Supporting Information
Political Quid Pro Quo Agreements: An Experimental Study

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ABSTRACT

This document contains supplementary materials for the article "Political Quid Pro Quo Agreements: An Experimental Study", published in the *American Journal of Political Science*. It is organized as follows. The first section contains the proof for Prediction 1 and a detailed example to provide intuition for Predictions 2 and 3. The second section consists of additional information on the experimental procedures and a sample of the instructions used. The third section contains additional statistical analysis. Namely, the results of nonparametric tests for treatment differences and a regression analysis testing whether candidates reciprocate changes in transfers by the rich voter and vice versa in the *Transfers-Strangers* treatment. This analysis mirrors the regressions done for the *Transfers-Partners* treatment located in the main text of the article.

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Additional Theoretical Analysis

Proof of Prediction 1

We assume all players are self-interested and risk neutral and voters who face identical tax policies, $t_A = t_B$, vote randomly with equal probability for each candidate. These assumptions are common knowledge (thus, we analyze games with complete information), as are all other assumptions and procedures of the respective special interest and redistribution games described in the article. Moreover, we use iterated elimination of weakly dominated strategies in each stage of the game. We analyze the special interest game and redistribution game, in turn. This gives the following subgame perfect equilibria:

In the one-shot special interest game, in the election stage each voter votes sincerely for her preferred candidate: if $t_j < t_{-j}$ the rich voter R votes for candidate j and each poor voter P votes for candidate $-j$, and if $t_j = t_{-j}$ we assume all voters randomize their votes between the two candidates. This is because voting sincerely yields voter i a higher payoff than voting insincerely in cases where her vote is pivotal (that is: if n is odd, when there are $\frac{n-1}{2}$ votes for each candidate by all other $n-1$ voters, and if n is even, when there are $\left\lfloor\frac{n-1}{2}\right\rfloor$ votes for one candidate and $\left\lceil\frac{n-1}{2}\right\rceil$ votes for the other candidate by all other $n-1$ voters), and her payoff does not depend on her vote in all other, non-pivotal cases. Thus, voting sincerely weakly dominates voting insincerely. Each candidate anticipates the voters' equilibrium decisions in the election stage. Then, in the policy stage the two candidates immediately choose $t_A^* = t_B^* = 1$ and never change their tax policies. A tax policy of 1 weakly dominates any lower tax policy $t_j' < 1$ because t_j' yields the same payoff for j as t_j^* if $t_{-j} < t_j'$; a lower expected payoff than t_j^* if $t_{-j} = t_j'$; and a lower payoff than t_j^* if $t_{-j} > t_j'$ (this is similar to a Bertrand game with price competition among firms). Moreover, $t_A^* = t_B^* = 1$ are immediately chosen and never changed because doing so costs $c > 0$ (i.e., if in the policymaking process a candidate chooses a tax lower than 1, the opponent is always better off by choosing a higher tax than her opponent, even if costly since we assumed $\frac{b}{2} > c > 0$).

Then, anticipating an equilibrium winning tax policy of $t_w^* = 1$ in the policy stage, voter R chooses $m_R^* = 0$ in the money transfers stage because no strictly positive transfer can prevent self-interested candidates from choosing full redistribution in the subsequent stages (thus, any amount sent only reduces R's payoff). Moreover, using backward induction this subgame perfect equilibrium holds in each repetition of the finitely-repeated special interest game. Finally, it is straightforward to see that the same respective subgame perfect equilibria hold for the one-shot and finitely-repeated redistribution games, with the only difference that the rich voter makes no transfer decisions ■

Support for Prediction 2

In the following we derive the conditions under which tacit quid pro quo agreements between the rich voter and both candidates can arise in sequential equilibrium (Kreps and Wilson 1982) in the one-shot special interest game. We focus on equilibria involving symmetric transfers where $\underline{m} = m_{R\to A} = m_{R\to B} \in \left[0, \frac{e_R - \bar{e}}{2}\right)$. For equilibrium voting in the election stage see our proof of Prediction 1. The only difference to the games in Prediction 1 is that now we use two possible candidate types, reciprocal and self-interested (labeled r and s, respectively), and types are private information (hence, we analyze incomplete information games, using the argument of Kreps et al. 1982). With a common prior probability $\delta \in (0,1)$ a randomly chosen candidate is reciprocal, and with probability $1 - \delta$ she is self-interested. We define a reciprocator as a candidate j who chooses a tax policy $t_j^r < \underline{t} \leq 1$ if $m_{R\to j} = \underline{m} > 0$ and the other candidate chooses $t_{-j} \leq t_j^r$, where $\underline{t} = 1 - \frac{2\underline{m}}{e_R - \bar{e}}$ is the tax policy for which the rich voter's investment breaks even. If at least one condition is not fulfilled, a reciprocator chooses $t_j^r = 1$.[1] To keep our analysis simple, we assume the

[1] When discussing Prediction 3, we analyze an alternative reciprocal candidate type who returns the rich voter's favor even if the other candidate does not. In the one-shot special interest game either type results in the same equilibrium conditions.

policy change cost is nil, $c = 0$.[2] Then, for a tacit agreement to form in the one-shot special interest game it is necessary that $\underline{m} > 0$, both candidates are reciprocators (which happens with probability δ^2) and choose $t_A^r = t_B^r < \underline{t}$.

