Value for Money? Vote-Buying and Politician Accountability *

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Abstract

The prevalence of vote-buying is widely identified as a cause of poor governance in the developing world; potential mechanisms for this relationship include the selection of lower quality politicians, and the reduced accountability experienced by politicians once elected. In this paper, we present the first experimental evidence in support of the second channel of reduced accountability. Using data from laboratory experiments conducted in the U.S. and Kenya, we find that vote payments reduce voters' willingness to hold politicians accountable: holding fixed politician identity, voters who receive payments are less willing to punish the politician for rent-seeking, and this reduction in punishment is larger in magnitude when payments are widely targeted. Unsurprisingly, the politician then engages in a higher level of rent-seeking. A simple model of multi-faceted social preferences encompassing reciprocity and inequality aversion is consistent with these findings.

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1 Introduction

The ability of political elites to use financial resources to undermine the one-person one-vote principle is widely identified as an important cause of poor governance outcomes in developing country democracies (Acemoglu and Robinson, 2012; Khemani, 2015). One potential channel is candidate selection: if lower quality politicians are more successful in employing cash to win votes, then vote-buying may reduce the quality of elected leaders. Another, potentially complementary, channel is lower incumbent performance conditional on quality. If voters who receive payments are less likely to punish a politician for poor performance once elected, then vote-buying may undermine mechanisms of retrospective accountability. This reduces politicians' incentives to minimize rent-seeking.

A growing empirical literature demonstrates that vote-buying does meaningfully alter votes in developing country polities, and this relationship is partially sustained by social preferences, in particular voter reciprocity vis-a-vis politicians.[1] However, we lack robust evidence on the effects of vote-buying on politician performance, holding politician identity fixed; nor do we know what role social preferences play in shaping these effects.[2] (We follow the definition of social preferences provided by Charness and Rabin (2002): preferences that encompass a concern by subjects for the payoffs of other subjects.)

In this paper, we report on laboratory experiments in the U.S. and Kenya designed to test whether vote payments shift an individual's willingness to hold a politician accountable for rent-seeking. The experiments are structured to measure subject responses to vote-buying, while holding fixed politician type (i.e., eliminating the selection channel). Specifically, we implement a series of retrospective voting games in which subjects choose whether to reelect an incumbent who expropriates rents from a common treasury. The re-election choice serves as a tool to punish politicians for expropriation, and voting is secret and costless. No other politician characteristic influences voters' earnings, and there is no alternative candidate; accordingly, voters face no selection motive, and politicians do not use their choice of an expropriation level to signal their type or to pool with honest politician types.[3] Rather, politicians' choice of an optimal level of expropriation is shaped only by voters' choice of punishment given expropriation.

[1] Vicente (2014) show that an anti-vote buying campaign in Sao Tome and Principe reduced the challenger's vote share, and argue this occurs as vote-buying is the challenger's preferred response to incumbent's use of clientelistic policies. Hicken et al. (2018) report on a campaign in the Philippines aimed at lowering voters' temptation to sell their votes, and find that it lowered vote-switching from the candidate ex ante preferred by the voter. Finan and Schechter (2012) demonstrate that more reciprocal individuals are more likely to be targeted for vote-buying.

[2] The existing literature does not provide direct evidence on how vote buying affects the quality of politicians, but rather focuses on how it affects vote shares of different political parties. This poses challenges in disentangling the moral hazard issue from the selection issue.

[3] See for example Besley and Smart (2007); Besley (2007); Coate and Morris (1995); Canes-Wrone et al. (2001) and Maskin and Tirole (2004) for examples of this class of models.

We introduce vote payments as a transfer to the voter, distributed to a certain fraction of voters while maintaining the secret ballot. The politician does not target the payments to specific voters, and does not pay transfers out of his own endowment, or from the public budget. We examine whether the introduction of vote payments alters subjects' willingness to punish the politician for expropriation, and how this response varies with the number of payments.

In both the U.S. and Kenya, subjects who receive a payment tolerate a higher level of expropriation, relative to a baseline in which there are no vote payments. By contrast, non-recipients are more willing to punish the politician when they know others have received a payment. Consistent with the voter response, politicians expropriate more in games in which a majority of subjects receive vote payments. From a politician's perspective, payments are particularly effective when distributed to all voters in a polity: the effect per payment on each voter's stated tolerance of expropriation is around 90% larger in a game in which all voters receive a payment, relative to an identical game in which four out of five voters receive a payment. In summary, vote-buying increases politician rent-seeking and reduces voter welfare even in the absence of any effect on politician selection — and even when voters have full information around vote payments.

These patterns in the experimental data are consistent with a simple model in which politicians seek to expropriate rents and win re-election, and voters use their re-election choices to discipline rent-seeking. Following a large literature that highlights the relevance of social preferences, we assume subjects are motivated by both self-interest and multifaceted social preferences.[4] While reciprocity has been identified as relevant for sustaining vote-buying, we also allow for inequality aversion (Charness and Haruvy, 2002). We show that given this model of preferences, voters respond to vote payments by reducing their willingness to punish the politician for expropriation, and politicians accordingly expropriate more. By contrast, purely self-interested subjects do not respond to a vote payment.

Our model additionally allows us to explore the voter response to payments given social preferences characterized by reciprocity only, inequality aversion only, or both reciprocity and inequality aversion, and we find that only the third model predicts that voters will be differentially more responsive to collectively targeted payments. Intuitively, given inequality aversion, a wider distribution of payments narrows the expected gap between the politician's and voters' payoffs, reducing the utility cost of tolerating politician expropriation. Importantly, models of preferences that include only reciprocity predict the opposite pattern in which payments are most effective when narrowly targeted to a simple

[4]For developing countries, see for example Cardenas (2003), Greig and Bohnet (2008), and Carter and Castillo (2009).

majority — a hypothesis that is not borne out by the empirical evidence.

This paper contributes to several related literatures. First, we show that vote-buying can increase voters' tolerance of rent-seeking, holding politician identity fixed. Existing evidence demonstrates that vote-buying can alter voters' choice of candidates (Vicente, 2014; Cruz et al., 2015; Hicken et al., 2018). However, to the best of our knowledge, we are the first to provide causal evidence on the link between vote-buying and voters' willingness to punish politicians. We also provide experimental results consistent with the general stylized fact that community-level targeting of vote payments — rather than individual-level targeting – is frequently observed in developing countries, a pattern that is only consistent with a model of multifaceted social preferences (Breeding, 2011; Kramon, 2011; Banerjee et al., 2011).

Second, we add to the growing literature in behavioral political economy; DellaVigna (2009) and Schnellenbach and Schubert (2015) provide useful reviews. In analyzing the nexus between social preferences and voter responses to vote-buying, our findings complement Finan and Schechter (2012), who find that more reciprocal individuals are targeted for vote-buying in Paraguay.[5] Our evidence is also consistent with a literature arguing that societies with weak formal institutions are more reliant on social norms and preferences (Cardenas, 2003; Cardenas and Carpenter, 2008; Greig and Bohnet, 2008; Carter and Castillo, 2009), and thus a positive correlation is observed between social capital and elite capture of policy-making (Acemoglu et al., 2014).[6]

Finally, we contribute to a literature in experimental economics that analyzes diverse forms of reciprocity. Similar to Abbink et al. (2002) and Malmendier and Schmidt (2017), we find that subjects exhibit a reciprocal response when receiving a gift, even if this response is at the expense of third parties, and even though the gift is transparently provided in order to influence their behavior. Other recent work consistent with our findings includes Pan and Xiao (2016), who report that recipients favor a gift giver over a third party even when the third party has incurred the same cost and signaled the same intention of giving, and Strassmair (2009), who presents evidence that recipients' response to a gift does not vary given experimental variation in the giver's selfishness.

The paper proceeds as follows: Section 2 presents the model. Section 3 describes the experiments, and Section 4 presents the empirical analysis. Section 5 concludes.

[5]There is only one other paper to our knowledge that analyzes a laboratory experiment specifically focused on vote-buying; Tonguc and Ozbay (2018) provides experimental evidence that reciprocity in conjunction with inequality aversion and guilt aversion facilitates the subject's response to vote-buying in one-shot interactions in the laboratory.

[6]Similarly, recent papers argue that clientelistic relationships undermine electoral accountability (Baland and Robinson, 2008; Anderson et al., 2015). Our results suggest that this may reflect the fact that clientelistic relationships are also in part sustained by social preferences.

2 Theoretical framework

We begin by presenting predictions for subjects' behavior given both own-regarding and social preferences.[7] These predictions will inform our empirical analysis.

2.1 Primary model

Consider a setting with one politician (P) and a number N of voters, indexed by $i = 1, ..., N$. Each voter has an endowment y, taxed at rate τ, and the politician has an identical endowment y. The politician has access to the treasury composed of tax receipts, $T = N\tau y$, out of which he can extract a fraction λ up to a maximum of $\lambda^{\max}$, i.e., $\lambda \leq \lambda^{\max}$.

In the voting procedure, each voter chooses a threshold λ_i for the politician's expropriation, above which she would vote to remove the politician. Simultaneously, the politician chooses a fraction λ_p to expropriate. If a majority of voters select a threshold greater than or equal to λ_p, then the politician is re-elected (denoted $\rho = 1$) and receives a small re-election bonus ϵ; otherwise, he is removed (denoted $\rho = 0$) and pays a penalty of $0.5 \cdot y$. The expropriated income is retained by the politician regardless of re-election; unexpropriated funds are returned to voters, yielding $(1-\lambda_p)\tau y$ of returned funds for each voter. In addition, if the politician is not re-elected, each voter pays a cost of removal κ.[8]

The monetary payoffs for each voter i and the politician P can be written as follows.

$$E_i = (1 - \tau) \cdot y + (1 - \lambda_p) \cdot \tau \cdot y - (1 - \rho) \cdot \kappa, \tag{1}$$

$$E_p = 0.5 \cdot y + \lambda_p \cdot N \cdot \tau \cdot y + \rho \cdot (0.5 \cdot y + \epsilon)\,. \tag{2}$$

Payments are introduced as follows. Before subjects choose their re-election thresholds, a subset $n \leq N$ of voters each receive a payment g.[9] The payments are not drawn from the politician's endowment or the treasury, but rather from an external source of funds. Therefore, the payoff for voter i is given by $E_i + g_i$, where $g_i = g$ if the voter is in the subset of payment recipients, and $g_i = 0$ otherwise. All voters know n and g.

