Political *Quid Pro Quo* Agreements:
An Experimental Study[*]

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ABSTRACT

We experimentally study the common wisdom that money buys political influence. In the game, one special interest (i.e., a corporate firm) has the opportunity to influence redistributive tax policies in her favor by transferring money to two competing candidates. The success of the investment depends on whether or not the candidates are willing and able to collude on low-tax policies that do not harm their relative chances in the elections. In the experiment, successful political influence never materializes when the firm and candidates interact just once. By contrast, it yields substantially lower redistribution in about 40% of societies with finitely-repeated encounters. However, investments are not always profitable, and profit-sharing between the firm and candidates depends on prominent equity norms. Our experimental results shed new light on the complex process of buying political influence in everyday politics and help explain why only relatively few firms do actually attempt to influence policymaking.

Keywords: money in politics, political quid pro quo, redistribution, elections, collusion

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It is commonly believed that in the U.S. "money in politics" is abundant and corrupt, and therefore it markedly reduces the nation's welfare (Schattschneider 1960). After all, many special interests *are* present in Washington (e.g., corporate firms, trade associations, and labor unions) and for one reason only: to influence politics to their liking (e.g., Baumgartner and Leech 1998; Schlozman and Tierney 1986). However, some scholars point out that it is not obvious that money exerts an important influence in politics (e.g., Ansolabehere, de Figueiredo, and Snyder 2003). For example, it is argued that the amount of money in politics is fairly small compared to the stakes (Tullock 1972a)[1] and campaign donors ought to have little leverage because contributions come from many individuals and typically in small amounts. Therefore, it is argued that campaign contributions are first and foremost an act of political participation and are not part of *quid pro quo* agreements between special interests and politicians (Ansolabehere, de Figueiredo, and Snyder 2003).

In spite of these arguments, there are good reasons to suspect there is some truth behind the common belief that money in politics is undesirable. First, in spite of being banned,[2] political *quid pro quo* can occur outside publicly observable channels (e.g., de Figueiredo and Garrett 2005). Second, for economically powerful special interests, most of which are large corporate firms, giving as an investment that increases profits is a more plausible explanation than political participation (e.g., Gordon, Hafer, and Landa 2007; Hansen, Mitchell, and Drope 2005; Richter, Samphantharak, and Timmons 2009; Snyder 1990; Welch 1974). Moreover, returned favors to such interests, like specific tax breaks, subsidies, and regulations, can be easily concealed as an economic necessity and are therefore hard to quantify. Third, "collusion between major candidates may also take the form of an agreement on a common view with regard to a given policy issue (...) even though the common position is

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[1] For example, U.S. government spending totaled $3.5 Trillion in 2010, which is more than a thousand times larger than the combined political contributions of all special interests (see also Milyo, Primo, and Groseclose 2000).

[2] Because of the public concerns, *quid pro quo* agreements between special interests and policymakers are banned by law. For example, preventing such agreements is the primary aim of the Bipartisan Campaign Reform Act of 2002 and the Lobbying Disclosure Act of 2005.

clearly different from the one chosen by the average voter, and bias is in favor of a specific industry, organized union, or other group of potential contributors" (Ben-Zion and Eytan 1974, pp. 8-9). Finally, even if the impact of money in politics is overestimated by the public, this belief can affect the public's political trust and behavior (e.g., Hetherington 1998, 1999). All these observations hint to a darker side to money in politics that is worth exploring.

In this article, our objective is to study the circumstances under which political *quid pro quo* occurs and the mechanisms that facilitate it. Specifically, we study how and under what conditions a special interest and two antagonistic policymakers can benefit from tacitly colluding at the expense of a majority of voters.[3] We focus on a single special interest to represent the situation faced by individual corporate firms, which have been identified as the main investors in political favors (especially for private goods such as specific tax breaks, subsidies, and regulations, see Hansen, Mitchell, and Drope 2005; Richter, Samphantharak, and Timmons 2009; Tullock 1972b; Welsh 1974). We use game theory and a laboratory experiment, which give us two important abilities.[4] First, we can measure the effects of political *quid pro quo* in the most direct way: by comparing decisions and policy outcomes in a setting where the special interest has the opportunity to influence policymaking to one where it does not. Second, we can control the costs and benefits of political *quid pro quo* and therefore evaluate its welfare implications.

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[3] For a related approach, see the model of Bental and Ben-Zion (1975) in which one special interest transfers money to two competing candidates to influence their policy platforms. Another approach has been to analyze the situation where multiple special interests influence one policymaker (e.g., Grossman and Helpman 1994). Unlike this article, in both approaches it is assumed that special interests and candidates/policymakers can always make binding agreements.

[4] There are a few laboratory experiments investigating special interests from a different perspective: e.g., Kirchsteiger and Prat (2001) study a game with one policymaker and multiple competing special interests and Potters and van Winden (2000) study a signaling game between a policymaker and a lobbyist. See also the survey experiment of Jensen et al. (2010) where policymakers compete via tax incentives for local investments of firms under the shadow of elections.

Our game captures important strategic incentives inherent in most political *quid pro quo* agreements. It includes one special interest, two competing candidates, and a set of voters. At the heart of the game is the opportunity of the triad of the special interest and both candidates to collude by exchanging transfers and policy favors in order to profit at the expense of the majority of voters. Like in the field, we do not allow candidates and the special interest to write enforceable contracts. Therefore, *quid pro quo* agreements must be formed *tacitly* through observed decisions and self-enforced through norms of trust and reciprocity (Milyo, Primo, and Groseclose 2000; Snyder 1992). Whether repeated encounters are necessary for self-enforcement of political *quid pro quo* is an important question. Astonishingly few studies examine tacit agreements as an ongoing relationship between special interests and policymakers (e.g., Kroszner and Stratmann 1998, 2005; Potters and van Winden 1990; Snyder 1992; Snyder and Ting 2008; and Stratmann 1995). To study this question, we compare behavior in the one-shot and finitely-repeated versions of our game. We show that, under plausible assumptions, tacit *quid pro quo* agreements can exist in equilibrium in spite of the fact that candidates are accountable to the voters and the special interest does not have a guarantee that its investment will be repaid. Moreover, political *quid pro quo* is particularly likely with repeated interaction precisely because repetition provides a stronger incentive to enforce reciprocity norms. We later discuss extensions and limitations of our game in a separate section.

Related literature

Observational studies on the influence of special interests provide evidence in favor of both the view that money in politics is foremost due to political participation and the view that it is part of *quid pro quo* agreements. For example, Ansolabehere, de Figueiredo, and Snyder (2003) survey the literature on campaign giving and legislative voting (mostly in the U.S. Congress), which is large due to the availability of legislative voting data, and find that PAC giving has no or little influence on voting outcomes. However, the ability of these studies to assess the influence of special interests is limited. Particularly, they do not take into account that special interests can affect earlier steps in the legislative process like the committees

where bills are proposed and negotiated (e.g., Dal Bó 2007; Hall and Wayman 1990; Kroszner and Stratmann 1998; Snyder 1992; Wright 1996).[5] Observational studies that measure the monetary return of political investments do not suffer from this limitation, but unfortunately, they are very rare. De Figueiredo and Silverman (2006) find that a 10 percent increase in lobbying by a university represented in a House or Senate Appropriations Committee increases its earmarks by 3.5 percent. Richter, Samphantharak, and Timmons (2009) find that an average corporate firm that spends $1 more on lobbying reduces its effective taxes by $6 to $20. Paradoxically, they also find that less than 10 percent of the firms choose to lobby. In other words, these studies confirm that only a small subset of potential interests spends money in politics, but they also find that when they do, they receive a large return to their investment.