We use backward induction to derive in turn the optimal decisions of the candidates and the rich voter. In the policy stage, a self-interested candidate always chooses $t^s = 1$ (see the proof of Prediction 1). Moreover, a reciprocal candidate who moves first in the policymaking process always chooses $t^r = 1$ if $\underline{m} = 0$ and always chooses $t^r < \underline{t}$ if $\underline{m} > 0$, and she changes to $t^r = 1$ if the second mover chooses $t = 1$ (on the equilibrium path, this change occurs only if the second mover is self-interested, which happens with probability $1 - \delta$). Moreover, a reciprocal candidate who moves second chooses $t^r = 1$ if the first mover chose $t = 1$ and chooses the same tax policy as a first mover who chose $t^r \leq \underline{t}$ so that $t_A^r = t_B^r < \underline{t}$ (note that on the equilibrium path the former case only occurs if the first mover is self-interested, which happens with probability $1 - \delta$, and the latter case only occurs if the first mover is also reciprocal, which happens with probability δ).[3]

In the money transfer stage, anticipating the candidates' decisions in the policy stage, the rich voter transfers $\underline{m} > 0$ if and only if her expected payoff for this decision is larger than or equal to the expected payoff for $\underline{m} = 0$, that is if $\bar{e} + \delta^2(e_R - \bar{e})(1 - \underline{t}) - 2\underline{m} \geq \bar{e}$.[4] Solving for δ^2 yields

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[2] In order to have strictly positive gains from a tacit agreement, a transfer must offset a candidate's expected cost of policy change. It is straightforward to show that using $c = 0$ instead of $0 < c < \frac{b}{2}$ does not affect our prediction that sequential equilibria involving a tacit agreement exist.

[3] Note that $t^r < \underline{t}$ can be chosen such that it creates a split-the-difference between the rich voter and both candidates, as analyzed in the paper.

[4] Without loss of generality we assume a rich voter who is indifferent between both transfers amounts chooses $\underline{m} > 0$. Moreover, because our goal is to show that sequential equilibria with a tacit agreement exist, we do not address the decision of optimal strictly positive transfer amounts.

$$\delta^2 \geq \underline{\delta}^2 = \frac{2\underline{m}}{(e_R - \bar{e})(1 - t^r)} \quad (1)$$

for $t^r = t_A^r = t_B^r < \underline{t}$. Thus, in order for the rich voter to transfer $\underline{m} > 0$ it must hold that the common prior probability that both candidates are reciprocal is large enough, or $\delta \geq \underline{\delta}$. As expected, a larger $\underline{m}$ and $t^r < \underline{t}$ require a higher common prior probability.

In summary, pure strategy sequential equilibria involving a tacit agreement arise if $\delta \geq \underline{\delta}$, and $\underline{m}^* > 0$ and both candidates are reciprocal (i.e., they choose $t_A^* = t_B^* < \underline{t}$). On the other hand, if $\delta < \underline{\delta}$ the only sequential equilibrium is $\underline{m}^* = 0$ and $t_A^* = t_B^* = 1$, hence no tacit agreement arises. Note that in the equilibria discussed both candidates' final tax policies are always equal and hence they have equal winning chances.

Support for Prediction 3

Here we show for the finitely-repeated special interest game that sequential equilibria involving a tacit agreement are feasible with self-interested candidates and for parameter values for which they are infeasible in the one-shot version of the game. To keep things simple, we look at a two period game ($x = 1,2$) and abstract away from time discounting. We use backward induction, deriving in turn the candidates' and rich voter's optimal decisions in period 2 and period 1. First, we use the same reciprocator as in Prediction 2 to show that tacit agreements are feasible with self-interested candidates. Second, we use a different type of reciprocator to show that the necessary conditions for tacit agreements can be easier to satisfy in a finitely-repeated game compared to a one-shot game.

To start, assume that all the assumptions made in Prediction 2 continue to hold. If this is the case, decisions in period 2 are essentially the same as in the one-shot special interest game. The only difference is that at the start of period 2 the rich voter can update her belief that both candidates are reciprocal, $\beta(\delta, \underline{m}_1, t_{A,1}, t_{B,1})$, which depends on the common prior probability and the transfers and tax policies in period 1. Thus, similar to condition (1) the rich voter chooses $\underline{m}_2 > 0$ if and only if

$$\beta(\delta, \underline{m}_1, t_{A,1}, t_{B,1}) \geq \underline{\delta}_2^2 = \frac{2\underline{m}_2}{(e_R - \bar{e})(1 - t_2^r)} \tag{2}$$

for $t_2^r = t_{A,2}^r = t_{B,2}^r < \underline{t}_2$, where subscript $x = 1,2$ denotes the period.

In period 2 in the policy stage, a self-interested candidate never chooses $t_2^s < \underline{t}_2 \leq 1$. However, in period 1 she may choose $t_1^s < \underline{t}_1 \leq 1$ if she can mimic a reciprocator and keep up the rich voter's belief that both candidates are reciprocal at a sufficiently high level so that she will receive $\underline{m}_2 > 0$. In the following we analyze mixed strategies and denote $p = p_A = p_B \in [0,1]$ as the symmetric probability in period 1 that a self-interested candidate j who moves first chooses $t_{j,1}^s < \underline{t}_1$, and she chooses $t_{j,1}^s = 1$ with probability $1 - p$. Irrespective of her type, a second mover always chooses the same as the first mover (this is an optimal decision for a self-interested candidate because she does not benefit from changing her tax policy). Moreover, we denote $q_x \in [0,1]$ as the probability in period x that the rich voter transfers $\underline{m}_x > 0$, and she transfers $\underline{m}_x = 0$ with probability $1 - q_x$.