We limit our analysis to pure strategy Nash equilibria in which all subjects with identical incomes employ identical strategies: i.e., all payment recipients choose an identical threshold denoted $\lambda_{i,g}$, and all payment non-recipients choose an identical threshold denoted $\lambda_{i,ng}$. All proofs can be found in Appendix A.

[7] Again, social preferences are defined as preferences that incorporate sensitivity to the payoff of other subjects, following Charness and Rabin (2002).

[8] We can conceptualize κ as a measure of voter support for the candidate, but we do not explore the implications of heterogeneity in κ.

[9] To avoid confusion with the politician P, we denote the payments g, as an abbreviation for gift.

Remark 1 *Given $N = 5$ subjects, if the number of payments $n \notin \{2, 3\}$, then no voter is pivotal in the relevant class of equilibria.*

In our experiments, we excluded the cases where $n = 2$ and $n = 3$ in order to focus on the simpler strategic problem in which pivotality is not relevant. In Appendix A.8, we demonstrate that allowing for pivotality does not change the qualitative results, but simply imposes an upper limit on the values λ_p that can be sustained in equilibrium.

This simultaneous move game will result in multiple equilibria, and we will demonstrate that our results hold in any of the possible equilibria. In the experimental setting, our focus is on the change in the threshold chosen by each subject over multiple game rounds, and not the absolute threshold value. Thus, even if subjects do not coordinate on the same equilibrium, we can evaluate the predictions of interest under the assumption that each subject's choice of equilibrium is stable over different game rounds. In other words, shifts in a subject's strategic choices are assumed to reflect changes in the environment, not jumps between equilibria.[10]

The model uses a number of assumptions that match the experimental design, and are deliberately employed to enable the analysis to focus on a specific dimension of subjects' responses. As described in Section 3, vote-buying in our experimental context is not targeted (i.e., politicians have no agency in choosing the recipients of vote payments); given that the games are fully anonymous and subjects do not interact, subjects acting as politicians lack access to any information that would allow them to target payments. Vote-buying is also not costly to the politician or voters. The politician has no choice to retain the vote payment, and thus does not forgo any compensation when voters receive payments. This design choice eliminates the channel of selection on the part of the voters: it is impossible that the use of vote payments provides a signal about the politician's quality, altruism or lack thereof. In addition, the model assumes no deadweight loss from rent-seeking in order to avoid any questions about efficiency, separate from accountability.

First, we consider the benchmark case in which each subject is purely self-interested, and thus subjects' utilities equal the monetary payoffs described in equations (1) and (2). Given these preferences, the simultaneous move game yields multiple equilibria.

Proposition 1 (Equilibria without vote payments) *Given preferences characterized by self-interest only, for any expropriation fraction $\lambda_p \in \left[\lambda^{\min,B}, \lambda^{\max}\right]$, where*

$$\lambda^{\min,B} = \lambda^{\max} - \frac{0.5 \cdot y + \epsilon}{N\tau y}, \tag{3}$$

[10]To re-enforce our theoretical predictions regarding the key role played by social preferences, in Appendix B, we provide an alternative theoretical setting, with non-strategic and retrospective voting. There, equilibrium selection is not a concern, and we obtain similar predictions as in this voting model.

there exists an equilibrium in which the politician expropriates a fraction λ_p of the treasury, and voters set their re-election thresholds at $\lambda_i = \lambda_p$. Note that $\lambda^{\min,B}$ denotes the minimum sustainable λ in the benchmark case.

In the benchmark model, the politician prefers to expropriate at a level lower than the maximum possible level as long as his expected income given re-election is higher than his expected income given removal. If removed, he chooses the maximum level of expropriation, but loses half of his income salary y and his bonus ϵ. Therefore, he trades off a loss in salary against a loss in rents. Any threshold where this trade-off is acceptable for the politician can be sustained as an equilibrium. Since there are no pivotal voters, each voter's response reduces to the selection of the same threshold as the politician in equilibrium.

The multiple equilibria can be ranked from best to worst for the voters and for the politician, respectively.[11] We assume for simplicity that subjects select an equilibrium according to Nash bargaining weights β for the voters and $1-\beta$ for the politician, where $\beta \in [0,1]$. Thus, for each β, the equilibrium threshold is $\lambda_i = \lambda_p = \lambda(\beta) = \beta \cdot \lambda^{\min,B} + (1-\beta) \cdot \lambda^{\max}$. We assume the same (fixed) bargaining weight β in all iterations of the voting game (with and without vote payments), and will consistently describe the equilibrium conditional on β.

Proposition 2 (Vote payments given self-interest) *Given fixed β and preferences exhibiting only self-interest, the equilibrium threshold does not change when vote payments are introduced.*

If subjects are self-interested, the equilibrium is determined by the politician's trade-off between lost salary and lost rents; vote payments do not alter this trade-off.

2.2 Model with multifaceted social preferences

We next consider the case in which each subject is characterized by multifaceted social preferences — encompassing reciprocity and inequality aversion — in addition to self-interest. For concision, we will not fully analyze the cases in which subjects are motivated by self-interest in conjunction with reciprocity alone or inequality aversion alone, but will provide an intuitive overview of the key predictions given these assumptions below; details and the associated proofs can be found in Appendix B.

First, we assume that subjects exhibit intention-based reciprocity as in Rabin (1993) and Dufwenberg and Kirchsteiger (2004). Subjects derive utility from being kind to

[11] The utility of voters is maximized when the equilibrium played is $\lambda = \lambda^{\min,B}$, and it decreases monotonically as λ_i increases. The politician's utility is increasing in λ_p

other subjects when they are treated kindly, i.e. equitably; *intention-based* reciprocity assumes that a subject responds reciprocally given the intention of the provider of the kind behavior. In our experimental context, payments to voters are labeled as deriving from the politician in exchange for their vote. Thus, reciprocal subjects respond to the intention of the payment provider by relaxing their threshold for re-electing the politician. Second, we assume subjects are characterized by inequality aversion as in Bolton and Ockenfels (2000), and thus seek to minimize the difference between their payoff and the average payoff of the other subjects.

Subject i's utility is now described as follows:

$$u_i = E_i + g_i + \left[\Delta\lambda_i \cdot \Delta g_i - \frac{1}{\gamma}\left(\frac{\Delta\lambda_i}{\Delta g_i}\right)^2\right] - \frac{1}{\eta}\left(E_i + g_i - \frac{\sum_{j\neq i}(E_j + g_j)}{N}\right)^2. \quad (4)$$

The term $E_i + g_i$ captures the subject's monetary payoff, where $g_i \in \{0, g\}$ as described above. The term in square brackets represents the reciprocal component of preferences, where the parameter γ captures the intensity of this component. The functional form ensures that the value of responding reciprocally and the marginal value of a reciprocal response are both increasing in γ. In addition, the subject derives higher marginal utility when responding kindly to greater kindness from the payment provider, where the terms $\Delta\lambda_i \equiv \lambda_i - \lambda^e$ and $\Delta g_i \equiv g_i - g^e$ are defined as in Rabin (1993) to capture the deviations of the threshold λ_i and the payment g_i from their respective equitable values. The equitable threshold λ^e is derived, given our Nash bargaining assumption, as the weighted average between (i) the minimum expropriation fraction $\lambda^{\min}$ acceptable to the politician (in order to induce the choice of re-election, rather than the choice of maximum expropriation and removal from office), and (ii) the maximum expropriation $\lambda^{\max}$ preferred by the politician: $\lambda^e = \beta \cdot \lambda^{\min} + (1-\beta) \cdot \lambda^{\max}$. The equitable payment value for the voter is the average payment given the total number of subjects, $g^e \equiv n/(N+1) \cdot g$, and zero for a politician.[12]

The final term captures inequality aversion as a decreasing function of the gap between the subject's payoff and the average payoffs of all other subjects. The term η captures the intensity of the inequality aversion component of preferences.[13]

Since no voter is pivotal in the game as noted above, any voter deviation from the proposed equilibrium play affects that voter's payoff only through the reciprocal component, since the deviation of a non-pivotal voter does not change payoffs in equilibrium. Accordingly, each voter chooses the λ_i that maximizes his utility from reciprocity. (How-

[12]While this rules out any shifts in λ^e or g^e driven by changes in social norms, this is consistent with the laboratory setting subsequently employed in which there is minimal scope for large-scale shifts in preferences during the course of the game.

[13]We assume that $\eta > \underline{\eta}$ where $\underline{\eta} = (N+1)/N \cdot 2 \cdot (\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y - n \cdot g/N)$. This ensures that a politician who is removed prefers to engage in maximum expropriation $\lambda^{\max}$.

ever, inequality aversion is relevant in determining λ_i insofar as it directly affects λ^e.) We denote by $\lambda_{i,g}$ the value of λ that maximizes the reciprocal component of the utility function for a payment recipient, and denote by $\lambda_{i,ng}$ the value of λ that maximizes the reciprocal component of the utility function for a payment non-recipient.

Proposition 3 (Equilibria without vote payments) *When preferences exhibit self-interest in conjunction with reciprocity and inequality aversion, there exists $\lambda^{\min} < \lambda^{\min,B}$ such that for any expropriation fraction $\lambda_p \in \left[\lambda^{\min}, \lambda^{\max}\right]$ there is an equilibrium in which the politician expropriates a fraction λ_p of the treasury, and voters set their re-election thresholds at $\lambda_i = \lambda_p$.*

This result has a similar intuition to Proposition 1: a re-election threshold can be sustained in equilibrium when the politician prefers to expropriate the (lower) threshold amount and be re-elected, rather than expropriate the maximum possible amount and be removed. In the benchmark Proposition 1, the politician's utility equals his income, and therefore this trade-off simply entails a comparison of monetary payoffs. Given social preferences, the politician's utility comprises both the monetary payoff and a cost due to inequality aversion (reciprocity is irrelevant, given that the politician does not receive payments). Thus, the trade-off entails not only the comparison of monetary payoffs, but also the comparison of the costs of inequality in each case. Accounting for this additional cost due to inequality aversion results in a different value for the lowest sustainable expropriation threshold ($\lambda^{\min}$) relative to the benchmark with self-interest only (as previously noted, this threshold was denoted $\lambda^{\min,B}$), and as specified in the proposition, we can conclude $\lambda^{\min} < \lambda^{\min,B}$.