Theoretical studies on special interest politics often examine a political market constrained by voter preferences where policymakers supply and special interests demand "services" such as tax breaks and subsidies (e.g., Baron 1989; Bental and Ben-Zion 1975; Ben-Zion and Eytan 1974; Denzau and Munger 1986; Snyder 1990; Stigler 1971; Welch 1974).[6] These models make testable equilibrium predictions about specific relationships (e.g., that special interests invest more in policymakers with higher electoral chances) and broader welfare implications of money in politics. Usually, for reason of tractability, an exogenous influence function is assumed that relates giving to favors (i.e., a "black box" approach). By contrast, we tackle the self-enforcement problems of political *quid pro quo* and derive special interest influence endogenously as part of the equilibrium (as in Potters and van Winden 1990). Other studies examine in more detail the informational role of lobbying, mostly as signaling games (e.g., Ainsworth 1993; Austen-Smith 1993; Austen-Smith and Wright 1994; Potters and van Winden 1992). In evaluating their options, policymakers depend on the

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[5] Kroszner and Stratmann (1998) argue that competition among special interests resulted in committee structures that favor long-term relationships between special interests and policymakers (e.g., standing and specialized committees).

[6] For a couple of surveys see Grossman and Helpman (2001) and Morton and Cameron (1992).

specialized knowledge of lobbyists, who can trick them into decisions they would not make if fully informed.[7] In our game, the only informational asymmetry is the players' intrinsic willingness to collude.

There is also research analyzing the precise channels through which special interest influence policymaking. The most common *quid pro quo* strategy of special interests is presumably to gain access to powerful policymakers via campaign giving and then exert influence for favors, especially via lobbying (e.g., Austen-Smith 1995; Denzau and Munger 1986; Hall and Wayman 1990; Hojnacki and Kimball 1998; Schlozman and Tierney 1983; Wright 1990, 1996).[8] For example, in private meetings it is much easier for the special interest to convey its collusive objectives to the policymaker, and vice versa. Note that campaign giving and lobbying *per se* are legal within given limits, making it even harder to prove a *quid pro quo* incident. Tripathi, Ansolabehere, and Snyder (2002) find empirical evidence of a combined strategy of campaign giving and lobbying, i.e., a strong positive correlation between both activities (strongest for corporate firms). It is illuminating that although only a fifth of all special interests have both a PAC and a lobbyist, these account for 70 (86) percent of all special interest expenditures (PAC contributions). Moreover, special interests that emphasize lobbying—such as corporate firms, which account for 56 (40) percent of all lobbying expenditures (PAC contributions)—give: more to powerful policymakers like committee chairs, party leaders, and pivotal legislators; more equally to both parties; and more broadly across the ideological spectrum (see also Baron 1989; Ben-Zion and Eytan 1974; Hojnacki and Kimball 1998). For tractability, in our game we abstract away from multiple channels of

[7] Lobbying is usually defined as information transmission from special interests to policymakers, where the former seek to persuade the latter that they share common objectives (e.g., Grossman and Helpman 2001). This can take many forms such as drafting bills, persuading policymakers to advertise objectives in committees, testifying in congressional hearings, and providing research results and technical information (e.g., Heinz et al. 1993; Nownes and Freeman 1998; Schlozman and Tierney 1983, 1986), which allow special interests to directly recoup their investments (Hall and Wayman 1990).

[8] In total, much more money is spent on lobbying than on campaign giving (e.g., Milyo, Primo, and Groseclose 2000).

influence. Namely, we simplify the combined strategy of campaign giving and lobbying to money transfers from the special interest to the candidates, which is sufficient to capture the basic incentives faced by those involved.

Studies on non-binding political *quid pro quo* agreements in long-term relationships between special interests and policymakers are extremely rare. With this article we add to the literature discussed above by being the first to examine these relationships in the laboratory. This allows us to test empirically, in a more direct way, the circumstances under which tacit *quid pro quo* agreements can emerge and also measure the welfare consequences of such collusions. Our findings are important to evaluate a large theoretical literature that assumes *quid pro quo* agreements are real and to improve policies that seek to prevent special interest influence.

The special interest game and equilibrium predictions

The special interest game

The special interest game models the opportunity of a special interest to influence redistributive policies in her favor and in detriment of a majority of voters by transferring money to political candidates who compete in elections.[9]

Consider a "society" with $i = 1, \ldots, n \geq 3$ voters and two candidates, $j = A, B$. Each voter i has an initial income of $e_i \geq 0$ points, where $\bar{e} \equiv \frac{1}{n} \sum_{i=1}^{n} e_i$ denotes the average voter income. We assume there is one rich voter, labeled R, with $e_R > \bar{e}$ and $n - 1$ poor voters, labeled P, each with equal income $e_P < \bar{e}$.[10] Moreover, both candidates have the same initial income of $\omega = \omega_A = \omega_B \geq 0$ points. The players take part in the following three-stage game.

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[9] We use redistribution because it is sufficient to create a tension between the special interest and the majority. More generally, one could examine endogenous economic production or growth, which also involves redistributive tension (e.g., Großer and Reuben 2012).

[10] While the terminology of rich and poor voters is convenient and mirrors their initial incomes, our game captures more generally the idea that a special interest can gain at the expense of a majority.

Money transfers stage: In the first stage, the rich voter, i.e. the special interest, can make a monetary transfer to each candidate j, $m_{R \to j} \geq 0$, with the restriction that the total amount transferred cannot exceed her initial income: $m_R \leq e_R$ where $m_R \equiv m_{R \to A} + m_{R \to B}$. Importantly, candidates have no obligations toward the rich voter upon receiving transfers. Note that by having only one rich voter, we are assuming that the special interest is organized while majority-voters are not (i.e., poor voters cannot make transfers).

Policy stage: In the second stage, each candidate chooses a binding redistributive tax policy, $t_j \in [0,1]$, which determines the degree to which the rich voter must share her income with the poor voters. Specifically, if candidate j's tax policy applies, each voter's after-tax income is given by $e_{i,t_j} \equiv e_i + t_j(\bar{e} - e_i)$. The two extreme cases are: zero redistribution, which leaves initial incomes unaffected, and full redistribution, which imposes the same income $\bar{e}$ on all voters. Candidates make decisions using the following procedure: j chooses her tax policy first, and $-j \neq j$ chooses her tax policy after observing t_j. Thereafter, candidate j observes t_{-j} and can either continue to the third stage or change her tax policy at a (small) cost of $c = c_A = c_B > 0$ points. If she opts for a change, candidate $-j$ observes the new t_j and gets to either continue to the third stage or change her tax policy at a cost, and so on. The procedure only ends when a candidate chooses to continue. We use this procedure because it guarantees that if candidates choose differing tax policies, it is because they desire to do so and not because they have the wrong expectation of what their opponent's choice will be. This procedure captures the fact that by the time an election takes place, candidates have been able to observe and react to the policy choices of their opponent (for example, this can happen in a specialized legislative committee responsible for the tax policy).[11]

Election stage: In the third stage, the final tax policies t_A and t_B are made public and candidates compete in simple majority elections (a tie is broken randomly with equal probability for each candidate). Voters simultaneously and independently vote either for candidate A or for candidate B (abstention is not an option). The winning candidate, w,

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[11] Note that all the equilibrium predictions described in this section hold if candidates were to choose their tax policies simultaneously.

receives a bonus of b points (where $\frac{b}{2} > c > 0$), and her tax policy, t_w, determines the after-tax incomes of the voters as described above. The loser gets no bonus and her tax policy is inconsequential. Then, candidate j's expected payoff is

$$E[\pi_j] = \omega + m_{R \to j} - C_j + \begin{cases} b & \text{if } V_j > V_{-j} \\ \frac{1}{2}b & \text{if } V_j = V_{-j}, \\ 0 & \text{if } V_j < V_{-j} \end{cases}$$

where C_j denotes her total costs of tax policy changes and V_j (V_{-j}) denotes the total number of votes for j ($-j$). Moreover, the rich voter's payoff is $\pi_R = e_R - m_R - t_w(e_R - \bar{e})$ and each poor voter's payoff is $\pi_P = e_P + t_w(\bar{e} - e_P)$.

