)$$
$$u^1_{(2,\theta,\alpha)}(x_1, x_2) = x_2^{1-\theta-\alpha} x_1^{\theta} x_2^{\alpha} = x_1^{\theta} x_2^{1-\theta} \quad (2b)$$

A $(1, \theta, \alpha)$ candidate would choose $x_1 = (1-\alpha)X$ if she were simply maximizing first-period utility, while a type $(2, \theta, \alpha)$ candidate would choose $x_1 = \theta X$.

Similarly, second-period candidate utility is represented as

$$u^2_{(1,\theta,\alpha)}(y_1, y_2) = y_1^{1-\theta-\alpha} y_2^{\theta} y_1^{\alpha} = y_1^{1-\theta} y_2^{\theta} \quad (3a)$$
$$u^2_{(2,\theta,\alpha)}(y_1, y_2) = y_2^{1-\theta-\alpha} y_2^{\theta} y_1^{\alpha} = y_1^{\alpha} y_2^{1-\alpha} \quad (3b)$$

[3] This is a more conservative version of the dominance criterion in Rogoff (1990), given that it requires the dominance of all candidate-types and not just some.

where a type $(1,\theta,\alpha)$ candidate's first-best is $y_2 = \theta Y$, and a $(2,\theta,\alpha)$ candidate's first-best is $y_2 = (1-\alpha)Y$. We extend the definition of a constrained reciprocity equilibrium to include altruism as follows.

Definition 2. An equilibrium is characterized by *constrained reciprocity with altruism at* $x_1^* \in [0, X]$ if players' strategies satisfy the following conditions:

$(1,\theta,\alpha)$: $x_1 = x_1^*$ if $(\theta,\alpha) \in \nabla$ for some compact set $\nabla \in [0,\overline{\theta}] \times [0,\overline{\alpha}]$
and $x_1 = (1-\alpha)X > x_1^*$ otherwise. $y_2 = \theta Y$ if reelected.

$(2,\theta,\alpha)$: $x_1 = x_1^*$ if $\theta \geq \frac{x_1^*}{X}$ and $x_1 = \theta X$ otherwise. $y_2 = (1-\alpha)Y$ if reelected.

V_2: Vote if $x_1 \leq x_1^*$. Otherwise, abstain.

The difference between the equilibrium described above and that in Definition 1 without altruism is that non-mimicking and altruistic $\tau = 1$ candidates give $x_1 < X$, and altruistic $\tau = 2$ candidates select $y_2 < Y$. Thus, there always exists candidates in each election giving to the non-voting voter. The set ∇ defines the mimicking $\tau = 1$ candidates who deviate to x_1^* to be reelected rather than playing their first-best $x_1 = (1-\alpha)X > x_1^*$ and foregoing reelection.

As in the pure reciprocity model, we need to verify that V_2 prefers not to reelect the $\tau = 1$ candidates who do not mimic (i.e. $\tau = 1$ candidates with $(\theta,\alpha) \notin \nabla$) for the equilibrium to hold. From equation (7a), we see that V_2 need only consider a $\tau = 1$ candidate's reciprocity parameter θ when deciding whether to reelect her. All else equal, a $\tau = 1$ candidate has a greater incentive to mimic if she has a higher α because she has to deviate less from her first-best to be reelected. Furthermore, as before, all else equal a $\tau = 1$ candidate has a greater incentive to mimic if she has a lower θ because she has greater utility to gain from reelection. Thus, if V_2 does not reelect a non-mimicking $\tau = 1$ candidate who has the highest possible altruism parameter $\overline{\alpha}$, then she does not mimic any other non-mimicking $\tau = 1$ candidates (because they have even lower θ). This holds if $E(\theta|\ \theta \geq \widehat{\theta}_1) \leq \frac{k}{Y}$ where $\widehat{\theta}_1$ is defines as the reciprocity parameter of the most altruistic $\tau = 1$ candidate $(1, \widehat{\theta}_1, \overline{\alpha})$ that is indifferent between her first-best and mimicking the most reciprocal $\tau = 2$ candidate $(2, \overline{\theta}, \overline{\alpha})$ for reelection. Mathematically, $\widehat{\theta}_1$ is defined implicitly by: $u^1_{(1,\widehat{\theta}_1,\overline{\alpha})}(\overline{\theta}X, X - \overline{\theta}X) + u^2_{(1,\widehat{\theta}_1,\overline{\alpha})}(Y - \widehat{\theta}_1 Y, \widehat{\theta}_1 Y) = u^1_{(1,\widehat{\theta}_1,\overline{\alpha})}(X - \overline{\alpha}X, \overline{\alpha}X)$. We assume the distributions of θ and α follow the above condition in what follows. Additionally, we assume the distribution is such that if all $\tau = 2$ candidates are mimicked by all $\tau = 1$ candidates who are willing to mimick at $x_1 = 0$, then V_2 reelects at $x_1 = 0$.

As before, we focus on equilibria satisfying the intuitive off-equilibrium beliefs of Cho and Kreps (1987): $p(1, \theta, \alpha | x_1) = 0$ if $x_1 < x_1^*$ for all θ and α. Under such off-equilibrium beliefs, there exists a continuum of semi-separating equilibria characterized by constrained reciprocity with altruism.

Proposition 4. For any k, there exists a $\theta_2(k) \in [0, \overline{\theta}]$ such that the set of equilibria satisfying the intuitive off-equilibrium beliefs is non-empty and characterized by constrained reciprocity with altruism at $x_1^* \in [0, \theta_2(k)X]$.

Note that allowing for altruism allows us to extend our theoretical results, in the sense that the cut-off x_1^* may be less than $\frac{X-Y}{X}$. This is because altruistic $\tau = 1$ candidates have to deviate less to be reelected, and are thus willing to mimic at lower values of x_1^*.

Furthermore, as before, a unique equilibrium can be found by applying candidate dominance. In the candidate dominant equilibrium, the cut-off occurs at its upper bound $x_1^* = \theta_2(k)X$, as described in the proposition below.

Proposition 5. For any k, there exists a *unique* candidate dominant equilibrium satisfying the intuitive off-equilibrium beliefs characterized by constrained reciprocity with altruism at $x_1^* = \theta_2(k)X$.