Proposition 4 (Vote payments given social preferences) *Given fixed β and preferences characterized by self-interest in conjunction with reciprocity and inequality aversion:*

1. *(Effect of payments on voters) There exists a unique pure strategy Nash Equilibrium in which all payment recipients choose the threshold $\lambda_{i,g} > \lambda_i$, while all payment non-recipients choose the threshold $\lambda_{i,ng} < \lambda_i$.*

2. *(Effect of payments on the politician) If $n > N/2$, then the politician chooses $\lambda_p = \lambda_{i,g}$ and is re-elected. If $n < N/2$, then the politician chooses $\lambda_p = \lambda_{i,ng}$ and is re-elected.*

3. *(Effect of increasing n) Consider an increase in the number of vote payments n for $N = 5$ and $n \notin \{2, 3\}$. There exist bounds $\underline{\gamma}$ and $\bar{\gamma}$ such that increasing the number of payments n has the following effect:*

(a) *If* $\gamma < \underline{\gamma}$*, then all voters increase their re-election thresholds.*

(b) *If* $\underline{\gamma} \leq \gamma \leq \bar{\gamma}$*, then a voter who receives a payment increases his threshold* $\lambda_{i,g}$*, and a voter who does not receive a payment decreases his threshold* $\lambda_{i,ng}$*.*

(c) *If* $\gamma > \bar{\gamma}$*, then all voters decrease their re-election thresholds.*

The first result follows from the effect of reciprocity: voters who receive a payment are more willing to tolerate expropriation, while voters who do not receive a payment are less willing to tolerate it. The second result follows from the politician's choice of an expropriation fraction that will result in his re-election: he chooses the threshold chosen by the median voter. The third result emerges due to the combination of reciprocity and inequality aversion. When the number of payments increases, recipients are less reciprocal, because they expected a payment with high probability, and non-recipients are more angry, because they likewise expected a payment with high probability; thus reciprocity would lead all subjects to reduce their re-election thresholds as n increases. However, inequality aversion produces a second effect, as an increased number of payments reduces the average difference in income between the politician and voters, rendering it less costly for the politician to expropriate. Accordingly, low expropriation levels that are sustainable in an equilibrium with fewer payments become unsustainable as n increases: $\lambda^{\min}$ increases, and therefore the equitable expropriation threshold λ^e increases. Subjects then raise their thresholds, since their reciprocal responses are relative to the baseline of λ^e.

The direction of the overall response given these two effects depends on the relative magnitude of these effects, and thus on the size of γ. This term captures the sensitivity of the voter's reciprocal response to a change in the expected payment provided; a higher γ implies a stronger reciprocal response. When the reciprocal response is very strong, it dominates the inequality aversion effect for all voters. When it is very weak, it is dominated by the inequality aversion effect for all voters. In an intermediate range, the reciprocity response dominates for the payment non-recipients, but the inequality aversion effect dominates for the payment recipients.

Finally, the above predictions conditional on multifaceted social preferences differ notably from the predicted responses given single-dimensional social preferences (reciprocity alone or inequality aversion alone). Detailed predictions for these cases are provided in Appendix B. Specifically, given inequality aversion alone, voter thresholds chosen by subjects who do and do not receive payments are identical (because no voter is pivotal). Thus, examining the voter response to payments allows us to evaluate whether the "inequality only" model of preferences is relevant. In addition, with inequality aversion alone, the thresholds chosen by all voters are predicted to uniformly decrease as n increases, while the prediction given reciprocity alone suggests a uniform increase as n increases. Exam-

ining the shifting voter response as the number of payments increases allows us to further distinguish between the different postulated models.

2.3 Comparative statics

We derive comparative statics with respect to two key parameters: the strength of the reciprocal response, captured by the parameter γ, and the fraction of the treasury that is vulnerable to expropriation, captured by the parameter λ^{max}.

Proposition 5 (Variation in the reciprocal response) *An increase in the parameter γ increases λ_i for voters who receive payments and decreases λ_i for voters who do not receive payments.*

Intuitively, individuals who derive more utility from a reciprocal response are even more willing to reward a politician who distributes vote payments. Conversely, more reciprocal individuals who do not receive a payment are more willing to punish.

Proposition 6 (Variation in the maximum expropriation level) *An increase in $\lambda^{\max}$ uniformly increases λ_i for all voters.*

A higher $\lambda^{\max}$ increases the minimum sustainable threshold for politician re-election in any pure strategy equilibrium. Intuitively, when the politician can expropriate more, this increases his outside option, rendering it more challenging for voters to discipline him with the threat of removal. Thus, the equitable threshold λ^e increases, as do the equilibrium thresholds $\lambda_{i,g}$ and $\lambda_{i,ng}$. Moreover, the predicted change is of the same magnitude for both payment recipients and payment non-recipients.

2.4 Unequal endowments

In the laboratory experiments, we also evaluate whether subjects respond differently to an increased endowment as opposed to a labeled vote payment: i.e., rather than receiving payments, voters receive different endowments at the initiation of the game. Specifically, n voters have endowment $y+g$, and the remaining voters have endowment y. The subjects are then engaged in the simple baseline voting game, without payments.

Proposition 7 (Unequal endowments) *Given preferences characterized by self-interest in conjunction with reciprocity and inequality aversion, and unequal endowments*

1. *There exists a minimum threshold $\lambda^{\min,E} > \lambda^{\min}$ such that any threshold $\lambda_p \in [\lambda^{\min,E}, \lambda^{\max}]$ is an equilibrium. All voters and the politician choose the same threshold λ_p.*

2. *Given fixed β, subjects increase their threshold compared to the baseline game with equal endowments y.*

Intuitively, when the endowment of n voters increases, the baseline level of inequality between politician and voters is reduced. This lowers the cost of expropriation for the politician, rendering his outside option more attractive. It then becomes more challenging to sustain a lower level of expropriation in equilibrium, and the chosen re-election threshold for all subjects will increase. However, this increase is consistent across subjects who have high and low endowments: i.e., there is no heterogeneity in the subject response to the introduction of unequal endowments.

2.5 Key predictions

We have generated predictions around the response of both voters and politicians to the introduction of vote payments under two distinct models of preferences: purely self-interested and multifaceted social preferences. Under the former case, there will be no subject response to payments (Proposition 2); under the latter case, subjects who receive payments will increase their re-election thresholds relative to the baseline game, while subjects who do not receive payments will decrease their re-election thresholds (Proposition 4). We present further hypotheses as to how the voter response to payments varies with the number of payments in Proposition 4, and comparative statics with respect to game parameters in Propositions 5 and 6.

The key advantage of our model and experimental design is that it allows us to identify whether there is an effect of vote payments on voters' choices in the absence of any selection channel, and thus an effect on politician performance holding politician identity fixed. In particular, this game is distinct from more complex models in which both adverse selection and moral hazard are relevant and pooling equilibria can emerge in which low-type politicians seek to mimic high-type politicians.[14] Here, by contrast, the politician's choice of an optimal level of expropriation is shaped only by voters' choice of punishment given expropriation, and there is no scope for the expropriation choice to serve as a signal of the politician's type. To our knowledge, this is the first paper to systematically evaluate the potential relationship between vote payments, subjects' willingness to punish politicians, and politician rent-seeking, highlighting an additional and important channel through which vote-buying may shape governance outcomes.

[14]See for example Besley and Smart (2007); Besley (2007); Coate and Morris (1995); Canes-Wrone et al. (2001) and Maskin and Tirole (2004) for examples of this class of models.

3 Experimental methods

We now map the voting games implemented in the laboratory to the model, and describe laboratory procedures.[15]

3.1 Voting games

In the voting game played in the laboratory, six subjects — five voters and one politician — constituted the polity. The endowment y was \$20 in the U.S., and 500 shillings or approximately \$6 in Kenya, while the tax rate τ was 0.5. The fraction of the collective treasury available for expropriation (λ^{max}) was 0.3; thus 15% of each voter's endowment, and 15% of the treasury as a whole, was vulnerable to expropriation. The cost of removing the politician, κ, was set at $0.1 \cdot y$ or \$2 in the U.S., and the bonus payment ϵ was between 0 and \$2. In the game incorporating vote payments, the payment size g was also set at $0.1 \cdot y$, or \$2 in the U.S.

Every experimental session followed the same structure, summarized on the left side of Figure 1. Appendix C describes minor differences between the U.S. and Kenya, with Figures F1 and F2 providing the corresponding country specific figures. The session was initiated with standard games designed to measure social preferences. This was followed by the voting game rounds: round one (baseline voting game without payments), round two (voting game with n_1 payments), round three (voting game with n_2 payments, in the U.S. sessions only), and a post-game questionnaire. We now elaborate on the procedures for each phase of the session.[16]

Social preferences Subjects were engaged in the dictator game, the ultimatum game, and the trust game. Appendix D provides detailed game protocols.

Round one: No payments Subjects first received voting game instructions. The instructions emphasized that subjects would make choices as both the voter and the politician, and be assigned a game role (and paid on the basis of their choices in that role) at the conclusion of the experimental session (not at the conclusion of the game round).[17] Next, each subject specified his choice as a voter, and subsequently specified

[15] Experimental protocols and the zTree scripts can be found on Jessica Leight's website.

[16] Uniform ordering of the various phases of the experimental session was maintained for the following reasons: first, our objective in conducing social preferences games was to measure respondents' underlying preferences without priming them to consider questions linked to voting and political behavior, hypothesizing that the latter priming might meaningfully shift their behavior. Second, our objective in conducting the voting game without payments is to measure respondents' behavior in the underlying voting game without priming them to consider questions around vote payments.

[17] Subjects also answered a set of comprehension questions, and were required to review the correct responses before proceeding.

his choice as the politician. Subjects thus make two choices: one as a voter, and one as a politician.

The choices of re-election threshold and expropriation level were elicited differently in the U.S. and Kenya. In the U.S., subjects were posed two questions: "what is the maximum amount you would allow the politician to expropriate and still re-elect him?" and "what is the amount you would expropriate from the treasury?' In response to each question, subjects could specify any integer between 0 and $15. In Kenya, subjects were asked to respond to a series of questions inquiring whether or not they would vote to re-elect a politician who expropriated a specified amount: 0, 75, 150, 250, 300, and 375 Ksh. As politicians, they could choose how much to expropriate from the same set of choices. The alternate design in Kenya sought to increase comprehension by presenting the voters with a series of discrete choices.

Subjects received no information or feedback about their choices, other subjects' choices or their compensation following this game round.