The redistribution game

The redistribution game is the same as the special interest game except that there is no money transfers stage. Comparing both games allows us to analyze the effects of having the opportunity to make money transfers on redistribution.

Experimental parameters

In the experiment, we use $n = 4$ voters. At the beginning of the game, the rich voter receives $e_R = 130$ points and each poor voter receives $e_P = 10$ points. In the special interest game, the rich voter can transfer up to 130 points in any combination of integer numbers to the two candidates, i.e., $m_R \in \{0,1,\dots,130\}$ points. Moreover, each candidate received an income of $\omega = 25$ points and the bonus for winning the election was $b = 20$ points. A tax policy in the experiment is an integer percentage, $t_j \times 100 \in \{0,1,\dots,100\}$, and each tax policy change cost $c = 1$ point. Net of transfers in the special interest game, these parameters imply an average voter payoff of $\bar{e} = 40$ points and an average expected candidate payoff of $\frac{1}{2}E[\pi_A] + \frac{1}{2}E[\pi_B] = 35$ points.[12]

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[12] These parameters guarantee sufficient initial inequality between rich and poor voters to give rich voters a strong incentive to try to lower taxes. Incomes under full redistribution were chosen to be almost equal to ensure that transfers and low tax policies are not the result of a desire to equalize earnings.

Equilibrium predictions

In this subsection we derive equilibrium predictions for the special interest and redistribution games. We distinguish between situations where money transfers are prohibited or do not materialize (Prediction 1) from those where they can occur (Predictions 2 to 4).

First, we examine societies, assuming that everyone is self-interested and this is common knowledge (as are all procedures and parameters of the game).[13] Moreover, we use subgame perfection and refine our predictions by focusing on weakly undominated strategies in each stage of the game and by assuming that voters who face identical tax policies vote randomly with equal probability for each candidate. Under these assumptions, subgame perfect equilibrium yields the following prediction:

Prediction 1 (Zero transfers and full redistribution): *In the one-shot and finitely-repeated special interest game with only self-interested players, the rich voter makes zero transfers ($m_R^* = 0$), both candidates immediately choose and accept full redistribution ($t_A^* = t_B^* = 1$), and all voters vote randomly between the two candidates. The respective predictions are the same for the one-shot and finitely-repeated redistribution game, except that the rich voter does not make any transfer decisions.*

Proof: The proof for Prediction 1 is available in the Supporting Information. The intuition is straightforward: since a higher tax policy will always win the election and candidates are not required to lower their tax policy upon receiving a money transfer, full redistribution is always selected and the rich voter does not have an incentive to make positive transfers to the candidates.

Prediction 1 serves as a benchmark. Next, we concentrate on situations where *tacit agreements* can emerge. Let us define a tacit agreement as a combination of transfers and a

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[13] For our experimental parameters, predictions do not differ markedly if we assume that some or all players care about the degree of inequality within the society (e.g., Fehr and Schmidt 1999). This is because, with tax policies close to 1, earnings are almost equal and lower tax policies generally increase inequality. Calculations are available upon request.

winning tax policy where each member of the coalition of the rich voter R and both candidates A and B earns strictly more than in the benchmark Prediction 1. Note that any such agreement always hurts the poor voters since it reduces their proceeds from redistribution. Agreements are tacit, as we allow players to communicate only through observed decisions.

To understand the emergence of tacit agreements, we examine societies where self-interested players can coexist alongside *reciprocators*: players who reciprocate the cooperative actions of others.[14] Additionally, we assume that players know their own type, but they have incomplete information regarding the types of other players and this is common knowledge (all other assumptions remain the same). In the analysis that follows, we are interested in the possibility of collusion among the rich voter and two candidates against the majority's will of full redistribution. We apply the argument of Kreps et al. (1982) to understand how the potential presence of reciprocators affects our predictions in one-shot encounters (Prediction 2) and finitely-repeated encounters (Prediction 3). For these predictions, we provide intuition rather than presenting the sequential equilibria underlying them (for a more detailed analysis, see the Supporting Information).

Prediction 2 *(Tacit agreements with one-shot encounters): In the one-shot special interest game with incomplete information about the other players' types—who are either self-interested or reciprocal—tacit agreements can occur only if both candidates are reciprocators and the rich voter and candidates have high-enough beliefs of this being the case. Otherwise, we predict zero transfers and full redistribution (as in Prediction 1).*

Argument: Our definition of a tacit agreement implies a winning tax policy strictly smaller than 1. In a one-shot game, a tacit agreement that includes a self-interested candidate never occurs because she has no incentive to deviate from a tax policy of 1 as she cannot be rewarded by the rich voter with future transfers. A reciprocal candidate, on the other hand, is

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[14] Axelrod's (1981) tit-for-tat player is a prominent example of a reciprocator. It is specific to repeated prisoners' dilemma games, but conditional responses to the (expected) behavior of others can be generally adapted to other decision-making situations. We focus on self-interest and reciprocation since they describe the behavior of the majority of people in games that involve cooperation (see Fischbacher, Gächter, and Fehr 2001).

willing to choose a low tax policy if she receives a high-enough transfer from the rich voter. Therefore, if the rich voter believes that both candidates are reciprocators with a sufficiently high probability and that transfers are reciprocated with taxes that are low enough to compensate her for her expenditures, she is better off making such transfers to the candidates. If transfers are made and the candidates turn out to be reciprocators, a tacit agreement emerges.

Prediction 3 (Tacit agreements with finitely-repeated encounters): *In the finitely-repeated special interest game with incomplete information about the other players' types—who are either self-interested or reciprocal—tacit agreements can arise in periods where the rich voter and both candidates expect positive continuation profits from colluding. Otherwise, we predict zero transfers and full redistribution (as in Prediction 1). Moreover, tacit agreements are more likely in repeated than in one-shot encounters, but this difference declines over time as expected continuation profits decrease.*

Argument: By the same logic, tacit agreements that are equilibria of the one-shot special interest game are also equilibria of each repetition of the special interest game. In addition, with finitely-repeated encounters, tacit agreements involving self-interested candidates can be supported in equilibrium. The reason is that if the rich voter believes there is a high-enough probability that both candidates are reciprocators, she will be willing to make positive transfers to the candidates. Consequently, self-interested candidates have an incentive to mimic the behavior of reciprocators as long as the expected value of the future transfers from the rich voter exceeds the present value of deviating to a tax policy of 1. Therefore, since more candidates have an incentive to choose low tax policies, which additionally increases everyone's belief that collusion will be successful, we expect more tacit agreements to emerge in finitely-repeated than in one-shot encounters.