Moreover, $\tau = 2$ candidates need to constrain their reciprocity more as the cost of voting increases.

Corollary 2. The amount highly reciprocal policy preference 2 candidates constrain themselves in the equilibrium described in Proposition 5 is weakly increasing in the cost of voting.

Proofs

Proof of Proposition 1. Suppose $(2, 0)$ chooses $x_1 > 0$. Since $p(2, 0 | x_1 = 0) = 1$, $(2, 0)$ could profitably deviate to $x_1 = 0$. Thus, $(2, 0)$ must choose $x_1 = 0$. Suppose $(1, 0)$ is reelected by pooling with $(2, 0)$ at $x_1 = 0$. This cannot be an optimal strategy since $(1, 0)$ could deviate to $x_1 = X$ and forego reelection, while improving her two-period utility. Since $(1, 0)$ is not reelected in any equilibrium, she must choose her first-best $x_1 = X$. $\square$

Proof of Proposition 2. In order to characterize the set of equilibria, we need to make a couple definitions.

First, for a given $x_1 < X$, we define the set of $\tau = 1$ candidates who gain from deviating to x_1 to be reelected over playing their first-best (and foregoing reelection). For any $x_1 \in [X - Y, X - \frac{Y}{2}]$, let $\widetilde{\theta}(x_1)$ be implicitly defined by: $x_1 + Y(\widetilde{\theta})^{\widetilde{\theta}}(1-\widetilde{\theta})^{1-\widetilde{\theta}} = X$. It can be shown that $\Psi(x_1) = \{(1,\theta) |\, \theta < \widetilde{\theta}(x_1)\}$ is the set of $\tau = 1$ candidates who gain from choosing x_1 and being reelected over their first-best without reelection. Furthermore, $\Psi(x_1)$ is monotonically increasing in x_1 ($\Psi(x_1') \subseteq \Psi(x_1'')$ iff $x_1' \leq x_1''$), with bounds $\Psi(X - Y) = \{(1, 0)\}$ and $\Psi(X - \frac{Y}{2}) = \{(1,\theta) | \theta \leq \overline{\theta}\}$.

We do not construct a similar deviation set for $\tau = 2$ candidates, because any given $(2, \theta)$ is willing to choose $x_1 < \theta X$ over her first-best ($x_1 = \theta X$) to be reelected (this follows from the assumptions $Y > \frac{X}{2}$ and $\overline{\theta} \leq 0.5$).

Next, note that a $\tau = 1$ candidate would not deviate from her first-best unless it implied her reelection. Thus, we consider V_2 and define the set of x_1 over which type 1 candidates in $\Psi()$ pool with highly reciprocal $\tau = 2$ candidates and are reelected. We define $\theta_2(k)$ as the highest θ such that if type 2 candidates with $\theta \geq \theta_2(k)$ pool with all $\tau = 1$ candidates who gain from mimicking ($\Psi(\theta_2(k)X)$), then V_2 still votes.

Define $\theta_2(k)$ implicitly by $\frac{1-F(\theta_2(k)) + \int_0^{\widetilde{\theta}(\ \theta_2(k)X\ )} \theta F(\theta)}{1-F(\theta_2(k)) +\ F(\widetilde{\theta}(\ \theta_2(k)X\ ))} = \frac{k}{Y}$ if it exists, and $\theta_2(k) = \frac{X-Y}{X}$ otherwise.

Note that $\overline{\theta} > \theta_2(k) \geq \frac{X-Y}{X}$ (the first inequality follows from $F(0) > 0$ and the continuity of $F()$, while the second inequality follows from the assumption $k < Y$). With definitions 1 and 2 we can characterize the set of equilibria.

Claim 1. For a given k, the set of equilibria satisfying the intuitive off-equilibrium beliefs $\Gamma(k)$ is non-empty and strictly includes equilibria where:

$(1, \theta)$: $x_1 = \widehat{\theta}X$ if $\theta < \widetilde{\theta}(\widehat{\theta}X)$ and $x_1 = X$ otherwise. $y_2 = \theta Y$ if re-elected.

$(2, \theta)$: $x_1 = \widehat{\theta}X$ if $\theta \geq \widehat{\theta}$ and $x_1 = \theta X$ otherwise. $y_2 = Y$ if re-elected.

V_2 strategy: Vote if $x_1 \leq \widehat{\theta}X$. Otherwise, abstain.

for any arbitrary $\widehat{\theta} \in [\frac{X-Y}{X}, \theta_2(k)]$.

First, we check that the elements of $\Gamma(k)$ constitute equilibria. Each type of C's strategy is optimal by construction. V_2's beliefs satisfy the equilibria conditions and could be supported by letting $p\,(1, 0) = 1$ off the equilibrium path.

While V_2's strategy is clearly optimal for $x_1 < X$, it remains to be seen that it is optimal at $x_1 = X$. V_2's strategy must be optimal at $x_1 = X$ for all equilibria given that $\frac{Y \int_{\overline{\theta_1}}^{\overline{\theta}} \theta F(\theta)}{1-F(\overline{\theta_1})} < k$, and $\widetilde{\theta}(\widehat{\theta}X) < \overline{\theta_1}$ for all $\widehat{\theta}$ in $\Gamma(k)$.

Next, we show that $\Gamma(k)$ constitutes the entire set of equilibria. One can show that any pooling between $\tau = 1$ and $\tau = 2$ candidates must occur at a single x_1. Furthermore, it cannot be an equilibrium for $\tau = 1$ and $\tau = 2$ candidates to pool at $x_1 > \theta_2(k)$ because they would not be reelected and some could profitably deviate to their first-bests. It also cannot be an equilibrium for $\tau = 1$ and $\tau = 2$ candidates to pool at $x_1 < \frac{X-Y}{X}$, as $\tau = 1$ candidates could profitably deviate to $x_1 = X$.

Moreover, given that pooling between $\tau = 1$ and $\tau = 2$ must occur at some $\widehat{\theta} \in [\frac{X-Y}{X}, \theta_2(k)]$, it cannot be an equilibrium for players to assort themselves in any other way: $\tau = 2$ candidates with $\theta < \widehat{\theta}$ must play their first-bests as the intuitive off-equilibrium beliefs imply it gives them reelection. $\tau = 2$ candidates with $\theta > \widehat{\theta}$ must play $x_1 = \widehat{\theta}X$ as anything greater implies foregoing reelection, while anything less is suboptimal. Lastly, $\tau = 1$ candidates cannot arrange in any other way by construction.