Round two: Payments Subjects received an overview of the voting game including payments. They were then presented with the following language: "suppose you are a voter and that you have received $2 in exchange for your vote. What is the maximum amount you would allow the politician to expropriate and still re-elect him/her, given that you received $2?" To elucidate preferences in the absence of a vote payment, a parallel question was posed: "suppose you are a voter and that you have not received $2 in exchange for your vote. What is the maximum amount you would allow the politician to expropriate and still re-elect him/her, given that you have not received $2?" Again, in Kenya the choice of an integer was replaced with a series of discrete questions about the choice to re-elect at specific levels of expropriation.

In some sessions, subjects were posed the question about their voting threshold in the absence of a payment prior to the question about their voting threshold in the presence of a payment. Section 4.2 examines the effect of variation in question ordering on subjects' responses.

Next, subjects specified their choices as politicians, again responding to the question "what is the amount you would expropriate from the treasury?". In Kenya, subjects chose the re-election threshold from a set of discrete choices.

Thus in game rounds including payments, the subject makes two choices as a voter — the re-election threshold conditional on a payment, and the re-election threshold unconditional on a payment — as well as a single choice as a politician. (In the game in which all voters receive payments, the subject makes a single choice as a voter: a choice conditional on a vote payment.) Subjects received no information or feedback about their

choices, other subjects' choices or their compensation following this game round.

Round three: U.S. In the U.S., a third game round was played in some sessions. This round was always identical to the second round, except that the number of payments was changed. Subjects received no information or feedback about their choice, other subjects' choices or their compensation following this game round. No third round was played in any game session in Kenya due to constraints on experimental session length.

Post-game questionnaire and compensation After the final game round, subjects completed a brief demographic questionnaire and were compensated. To calculate compensation, the subjects present in the laboratory (numbering six, 12 or 18 individuals in the U.S., and 12 or 18 individuals in Kenya) were first randomly constituted into polities of six.

Next, one game round was randomly selected (round one, two, or three). Within each polity of six, one subject was randomly assigned to play the role of politician, and if the randomly selected game round included payments, n subjects were randomly assigned to play the roles of voters who received payments. (The remaining $5 - n$ subjects were assigned to play the roles of voters who did not receive payments.)

The experimenter compiled relevant subject choices from the chosen game round: the expropriation level selected by the subject playing the politician; the re-election thresholds conditional on payment selected by the voters playing payment recipients; and the re-election thresholds unconditional on payment selected by the voters playing payment non-recipients. The game outcome was calculated (whether or not the politician was re-elected, and the amount returned to each voter). Each subject then received her total earnings (inclusive of the vote payment, for subjects who were assigned to the roles of payment recipients).

In the U.S., subjects did not receive any compensation linked to their choices in the social preference games (i.e., these choices were not incentivized). In Kenya, subjects did receive compensation linked to their choices in these games. One of the three games (dictator, ultimatum or trust game) was randomly chosen, and the subject was paid based on his/her choice and (for the ultimatum and trust games) the choice of a randomly chosen partner. Questions about subjects' expectations of others' behavior in the voting game were not incentivized in the U.S. or Kenya: i.e., subjects simply stated whether they expected the politician to be elected, without any compensation linked specifically to this response. Appendix E provides details around subject compensation, and an example.

This experimental design relies on the use of the strategy method to elicit subject responses, a method that is often described as "cold" decision-making, in contrast to "hot"

decision-making in which subjects interact more directly. In general, the two methods yield similar results, though there is some evidence that the strategy method results in lower levels of punishment (Brandts and Charness, 2011). Given that our empirical analysis entails within-subject comparisons across games that are all conducted using the strategy method, we do not regard this as a significant source of bias.

3.2 Session types

We conducted six different treatments, summarized on the right hand side of Figure 1. Each treatment is also assigned a session type letter (A-F) that is noted here.

1. *Session type A, Public payments*: The subjects were informed that some voters will receive a "payment in exchange for your vote", and the subjects were informed of the number and value of the payments. This treatment was implemented with one, four, and five payments.

2. *Session type B, Public gifts*: The subjects were informed that "voter(s) will receive a gift of $2. This gift does not come from the treasury." No quid pro quo for the gift was specified, but the subjects were informed of the number and value of the payments. This treatment was implemented with one and four payments.[18]

3. *Session type C, Limited information*: The subjects were not informed of the number or size of the payments, but were informed that some voters will receive a "payment in exchange for your vote". This treatment was implemented with four payments.

4. *Session type D, Limited information and prior consent*: The structure is identical to the previous treatment, with the following addition: prior to choosing their re-election thresholds, subjects were asked if they would accept a payment, if offered. This treatment was implemented with four payments.

5. *Session type E, Big pot*: The fraction of the treasury vulnerable to expropriation by the politician (λ^{max}) was increased from 0.3 to 0.5 in the baseline game without payments and game including payments. This treatment was implemented with five payments.

6. *Session type F, Unequal endowments*: Subject endowments were rendered unequal ex ante to mimic the wealth distribution induced by the vote payments; i.e., subjects had an endowment of either $20 or $22 (parallel to their endowment if they

[18]Some game treatment and number of payments combinations were omitted due to resource constraints.

had received a $2 vote payment). The standard voting game was played, without reference to vote payments, and each subject specified what threshold he would set for the politician if his endowment was $22, and if his endowment was $20. The subjects were subsequently engaged in the standard voting game with equal endowments as well as the voting game with payments (in session type F2, in the U.S.); or in the voting game with payments only (in session type F1, in the U.S. and Kenya).

The baseline voting game without payments (implemented in round one of the session) is identical in session types A through D. However, it is not identical in session types E and F, as described above. (In session type E, the baseline voting game without payments includes a larger pot vulnerable to expropriation. In session type F, the baseline voting game without payments includes variable endowments, though in session type F2 both the baseline voting game with unequal endowments and the baseline voting game with equal endowments were conducted.)

In addition to the six session types denoted by letters, country-specific session types are denoted by numbers. For example, session type A corresponds to public payments; session type A1 was implemented in the U.S., and session type A2 in Kenya. Session type A1 includes three game rounds (two rounds of the voting game including payments, with one and four payments respectively); while session type A2 conducted in Kenya includes only two game rounds (one round of the voting game including payments, with four payments). Table 1 summarizes the details, listing each session type, the content of each game round in the session, and the site at which the session type was played. These session labels will be referred to in the empirical analysis in order to clarify the source of data for each analysis, and the source of within-subject versus cross-subject variation.

3.3 Empirical predictions

To guide interpretation of the empirical results, we summarize how data from each session type will be used. We employ data from session types A through D to examine the voter and politician response to the introduction of payments. If subjects are motivated solely by self-interest, then neither voters nor politicians should shift their behavior when payments are introduced (Propositions 1 and 2). However, if subjects are also motivated by social preferences that include reciprocity, individuals who receive payments will increase their re-election thresholds and thus their tolerance for expropriation, while subjects who fail to receive payments will decrease their re-election thresholds (Propositions 3 and 4).[19]

[19]If subjects are motivated purely by inequality aversion, all subjects would increase their re-election thresholds.

We compare games in which one, four and five payments were distributed to analyze how subject responses shift as the number of payments increases. If subjects are motivated solely by reciprocity, the magnitude of the positive response exhibited by payment recipients should decrease in magnitude as the number of payments increases. However, if subjects are partially motivated by inequality aversion, this positive response may increase in magnitude (Proposition 4). Finally, the "public gifts" treatment enables us to evaluate the hypothesis that gifts distributed without any *quid pro quo* are as effective as vote payments incorporating an explicit exchange between voter and politician.

Data from session types C and D additionally allows us to evaluate how subject responses shift as the intensity of the reciprocal response increases (Proposition 5). To generate experimental variation in the salience of reciprocity, we limited the information that subjects received about vote payments and, in session type D, also requested their consent for the payment; both modifications were designed to increase the subject's perception that he was engaging voluntarily in an implicit transaction conditional on a payment. Increasing the experimentally generated sense of reciprocity should render payment recipients more responsive, while payment non-recipients show evidence of a (weakly) larger backlash effect (Proposition 5). Accordingly, the increase (decrease) in expropriation thresholds for subjects who do (do not) receive payments is predicted to be larger in the limited information treatments.

Data from session type E allows us to evaluate how subject responses shift as the share of the treasury that is vulnerable to expropriation increases (Proposition 6). Increasing the share of the treasury that is vulnerable to expropriation is predicted to increase voters' re-election thresholds, as well as politicians' chosen levels of expropriation. Accordingly, when comparing the voting game with payments to a baseline voting game in which both games are characterized by a higher λ^{max}, the increases in re-election thresholds and expropriation should be larger. There is no predicted difference in this response comparing across payment recipients and non-recipients.

Data from session type F enables us to evaluate the alternative hypothesis that voters respond merely to the shift in their endowment, rather than to the payment itself. By comparing subjects' choices in the unequal endowment game to choices in the baseline voting game, we can test if their response to the payment reflects a wealth effect.

If the shift in voter behavior given a higher endowment is identical to the shift in voter behavior given a vote payment, that suggests that the voter's choice of re-election threshold may be a channel for externalizing attitudes toward the experimenter. However, if the response to a higher endowment is dissimilar, this pattern suggests that subjects are reacting to the labeled vote payment by responding specifically to the politician's behavior. More precisely, theory predicts that subjects with high and low endowments

should choose identical re-election thresholds (Proposition 7), in contrast to the diverging behavior predicted for payment recipients and non-recipients.

3.4 Laboratory procedures

We conducted our experiments using zTree (Fischbacher, 2007) at the Harvard Decision Science Lab in Cambridge, MA and the Busara Experimental Laboratory in Nairobi, Kenya between 2013 and 2015. At both sites, subjects were recruited through the laboratories' databases, and each subject participated in only one session. In the U.S., 450 subjects participated in 62 sessions, and each session consisted of six, 12 or 18 subjects. In Kenya, 366 subjects participated in 24 sessions, and each session consisted of 12 or 18 subjects. Table F1 in Appendix F provides details on the number of subjects per session type. Total time required for the experimental session was around 90 minutes in the U.S. and 180 minutes in Kenya.

The average age of subjects is 33 at both sites. In the U.S., the subject pool is equally divided by gender, overwhelmingly unmarried, and highly educated. In Kenya, the subject pool is 62% female and has an average of 11 years of education; half are married. Levels of political engagement are high in both subject pools, though higher in Kenya: 72% of U.S. subjects report voting in the last presidential election, while 86% of Kenyan subjects did so. Table F2 provides details.