Predictions 2 and 3 describe a large set of tacit agreements. However, it is doubtful that all agreements receive (equal) support from potential colluders. In order to further refine our predictions, we turn to profit-sharing norms derived from the equity principle (Selten

1978).[15] A suitable equity norm to analyze tacit agreements is *split-the-difference*, which has been found to be very important in bargaining situations (see Konow 2003). In our context, split-the-difference proposes that the joint profits from a tacit agreement (i.e., the amount not redistributed to the majority) are to be divided equally among the three colluders.[16]

Following these arguments, we predict that tacit agreements that do materialize are likely to be consistent with the split-the-difference norm. However, there is an important caveat due to the sequencing of transfer and tax policy decisions. To be precise, the rich voter can have negative returns from her investments (i.e., earn less than 40 points) if at least one candidate returns no or insufficient tax favors. In contrast, candidates can always get the expected 35 points in the benchmark. This asymmetry may favor the candidates, in which case agreements where they capture most of the joint profits and the rich voter just breaks even would be more likely.

Prediction 4 (Profit-sharing): *Deviations from zero transfers and full redistribution where the rich voter's investment breaks even and tacit agreements where the rich voter and the two candidates "split-the-difference" are most common.*

Procedures and experimental design

We employed a 2×2 treatment design. On one dimension, we varied the frequency of repeated interaction between random matching (*Strangers*) and fixed matching (*Partners*). On the other dimension, we varied between the special interest (*Transfers*) and redistribution games (*No-Transfers*). Each subject participated in two treatments of 15 periods each. We varied *Transfers* and *No Transfers* within subjects and *Strangers* and *Partners* between subjects. To

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[15] The equity principle requires a relationship between an individual's input (e.g., a contribution) and her output (e.g., a share of the profit) that applies equally to all individuals in a reference group. It is considered one of the most important principles in theories of justice and has lots of empirical support (Konow 2003).

[16] Another prominent norm is the equal split, which divides equally the total payoff of all individuals in the reference group. With our experimental parameters, both norms predict very similar tacit agreements.

account for order effects, some subjects started with *Transfers* and continued with *No Transfers* and vice versa for the other subjects.

In *Strangers*, four subjects were randomly assigned to be voters and all others were put into a pool of four to eight candidates (the number of candidates depended on attendance). The assignment of voters and candidates never changed during the experiment. At the beginning of each period, voters were randomly assigned to the role of rich voter or poor voter. Similarly, in each period, candidates were randomly divided into two active candidates, labeled *A* or *B*, and two to six inactive candidates. Only active candidates made decisions; their inactive counterparts received 25 points and watched the other's decisions on their screen. Since the constant reassignment of roles and labels made it practically impossible to identify individuals across periods, our *Strangers* treatments resemble 15 successive one-shot games. In *Partners*, at the beginning of the experiment, subjects were randomly divided into societies with one rich voter, three poor voters, and two candidates, labeled *A* or *B*. Unlike in *Strangers*, roles and labels never changed during the experiment. Therefore, our *Partners* treatments represent a finitely-repeated game.

In all treatments, at the beginning of the respective stage, everyone in the society (including inactive candidates) was informed of: the amount the rich voter transferred to each active candidate, the final pair of tax policies (only candidates observe the entire policymaking process), and the number of votes obtained by each candidate in the election.

A total of 217 students participated in the experiment and earned an average of $21.27. The number of independent observations (i.e., societies) is given in Table 1. More details regarding the experimental procedures, including the instructions, are available in the Supporting Information.

Experimental results

For each treatment, Table 1 contains summary statistics of key variables. It displays the means for: tax policies, the proportion of tax policies equal to 1, winning tax policies, the proportion of winning tax policies equal to 1, transfers, the proportion of transfers equal to 0,

Table 1 – Summary statistics

	Tax policies		Wining tax policy		Transfers		Voting	Societies
	Mean	Mean proportion equal to 1	Mean	Mean proportion equal to 1	Mean	Mean proportion equal to 0	Proportion unexpected outcomes	Total
Strangers-No Transfers	0.957 (0.140)	0.845 (0.362)	0.979 (0.082)	0.921 (0.270)	-	-	0.006 (0.078)	11
Strangers-Transfers	0.926 (0.207)	0.824 (0.381)	0.976 (0.084)	0.897 (0.304)	8.055 (18.356)	0.648 (0.478)	0.030 (0.172)	11
Partners-No Transfers	0.949 (0.173)	0.880 (0.325)	0.974 (0.127)	0.945 (0.228)	-	-	0.008 (0.088)	17
Partners-Transfers	0.818 (0.315)	0.655 (0.476)	0.863 (0.273)	0.725 (0.447)	6.184 (9.512)	0.590 (0.492)	0.020 (0.139)	17

Note: Numbers in parenthesis are standard deviations.

the proportion of election outcomes that are 'unexpected' (i.e., cases where the candidate with the lower tax wins), and the number of societies.

Elections

As seen in Table 1, only between 0.6% and 3.0% of all elections result in an unexpected outcome. In part, this is due to a majority of elections pitting two candidates with identical tax policies, as observed in 78.2% (75.2%; 83.5%; 63.5%) of all elections in *Strangers-No Transfers* (*Strangers-Transfers*; *Partners-No Transfers*; *Partners-Transfers*). However, in elections with different tax policies the higher-tax candidate does indeed overwhelmingly win: 98.4% (88.0%; 97.5%; 95.3%) of the time. This happens because voting is mostly sincere, i.e., the rich voter votes for the lower-tax candidate and the three poor voters for the higher-tax candidate.[17]

Experimental Result 1 (Election outcomes): *In most elections, candidates choose identical tax policies. In elections where voters face two different tax policies, the candidate with the higher tax almost always wins.*

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[17] In elections with different tax policies we observe on average sincere votes between 93.6% (*Strangers-Transfers*) and 97.9% (S*trangers-No Transfers*) of the time.
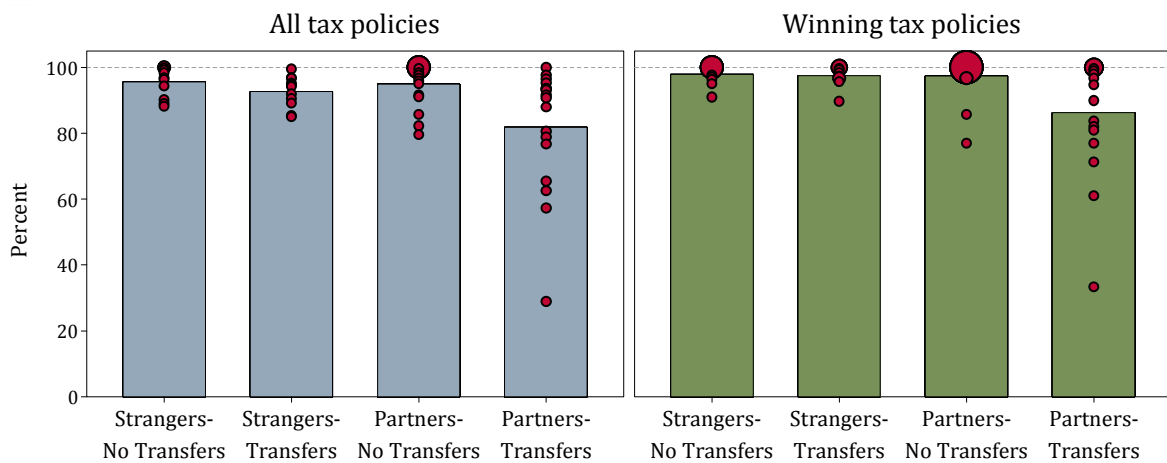
Figure 1 – Tax policies per treatment and society

Note: Mean tax policy (left) and the mean winning tax policy (right) by treatment. The bars (circles) depict the statistic calculated per treatment (per society; larger circles indicate more than one society).