Finally, note that $\Gamma(k)$ also includes an equilibrium where no $\tau = 1$ candidates pool with $\tau = 2$ candidates in the case of $\widehat{\theta} = \frac{X-Y}{X}$. It turns out this is the unique such equilibrium with strict separation between $\tau = 1$ and $\tau = 2$ candidates. $\tau = 2$ candidates cannot separate from $\tau = 1$ candidates and play $x_1 > X - Y$ as some $\tau = 1$ candidates would mimic. Also, $\tau = 2$ candidates cannot constrain to some $x_1 < X - Y$, as intuitive off-equilibrium beliefs imply V_2 reelects at any $x_1 < X - Y$ and $(2, \overline{\theta})$ could profitably deviate. Finally, conditional on $\tau = 2$ candidates choosing $x_1 = X - Y$ and separating from $\tau = 1$ candidates, $\tau = 1$ candidates must choose their first-best $x_1 = X$. Thus, $\Gamma(k)$ constitutes the entire set of equilibria.□

Proof of Proposition 3. The proof of Proposition 2 shows that $\Gamma(k)$ constitutes the entire set of equilibria. Here, we show there is a unique equilibrium with $\widehat{\theta} = \theta_2(k)$ and $\theta_1(k) = \widetilde{\theta}(\theta_2(k)X)$ that candidate dominates all others in $\Gamma(k)$: each $\tau = 2$ candidate receives a weakly higher two period utility; each $\tau = 1$ candidate receives a weakly higher two period utility; some $\tau = 2$ who deviate from their first-best at other equilibria in $\Gamma(k)$ but not at $\widehat{\theta} = \theta_2(k)$ receive a strictly higher two period utility; and some $\tau = 1$ candidates who mimic at $\widehat{\theta} = \theta_2(k)$ but not at other other equilibria in $\Gamma(k)$ also receive a strictly higher two period utility. □

Proof of Corollary 1. We want to show that $\frac{d\theta_2(k)}{dk} \leq 0$. Suppose $\theta_2(k) \neq \frac{X-Y}{X}$ (if $\theta_2(k) = \frac{X-Y}{X}$, then $\frac{d\theta_2(k)}{dk} = 0$ and the statement holds arbitrarily). If k increases, then the right hand side of the equation defining $\theta_2(k)$ (see proof of Proposition 2) increases. Thus, the left hand side must increase too. For the left hand side to increase, the ratio of $\tau = 2$ to $\tau = 1$ candidates $(\frac{1-F(\theta_2(k))}{F(\theta_1(k)))})$ must increase since the former give more second election benefits to V_2. It can be seen that $1-F(\theta_2(k))$ increases and $F(\theta_1(k))$ decreases when $\theta_2(k)$ decreases. Thus, $\theta_2(k)$ must decrease for the equation to hold. $\square$

Proof of Proposition 4. First, for a given $x_1 < X$, we define the set of $\tau = 1$ candidates who gain from deviating to x_1 to be reelected over playing their first-best (and foregoing reelection). For any $x_1 \in [0, X - \frac{Y}{2}]$, let $\nabla(x_1) \in [0, \overline{\theta}] \times [0, \overline{\alpha}]$ be implicitly defined by (θ, α) such that: $u^1_{(1,\theta,\alpha)}(x_1, X - x_1) + u^2_{(1,\theta,\alpha)}(Y - \theta Y, \theta Y) \geq u^1_{(1,\theta,\alpha)}(X - \overline{\alpha}X, \overline{\alpha}X)$. It can be shown that $\nabla(x_1') \subseteq \nabla(x_1'')$ if $x_1' < x_1''$. In other words, the set of $\tau = 1$ candidates who are willing to mimic is decreasing as they must deviate further from their first-bests. Furthermore, it can be shown that $\nabla(x_1)$ is a compact set.

We define $\theta_2(k)$ as the highest θ such that if type 2 candidates with $\theta \geq \theta_2(k)$ pool with all $\tau = 1$ candidates who gain from mimicking $\nabla(\theta_2(k)X)$, then V_2 still votes. Let $H(\theta, \alpha)$ define the joint distribution of θ and α.

Define $\theta_2(k)$ implicitly by $\frac{\int_{\theta_2(k)}^{\overline{\theta}} \int_0^{\overline{\alpha}} (1-\alpha) G(\alpha) F(\theta) + \int_{\nabla(\theta_2(k)X)} \theta H(\theta)}{1 - F(\theta_2(k)) + H(\nabla(\theta_2(k)X))} = \frac{k}{Y}$ if it exists and $\theta_2(k) = \underline{\theta_1}$ otherwise where $\underline{\theta_1}$ is defined as follows. $\underline{\theta_1} \in [0, \frac{X-Y}{X}]$ is implicitly defined such that the most altruistic $\tau = 1$ candidate with zero reciprocity would be indifferent to mimicking at $x_1 = \underline{\theta_1}X : u^1_{(1,0,\overline{\alpha})}(\underline{\theta_1}X, X - \underline{\theta_1}X) + u^2_{(1,0,\overline{\alpha})}(Y, 0) = u^1_{(1,0,\overline{\alpha})}(X - \overline{\alpha}X, \overline{\alpha}X)$.

Claim 2. For a given k, the set of equilibria satisfying the intuitive off-equilibrium beliefs $\Phi(k)$ is non-empty and strictly includes equilibria where:

$(1, \theta, \alpha)$: $x_1 = \widehat{\theta}X$ if $(\theta, \alpha) \in \nabla(\widehat{\theta}X)$ and $x_1 = (1-\alpha)X$ otherwise.
$y_2 = \theta Y$ if re-elected.

$(2, \theta, \alpha)$: $x_1 = \widehat{\theta}X$ if $\theta \geq \widehat{\theta}$ and $x_1 = \theta X$ otherwise. $y_2 = (1-\alpha)Y$ if re-elected.

V_2 strategy: Vote if $x_1 \leq \widehat{\theta}X$. Otherwise, abstain.

for any arbitrary $\widehat{\theta} \in [\underline{\theta_1}, \theta_2(k)]$.