4 Empirical analysis

4.1 Data and descriptive statistics

As noted above in Section 3.1, subjects make multiple decisions in each game round. Accordingly, the key unit of interest for the empirical analysis is the subject-decision: the subject's choice of a re-election threshold as a voter, and the subject's choice of an expropriation level as a politician.

There were some differences in how the subjects' choices were elicited in the U.S. and Kenya, described above in Section 3.1 and in more detail in Appendix C.3. For the Kenyan subjects, we employ their responses to a series of questions about whether they would re-elect a politician who expropriated a specified amount to construct an estimated re-election threshold, corresponding to the median of the maximum threshold at which the subject stated he would re-elect and the minimum threshold at which he stated he would not re-elect. For example, the re-election threshold for a subject who would re-elect a politician who expropriated 75 shillings, but not a politician who expropriated

150 shillings, was set at 112.5 shillings. We drop roughly 7% of observations corresponding to Kenyan subjects who exhibited non-monotonic behavior, stating that they would not re-elect a politician expropriating a lower amount, but would re-elect a politician expropriating a higher amount, leaving a sample of 755 subjects. (We will subsequently demonstrate that our primary results are robust to these subjects' inclusion.)

Panel A of Table 2 reports summary statistics for voter thresholds and politician levels of expropriation, where Kenyan subject choices are rescaled to lie on the 0 to \$15 scale employed in the U.S.[20] The average voter re-election threshold in the pooled sample is the equivalent of \$7.33, with significantly higher voter thresholds in the U.S. (\$7.70) relative to Kenya (\$6.59). Kenyan subjects are also significantly more likely to set their re-election threshold at zero. Again, a higher threshold suggests a greater tolerance by subjects as voters of expropriation by politicians. Figure F3 in the Appendix (subfigures F3a through F3d) shows the corresponding kernel densities and histograms of subject choices as voters for subjects in the U.S. and Kenya.

At around \$8, the average level of politician expropriation is above the average voter threshold; this is again significantly higher in the U.S. (\$8.39) than in Kenya (\$7.21). Subfigures F3e and F3f in the Appendix similarly show histograms of subjects' choices as voters and politicians in the game including no payments, and in the full sample of games; it is evident that the distribution of politician expropriation levels has more mass at higher values (including the maximum value) vis-a-vis the distribution of voter re-election thresholds, but also more mass at lower values (less than or equal to five).[21]

In order to evaluate election outcomes, we use the following procedure: drawing on the polities (subgroups of six subjects in the same experimental session) that were constituted in the laboratory in order to calculate subject compensation, we identify all possible election outcomes (using all possible assignments of subjects to the roles of politician, voter who does not receive a payment, and voter who does receive a payment, if applicable), generating 5,544 different election outcomes.[22] Figure 2 presents a histogram of the number of voters who voted to re-elect the politician, conditional on the level of expropriation actually chosen by the subject playing the role of politician, across this sample of elections. A voter was pivotal (implying that three votes were cast for re-election and two against, or vice versa) in 35% of cases. A unanimous election was observed in 34%

[20] In addition, choices made by subjects in the big pot games are re-scaled to lie on the same scale from 0 to \$15.

[21] In graph F3f, for the games in which subjects as voters specify multiple re-election thresholds (conditional and unconditional on payments), both thresholds are included in the histogram.

[22] For the games with no payments and six payments, there are six different possible election outcomes (dependent on the selection of the subject who plays the role of politician). For the games with one and four payments, there are thirty different possible election outcomes (dependent on the selection of the subject who plays the role of politician, and the single subject who does (does not) receive a payment).

of cases. In the remaining approximately 30% of cases, one or four votes were cast for the politician's re-election.

Panel B of the same table reports measures of social preferences.[23] We find that 66% of U.S. subjects send a positive amount to a partner in the dictator game, compared to 81% of Kenyan subjects. U.S. subjects are more likely to send a positive amount in the trust game, but conditional on receiving a positive amount, Kenyan subjects are more likely to return a non-zero amount. Kenyan subjects also exhibit greater inequality aversion; at \$5.72 out of a maximum of \$10, the minimum transfer that Kenyans would accept from a partner in the ultimatum game is roughly double the reported threshold for U.S. subjects (\$2.91).[24]

4.2 Voter response to payments

We first evaluate subjects' responses to vote payments as voters and politicians, as well as variation in these responses given a varying number of payments. To evaluate the effect of vote payments on the re-election thresholds chosen by voters, we estimate the following equation. Here, T_{idgs} denotes the threshold chosen by subject i in game decision d in game round g in session s.

$$T_{idgs} = \beta_1 R_{idgs} + \beta_2 P_{gs} + \phi_i + \epsilon_{idgs} \tag{5}$$

R_{idgs} is a dummy equal to one if subject i's decision is conditional on payment receipt, and P_{gs} is a dummy equal to one if the game includes vote payments. All specifications are estimated with and without subject fixed effects, with standard errors clustered at the session level. (There were 86 sessions conducted in total.) Specifications without subject fixed effects include a Kenya dummy, a control variable for the order in which questions about vote payments are posed, and comprehension index fixed effects.

Table 3 reports the primary results analyzing voter behavior, employing all session types except big pot and unequal endowments.[25] First, we observe in Columns (1) and (2)

[23]The sample includes 653 subjects (372 in the U.S. and 281 in Kenya); this includes all subjects other than those included in session type F, unequal endowments, for whom social preferences are not observed. In the U.S., these choices were not incentivized, and thus subjects were not paired with a partner in order to calculate a payoff. In Kenya, these choices were incentivized, and subjects were paired with a partner and informed of their payoff. This payoff was added to their earnings in the voting game.

[24]We construct an additional index of reciprocity Rec_i, defined as $Perc_i^{high} - Perc_i^{low}$, censored at zero; where $Perc_i^{high}$ ($Perc_i^{low}$.) is the percentage of funds received that a subject would return to sender in the trust game if he received more than 50% of endowment (less than 50%). In the 2013 sessions and in Kenya, a simpler trust game was employed in which the sender has the choice only to send all or nothing; accordingly, Rec_i can be constructed only for the 2014 U.S. sessions. The mean index of reciprocity is .06. Interestingly, this is extremely close to the average level (.04) reported by Finan and Schechter (2012) for their Paraguay sample.

[25]This is a sample of 2136 subject-decisions. The unequal endowment session types, F1 and F2, also

a positive and significant coefficient on recipient (β_1), demonstrating that subjects who receive a payment increase their re-election thresholds relative to non-recipients. Second, there is a negative and significant coefficient on payment (β_2), suggesting a backlash effect: subjects engaged in a voting game with payments who do not receive a payment are harsher in their treatment of the politician relative to the baseline game, lowering their re-election thresholds.[26] The bottom row reports the sum of β_1 and β_2, capturing the response of payment recipients relative to the baseline voting game; it is positive and significant conditional on subject fixed effects.

These results suggest that subjects are motivated by self-interest in conjunction with social preferences, and that these social preferences include reciprocity, given that all models of preferences including reciprocity predict both a positive response by payment recipients and a backlash effect for payment non-recipients. However, this evidence does not allow us to draw conclusions around the relevance of inequality aversion.

In order to further refine our understanding of subject preferences, we utilize additional evidence around variation in the voter response to payments as the number of payments increases. More specifically, we estimate the following specification; it includes the recipient dummy variable interacted with the dummy variables P^1_{gs} and P^4_{gs}, denoting game rounds in which payments are distributed to one and four subjects, as well as the dummy All_{gs}, equal to one for game rounds in which all subjects receive payments. Again, this specification is estimated with and without subject fixed effects.

$$T_{idgs} = \beta_1 R_{idgs} \times P^1_{gs} + \beta_2 R_{idgs} \times P^4_{gs} + \beta_3 P^1_{gs} + \beta_4 P^4_{gs} + \beta_5 All_{gs} + \phi_i + \epsilon_{idgs} \qquad (6)$$

The results in Columns (3) and (4) in Table 3 provide robust evidence that the positive effect of payments on recipients' re-election thresholds is growing in magnitude as the number of payments increases. The bottom rows of the table report the linear combinations $\beta_1+\beta_3$ and $\beta_2+\beta_4$, capturing the net effect of a payment when one payment and four payments are distributed, respectively. The net effect of a \$2 payment in the one-payment game is insignificant. The net effect of a \$2 payment in the four-payment and five-payment games is positive and significant, and larger for the all-payment game; payment recipients allow the politician to expropriate about 40 cents more if four voters receive payments, and 70 cents more if all voters receive payments. We can reject the hypothesis that the net effect of a single payment, $\beta_1 + \beta_3$, is equal to the effect of five payments, β_5. The hypothesis that $\beta_2 + \beta_4 = \beta_5$ cannot be rejected, though p=.11 for

include some game rounds with five payments. For clarity of the within-subject comparisons, however, data from session types F are omitted. The results are consistent if this data is also included.

[26] The sign and significance of β_1 and β_2 are consistent irrespective of the order in which the "re-election threshold - payment" and "re-election threshold - no payment" questions are asked. These results are available upon request.

the specification employing subject fixed effects.[27]

This evidence of a voter response to payments that increases in magnitude given increasing n is not consistent with a model of subject preferences in which only reciprocity is relevant. Rather, this pattern suggests social preferences are multifaceted, incorporating both reciprocity and inequality aversion. Only subjects who are also averse to inequality will respond differentially to payments that are widely distributed.[28]

Finally, we estimate the following specification to examine whether there is any heterogeneity in the response to payments when the payment is framed as a gift with no quid pro quo.

$$T_{idgs} = \beta_1 R_{idgs} + \beta_2 R_{idgs} \times Gift_{gs} + \beta_3 P_{gs} + \beta_4 P_{gs} \times Gift_{gs} + \phi_i + \epsilon_{idgs} \tag{7}$$

Columns (5) and (6) report the results, and we observe that β_2 and β_4 are small in magnitude and insignificant. That suggests subject responses generally do not vary when alternate framings of an identical payment are introduced; if we interact the gift dummy with dummy variables for framings including specific numbers of payments, we observe the same pattern.[29]

To sum up, the observed gap in re-election thresholds between subjects who do and do not receive a payment, in conjunction with an increase in the magnitude of the recipient response as the number of payments increases, is inconsistent with a model of pure self-interest. Rather, this evidence is consistent with the hypothesis that subjects are characterized by multifaceted social preferences encompassing both reciprocity and inequality aversion.