For convenience, since unexpected election outcomes are so rare, we henceforth treat these elections as if they are consistent with the majority's pecuniary interest.

Tax policies

Figure 1 shows the mean tax policy and the mean winning tax policy for each treatment (bars) and for each society (circles). The figure clearly illustrates that in *Strangers-No Transfers*, *Strangers-Transfers*, and *Partners-No Transfers* mean (winning) tax policies are very close to 100% and there is little variation across societies. In contrast, in *Partners-Transfers* we observe that mean (winning) tax policies are unmistakably lower and there is considerable variation across societies (e.g., mean winning tax policies range from 100.0% to 33.3%).

To test whether tax policies are significantly different across treatments, we estimate a Tobit regression with the tax policy as the dependent variable (censored at 1) and treatment dummies as independent variables. We use a nested model with subject and society random effects, and robust standard errors clustered at the society level.[18] This method allows us to fully utilize the panel structure of our data and take into account that the distribution of tax policies is censored. All reported *p*-values throughout the article are based on two-tailed tests.

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[18] We estimate the regressions using the generalized linear latent and mixed models program (GLLAMM).

The statistical tests confirm our initial impression. There are no significant differences in tax policies or winning tax policies between *Strangers-No Transfers*, *Strangers-Transfers*, and *Partners-No Transfers* (for all comparisons, $p > 0.162$ and $p > 0.205$, respectively). In contrast, we find that tax policies and winning tax policies are significantly lower in *Partners-Transfers* compared to each of the other treatments (for all comparisons, $p \leq 0.005$ and $p \leq 0.034$, respectively).[19] Finally, Conover's (1980) squared-rank tests for equality of variances rejects the null hypothesis of no differences in favor of more variation in tax policies and winning tax policies in *Partners-Transfers* compared to each of the other treatments ($p \leq 0.001$).

Experimental Result 2 (Tax policies): *Clear deviations from full redistribution occur only in the presence of both repeated interaction and the opportunity to make money transfers. Moreover, there is considerable heterogeneity in the magnitude of these deviations across societies.*

Tacit agreements and mutual reciprocation

Table 1 shows that differences in tax policies across treatments are not due to differences in the amounts being transferred to the candidates. In an average period, rich voters send 8.055 points per candidate in *Strangers-Transfers* and 6.184 points in *Partners-Transfers*. A Tobit regression with the mean transfer per candidate as the dependent variable (censored at 0 points) and the same characteristics as our previous regressions cannot reject the null hypothesis of no differences in transfers between treatments ($p = 0.832$). This raises the question, why are money transfers successful only with repeated interaction?

Figure 2 depicts in more detail the relationship between transfers and tax policies for both *Strangers-Transfers* and *Partners-Transfers*. It contains scatter plots with the mean transfers per candidate on the horizontal axis and the mean (winning) tax policy in percent on

[19] We obtain very similar results using nonparametric tests with society means as the unit observations (available in the Supporting Information).
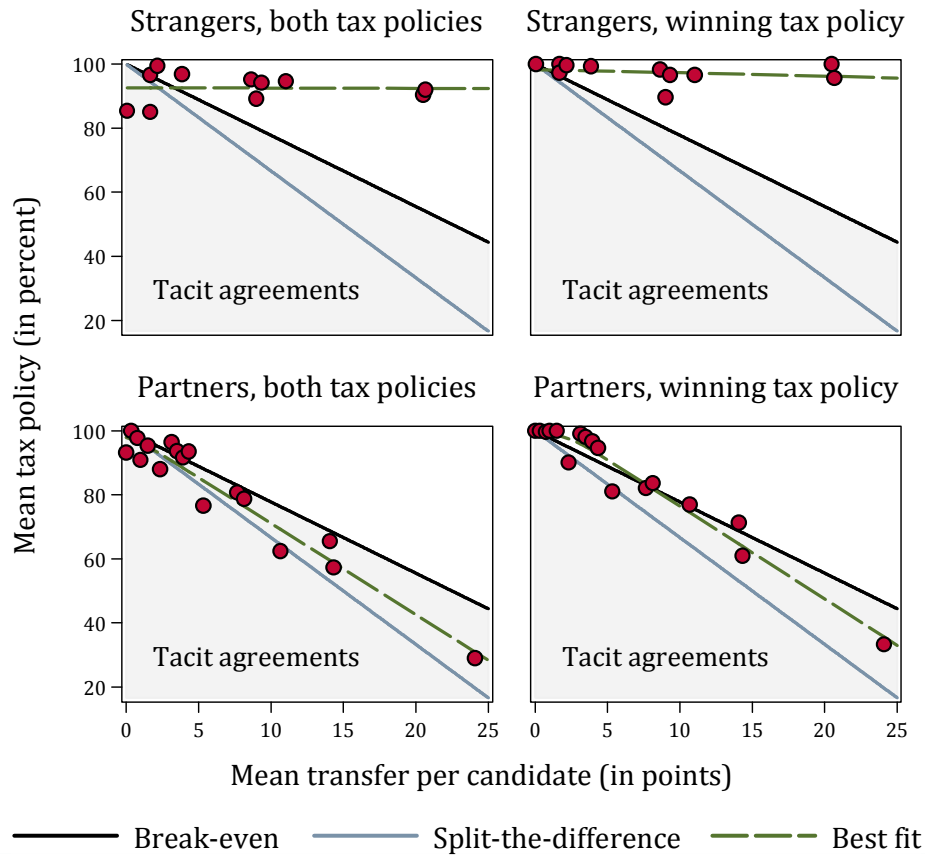
Figure 2 – Transfers and tax policies

Note: The figure shows the mean transfer per candidate on the horizontal axis and the mean (winning) tax policy on the vertical axis for each society (circles) in *Strangers-Transfers* and *Partners-Transfers*.

the vertical axis. Each data point represents one society. Note that the top-left corner of each scatter plot corresponds to the benchmark given by Prediction 1.

In addition, Figure 2 shows: (i) the set of symmetric tacit agreements (gray-shaded area), which are characterized by equal transfers per candidate and equal tax policies,[20] (ii) the *break-even* line (black line), which contains all pairs of mean transfers and winning tax policies where the rich voter earns 40 points, (iii) the *split-the-difference* line (gray line), which contains all pairs of symmetric transfers and tax policies where the rich voter and each

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[20] There are also tacit agreements with asymmetric transfers and tax policies. These include special cases of split-the-difference where one candidate chooses a lower tax policy than the other and loses the election but is compensated for doing so with a larger transfer from the rich voter.

candidate receive an equal share of the points not redistributed to the poor voters, and (iv) *best-fit* lines (dashed lines) that plot the estimated relationship between mean transfers and tax policies using a Tobit regression (censored at 1 and with robust standard errors).

Figure 2 clearly shows that, although societies in *Strangers-Transfers* display differing mean transfers per candidate, they do not display differing winning tax policies, which are all close to 100% (with perhaps one exception at 89.7%). In other words, there is no relationship between mean transfers and mean (winning) tax policies in this treatment: the best fit lines display statistically insignificant coefficients of -0.010 ($p = 0.961$) for all tax policies and -0.136 ($p = 0.453$) for winning tax policies.