First, we check that the elements of $\Phi(k)$ constitute equilibria. Each type C's strategy is optimal by construction. V_2's beliefs satisfy the equilibria conditions and could be supported by letting $p\,(1, 0, 0) = 1$ off the equilibrium path. V_2's strategy is clearly optimal for $x_1 \leq \widehat{\theta}X$. Furthermore, V_2's strategy is optimal at $x_1 > \widehat{\theta}X$ because V_2 is unwilling to reelect any non-mimicking $\tau = 1$ candidate. As explained in the text, this follows because $E(\theta|\ \theta \geq \widehat{\theta_1}) \leq \frac{k}{Y}$. Thus, the elements of $\Phi(k)$ are equilibria. The argument that $\Phi(k)$ constitutes the entire set of equilibria follows the same logic as in the proof of Proposition 2.$\square$

Proof of Proposition 5. Here, we show there is a unique equilibrium with $\widehat{\theta} = \theta_2(k)$ that candidate dominates all others in $\Phi(k)$: each $\tau = 2$ candidate receives a weakly higher two period utility; each $\tau = 1$ candidate receives a weakly higher two period utility; some $\tau =$ 2 who deviate from their first-best at other equilibria in $\Phi(k)$ but not at $\widehat{\theta} = \theta_2(k)$ receive a strictly higher two period utility; and some $\tau = 1$ candidates who mimic at $\widehat{\theta} = \theta_2(k)$ but not at other other equilibria in $\Phi(k)$ also receive a strictly higher two period utility. $\square$

Proof of Corollary 2. We want to show that $\frac{d\theta_2(k)}{dk} \leq 0$. Suppose $\theta_2(k) \neq \underline{\theta_1}$ (if $\theta_2(k) = \underline{\theta_1}$, then $\frac{d\theta_2(k)}{dk} = 0$ and the statement holds arbitrarily). If k increases, then the right hand side of the equation defining $\theta_2(k)$ (see proof of Proposition 4) increases. Thus, the left hand side must increase too. For the left hand side to increase, the ratio of $\tau = 2$ to $\tau = 1$ candidates must increase since the former give more second election benefits to V_2. As $\theta_2(k)$ decreases, the mass of $\tau = 2$ candidates $1 - F(\theta_2(k))$ increases and the mass of $\tau = 1$ candidates $H(\nabla(\theta_2(k)X))$ decreases. Thus, $\theta_2(k)$ must decrease for the equation to hold. $\square$

B Type 2 Candidate Second Election Benefits

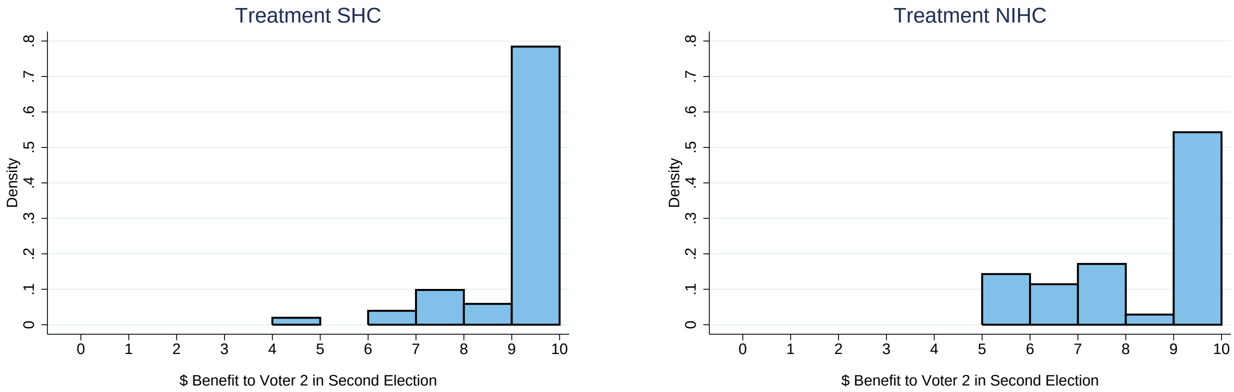


Figure B.1: Type 2 Candidate Second Election Benefits with High Cost of Voting

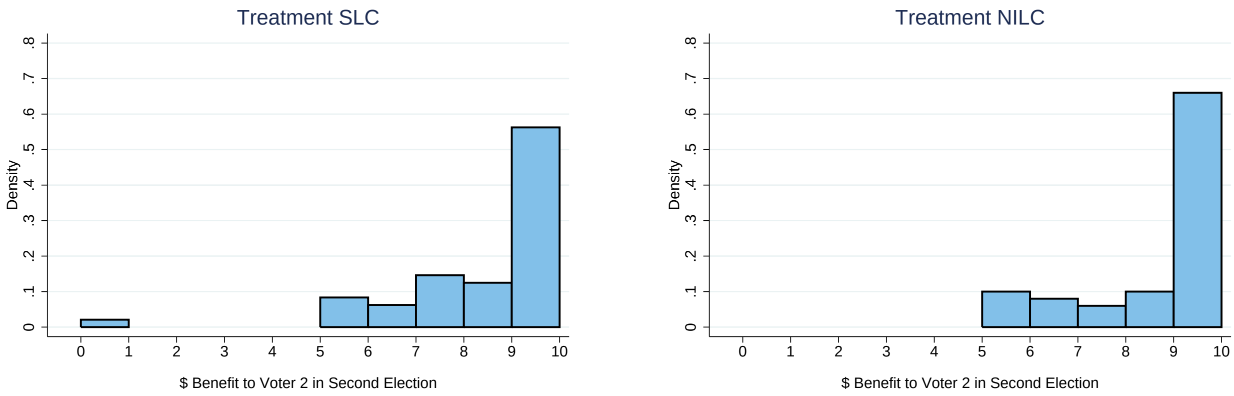


Figure B.2: Type 2 Candidate Second Election Benefits with Low Cost of Voting

C Treatment 1 Instructions

INSTRUCTIONS

Welcome and thank you for coming today to participate in this experiment. This is an experiment in decision making. You will receive $7.00 participation fee if you complete the session. In addition to that if you follow the instructions and are careful with your decisions, you can earn a significant amount of money, which will be paid to you at the end of the session.