In period 1 in the policy stage, if $\underline{m}_1 = 0$ a self-interested candidate j knows a reciprocator always chooses $t_{-j,1}^r = 1$ on the equilibrium path and hence she too chooses $t_{j,1}^s = 1$ ($p = 0$) because she has nothing to gain by choosing a different tax policy and revealing her type. In contrast, if $\underline{m}_1 > 0$ a self-interested candidate j chooses $p = 1$ if and only if her expected payoff for both periods for this decision is larger than or equal to the expected payoff for $p = 0$, or

$$2\omega + b + \underline{m}_1 + \left[\delta + \tfrac{1}{2}(1+p)(1-\delta)\right] q_2 \underline{m}_2 \geq 2\omega + b + \underline{m}_1$$

$$\Leftrightarrow \delta + \tfrac{1}{2}(1+p)(1-\delta) \geq 0. \tag{3}$$

Note that $\delta + \frac{1}{2}(1+p)(1-\delta)$ gives the probability that the other candidate chooses $t_{-j,1} < \underline{t}_1$, which happens with probability δ if $-j$ is reciprocal, with probability $\frac{1}{2}p(1-\delta)$ if $-j$ is self-interested and moves first and with probability $\frac{1}{2}(1-\delta)$ if $-j$ is self-interested and moves second. If $q_2(\delta, p) > 0$ because condition (2) holds then the strict inequality always holds and equality never holds, yielding $p = 1$.[5] Thus, if $\underline{m}_1 > 0$ and condition (2) holds both candidate types always choose $t_{A,1} = t_{B,1} < \underline{t}_1 \leq 1$.

From the perspective of the rich voter in period 1, at the start of period 2 her updated belief that both candidates are reciprocal after observing $t_{A,1}$ and $t_{B,1}$ on the equilibrium paths is simply

$$\beta\left(\delta, \underline{m}_1 > 0, t_{A,1} = t_{B,1} < \underline{t}_1\right) = \beta\left(\delta, \underline{m}_1 = 0, t_{A,1} = t_{B,1} = 1\right) = \delta^2, \tag{4}$$

because self-interested candidates are not revealed.

Then, using condition (2), if $\delta < \underline{\delta}_2$ it follows that $q_2 = 0$ and thus $p = 0$ (because $\underline{m}_2 = 0$), and in period 1 the rich voter chooses $q_1 = 1$ if and only if

$$2\bar{e} - 2\underline{m}_1 + \delta^2(e_R - \bar{e})(1 - t_1^r) \geq 2\bar{e}$$

$$\Leftrightarrow \delta^2 \geq \underline{\delta}_1^2 = \frac{2\underline{m}_1}{(e_R - \bar{e})(1 - t_1^r)} \tag{5}$$

for $t_1^r = t_{A,1}^r = t_{B,1}^r < \underline{t}_1$. In contrast, if $\delta \geq \underline{\delta}_2$ it follows that $q_2 = 1$ and thus $p = 1$ (so that $\underline{m}_2 > 0$) and in period 1 the rich voter chooses $q_1 = 1$ if and only if

$$2\bar{e} - 2\underline{m}_1 - 2\underline{m}_2 + (e_R - \bar{e})(1 - t_1) + \delta^2(e_R - \bar{e})(1 - t_2^r) \geq 2\bar{e} - 2\underline{m}_2 + \delta^2(e_R - \bar{e})(1 - t_2^r)$$

$$\Leftrightarrow 1 \geq \underline{\delta}_1^2 = \frac{2\underline{m}_1}{(e_R - \bar{e})(1 - t_1)} \tag{6}$$

for $\underline{m}_1 > 0$ and $t_1 = t_{A,1} = t_{B,1} < \underline{t}_1$, which holds because $1 \geq \underline{\delta}_1$ always.

In summary, the same pure strategy sequential equilibrium involving a tacit agreement we derived in Prediction 2 can also arise in each period of the repeated special interest game. These equilibria require two reciprocal candidates. In addition, sequential equilibria with a tacit agreement can arise in the presence of one or two self-interested candidates in period 1, but then not in period 2.

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[5] This is intuitive, because a candidate can only gain by choosing a low tax policy and incurs no risk. That is, she can always ensure an expected tie in the election by making a costless policy change.

For example, if $\underline{m}_1 = \underline{m}_2 = \underline{m}$ and thus $\underline{t}_1 = \underline{t}_2 = \underline{t}$, we have $\underline{\delta}_1 = \underline{\delta}_2 = \underline{\delta}$ and there are two kinds of sequential equilibrium: (i) if $\delta < \underline{\delta}$ the rich voter chooses $q_1^* = q_2^* = 0$ and has a belief $\beta^* = \delta^2 < \underline{\delta}^2$, a self-interested candidate chooses $t_{j,1}^{s*} = t_{j,2}^{s*} = 1$ and a reciprocal candidate chooses $t_{j,1}^{r*} = t_{j,2}^{r*} = 1$ (i.e., a tacit agreement neither arises in period 1 nor in period 2); (ii) if $\delta \geq \underline{\delta}$ the rich voter chooses $q_1^* = q_2^* = 1$ and has a belief $\beta^* = \delta^2 \geq \underline{\delta}^2$, a self-interested candidate chooses $t_{j,1}^{s*} < \underline{t}_1$ and $t_{j,2}^{s*} = 1$, and a reciprocal candidate chooses $t_{j,1}^{r*} < \underline{t}$ and $t_{j,2}^{r*} = 1$ if she is matched with a self-interest candidate or $t_{j,2}^{r*} < \underline{t}$ if she is matched with a reciprocal candidate, where $t_{A,x}^* = t_{B,x}^*$. Thus, in the latter case, a tacit agreement arises in periods 1 and 2 if both candidates are reciprocal, which happens with probability δ^2, and in period 1 only if at least one candidate is self-interested, which occurs with probability $1 - \delta^2$.[6]