In *Partners-Transfers* we can distinguish two sets of societies: *high-tax* and *low-tax* societies. There are ten high-tax societies where little effort was made towards reaching tacit agreements. Namely, they have low transfers per candidate (less than 5 points) and high winning tax policies (between 90% and 100%). On the other hand, there are seven low-tax societies with higher transfers per candidate (more than 5 points) and low winning tax policies (between 33.3% and 83.7%). Consequently, in *Partners-Transfers* we observe a clear negative relationship between transfers and tax policies: the best fit lines in Figure 2 display statistically significant coefficients of -2.850 ($p \leq 0.001$) for all tax policies and -2.900 ($p \leq 0.001$) for winning tax policies. Interestingly, the data are well organized by the area in-between the break-even and split-the-difference lines, supporting our Prediction 4. For comparison, the Tobit coefficients implied by the break-even and split-the-difference lines are -2.222 and -3.333, respectively.[21]

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[21] In Figure 2, three low-tax societies in *Partners-Transfers* lie just below the break-even line. According to our definition of tacit agreements, all colluders must be strictly better off than in Prediction 1. While this does not hold on average in these societies, it does for most periods, and it only breaks down in later periods due to endgame effects. Therefore, we can think of low-tax societies as societies where tacit agreements arise in most of the periods.

Experimental Result 3 (Tacit agreements): *Tacit agreements among the rich voter and the two candidates arise in 41.2% of societies with repeated interaction. In these societies, rich voters make substantial money transfers and the candidates respond by lowering their tax policies in proportion to the amounts received.*

At this point, we can compare the experimental results to our theoretical predictions. By and large, the results for *Strangers-No Transfers* and *Partners-No Transfers* are in line with Prediction 1. Also consistent with Prediction 1 is the lack of tacit agreements in *Strangers-Transfers*. However, given that money transfers are made, it is more reasonable to think that subjects believe reciprocators exist but it turns out that they are not frequent enough to support cooperation in a one-shot special interest game, which is more consistent with Prediction 2. Finally, Prediction 3 is supported in *Partners-Transfers*: tacit agreements emerge, and they emerge more often than in *Strangers-Transfers* (41.2% vs. 0%).

Are tacit agreements the result of mutual reciprocation between the rich voter and the two candidates? To answer this question, we use regression analysis to test whether *changes* in transfers can predict subsequent changes in tax policies and vice versa. Here, we only analyze the *Partners-Transfers* treatment since it is where a positive correlation between transfers and tax policies exists (results for *Strangers-Transfers* are available in the Supporting Information).

We first investigate the effects of changes in transfers on tax policies. Table 2 presents the results of OLS regressions using as the dependent variable the change in candidate j's tax policy (in percentage-points) from the previous period $x - 1$ to the current period x, i.e., $(t_{j,x} - t_{j,x-1}) \times 100$. We use five independent variables, labeled (i) to (v). (i) is the change in the number of points transferred to candidate j from the previous period to the current period, and (ii) is the interaction of (i) with the period number. (i) and (ii) allow us to test whether candidates reciprocate the rich voter's behavior and whether reciprocation diminishes as the end of the game approaches. The next two independent variables measure differences between the tax policy of candidate j and the tax policy of candidate $-j$ in the previous period, (iii) measures positive differences and (iv) negative differences. (iii) and (iv) capture the candidates' reaction to the actions of the other candidate across periods. Finally,

Table 2 – Candidates: determinants of tax policy changes in *Partners-Transfers*

Independent variables and constant	All societies	High-tax societies	Low-tax societies
(i) Change in received transfer:	−0.876**	−0.604**	−1.102**
$m_{R \to j,x} - m_{R \to j,x-1}$	(0.297)	(0.194)	(0.333)
(ii) Change in received transfer × period:	0.093	0.053*	0.118*
$(m_{R \to j,x} - m_{R \to j,x-1}) \times x$	(0.044)	(0.019)	(0.049)
(iii) Positive diff. in previous tax policies:	−0.201	0.022	−0.448*
$\max[(t_{j,x-1} - t_{-j,x-1}) \times 100, 0]$	(0.129)	(0.017)	(0.189)
(iv) Negative diff. in previous tax policies:	0.777**	0.807**	0.709**
$\max[(t_{-j,x-1} - t_{j,x-1}) \times 100, 0]$	(0.101)	(0.144)	(0.141)
(v) Period: x	−0.034	−0.377	0.574
	(0.307)	(0.378)	(0.442)
Constant	−1.003	0.692	−3.715
	(2.801)	(3.278)	(4.104)
Number of observations	476	280	196
Number of subjects	34	20	14
Number of societies	17	10	7
R^2	0.192	0.323	0.168

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

(v) is the period number, which controls for a potential time trend. The regressions are run with subject fixed effects to control for unobservable characteristics and with robust standard errors clustered on societies.

To examine the determinants of tacit agreements, we run a first regression with all societies in *Partners-Transfers*, a second where we restrict the sample to the ten high-tax societies, and in the third restricted to the seven low-tax societies. In all regressions we see that candidates do reciprocate the actions of the rich voter by decreasing (increasing) their tax policies in proportion to a previous increase (decrease) in received transfers (the coefficient of (i) is always statistically significant; $p \leq 0.009$). This finding is consistent with candidates reciprocating the rich voter's transfer because they are either a reciprocal type or

a self-interested type that is behaving reciprocally for strategic reasons (see Prediction 3). Moreover, the fact that the coefficient of (ii) is positive ($p \leq 0.052$) indicates that the propensity to reciprocate declines towards the end of the game as continuation profits drop, which suggests that strategic reciprocation plays an important role.[22] However, it is still unclear why tacit agreements emerge in some societies but not in others.[23]

The difference between high-tax and low-tax societies is better explained by the candidates' reaction to each other's actions. More specifically, by their reaction when the other candidate chooses a lower tax policy, which is captured by variable (iii).[24] The coefficient of (iii) indicates that, in low-tax societies, if candidate $-j$ chooses a lower tax policy than candidate j then candidate j reciprocates by significantly lowering her tax policy the next period ($p = 0.031$). By contrast, when faced with the same situation in high-tax societies, candidate j does not reciprocate, i.e., there is no significant change in her tax policy ($p = 0.218$). Thus, it seems that, for tacit agreements to emerge, it is necessary that candidates respond in kind to each other's low tax policies.[25]

Next, we look at the other side of mutual reciprocation. Do rich voters reward lower tax policies with higher transfers and punish higher tax policies with lower transfers? To answer this question, we run OLS regressions using as the dependent variable the change in the rich

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[22] We find very little evidence (if any) that candidates reciprocate transfers in *Strangers-Transfers* (see the Supporting Information). The fact that candidates are willing to reciprocate only when there is repeated interaction suggests that most of the reciprocity in *Partners-Transfers* is triggered by self-interested candidates who reciprocate for strategic reasons. Unfortunately, properly identifying types for individual candidates requires much more stringent assumptions concerning the behavior of reciprocal types and more data per candidate (of their expectations and possibly more than one history of interaction).

[23] As one might suspect, reciprocation is stronger in low-tax than in high-tax societies, but the difference between the coefficients is not statistically significant ($p = 0.215$).

[24] (iii) is the only variable that has a significantly different coefficient in high-tax and low-tax societies ($p = 0.025$). We test differences in coefficients by running a single regression with the appropriate interaction terms.