During the experiment it is important that you do not talk to any other subjects. Please either turn off your cell phones or put them on silent. If you have a question, please raise your hand, and the experimenter will answer your question. Failure to comply with these instructions means that you will be asked to leave the experiment and all your earnings will be forfeited.

The experiment will last about 60 minutes. The experiment consists of 5 identical decision rounds.

ROLES AND TYPES

At the beginning of the experiment you will be randomly assigned a role. The three possible roles you can be assigned are "**Voter 1**," "**Voter 2**" or "**Candidate**." Your role will stay fixed throughout all 5 rounds of the experiment.

At the beginning of <u>each round</u>, you will be randomly sorted into groups of 3 people. Each group will consist of a Voter 1, a Voter 2 and a Candidate. You will be matched with different participants in each round. No participant will ever be informed about the identities of the participants they are paired with, neither during nor after the experiment.

Furthermore, <u>in each round</u>, Candidate is assigned a type. The computer randomly assigns Candidate to be either "**Type 1**" or "**Type 2**," with equal probability of being assigned either type. Candidate's type is fixed just for that round, and is assigned independently and randomly in each round. While Candidate will know his/her type, Voter 1 and Voter 2 will never learn Candidate's type at any point.

SEQUENCE OF ACTIONS IN A ROUND

At the beginning of each round, Voter 1, Voter 2 and Candidate are given $6.00 each. A round consists of two possible (sequential) elections, with Voter 1 voting in the first election and Voter 2 voting in the second election.

The sequence of events in a round is as follows.

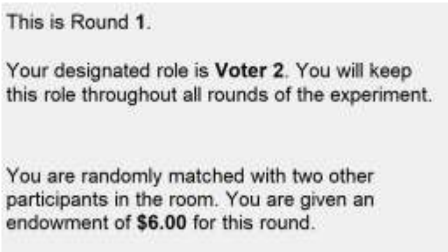
1) Matching and Type Assignment:

First, you are randomly matched with two other participants in the room.

If you are Candidate, then you learn your randomly assigned type: Type 1, or Type 2. Candidate has an equal chance of being assigned either type. It is important to note that Voter 1 and Voter 2 do not learn Candidate's type but may try to infer them from Candidate's choices.

1

An example Voter 2 screen is shown below.



Following, you continue to the first election.

2) First Election:

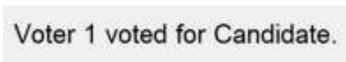
The first election proceeds as follows.

A) Voter 1 decides to **vote** for Candidate or **not vote.** Voting costs Voter 1 **$1.00** while not voting is **costless.**

An example Voter 1 screen is shown below.

B) Next, Candidate and Voter 2 learn about Voter 1's voting decision. If Voter 1 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

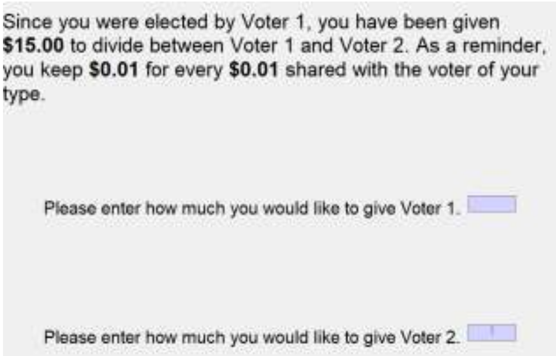
An example screen is shown below. In this example, Voter 1 happens to elect Candidate. This is just an example and is not to suggest how you should make your decision if you are Voter 1.



C) If elected, Candidate is given **$15.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $15.00. Candidate can divide the $15.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $15.00} between Voter 1 and Voter 2.

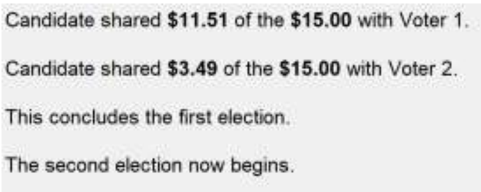
Furthermore, if Candidate is of Type 1, then Candidate is given an additional \$0.01 to keep for every \$0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional \$0.01 to keep for every \$0.01 distributed to Voter 2.

An example Candidate screen is shown below.



D) Finally, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the \$15.00.

An example screen is shown below. In this example, Candidate happens to distribute \$11.51 to Voter 1 and \$3.49 to Voter 2. This is just an example and is not to suggest how you should make your decision if you are Candidate.



If Candidate is elected in the first election, then you continue to the second election. Otherwise, the round is over.

3) Second Election:

The second election proceeds as follows. The example screens are left out as they are similar to the respective screens in the first election.

A) Voter 2 decides to **vote** for Candidate or **not vote**. Voting costs Voter 2 **\$1.00** while not voting is **costless**.

B) Next, Candidate and Voter 1 learn about Voter 2's voting decision. If Voter 2 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

C) If elected, Candidate is given **$10.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $10.00. Candidate can divide the $10.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $10.00} between Voter 1 and Voter 2.

As in the first election, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

D) Finally, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the $10.00 and the round ends.

Once the round ends, you proceed to the next round where you will be matched with new partners and receive a new $6.00 endowment.

SUMMARY: POTENTIAL EARNINGS PER ROUND

$$\text{Voter 1} = \begin{cases} \begin{array}{c} \$6.00 - \$1.00 \\ + \text{ Allocation to Voter 1 first election} \\ + \text{ Allocation to Voter 1 second election} \end{array} & \text{if Candidate elected in both elections} \\ \begin{array}{c} \$6.00 - \$1.00 \\ + \text{ Allocation to Voter 1 first election} \end{array} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Voter 2} = \begin{cases} \begin{array}{c} \$6.00 - \$1.00 \\ + \text{ Allocation to Voter 2 first election} \\ + \text{ Allocation to Voter 2 second election} \end{array} & \text{if Candidate elected in both elections} \\ \begin{array}{c} \$6.00 \\ + \text{ Allocation to Voter 2 first election} \end{array} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Type 1 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 1 first election} \\ + \text{ Allocation to Voter 1 second election} \end{array} & \text{if elected in both elections} \\ \$6.00 + \text{ Allocation to Voter 1 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

$$\text{Type 2 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 2 first election} \\ + \text{ Allocation to Voter 2 second election} \end{array} & \text{if elected in both elections} \\ \$6.00 + \text{ Allocation to Voter 2 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

FINAL EARNINGS

Once the experiment is finished, the computer will randomly pick 1 round out of the 5 rounds that you completed. The earnings you made on that round will be your earnings for the experiment. Hence, you should make careful decisions in each round because it might be a paying round.