Next, we analyze another plausible reciprocal candidate type. We show that with this alternative type, a tacit agreement can be part of a mixed strategy sequential equilibrium even if $\delta < \underline{\delta}_2$. Suppose a reciprocal candidate j returns the rich voter's favor by choosing $t_j^r < \underline{t} \leq 1$ even if the other candidate $-j$ chooses $t_{-j} = 1$. Note that the decisions of the self-interest candidates and the rich voter in period 2 are essentially the same as before. Namely, the rich voter chooses $\underline{m}_2 > 0$ if and only if condition (2) holds and self-interest candidates always choose $t_{j,2}^{s*} = 1$.

Importantly, the behavior of the new reciprocator gives a self-interested candidate the opportunity to win the election with certainty if she is running against a reciprocal candidate. However, this extra bonus can be gained only in one period because it reveals her self-interested type. To be precise, similar to condition (3), if $\underline{m}_1 > 0$ a self-interested candidate j who moves first chooses $t_{j,1}^s < \underline{t}_1$ rather than $t_{j,1}^s = 1$ if and only if[7]

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[6] Note that in the one-shot special interest game, if $\delta \geq \underline{\delta}$ then tacit agreements occur only δ^2 of the time.

[7] As before, a self-interested candidate who moves second imitates the first mover's choice. Moreover, if $\underline{m}_1 = 0$ a self-interested candidate j always chooses $t_{j,1}^s = 1$.

$$2\omega + b + \underline{m}_1 + \left[\delta + \tfrac{1}{2}(1+p)(1-\delta)\right] q_2 \underline{m}_2 + \delta q_2 \frac{b}{2} \geq 2\omega + b + \delta\frac{b}{2} + \underline{m}_1$$

$$\Leftrightarrow p \geq \frac{\delta}{1-\delta}\left[\frac{(1-q_2)b}{q_2\underline{m}_2} - \frac{1+\delta}{\delta}\right], \tag{7}$$

which can hold with equality for $p \in [0,1]$ if $\frac{2q_2\underline{m}_2}{(1-q_2)b} \geq \delta \geq \frac{q_2\underline{m}_2}{(1-q_2)b - q_2\underline{m}_2}$, which implies $(1-q_2)\frac{b}{2} \geq q_2\underline{m}_2$.[8] In the expression, we can see the tradeoff faced by a self-interested candidate: she can choose $t_{j,1}^s = 1$, which gives her $\delta\frac{b}{2}$ in period 1 and a zero-transfer in period 2 with certainty, or choose $t_{j,1}^s < \underline{t}_1$, which gives her both $\delta\frac{b}{2}$ and $\underline{m}_2 > 0$ in period 2 with some probabilities.[9]

Note that, if $\underline{m}_1 > 0$ and condition (7) holds with equality for $p \in (0,1)$ then a self-interested candidate j who moves first strictly mixes between $t_{j,1}^s < \underline{t}_1$ and $t_{j,1}^s = 1$. Crucially, since $p < 1$ this implies that, after observing $t_{A,1} = t_{B,1} < \underline{t}_1$, the rich voter's updated belief that both candidates are reciprocators is *larger* than δ^2 and is given by[10]

$$\beta\left(\delta, \underline{m}_1 > 0, t_{A,1} = t_{B,1} < \underline{t}_1\right) = \frac{\delta^2}{\delta^2 + (1+p)\delta(1-\delta) + p(1-\delta)^2}. \tag{8}$$

To calculate the equilibrium mixing probabilities we use condition (2), which shows that the rich voter mixes between transferring $\underline{m}_2 > 0$ and $\underline{m}_2 = 0$ if and only if

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[8] In the expression, in addition to her choice $t_{j,1}^s < \underline{t}_1$, the probability that the other candidate chooses the same tax policy is $\delta + \frac{1}{2}(1+p)(1-\delta)$, and only in this event does the rich voter choose $\underline{m}_2 > 0$ and is the expected extra bonus $\delta\frac{b}{2}$ possible in period 2.

[9] Clearly, the tradeoff is relevant for low enough probabilities. Moreover, to get $\underline{m}_2 > 0$ choices must be such that condition (2) holds and $q_2(\delta, p) > 0$.

[10] The denominator is derived as follows. The rich voter faces with probability δ^2 two reciprocal candidates who both choose $t_{j,1}^r < \underline{t}_1$. With probability $2\delta(1-\delta)$ she faces candidates of different types. In this case, tax policies equal $t_{A,1} = t_{B,1} < \underline{t}_1$ with probability p if the first mover is self-interested and with probability one if the first mover is reciprocal, which gives $(1+p)\delta(1-\delta)$. Finally, with probability $(1-\delta)^2$ she faces two self-interested candidates who choose $t_{A,1} = t_{B,1} < \underline{t}_1$ with probability p, which yields $p(1-\delta)^2$.

$$\beta = \underline{\delta}_2^2 = \frac{2\underline{m}_2}{(e_R - \bar{e})(1 - t_2^r)}. \tag{9}$$