[27]The absence of an increase in voters' thresholds when one payment is introduced is inconsistent with the theoretical predictions given λ is modeled as continuous. However, this empirical pattern could be consistent with an alternate model where λ is modeled as discrete.

[28]In addition, the results suggest that the backlash effect is somewhat increasing in magnitude as the number of payments increases (a vote payment of \$2 leads to a decline of about 60 cents in threshold set by non-recipients in the one payment game, and a decline of 73 cents in the four payment game); however, the difference between these two coefficients is not statistically significant. While noisy, this evidence is consistent with the prediction in Proposition 4 for the case in which the marginal cost of inequality is at an intermediate level, and thus the backlash effect also increases in magnitude as the number of payments increases.

[29]In Appendix F, we reproduce the core results around voter behavior reported in Table 3 employing two alternate samples. Table F4 expands the sample to include Kenyan subjects who exhibit non-monotonic behavior, and Table F5 limits the sample to exclude subjects who score in the bottom decile of game comprehension. Tables F6 through F8 drop any experimental session in which a game round was omitted in error. In all cases, our results are robust.

4.3 Politician response to payments

Do politicians' expropriation choices shift when vote-buying is introduced? Our model predicts that politicians should set their expropriation level equal to the re-election threshold chosen by the majority of voters. Given our previous findings, this suggests that politician expropriation should increase when four or five payments are introduced, and this increase should be larger in magnitude for games including five payments. To test this hypothesis, we estimate the following specification:

$$Exp_{igs} = \beta_1 P_{gs} + \phi_i + \epsilon_{igs} \tag{8}$$

Exp_{igs} denotes the amount expropriated by subject i as a politician in game round g in session s. Parallel specifications will be estimated including dummy variables for various numbers of payments, as well as an interaction with the gift framing.

Table 4 presents the results. Columns (1) and (2) show that the introduction of vote payments increases politician expropriation by around \$0.50, an increase of 6% relative to the mean. Columns (3) and (4) show a larger increase in expropriation when payments are distributed to all subjects, but the difference is statistically insignificant. In addition, the fact that there is an increase in politician expropriation when only one payment is distributed is inconsistent with the theoretical predictions suggesting a decline in politician expropriation in this case; however, this increase is not statistically significant in the absence of subject fixed effects. Finally, in Columns (5) and (6) we observe no variation in expropriation when the gift framing is employed. In addition, we observe no shift in subjects' re-election expectations once payments are introduced.

Considering the welfare of subjects as voters, the increase in expropriation renders voters who do not receive the transfers worse off when vote payments are introduced. This evidence is consistent with the hypothesis that there is some welfare loss generated by the deterioration in governance, and the associated increase in rent-seeking, in a polity characterized by widespread vote-buying.

4.4 Interpreting the role of social preferences

Clearly, in this experimental context subjects show a robust response to the introduction of vote payments as both voters and politicians, and this observed response is inconsistent with simpler models of returns-maximizing preferences. Thus the empirical evidence suggests that social preferences are salient.

Interestingly, this result emerges despite the fact that the experimental design arguably minimizes the potential role of these preferences. As noted above in the de-

scription of the model and the experimental sessions, vote-buying in this context is not targeted (i.e., politicians have no agency in choosing the recipients of vote payments); given that the games are fully anonymous and subjects do not interact, subjects acting as politicians do not in any case have access to any information that would allow them to target payments. In addition, vote-buying is not costly to the politician. The politician has no choice to retain the vote payment, and thus does not forgo any compensation when voters receive payments.

Is it surprising that reciprocity is still operative in this setting? In fact, our results are consistent with an emerging literature on reciprocity, analyzing the breadth of subjects' responses in a range of experiments in which the traditional prerequisites for reciprocity are absent. Evidence from Malmendier and Schmidt (2017) suggests that subjects respond robustly to a gift even in a single-shot interaction when recipient and giver are matched anonymously by the experimenter, and even when the sending of a gift reflects selfish motivations; instead, subjects respond to the stated intention of the gift. Additional evidence from Pan and Xiao (2016) suggests that recipients favor a gift giver over a third party who has incurred the same cost and signaled the intention to send a gift, indicating that the costliness of a gift to the sender is not a prerequisite for a reciprocal response. In this sense, we contribute to this burgeoning literature by evaluating whether the simple labeling of a gift for one subject as attributed to another subject may be sufficient to induce a response.

It should also be noted that the experimental choice to render the vote payments zero cost to the politician also has advantages in terms of analyzing the precise mechanism of politician accountability. This feature of the experimental design ensures that the payment itself is not viewed as a signal of the politician's characteristics (generosity and/or altruism), thus prompting subjects to view their re-election choice partly as a mechanism to select a politician who has desirable intrinsic characteristics. Rather, the re-election choice can be used purely to punish the politician's choice of rent-seeking.

Importantly, our model also seeks to illuminate the importance of inequality aversion. In particular, the inclusion of inequality aversion generates the prediction that vote payments that saturate a polity have a disproportionate effect on voters' tolerance of expropriation, a phenomenon observed in the empirical results. By contrast, models of preferences including only reciprocity suggest that vote payments will in fact be less effective when they are widely distributed, a prediction that is clearly at odds with the results presented here. As previously noted, the multifaceted model of preferences is also consistent with the general empirical stylized fact that vote-buying often saturates local polities in developing countries (Breeding, 2011; Banerjee and Pande, 2007; Kramon, 2011), rather than targeting a bare majority of voters as would be optimal given

preferences characterized by reciprocity alone.

4.5 Comparative statics

4.5.1 Variation in reciprocity

In the laboratory, we sought to experimentally vary the subjects' degree of reciprocity toward the politician in two ways: limiting information about vote payments to increase the perception that the payment is targeted, and requesting the subject's active consent to receive the payment, in order to mimic a contract between the politician and the voter. In order to test the hypotheses that these treatments increase subjects' responsiveness to payments, we estimate the following specification including interaction terms with the limited information and prior consent framings. The limited information dummy variable is equal to one for sessions that employ limited information and no prior consent.[30]

$$T_{idgs} = \beta_1 R_{idgs} + \beta_2 R_{idgs} \times Lim_{gs} + \beta_3 R_{idgs} \times Cons_{gs} + \beta_4 P_{gs} + \beta_5 P_{gs} \times Lim_{gs} + \beta_6 P_{gs} \times Cons_{gs} + \beta_7 All_{gs} + \beta_8 Cons_{gs} + \phi_i + \epsilon_{idgs} \quad (9)$$

The results are reported in Columns (1) and (2) of Table 5; in general, the introduction of limited information and prior consent does not significantly shift voters' responses. The estimated coefficients on the limited information interaction are large in magnitude, but statistically insignificant. By contrast, while the interaction terms with the payment dummy β_5 and β_6 are negative, consistent with the theoretical prediction of larger backlash effects given a higher degree of reciprocity, the coefficients are small in magnitude. The estimated interaction terms for the limited information and prior consent framings β_2 and β_3 are heterogeneous in sign; there is some weak evidence that soliciting prior consent renders voters more responsive to payments.

4.5.2 Variation in the maximum expropriation level

The second comparative static of interest entailed increasing the fraction of the treasury vulnerable to expropriation λ^{max} from 35% to 50%, while the vote payment remained fixed at \$2. To evaluate the effect of this increase in the maximum expropriation level, we estimate the following specification, where Big_{gs} is equal to one if the session includes

[30]The dummy variables All_{gs} and $Cons_{gs}$ vary within-subject and thus are included in subject fixed effect specifications. The gift, limited information, and prior dummy variables, by contrast, only vary across subjects and are omitted from subject fixed effects specifications. More details on coding are provided in Table F3 in the Appendix. In the specifications without subject fixed effects, we continue to include controls previously enumerated for the no subject fixed effect specification.

a big pot vulnerable to expropriation.[31]

$$T_{idgs}^{frac} = \beta_1 P_{gs} + \beta_2 R_{igds} + \beta_3 Big_{gs} + \beta_4 P_{gs} \times Big_{gs} + \phi_i + \epsilon_{idgs} \tag{10}$$

Columns (3) and (4) of Table 5 report the results: the big pot dummy is positive and significant, while the interaction between big pot and payment is insignificant. These coefficients are consistent with the theoretical prediction that voters' selected thresholds should increase given an increase in λ^{max}, and there is no heterogeneity in this response across subjects.

This evidence suggests that even given the higher potential costs of expropriation, payment recipients continue to demonstrate a disproportionate willingness to tolerate expropriation by politicians, relative to payment non-recipients. Moreover, the effectiveness of a payment that is constant in magnitude in shifting voters' behavior in a context of increased potential welfare losses from rent-seeking is consistent with the empirical stylized fact that incentives offered to voters are often trivial in value relative to the estimated magnitude of politician rent-seeking.

4.6 Robustness check: Unequal endowments

An alternative interpretation of the results presented thus far is that the subjects' responses as voters simply reflect a reaction to the receipt of a payment that is directed at the experimenter, but externalized via the re-election choice. For example, subjects who receive a payment may be gratified and feel generous; subjects who do not receive a payment may be angry. To test this hypothesis, we use the "unequal endowments" game. This game is equivalent to the simple voting game without payments; however, four voters have endowments of \$22, and one voter has an endowment of \$20, parallel to the endowments induced in the four-payment voting game.

Our model of subject preferences suggests a very different response to this variation in endowments, relative to the response to a payment. While all subjects will increase their re-election thresholds relative to the baseline voting game, there should be no heterogeneity in this response with respect to the subject's own endowment. To test this hypothesis, we consider the full sample of games excluding big pot (session types A–D and F), and estimate the following specification with and without subject fixed effects.[32]

[31] Given that the big pot treatment included only games with zero and five payments, the interaction of big pot and a dummy for payment recipient is omitted.

[32] The sample includes game round I (no payments) and any game round including four payments from session types A-F as specified in Table 1: A1-III, A2-II, B1-III, B2-II, C1-II, C2-II, D1-II, D2-II, F1-I, F2-I and F2-II. In the specifications without subject fixed effects, we include a Kenya dummy, a control variable for the order in which questions about the receipt of vote payments is posed, and comprehension index fixed effects.

$$T_{idgs} = \beta_1 R_{idgs} + \beta_2 High_{idgs} + \beta_3 P_{gs} + \beta_4 Ineq_{gs} + \phi_i + \epsilon_{idgs} \quad (11)$$

The dummy variable $High_{idgs}$ is equal to one if a subject has a high endowment, and zero otherwise; $Ineq_{gs}$ is equal to one for the unequal endowment game rounds.