Are there any questions?

D Treatment 2 Instructions

INSTRUCTIONS

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Furthermore, <u>in each round</u>, Candidate is assigned a type. The computer randomly assigns Candidate to be either "**Type 1**" or "**Type 2**," with equal probability of being assigned either type. Candidate's type is fixed just for that round, and is assigned independently and randomly in each round. While Candidate will know his/her type, Voter 1 and Voter 2 will never learn Candidate's type at any point.

SEQUENCE OF ACTIONS IN A ROUND

At the beginning of each round, Voter 1, Voter 2 and Candidate are given $6.00 each. A round consists of two possible (sequential) elections, with Voter 1 voting in the first election and Voter 2 voting in the second election.

The sequence of events in a round is as follows.

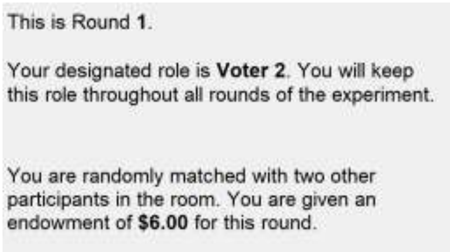
1) Matching and Type Assignment:

First, you are randomly matched with two other participants in the room.

If you are Candidate, then you learn your randomly assigned type: Type 1, or Type 2. Candidate has an equal chance of being assigned either type. It is important to note that Voter 1 and Voter 2 do not learn Candidate's type but may try to infer them from Candidate's choices.

1

An example Voter 2 screen is shown below.



Following, you continue to the first election.

2) First Election:

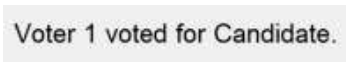
The first election proceeds as follows.

A) Voter 1 decides to **vote** for Candidate or **not vote.** Voting costs Voter 1 **$6.00** while not voting is **costless.**

An example Voter 1 screen is shown below.

B) Next, Candidate and Voter 2 learn about Voter 1's voting decision. If Voter 1 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

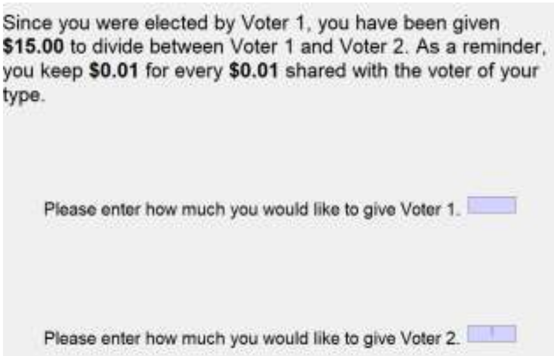
An example screen is shown below. In this example, Voter 1 happens to elect Candidate. This is just an example and is not to suggest how you should make your decision if you are Voter 1.



C) If elected, Candidate is given **$15.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $15.00. Candidate can divide the $15.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $15.00} between Voter 1 and Voter 2.

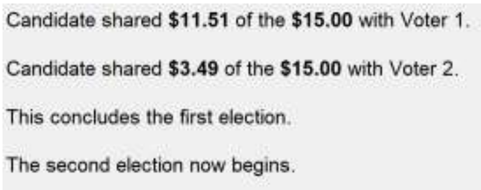
Furthermore, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

An example Candidate screen is shown below.



D) Finally, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the $15.00.

An example screen is shown below. In this example, Candidate happens to distribute $11.51 to Voter 1 and $3.49 to Voter 2. This is just an example and is not to suggest how you should make your decision if you are Candidate.



If Candidate is elected in the first election, then you continue to the second election. Otherwise, the round is over.

3) Second Election:

The second election proceeds as follows. The example screens are left out as they are similar to the respective screens in the first election.

A) Voter 2 decides to **vote** for Candidate or **not vote**. Voting costs Voter 2 **$6.00** while not voting is **costless**.

B) Next, Candidate and Voter 1 learn about Voter 2's voting decision. If Voter 2 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

C) If elected, Candidate is given **$10.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $10.00. Candidate can divide the $10.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $10.00} between Voter 1 and Voter 2.

As in the first election, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

D) Finally, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the $10.00 and the round ends.

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SUMMARY: POTENTIAL EARNINGS PER ROUND

$$
\text{Voter 1} = \begin{cases} \begin{array}{c} \$6.00 - \$6.00 \\ + \text{ Allocation to Voter 1 first election} \\ + \text{ Allocation to Voter 1 second election} \end{array} & \text{if Candidate elected in both elections} \\[2ex] \begin{array}{c} \$6.00 - \$6.00 \\ + \text{ Allocation to Voter 1 first election} \end{array} & \text{if Candidate elected in first election only} \\[2ex] \$6.00 & \text{if Candidate unelected} \end{cases}
$$

$$
\text{Voter 2} = \begin{cases} \begin{array}{c} \$6.00 - \$6.00 \\ + \text{ Allocation to Voter 2 first election} \\ + \text{ Allocation to Voter 2 second election} \end{array} & \text{if Candidate elected in both elections} \\[2ex] \begin{array}{c} \$6.00 \\ + \text{ Allocation to Voter 2 first election} \end{array} & \text{if Candidate elected in first election only} \\[2ex] \$6.00 & \text{if Candidate unelected} \end{cases}
$$

$$
\text{Type 1 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 1 first election} \\ + \text{ Allocation to Voter 1 second election} \end{array} & \text{if elected in both elections} \\[2ex] \$6.00 + \text{ Allocation to Voter 1 first election} & \text{if elected in first election only} \\[2ex] \$6.00 & \text{if unelected} \end{cases}
$$

$$
\text{Type 2 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 2 first election} \\ + \text{ Allocation to Voter 2 second election} \end{array} & \text{if elected in both elections} \\[2ex] \$6.00 + \text{ Allocation to Voter 2 first election} & \text{if elected in first election only} \\[2ex] \$6.00 & \text{if unelected} \end{cases}
$$

FINAL EARNINGS

Once the experiment is finished, the computer will randomly pick 1 round out of the 5 rounds that you completed. The earnings you made on that round will be your earnings for the experiment. Hence, you should make careful decisions in each round because it might be a paying round.