[25] In both high-tax and low-tax societies, higher tax policies by the other candidate are reciprocated by significantly increasing tax policies the next period (see coefficient of (iv); $p \leq 0.001$).

voters' total transfers from period $x-1$ to period x: $m_{R,x} - m_{R,x-1}$. Testing whether rich voters reciprocate is slightly more complicated because, as first movers, they must evaluate the candidates' tax policies taking into account that candidates were reacting to their own previous transfers. Specifically, we take into account that rich voters might react differently in periods that follow an increase in total transfers, where it is reasonable to expect candidates to have lowered their tax policies, and periods that do not follow an increase in total transfers, where such an expectation is less reasonable. We use eight independent variables, labeled (i) to (viii). The first two independent variables equal the change in the winning tax policy in periods that (i) follow an increase in total transfers and (ii) do not follow such an increase. (iii) and (iv) are the interaction of (i) and (ii) with the period number. To test whether rich voters reciprocate changes in tax policies that do not affect the winning tax policy, we include the difference between the winning and losing tax policy in periods that (v) follow an increase in total transfers and (vi) do not follow such an increase. Finally, (vii) is a dummy variable equal to 1 in periods that follow an increase in total transfers and (viii) is the period number. As before, the first regression in Table 3 is run with all societies in *Partners-Transfers*, the second with only high-tax societies, and the third with low-tax societies. Moreover, regressions are run with subject fixed effects and robust standard errors clustered on societies.

In all regressions we find strong support for reciprocation by rich voters. To see this, let's start with the case in which a previous increase in total transfers resulted in no change in tax policies. In this case, the coefficients of (vii) indicate that rich voters punish by significantly decreasing transfers ($p \leq 0.003$). Compared to this baseline, if candidates manage to decrease the winning tax policy, rich voters reward them by increasing their transfer (the coefficients of (i) are significantly negative; $p \leq 0.034$).[26] Moreover, the positive coefficient of

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[26] The coefficient of (i) is mostly identifying positive reciprocity by rich voters because there are very few cases where an increase in transfers is followed by an increase in the winning tax policy. Note that for total transfers to increase in absolute terms there has to be a large enough decrease in the winning tax policy: on average across all societies the decrease must be at least 0.258.

Table 3 – Rich voters: determinants of transfer changes in *Partners-Transfers*

Independent variables and constant	All societies	High-tax societies	Low-tax societies
(i) Change in winning tax after transfers increase:	–0.617**	–0.816*	–0.596*
$(t_{w,x-1} - t_{w,x-2}) \times 100$ if $m_{R,x-1} > m_{R,x-2}$	(0.202)	(0.320)	(0.256)
(ii) Change in winning tax after transfers increase × period:	0.041	0.124*	0.036
$(t_{w,x-1} - t_{w,x-2}) \times 100 \times x$ if $m_{R,x-1} > m_{R,x-2}$	(0.027)	(0.049)	(0.033)
(iii) Change in winning tax after no transfers increase:	–0.156	0.728	–0.235
$(t_{w,x-1} - t_{w,x-2}) \times 100$ if $m_{R,x-1} \leq m_{R,x-2}$	(0.179)	(1.409)	(0.155)
(iv) Change in winning tax after no transfers increase × period:	0.005	–0.118	0.011
$(t_{w,x-1} - t_{w,x-2}) \times 100 \times x$ if $m_{R,x-1} \leq m_{R,x-2}$	(0.016)	(0.156)	(0.013)
(v) Change in the diff. in taxes after transfers increase:	0.070	0.039	0.075
$\Delta t_{x-1} - \Delta t_{x-2}$ if $m_{R,x-1} > m_{R,x-2}$	(0.074)	(0.155)	(0.083)
(vi) Change in the diff. in taxes after no transfers increase:	0.015	–0.029	0.080*
$\Delta t_{x-1} - \Delta t_{x-2}$ if $m_{R,x-1} \leq m_{R,x-2}$	(0.031)	(0.026)	(0.034)
(vii) Increased transfers:	–15.925**	–19.980**	–12.980**
1 if $m_{R,x-1} > m_{R,x-2}$	(3.219)	(5.024)	(3.729)
(viii) Period: x	–0.345	–0.412	–0.176
	(0.216)	(0.391)	(0.335)
Constant	7.138*	6.052	7.305
	(2.650)	(4.517)	(4.550)
Number of observations	221	130	91
Number of subjects/societies	17	10	7
R^2	0.172	0.239	0.204

Note: OLS regressions with changes in the rich voters' total transfers from period $x-1$ to period x as the dependent variable, $m_{R,x} - m_{R,x-1}$. Robust standard errors are given in parenthesis. * and ** indicate statistical significance at the 5% and 1% level.

(ii) is consistent with a declining propensity to positively reciprocate over time, albeit the coefficient is statistically significant only in high-tax societies ($p = 0.022$, otherwise $p > 0.152$).

In contrast, we find that rich voters do not significantly reciprocate decreases in winning tax policies if they are not the consequence of a previous increase in their transfers (coefficients of (iii); $p > 0.202$) or decreases in losing tax policies that do not affect the winning tax policy (coefficients of (v) and (vi); $p > 0.070$). Lastly, we find that none of the

coefficients are significantly different across high-tax and low-tax societies ($p > 0.154$), which indicates that the observed tacit agreements in low-tax societies are not due to differences in the rich voters' propensity to reciprocate.

Experimental Result 4 (Tacit agreements and mutual reciprocation): *With repeated interaction, on average, candidates reciprocate transfer increases by lowering their tax policies, and in return, the rich voter reciprocates decreases in winning tax policies by raising total transfers. Although, the propensity to reciprocate decreases over time. In addition, tacit agreements arise when candidates coordinate on lower tax policies by reciprocating each other's actions.*

Tacit agreements and earnings

In this final subsection, we analyze how tacit agreements (or the lack thereof) affect earnings.[27] Recall that with zero transfers and full redistribution, in each period, earnings equal 40 points per voter and an average of 35 points per candidate. In the redistribution game, mean earnings are very close to this benchmark. In *Strangers-No Transfers (Partners-No Transfers)*, average earnings equal 39.4 (39.2) points for poor voters, 41.9 (42.3) points for rich voters, and 34.9 (34.9) points for candidates. In *Strangers-Transfers*, on average, poor voters are close to the benchmark (39.3 points), rich voters are below it (26.1 points) and candidates are above it (43.0 points). Clearly, these earnings are due to unreciprocated transfers of the rich voters. In *Partners-Transfers*, candidates once again profit on average (41.0 vs. 35 points), but this time the poor voters lose (35.9 vs. 40 points) and the rich voters break even (39.9 vs. 40 points). The shift in earnings towards rich voters and candidates is starker in societies with tacit agreements where, on average, poor voters earn considerably less than in the benchmark (31.0 points) while members of the tacit agreement earn considerably more (rich voters earn 43.0 points and candidates 46.8 points). In contrast, in

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[27] We include the costs of tax policy changes, which amount to less than 0.4% of the candidates' earnings.

high-tax societies the mean earnings of all players are close to the benchmark (39.3 for poor voters, 37.8 for rich voters, and 37.0 for candidates).[28]

Experimental Result 5 (Tacit agreements and earnings): *With one-shot interaction, on average, rich voters lose money to the candidates due to unreciprocated transfers and poor voters neither gain nor lose. With repeated interaction, in societies where tacit agreements emerge rich voters and candidates gain at the expense of poor voters.*

Model extensions and limitations

We have argued that this study is most applicable to individual corporate firms that invest in political favors such as specific tax breaks, subsidies, and regulations.[29] Here, we discuss our results and how they might be affected by the following possible extensions: ideological preferences, multiple policymakers, the option of all voters to make transfers to policymakers, and private information about collusive agreements.