Combining expressions (8) and (9) and solving for p yields

$$p^* = \frac{\delta}{1-\delta}\left[\delta \frac{(e_R - \bar{e})(1 - t_2^r)}{2\underline{m}_2} - 1\right] \in (0,1), \tag{10}$$

where the term in brackets must be strictly positive, that is, the rich voter's expected gain from a tacit agreement in period 2 must be strictly larger than the transfer amounts, or $\delta(e_R - \bar{e})(1 - t_2^r) > 2\underline{m}_2$. Thus, in sequential equilibrium in strictly mixed strategies, p is increasing in δ and $(e_R - \bar{e})$ and decreasing in t_2^r and $\underline{m}_2$.[11] Lastly, stating condition (7) as equality, setting it equal to (10) and solving for q_2 yields

$$q_2^* = \frac{\delta b}{\underline{m}_2 + \delta b + \frac{1}{2}\delta^2(e_R - \bar{e})(1 - t_2^r)}. \tag{11}$$

Thus, in a sequential equilibrium in mixed strategies the probability q_2 is increasing in δ, b,[12] and t_2^r, and is decreasing in $(e_R - \bar{e})$ and $\underline{m}_2$.

In summary, allowing for a reciprocal candidate type who returns a transfer favor of the rich voter even if the other candidate does not can result in a sequential equilibrium in mixed strategies where self-interested candidates do not always mimic reciprocal candidates (sometimes they forfeit future transfers to try to win against a reciprocator in period 1). In such an equilibrium a rich voter is willing to choose $\underline{m}_1 > 0$ as long as her updated belief equals $\underline{\delta}_2^2$. This implies agreements can occur even if $\delta < \underline{\delta}_2$ but as long as

$$\delta > \frac{2\underline{m}_2}{(e_R - \bar{e})(1 - t_2^r)}.$$

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[11] It is easy to show for a multiple period special interest game that the equilibrium p decreases over periods. This is because self-interested candidates who choose $t_j^s = 1$ early reveal their type and lose all future transfers. This provides part of the intuition of Prediction 3 that the likelihood of tacit agreements declines over time.

[12] $\frac{\partial q_2}{\partial \delta} = \frac{b[\underline{m}_2 + \delta b + \frac{1}{2}\delta^2(e_R - \bar{e})(1 - t_2^r)] - \delta b[b + \delta(e_R - \bar{e})(1 - t_2^r)]}{[\underline{m}_2 + \delta b + \frac{1}{2}\delta^2(e_R - \bar{e})(1 - t_2^r)]^2} > 0$ because $\frac{2\underline{m}_2}{(e_R - \bar{e})(1 - t_2^r)} = \underline{\delta}_2^2 > \delta^2$ in the mixed strategy equilibrium (see condition (9)) and $\frac{\partial q_2}{\partial b} = \frac{\delta[\underline{m}_2 + \delta b + \frac{1}{2}\delta^2(e_R - \bar{e})(1 - t_2^r)] - \delta^2 b}{[\underline{m}_2 + \delta b + \frac{1}{2}\delta^2(e_R - \bar{e})(1 - t_2^r)]^2} > 0$.

The possibility of a larger updated belief in repeated encounters is another reason why in this experimental treatment more tacit agreements are observed than in one-shot encounters ■

Additional Experimental Materials

Experimental procedures

The computerized experiment was run in the laboratory of the Kellogg School of Management of Northwestern University in 2008. A total of 217 students participated in 20 sessions of eight to twelve subjects. Each session lasted one hour. At the end of a session, earnings were paid in cash at a rate of 50 points to one US dollar. Subjects earned an average of $21.27. The experiment was programmed with z-Tree (Fischbacher 2007).

As described in the article, we implemented four treatments: *Strangers-No Transfers*, *Strangers-Transfers*, *Partners-No Transfers*, and *Partners-Transfers*. Each treatment used 15 decision periods and each subject participated in two treatments, which were described as parts in the instructions. Subjects knew there would be two parts, but they received the instructions of the second part only after the first part was completed. Table A1 summarizes the experimental design and specifies the number of societies (i.e., independent observations) and subjects in each treatment and sequence.

Table A1 – Summary of experimental design

		Monetary transfers —within subjects—		
		No Transfers → *Transfers*	*Transfers* → *No Transfers*	Total
Matching	*Strangers*	5 (49)	6 (66)	11 (115)
—between subjects—	*Partners*	8 (48)	9 (54)	17 (102)

Note: The table shows the number of independent societies (and the number of subjects in parenthesis) used per matching protocol (*Strangers* or *Partners*). These numbers are also shown separately by the sequence in which the special interest (*Transfers*) and redistribution games (*No Transfers*) were played.

Experimental instructions

Below are the instructions of the *Strangers* treatments in the sequence *Transfers* → *No Transfers*. The instructions of the *Partners* treatments and the *No Transfers* → *Transfers* sequence are very similar and are available from the authors upon request.

General instructions

You are participating in an experiment on economic decision-making and will be asked to make a number of choices. If you follow the instructions carefully, you can earn money. At the end of the experiment, you will be paid your earnings in cash.

You are not allowed to communicate with other participants. If you have a question, raise your hand and we will gladly help you.

During the experiment your earnings will be expressed in points. Points will be converted to US dollars at the following rate: *50 points = $1.00*.

The experiment is strictly anonymous: that is, your identity and actions will not be revealed to others and the identity and actions of others will not be revealed to you.

At the beginning of the experiment, participants will be randomly assigned to different roles. Four of you will be assigned to the role of a *voter* and the rest will be assigned to the role of a *candidate*. You will keep the same role during the entire experiment.

The experiment consists of two parts. In the following paragraphs you will find the instructions for part one. The instructions for part two will be given to you once part one has ended.