Are there any questions?

E Treatment 3 Instructions

INSTRUCTIONS

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ROLES AND TYPES

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Furthermore, in each round, Candidate is assigned a type. The computer randomly assigns Candidate to be either "**Type 1**" or "**Type 2**," with equal probability of being assigned either type. Candidate's type is fixed just for that round, and is assigned independently and randomly in each round. While Candidate will know his/her type, Voter 1 and Voter 2 will never learn Candidate's type at any point.

SEQUENCE OF ACTIONS IN A ROUND

At the beginning of each round, Voter 1, Voter 2 and Candidate are given $6.00 each. A round consists of two possible (sequential) elections, with Voter 1 voting in the first election and Voter 2 voting in the second election.

The sequence of events in a round is as follows.

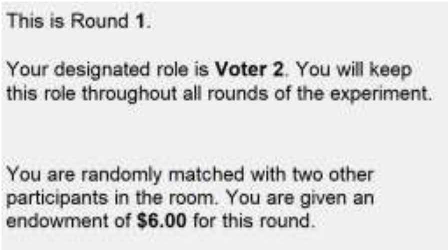
1) Matching and Type Assignment:

First, you are randomly matched with two other participants in the room.

If you are Candidate, then you learn your randomly assigned type: Type 1, or Type 2. Candidate has an equal chance of being assigned either type. It is important to note that Voter 1 and Voter 2 do not learn Candidate's type.

1

An example Voter 2 screen is shown below.



Following, you continue to the first election.

2) First Election:

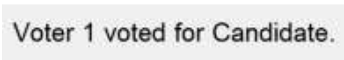
The first election proceeds as follows.

A) Voter 1 decides to **vote** for Candidate or **not vote.** Voting costs Voter 1 **$1.00** while not voting is **costless.**

An example Voter 1 screen is shown below.

B) Next, Candidate and Voter 2 learn about Voter 1's voting decision. If Voter 1 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

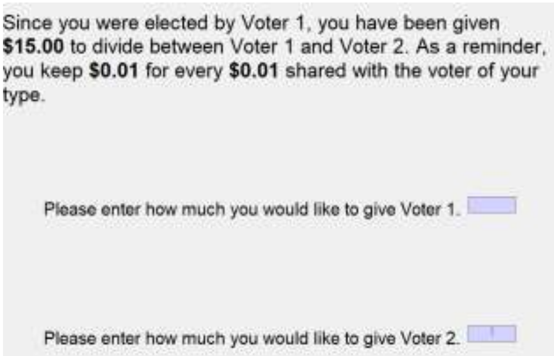
An example screen is shown below. In this example, Voter 1 happens to elect Candidate. This is just an example and is not to suggest how you should make your decision if you are Voter 1.



C) If elected, Candidate is given **$15.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $15.00. Candidate can divide the $15.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $15.00} between Voter 1 and Voter 2.

Furthermore, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

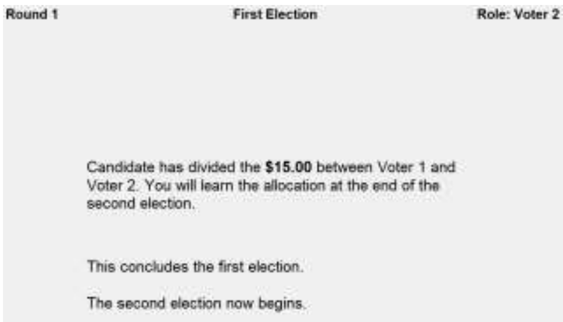
An example Candidate screen is shown below.



D) Finally, if Candidate is elected, Voter 1 learns about Candidate's allocation of the $15.00.

An example Voter 1 screen is shown below. In this example, Candidate happens to distribute $11.51 to Voter 1 and $3.49 to Voter 2. This is just an example and is not to suggest how you should make your decision if you are Candidate.

In contrast, Voter 2 does not learn about Candidate's allocation of the $15.00 until the round ends. An example Voter 2 screen is shown below.



If Candidate is elected in the first election, then you continue to the second election. Otherwise, the round is over.

3) Second Election:

The second election proceeds as follows. The example screens are left out as they are similar to the respective screens in the first election.

> A) Voter 2 decides to **vote** for Candidate or **not vote**. Voting costs Voter 2 **$1.00** while not voting is **costless**.
>
> B) Next, Candidate and Voter 1 learn about Voter 2's voting decision. If Voter 2 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.
>
> C) If elected, Candidate is given **$10.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $10.00. Candidate can divide the $10.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $10.00} between Voter 1 and Voter 2.
>
> As in the first election, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.
>
> D) Finally, Voter 2 learns about Candidate's allocation of the $15.00 in the first election. Furthermore, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the $10.00 in the second election. This concludes the round.

Once the round ends, you proceed to the next round where you will be matched with new partners and receive a new $6.00 endowment.

SUMMARY: POTENTIAL EARNINGS PER ROUND

$$\text{Voter 1} = \begin{cases} \$6.00 - \$1.00 \\ \quad + \text{Allocation to Voter 1 first election} \\ \quad + \text{Allocation to Voter 1 second election} & \text{if Candidate elected in both elections} \\ \$6.00 - \$1.00 \\ \quad + \text{Allocation to Voter 1 first election} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Voter 2} = \begin{cases} \$6.00 - \$1.00 \\ \quad + \text{Allocation to Voter 2 first election} \\ \quad + \text{Allocation to Voter 2 second election} & \text{if Candidate elected in both elections} \\ \$6.00 \\ \quad + \text{Allocation to Voter 2 first election} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Type 1 Candidate} = \begin{cases} \$6.00 + \text{Allocation to Voter 1 first election} \\ \quad + \text{Allocation to Voter 1 second election} & \text{if elected in both elections} \\ \$6.00 + \text{Allocation to Voter 1 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

$$\text{Type 2 Candidate} = \begin{cases} \$6.00 + \text{Allocation to Voter 2 first election} \\ \quad + \text{Allocation to Voter 2 second election} & \text{if elected in both elections} \\ \$6.00 + \text{Allocation to Voter 2 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

FINAL EARNINGS

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F Treatment 4 Instructions

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1

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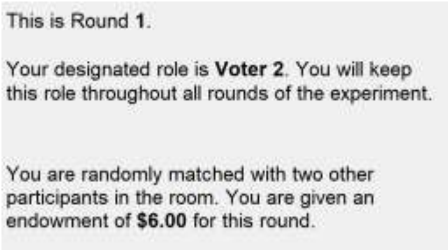


Following, you continue to the first election.