The results are reported in Columns (5) and (6) of Table 5, and demonstrate that the coefficient β_4 on the unequal endowment dummy is positive, large in magnitude, and statistically significant, consistent with theoretical predictions. Given a polity in which some voters have higher endowments, the cost of expropriation to the politician (driven by inequality aversion) is reduced, and accordingly voters' re-election thresholds increase. However, we also observe a coefficient β_2 that is consistently insignificant, suggesting that high endowment and low endowment individuals do not show any evidence of a differential response to the introduction of unequal endowments; rather, a uniform increase in all subjects' re-election thresholds is observed. This pattern is again consistent with the predictions of the model.

We can also conduct the statistical tests $\beta_1 = \beta_2$ and $\beta_1 + \beta_3 = \beta_2 + \beta_4$, testing whether the effect of a payment is equal to the effect of a high endowment, and whether the net effect of a payment in a payment game is equal to the net effect of a high endowment in the unequal endowments game. In both cases, we can reject these hypotheses at the five percent level, suggesting that the effect of receiving a payment is not the same as the effect of a high initial endowment.[33] While the results should be interpreted cautiously given that the salience of an additional transfer (in the form of a payment) may be significantly greater than a higher endowment assigned at the initiation of the game session, this pattern is consistent with the hypothesis that voters are not simply responding to the payment by externalizing a sense of gratitude at the experimenter.

4.7 Comparing the U.S. and Kenya

As previously noted, the primary effects of introducing vote payments — including a higher threshold for payment recipients, and a lower threshold for payment non-recipients — are qualitatively the same in both experimental sites. We reproduce the primary results for the U.S.-only and Kenya-only sample in Tables F9 through F14 in the Appendix. In general, the patterns of voter and politician behavior are consistent though the coefficients of interest are considerably noisier in the split sample, particularly for the Kenya-only results given the smaller number of subjects.[34]

[33] More specifically, for the specification reported in Column (5) of Table 5, the corresponding p-values are .000 and .028; for the specification reported in Column (6) of Table 5, the p-values are .000 and .025.

[34] Given that the Kenya sessions were more limited in number, and also constrained to include only two game rounds in each session, some results cannot be replicated in the Kenya-only sample. In Table F10,

However, it is also useful to note that the U.S. and Kenyan subjects show meaningful differences along a number of dimensions linked to social preferences. The theoretical framework suggests two key predictions around how variation in social preferences shapes subjects' choices. As noted in Section 2, in equilibrium all subjects in a given game are predicted to choose the same re-election threshold, and thus the model does not allow us to analyze heterogeneity in social preferences comparing across subjects engaged in the same experimental session. However, we can compare across the two separate experimental samples in the U.S. and Kenya, examining the implications of the differences described in Section 4.1: Kenyan subjects exhibit significantly greater inequality aversion, and also exhibit significantly greater levels of reciprocity.

First, in the base no-payment game, a subject sample characterized by higher inequality aversion (lower η) will in equilibrium choose a relatively lower re-election threshold.[35] Intuitively, when it is more costly to the politician to expropriate and increase inequality among his fellow subjects, voters can sustain a lower re-election threshold in equilibrium. Second, in the game including payments, a subject sample characterized by greater reciprocity (higher γ) will exhibit a response to payments that is larger in magnitude, a statement postulated (and proven) in Proposition 5.

On the first prediction, the heterogeneity in the average voter re-election threshold comparing across the U.S. and Kenya was reported in Section 4.1; in the no-payment game, the average voter threshold in the U.S. is \$7.57 compared to \$6.52 in Kenya, and the difference is highly significant ($p = .005$). On the second point, we can compare the results presented in Tables F9 and F10 to evaluate the U.S. and Kenyan subjects' response to payments. The Kenyan subjects' response to payments is around 90% larger, as evident when comparing Column (1) of these two tables. Both comparative statics are consistent with theory: the Kenyan subjects are more inequality averse and thus tolerate lower expropriation in the baseline game without payments, but are more reciprocal and thus demonstrate a more robust response to vote payments.

These findings should be interpreted cautiously given that the subject pools have many different characteristics. (Kenyan subjects have lower levels of education and income, and have significantly greater personal experience of vote-buying.) However, the observed pattern is consistent with an emerging hypothesis in the literature that stronger social preferences may sustain higher levels of clientelism (Acemoglu et al., 2014; Anderson et al., 2015), a potential channel for adverse governance outcomes observed in many

the specification estimating separate coefficients for the one payment and four payment games is omitted; the one-payment game was not conducted in Kenya, and thus the coefficient for the four-payment game is identical to what is reported in Column (1) in this table. The corresponding specification for politician behavior is similarly omitted in Table F12.

[35] This result is shown in the proof to Proposition 3.

developing country contexts.

5 Conclusion

Vote-buying is an important phenomenon in polities around the world, and there is a growing consensus that it can generate meaningful shifts in electoral outcomes, leading to the selection of candidates who are lower quality or whose preferences do not necessarily match those of the electorate. However, there is relatively little evidence around a second, potentially complementary channel: vote-buying may lead to a deterioration in politicians' performance, conditional on their selection, if it renders voters less willing to discipline politicians for poor performance.

The objective of this paper is to develop a theoretical framework analyzing the response of both voters and politicians to the introduction of vote payments in the absence of any selection channel, and test these theoretical predictions in the laboratory. We present evidence drawn from a diverse experimental sample including subjects in both the U.S. and Kenya, suggesting that subjects acting as voters do in fact respond to vote payments by increasing their tolerance of expropriation on the part of the politician. An increase in rent-seeking on the part of the politician is correspondingly observed, consistent with the hypothesis that vote-buying has adverse effects on the quality of governance even in the absence of any selection effects.

Importantly, both effects are evident for subjects at both experimental sites, for subjects exposed to full information about the payment regime, and for subjects who simply receive a vote payment without any allusion to a quid pro quo. Moreover, both effects are sustained even in an experimental context that seemingly minimizes the opportunity to establish a reciprocal tie between voter and politician.

In addition, the increase in voter tolerance of rent-seeking is considerably magnified when the number of vote payments distributed within the hypothetical polity increases. This pattern is consistent only with a model of multifaceted social preferences in which aversion to inequality within the polity — in addition to reciprocity between the voter and the politician — shapes voters' response to vote payments. In addition, this evidence is consistent with the stylized fact that vote-buying in developing country contexts often entails the saturation of neighborhoods or communities with payments. More broadly, evidence about the increased effectiveness of broadly targeted payments suggests that social preferences are relevant not only in sustaining the effectiveness of vote payments in general, but also in rendering widely targeted vote payments particularly potent in shifting voter behavior.

Our paper contributes to the existing literature by providing one of the first sources

of evidence that vote-buying can directly reduce voters' willingness to hold politicians accountable, independent of any shift in the identity of the politician. This channel of reduced accountability is relevant to the broader relationship between vote-buying, clientelism and governance. In addition, the evidence presented here also links to an emerging literature suggesting there is a positive correlation between social capital and elite capture of the policy-making process in developing countries (Acemoglu et al., 2014; Anderson et al., 2015). One channel for this correlation could be that strong social capital renders clientelistic mechanisms such as vote-buying more effective, even when vote payments are relatively anonymous and unenforceable. This implies that enhancing other, non-electoral methods of political accountability may be particularly important.