Part 1 - Instructions

Part 1 of the experiment consists of 15 periods. As payment for this part, you will receive the sum of your earnings over the 15 periods. Each period is divided into four stages. They are described in detail below. For convenience, when appropriate, we describe the decision and information procedures for the voters on the left column and those for the candidates on the right column.

Voters	**Candidates**
Stage one In stage one, voters learn what their endowment in this period is. In each period, *one* of the four voters is randomly selected (each with equal probability) to receive an endowment of *130 points*. For convenience we refer to this voter as voter130. The three remaining voters receive and endowment of *10 points*, we refer to them as voter10.	*Stage one* In stage one, *all candidates* receive an endowment of *25 points*. In addition, candidates learn whether they are active or inactive in this period. In each period, *two* candidates are randomly selected to be active (each with equal probability). They will be randomly labeled as candidate 1 and candidate 2. Note that candidate 1 and 2 will be *different* participants in every period. In a given period, only active candidates make decisions and have the opportunity of earn additional points. Candidates that are inactive can follow the progress of the experiment on their screens.
Stage two In stage two, voter130 decides how many points to transfer to candidate 1 and to candidate 2. He can choose any combination of points from his/her endowment with a total amount between 0 and 130 points (0 and 130 inclusive). Voter10s do not make any transfers. Once voter130 makes a decision, the amount transferred to each candidate will be seen by all voters on the screen.	*Stage two* In stage two, candidate 1 and candidate 2 are informed of the amount of points they received from voter130. They will also be informed of the number of points transferred to the other active candidate.

Stage three In stage three, voters are informed of the percentage chosen by candidate 1 and by candidate 2.	*Stage three* In stage three, candidate 1 and candidate 2 each choose a percentage between 0% and 100% (0% and 100% inclusive). The precise procedure by which they arrive to their choice is described in detail in the next page.
Stage four In stage four, voters cast a vote in favor of candidate 1 or in favor of candidate 2. The candidate with more votes wins and his/her chosen percentage is used to determine the voters' earnings in this period. In case of a tie, a candidate is randomly selected to be the winner (each with equal probability). They way in which the winning percentage determines the voters' earnings, is described in detail below.	*Stage four* In stage four, candidates are informed of the number of votes each candidate received and whether they won or lost. Candidates that win receive *20 additional points* as earnings in this period. Candidates that lose do not receive additional points.

Choosing a percentage

In this section we describe the procedure used by candidate 1 and candidate 2 to choose a percentage. The procedure is divided in steps:

Step 1: Candidate 1 chooses a percentage, which is communicated to candidate 2.

Step 2: Candidate 2 chooses a percentage, which is communicated to candidate 1.

Step 3: Candidate 1 decides either to *accept* or to *change* his/her percentage. If candidate 1 accepts, the procedure ends and the two percentages are communicated to the voters. If candidate 1 changes his/her percentage, the new percentage is communicated to candidate 2 and the procedure continues to step 4.

Step 4: Candidate 2 decides either to *accept* or to *change* his/her percentage. If candidate 2 accepts, the procedure ends and the two percentages are communicated to the voters. If candidate 2 changes his/her percentage, the new percentage is communicated to candidate 1 and the procedure goes back to step 3.

Costs of changing percentage: There is a small cost of changing the percentage in step 3 or 4. Each time a candidate chooses to change his/her percentage it costs that candidate 1 point from his/her endowment. Note that the procedure does not end until one of the two candidates decides to accept.

Winning percentage and voters' earnings

The earnings of voters in each period are determined by the percentage chosen by the winning candidate. Specifically the earnings, in points, of voter10s are given by the following rule:

earnings = 10 + [percentage] × 30

And the earnings, in points, of voter130 are given by the following rule:

earnings = 130 – [percentage] × 90 – [transfer to candidate 1] – [transfer to candidate 2]

To illustrate how earnings are calculated we provide below a series of examples.

Example 1: Suppose voter130 decides not to transfer any points to both candidates. In this case, the voters' earnings for different winning percentages are given in the table below.

Winning percentage	*Earnings of voter130*		*Earnings of voter10s*	
0%	*130 points*	= 130 – 0.00 × 90	*10 points*	= 10 + 0.00 × 30
25%	*107.5 points*	= 130 – 0.25 × 90	*17.5 points*	= 10 + 0.25 × 30
50%	*85 points*	= 130 – 0.50 × 90	*25 points*	= 10 + 0.50 × 30
75%	*62.5 points*	= 130 – 0.75 × 90	*32.5 points*	= 10 + 0.75 × 30
100%	*40 points*	= 130 – 1.00 × 90	*40 points*	= 10 + 1.00 × 30

Example 2: Suppose now that voter130 transfers 15 points to candidate 1 and 25 points to candidate 2. In this case, the voters' earnings for different winning percentages are given in the table below.

Winning percentage	*Earnings of voter130*		*Earnings of voter10s*	
0%	*90 points*	= 130 – 0.00 × 90 – 15 – 25	*10 points*	= 10 + 0.00 × 30
25%	*67.5 points*	= 130 – 0.25 × 90 – 15 – 25	*17.5 points*	= 10 + 0.25 × 30
50%	*45 points*	= 130 – 0.50 × 90 – 15 – 25	*25 points*	= 10 + 0.50 × 30
75%	*22.5 points*	= 130 – 0.75 × 90 – 15 – 25	*32.5 points*	= 10 + 0.75 × 30
100%	*0 points*	= 130 – 1.00 × 90 – 15 – 25	*40 points*	= 10 + 1.00 × 30

Candidates' earnings

The earnings of the candidate who wins are given by:

earnings = 25 + 20 + [transfer from voter130] - [costs incurred when choosing a percentage]

The earnings of the losing candidate are given by:

earnings = 20 + [transfer from voter130] - [costs incurred when choosing a percentage]

Here are a couple of examples.