2) First Election:

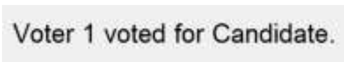
The first election proceeds as follows.

A) Voter 1 decides to **vote** for Candidate or **not vote.** Voting costs Voter 1 **$6.00** while not voting is **costless.**

An example Voter 1 screen is shown below.

B) Next, Candidate and Voter 2 learn about Voter 1's voting decision. If Voter 1 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

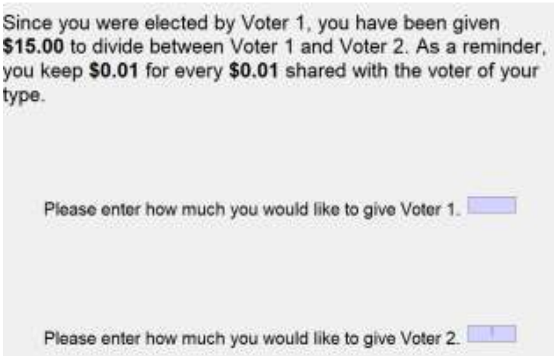
An example screen is shown below. In this example, Voter 1 happens to elect Candidate. This is just an example and is not to suggest how you should make your decision if you are Voter 1.



C) If elected, Candidate is given **$15.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $15.00. Candidate can divide the $15.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $15.00} between Voter 1 and Voter 2.

Furthermore, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

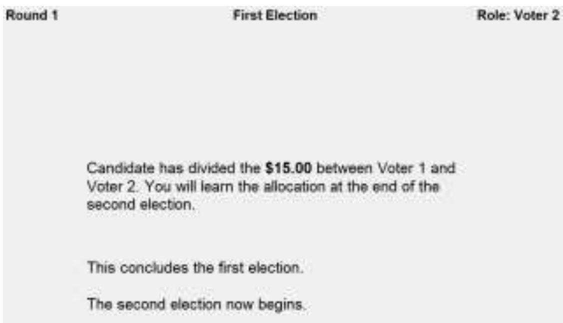
An example Candidate screen is shown below.



D) Finally, if Candidate is elected, Voter 1 learns about Candidate's allocation of the $15.00.

An example Voter 1 screen is shown below. In this example, Candidate happens to distribute $11.51 to Voter 1 and $3.49 to Voter 2. This is just an example and is not to suggest how you should make your decision if you are Candidate.

In contrast, Voter 2 does not learn about Candidate's allocation of the $15.00 until the round ends. An example Voter 2 screen is shown below.



If Candidate is elected in the first election, then you continue to the second election. Otherwise, the round is over.

3) Second Election:

The second election proceeds as follows. The example screens are left out as they are similar to the respective screens in the first election.

A) Voter 2 decides to **vote** for Candidate or **not vote**. Voting costs Voter 2 **$6.00** while not voting is **costless**.

B) Next, Candidate and Voter 1 learn about Voter 2's voting decision. If Voter 2 votes for Candidate, then Candidate is elected. Otherwise, Candidate is not elected and the round immediately ends.

C) If elected, Candidate is given **$10.00** to distribute in any proportion between Voter 1 and Voter 2. Candidate must distribute all of the $10.00. Candidate can divide the $10.00 in any amount {$0.00, $0.01, $0.02, $0.03, … , $10.00} between Voter 1 and Voter 2.

As in the first election, if Candidate is of Type 1, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 1. Similarly, if Candidate is of Type 2, then Candidate is given an additional $0.01 to keep for every $0.01 distributed to Voter 2.

D) Finally, Voter 2 learns about Candidate's allocation of the $15.00 in the first election. Furthermore, if Candidate is elected, Voter 1 and Voter 2 learn about Candidate's allocation of the $10.00 in the second election. This concludes the round.

Once the round ends, you proceed to the next round where you will be matched with new partners and receive a new $6.00 endowment.

SUMMARY: POTENTIAL EARNINGS PER ROUND

$$\text{Voter 1} = \begin{cases} \begin{array}{c} \$6.00 - \$6.00 \\ + \text{Allocation to Voter 1 first election} \\ + \text{Allocation to Voter 1 second election} \end{array} & \text{if Candidate elected in both elections} \\ \begin{array}{c} \$6.00 - \$6.00 \\ + \text{Allocation to Voter 1 first election} \end{array} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Voter 2} = \begin{cases} \begin{array}{c} \$6.00 - \$6.00 \\ + \text{Allocation to Voter 2 first election} \\ + \text{Allocation to Voter 2 second election} \end{array} & \text{if Candidate elected in both elections} \\ \begin{array}{c} \$6.00 \\ + \text{Allocation to Voter 2 first election} \end{array} & \text{if Candidate elected in first election only} \\ \$6.00 & \text{if Candidate unelected} \end{cases}$$

$$\text{Type 1 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 1 first election} \\ + \text{Allocation to Voter 1 second election} \end{array} & \text{if elected in both elections} \\ \$6.00 + \text{ Allocation to Voter 1 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

$$\text{Type 2 Candidate} = \begin{cases} \begin{array}{c} \$6.00 + \text{ Allocation to Voter 2 first election} \\ + \text{Allocation to Voter 2 second election} \end{array} & \text{if elected in both elections} \\ \$6.00 + \text{ Allocation to Voter 2 first election} & \text{if elected in first election only} \\ \$6.00 & \text{if unelected} \end{cases}$$

FINAL EARNINGS

Once the experiment is finished, the computer will randomly pick 1 round out of the 5 rounds that you completed. The earnings you made on that round will be your earnings for the experiment. Hence, you should make careful decisions in each round because it might be a paying round.

Are there any questions?