To begin, suppose the two candidates differ in their ideology, which is independent of the tax policy choice. Moreover, the special interest shares the same ideology with one of the candidates. Namely, irrespective of the tax policy, it receives an "ideological bonus" if the candidate with the same ideology wins the election. In this situation, assuming that identical tax policies result in equal winning chances of the candidates, Predictions 1 to 3 do not change. Thus, tacit agreements can also be reached by ideological adversaries, although, doing so might be more difficult with ideological conflict because of more complex efficiency and equity concerns (cf. Prediction 4). This is in line with empirical evidence indicating that

[28] Compared to the corresponding *No Transfers* treatment, with *Transfers* the earnings of candidates are higher in both *Strangers* and *Partners* ($p \leq 0.003$), the earnings of poor voters are not significantly different in *Strangers* ($p = 0.563$) and are lower in *Partners* ($p = 0.007$), and the earnings of rich voters are lower in *Strangers* ($p = 0.003$) and higher in *Partners* ($p = 0.084$, for low-tax societies $p = 0.037$). Wilcoxon signed-ranks tests using society means as the unit observations.

[29] Although, to some extent, one can also think of the special interest as representing the joint decisions of an organized industry, trade association, labor union, etc. (e.g., Grier, Munger, and Roberts 1994; Olson 1965).

special interests give across the ideological spectrum (e.g., Hojnacki and Kimball 1998; Tripathi, Ansolabehere, and Snyder 2002). Now suppose identical tax policies yield unequal winning chances. To wit, some partisans always vote for the candidate with the same ideology irrespective of her tax policy and the number of partisans in each camp is different. If the partisan gap is larger than the number of independent voters, in all equilibrium agreements the firm only gives to the sure winner, who has the power to choose any tax policy. If the gap is not so large, our Predictions 1 to 3 would not change, but presumably the candidate with more partisan voters can secure a larger transfer than her opponent (cf. Prediction 4). Such behavior is in line with evidence that favor-seeking special interests invest more in policymakers with higher electoral chances such as incumbents (e.g., Baron 1989; Ben-Zion and Eytan 1974; Snyder 1990; Tripathi, Ansolabehere, and Snyder 2002).

Next, suppose there are two parties with multiple policymakers and each party chooses a tax policy. Among other things, the effects of multiple policymakers on political *quid pro quo* depend on party sizes and the way party choices are made. If both parties have powerful leaders and equal size, then our Prediction 1 to 4 are more reasonable than with dispersed power and unequal sizes (cf. our argument above with asymmetric partisan group sizes). The chances of influence decrease in power-dispersion between policymakers as it gets more difficult for special interests to understand the power relations and control coalitions for their own ends. Moreover, more colluders mean agreements are less stable and it is more likely that information would leak to the public. This might be why special interests seek to influence legislative committees where less policymakers must be wooed (e.g., Hall and Wayman 1990; Snyder 1990; Wright 1996).

Another interesting extension would be to have multiple special interests, each having the opportunity to transfer money to the candidates. For example, when special interests act jointly as industries, trade associations, labor unions, etc. the free-rider incentives of individual members can reduce the chances of influence and reaching *quid pro quo* agreements (e.g., Großer and Reuben 2012; Grier, Munger, and Roberts 1994; Olson 1965). An interesting laboratory study in this respect is that of of Großer and Reuben (2012), which involves both free-rider incentives within and competition between two unorganized special

interests. They find that initially members from both camps transfer meaningful amounts but subsequently transfers fall rapidly due to free-riding, coordination failure, and counteractive lobbying (see also Austen-Smith and Wright 1994).

Finally, in our experiment, transfers and tax policies are public information. Predictions 1 to 4 do not change if transfers are only known within the colluding group ("under-the-counter deals"), but presumably this helps rather than hurts the formation of tacit *quid pro quo* agreements. By contrast, if candidates are uninformed about each other's transfer amounts, this could undermine the role of equity norms for successful coordination and result in fewer agreements.

In this article, we focus on a game with a single special interest that captures the incentives faced by corporate firms, which are presumably one of the most effective types of special interest involved in political *quid pro quo*. We think that this is a good starting point. However, the special interest game is general enough to serve as the basis for various interesting extensions.

Conclusions

We experimentally study whether political *quid pro quo* arises in a strategic situation where a special interest can transfer money to two competing candidates in order to influence redistributive tax policies. Importantly, the candidates need not respond to transfers and they choose their tax policies under the shadow of an upcoming simple majority election where the special interest prefers lower taxes and a majority prefers higher taxes. We compare treatments with and without a transfer option and treatments with and without repeated encounters.

We observe tacit *quid pro quo* agreements form in about 40% of societies with repeated encounters but never with one-shot encounters (in the latter treatment, despite some attempts to influence tax policies). Hence, a substantial number of subjects make use of the opportunity to form tacit *quid pro quo* agreements at the expense of a majority. We find that mutual reciprocation between the special interest and both candidates is essential for successful *quid pro quo* (candidates reward increased transfers with lower taxes and the

special interest rewards lower taxes with higher transfers). However, reciprocity between both candidates is also important (i.e., lowering one's tax policy if the other candidate's tax policy is smaller than one's own). Supporting our predictions, the experimental results indicate two main reasons why repeated interaction is necessary for tacit *quid pro quo* agreements to arise. First, only in repeated encounters can the special interest reciprocate the candidates' tax policies. Second, this opportunity gives self-interested candidates the incentive to mimic reciprocal candidates, which makes *quid pro quo* agreements much more likely. Overall, these findings provide the first direct empirical evidence in support of a large theoretical literature that assumes non-binding political *quid pro quo* at the expense of a majority of voters, but also suggests some caution when short-term relationships are analyzed.

Interestingly, in support of the external validity of our experiment, there is some similarity in the results between observational studies and this study. For example, Figure 2 in Richter, Samphantharak, and Timmons (2009, p. 899) and our Figure 2 show that only a subset of corporate firms make political investments, but those that do make them profit on average and their effective tax rates are negatively proportional to the amounts they invest. Moreover, in our experiment firms often transfer equal amounts to both candidates, something they also do in the field (e.g., Tripathi, Ansolabehere, and Snyder 2002). Due to the nature of their data, Richter, Samphantharak, and Timmons (2009) focus their analysis on the profitability of political investments. We too analyze profitability, but the control of costs and benefits that the laboratory allows, permits us to go one step further and explore in more detail the decision-making process and conditions under which tacit *quid pro quo* agreements do or do not emerge. Our study suggests three reasons why firms might *not* invest in politics (as seen in, e.g., Ansolabehere, de Figueiredo, and Snyder 2003; Richter, Samphantharak, and Timmons 2009). First, managers and candidates might be civic-minded and therefore have no intention of opposing the interests of the majority. Second, even potential colluders might find it difficult to overcome the self-enforcement problems inherent in a tacit agreement. Third, they might fail to agree on one of the many possible divisions of the collusive profits, which differ in total amounts and equity concerns.

Our experiment can be seen as a first step in a line of research into the largely unexplored existence of political *quid pro quo* and its potential welfare-reducing consequences. We design our study to capture situations that are believed to be especially prone to *quid pro quo*, i.e., when individual corporate firms make political investments (e.g., using campaign contributions to buy access to powerful policymakers and then using lobbying) in order to obtain political favors such as specific tax breaks, subsidies, and regulations. The insights we gain are not easily addressed with other methods. For example, in the field it is much more difficult if not impossible to observe what happens when there is no special interest activity. In this respect, our experiment suggests that considerable *quid pro quo* agreements are likely, especially in the form of long-term relationships between individual corporate firms and policymakers. These and future insights from various extensions can help us better understand the underlying conditions and consequences of political *quid pro quo* and improve policies aimed at preventing welfare-reducing special interest influence.

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