Example 1: If a candidate changes his/her percentage four times, receives 5 points from voter130, and wins the election, his/her earnings equal: *46 points* = 25 + 20 + 5 – 4 × 1.

Example 2: If a candidate changes his/her percentage four times, receives 25 points from voter130, and loses the election, his/her earnings equal: *49 points* = 25 + 25 – 1 × 1.

Instructions for Part Two of the Experiment

The first part of the experiment has finished. In the second part of the experiment you will play the same game expect for one important difference: *voter130 cannot transfer any points to candidates* (i.e. the sequence of moves is the same but without stage two). The second part of the experiment will last 15 periods. Please press the button to continue.

Additional Statistical Analysis

Nonparametric Tests

We briefly report the results of testing for statistical differences between treatments using nonparametric tests. We use Fligner-Policello robust-rank-order tests for between-subject comparisons and Wilcoxon signed-rank tests for within-subject comparisons. We use society means as the unit observations.

We find that tax policies and winning tax policies are lower in *Partners-Transfers* compared to each of the other treatments (one-tailed tests, $p \leq 0.056$ and $p \leq 0.053$). There are no significant differences in tax policies and winning tax policies between *Strangers-No Transfers*, *Strangers-Transfers*, and *Partners-No Transfers* (one-tailed tests, $p > 0.240$), with one exception: tax policies (but not winning tax policies) are significantly lower in *Strangers-No Transfers* than *Strangers-Transfers* (one-tailed test, $p = 0.023$). With respect to the amount transferred, we find no significant differences between *Strangers-Transfers* and *Partners-Transfers* (one-tailed test, $p = 0.241$).

Reciprocity in Transfers-Strangers

Here, we redo the regression analysis seen in the main text of the article for *Transfers-Strangers*. We start with the effect of changes in transfers on tax policies. Table A1 presents the results of the specification used in the regressions of Table 2. We slightly modify this specification because in *Strangers* candidates are randomly drawn every period, and therefore, period $x-1$ does not necessarily refer to the period previously played by a given candidate j. Specifically, the dependent variable in Table A1 is now the change in candidate j's tax policy in percentage points from period $x-\delta$ to period x, $(t_{j,x}-t_{j,x-\delta})\times 100$, where δ equals the number of periods since j played as an active candidate.[13] Similarly, our independent variables are equally modified so that they point to period $x-\delta$ instead of period $x-1$. Moreover, since candidate j might not be active in period $x-1$ but still be affected by observing others, we control for events that occur in period $x-1$. To be precise, we add three independent variables. First, we include a variable that equals the difference between the transfer received by candidate j in period x and the mean transfer received by candidates k and $-k$ in period $x-1$ if $j\notin\{k,-k\}$ (zero otherwise): $m_{R\to j,x}-\frac{1}{2}\big(m_{R\to k,x-1}+m_{R\to -k,x-1}\big)$. Second, we include an interaction term between this first additional variable and the number of periods played, $\big[m_{R\to j,x}-\frac{1}{2}\big(m_{R\to k,x-1}+m_{R\to -k,x-1}\big)\big]\times x$. The third additional independent variable captures the candidates' reaction to lack of coordination by others. We use a variable that equals the absolute difference in tax policies between candidates k and $-k$ in period $x-1$ if $j\notin\{k,-k\}$ (zero otherwise): $|t_{k,x-1}-t_{-k,x-1}|\times 100$. As in Table 2, the regression is run with subject fixed effects, robust standard errors clustered on societies (White, 1980), and expressing tax policies in percentage points.

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[13] We also ran regressions where we use as the dependent variable the difference between the tax policy chosen by candidate j in period x and the mean tax policy chosen in period $x-1$: $\left(t_{j,x}-\frac{1}{2}\big(t_{k,x-1}+t_{-k,x-1}\big)\right)\times 100$ and $j\notin\{k,-k\}$. The conclusions we draw from the regressions in Table A1 do not change in this alternative specification.

Table A1 – Determinants of changes in tax policies in *Transfers-Strangers*

Independent variables	Coefficient	Std. Err.
$m_{R\to j,x} - m_{R\to j,x-1}$	−0.167	(0.315)
$\left(m_{R\to j,x} - m_{R\to j,x-1}\right) \times x$	0.021	(0.032)
$m_{R\to j,x} - \frac{1}{2}\left(m_{R\to k,x-1} + m_{R\to -k,x-1}\right)$	0.416	(0.274)
$\left[m_{R\to j,x} - \frac{1}{2}\left(m_{R\to k,x-1} + m_{R\to -k,x-1}\right)\right] \times x$	−0.040	(0.028)
$\max\left[\left(t_{j,x-\delta} - t_{-j,x-\delta}\right) \times 100, 0\right]$	0.047	(0.034)
$\max\left[\left(t_{-j,x-\delta} - t_{j,x-\delta}\right) \times 100, 0\right]$	1.558***	(0.091)
$\left\lvert t_{k,x-1} - t_{-k,x-1}\right\rvert \times 100$	0.010	(0.064)
x	−0.232	(0.356)
Constant	−4.876	(3.068)
Number of observations	260	
Number of subjects	68	
Number of societies	11	
R^2	0.260	

Notes: OLS regressions with changes in candidate *j*'s tax policy from period $x - \delta$ to period x as dependent variable: $\left(t_{j,x} - t_{j,x-\delta}\right) \times 100$. Robust standard errors are given in parenthesis. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level.

As we can see in Table A1, there is no evidence of candidate reciprocity. The coefficient for the change in the amount transferred is negative, but it is small and is not statistically significant (p = 0.607). In fact, none of the variables measuring potential effects of changes in transfers have a significant effect on tax policies (p > 0.160). By contrast, just like in *Partners,* we do see that candidates significantly increase their tax policy in period x if they experience a negative difference in tax policies in period $x - \delta$ ($p \leq 0.001$). This behavior combined with the lack of reciprocity explains why in spite of positive transfers by rich voters, candidates in *Strangers* rarely deviate from a tax policy of 1, and when they do, it does not produce further deviations from full redistribution.

Next, we look at the determinants of the rich voters' decisions to transfer points to the candidates. In Table A2 we present regressions with a similar specification to the regressions in Table 3 in the main text of the article. As mentioned above, analyzing how subjects adjust their decisions is not as straightforward in *Strangers* as it is in *Partners* due to random matching. The regressions in Table A2 analyze how rich voters adjust their transfer decisions in two different ways. In one case, we look at how transfer decisions change from period to period ignoring the fact that typically different subjects are playing in the role of the rich voter (i.e., the dependent variable is the change in transfers from period $x-1$ to period x, $m_{R,x}-m_{R,x-1}$). In other words, this regression looks at whether rich voters reciprocate the tax policies of candidates even though in all likelihood those tax policies where experienced by another rich voter. Accordingly, we label this regression "Others' experience". For this specification the independent variables are constructed in the same way as those in Table 3. In the other case, we look at how specific subjects change their transfer decisions ignoring the fact that in most cases their decisions are not taken continually. We label this regression "Own experience". The specification and variables are similar to those in Table 3. The only difference is that when calculating lagged variables, instead of periods $x-1$ and $x-2$, we use periods $x-\delta_1$ and $x-\delta_2$, where period $x-\delta_1$ refers to the last period voter i played as a rich voter and the period $x-\delta_2$ refers to the second-to-last period i played as a rich voter (e.g., the dependent variable is now the change in transfers from period $x-\delta_1$ to period x, $m_{R,x}-m_{R,x-\delta_1}$). Lastly, we drop the interaction terms with the period (see Table 3) since in *Strangers-Transfers* we don't have enough observations of changes in tax policies to estimate the coefficients of these variables. The regressions are run with society fixed effects and with robust standard errors clustered at the society level (White, 1980).

Table A2 – Determinants of changes in transfers in *Transfers-Strangers*

	Other's experience		Own experience	
$(t_{w,x-\delta_1} - t_{w,x-\delta_2}) \times 100$ if $m_{R,x-\delta_1} > m_{R,x-\delta_2}$	0.819	(0.571)	–0.683***	(0.201)
$(t_{w,x-\delta_1} - t_{w,x-\delta_2}) \times 100$ if $m_{R,x-\delta_1} \leq m_{R,x-\delta_2}$	–0.078	(0.338)	–0.211	(0.170)
$\Delta t_{x-\delta_1} - \Delta t_{x-\delta_2}$ if $m_{R,x-\delta_1} > m_{R,x-\delta_2}$	–1.236**	(0.451)	0.387	(0.321)
$\Delta t_{x-\delta_1} - \Delta t_{x-\delta_2}$ if $m_{R,x-\delta_1} \leq m_{R,x-\delta_2}$	–0.139	(0.130)	0.119	(0.139)
1 if $l_{R,x-\delta_1} > m_{R,x-\delta_2}$	–15.097**	(6.579)	–23.583	(13.013)
x	–0.797*	(0.435)	0.483	(0.649)
Constant	17.071**	(5.420)	–4.370	(6.551)
Number of observations	116		78	
Number of societies	11		11	
R^2	0.116		0.148	

Notes: In the first OLS regression, the dependent variable equals the change in the rich voters' total monetary transfers from period $x-1$ to period x, $m_{R,x} - m_{R,x-1}$. Moreover, note that in the description of the independent variables, $\delta_1 = 1$ and $\delta_1 = 2$ in this regression. In the second OLS regression, the dependent variable equals the change in the rich voters' total transfers from period $x - \delta_1$ to period x, $m_{R,x} - m_{R,x-\delta_1}$. Robust standard errors clustered within societies are in parenthesis. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level.

The first column of Table A2 tells us that rich voters significantly decrease their transfers if they observe a previous increase in transfers that is followed by no reaction from the candidates (see the coefficient of 1 if $m_{R,x-\delta_1} > m_{R,x-\delta_2}$, p = 0.045) or by an decrease in the losing tax policy (i.e., an unsuccessful attempt at coordination on low tax policies, see the coefficient of $(\Delta t_{x-\delta_1} - \Delta t_{x-\delta_2}) \times 100$ if $m_{R,x-\delta_1} > m_{R,x-\delta_2}$, p = 0.021). The second column in Table A2 reveals that rich voters do reciprocate previous increases in the winning tax policy by increasing the amount transferred (see the coefficient of $(t_{x-\delta_1} - t_{x-\delta_2}) \times 100$ if $m_{R,x-\delta_1} > m_{R,x-\delta_2}$, p = 0.007). Probably, this behavior does not translate into tacit agreements due to the lack of reciprocity by candidates (see Table A1).

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