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6 Figures and Tables

Figure 1: Structure of game session

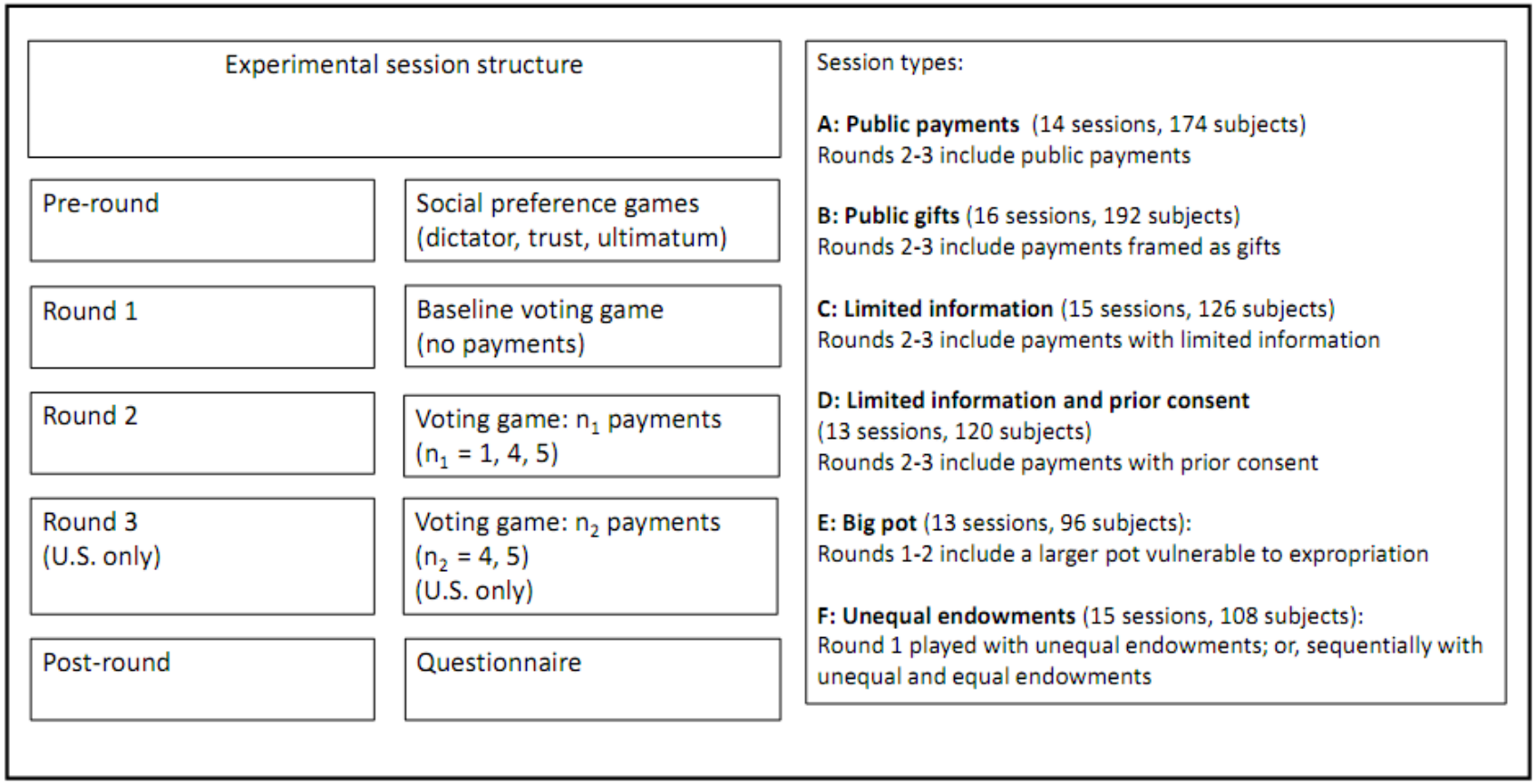


Figure 2: Votes for the politician's re-election

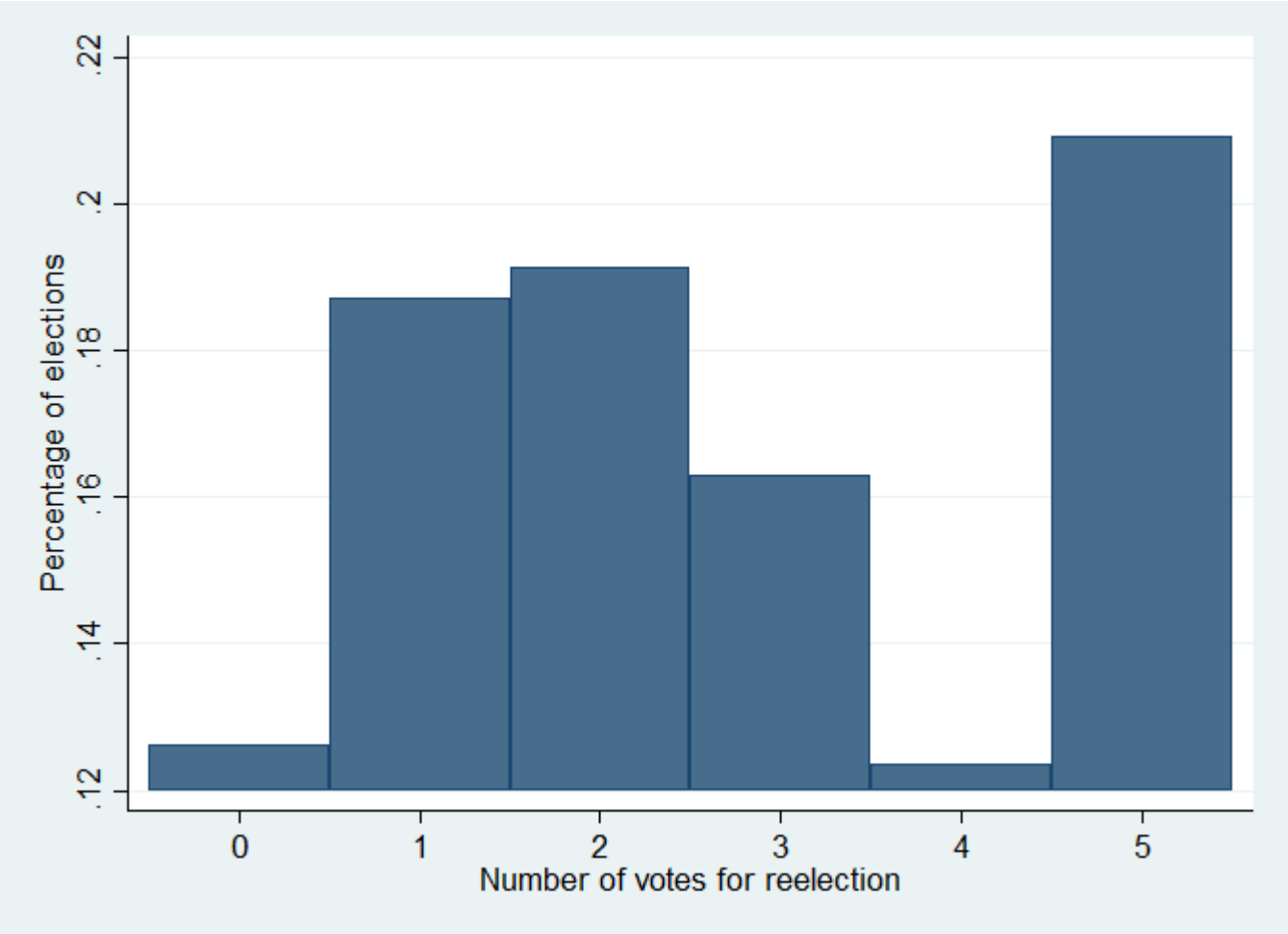


Table 1: Sessions conducted

Session type	Framing	Round I	Round II	Round III	Location
A1	Public payments	0 payments	1 payment	4 payments	U
A2	Public payments	0 payments	4 payments		K
B1	Public gift	0 payments	1 payment	4 payments	U
B2	Public gift	0 payments	4 payments		K
C1	Limited - prior	0 payments	4 payments	5 payments	U
C2	Limited - prior	0 payments	4 payments		K
D1	Limited - posterior	0 payments	4 payments	5 payments	U
D2	Limited - posterior	0 payments	4 payments		K
E	Big pot	0 payments	5 payments		U, K
F1	Unequal endowments	0 payments ("uneq")	5 payments		U, K
F2	Unequal endowments	0 payments	0 payments ("uneq")	5 payments	U

Notes: There were several aberrations in conducting experimental sessions. In 2013, a session of type A1 in the U.S. was conducted inadvertently omitting the game round with no payments. In 2014, a session of type C1 in the U.S. was conducted inadvertently omitting the game round with four payments. Also in 2014, four sessions including 24 subjects of type F1 in the U.S. were conducted substituting the big pot all payment game for the simple all payment game for game round II. These game rounds were dropped. In addition, politician choices in the unequal endowments sessions are not analyzed.

Table 2: Summary statistics

	U.S. mean	Kenya mean	U.S. obs.	Kenya obs.
Panel A: Subject choices in voting game				
Voter threshold	7.70	6.59	1794	886
Dummy for threshold at zero	.11	.16	1794	886
Politician expropriation	8.39	7.21	1236	610
Dummy for zero expropriation	.09	.26	1236	610
Dummy for full expropriation	.20	.22	1236	610
Panel B: Experimental measures of social preferences				
Dummy for sending in the dictator game	.66	.81	372	281
Dummy for sending in trust game	.83	.64	372	281
Dummy for returning in trust game	.42	.58	372	281
Threshold in ultimatum game	2.91	5.72	150	118
Reciprocity	.06		222	

Notes: Each panel reports means of the specified characteristics by experimental site. The data reported for Kenyan subjects is restricted to subjects who exhibit monotonic behavior and are thus included in the primary sample. Panel A reports summary statistics for subjects' choices as voters and politicians, including the re-election threshold as a voter, a dummy for the threshold at zero, the amount expropriated as a politician, and dummy variables for expropriating the minimum or maximum amount. This data is reported at the level of the subject-game round-game decision.

Panel B reports summary statistics for subjects' social preferences; this sample includes all subjects other than those included in session type F (unequal endowments). The measures reported include a dummy variable for sending a positive amount in the dictator game, a dummy variable for sending a positive amount in the trust game, a dummy variable for whether the subject returned any funds in the trust game, a reciprocity index, and the threshold in the ultimatum game; the reciprocity index can be calculated only for U.S. subjects in 2014 and 2015, and the ultimatum game threshold is available only for subjects in 2014. The reciprocity index is defined as $Perc_i^{high} - Perc_i^{low}$, censored at zero. All variables are normalized with respect to the dollar scales employed in the U.S.

Table 3: Voter behavior

	Voter re-election threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	.963 (.138)***	.964 (.135)***			.920 (.185)***	.922 (.179)***
Recipient x one payment			.278 (.205)	.278 (.205)		
Recipient x four payments			1.116 (.163)***	1.116 (.163)***		
Recipient x gift					.123 (.271)	.121 (.269)
Payment	-.703 (.196)***	-.670 (.188)***			-.702 (.279)**	-.687 (.255)***
One payment			-.595 (.313)*	-.597 (.253)**		
Four payments			-.752 (.189)***	-.733 (.188)***		
All payments			.593 (.301)**	.729 (.224)***		
Payment x gift					-.003 (.393)	.057 (.367)
$\beta_1 + \beta_2$	.260 (.173)	.294 (.170)*				
$\beta_1 + \beta_3$			-.318 (.270)	-.319 (.224)		
$\beta_2 + \beta_4$			.364 (.195)*	.383 (.191)**		
Sample	Session types A-D					
Mean dep. var.	7.07	7.07	7.07	7.07	7.07	7.07
Fixed effects		Subject		Subject		Subject
Obs.	2136	2136	2136	2136	2136	2136

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; and the recipient and payment dummies interacted with a dummy for the gift framing. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table 4: Politician behavior

	Politician expropriation					
	(1)	(2)	(3)	(4)	(5)	(6)
Payment	.499	.553			.432	.427
	(.211)**	(.202)***			(.285)	(.277)
One payment			.482	.478		
			(.357)	(.212)**		
Four payments			.492	.523		
			(.242)**	(.239)**		
All payments			.561	.806		
			(.364)	(.256)***		
Payment x gift					.205	.381
					(.442)	(.356)
Sample	Session types A-D					
Mean dep. var.	7.82	7.82	7.82	7.82	7.82	7.82
Fixed effects		Subject		Subject		Subject
Obs.	1404	1404	1404	1404	1404	1404

Notes: The dependent variable is the politician's level of expropriation. The independent variables are dummy variables for the game including payments, and for the game including one or four payments; a dummy for the game including payments for all subjects; and the payment dummy interacted with a dummy for the gift framing. Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table 5: Comparative statics

	Voter threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	1.073	.968	.975	.964	.989	.960
	(.179)***	(.156)***	(.137)***	(.135)***	(.142)***	(.133)***
Recipient x limited information	-.654	-.548				
	(.506)	(.494)				
Recipient x consent	.153	.259				
	(.274)	(.255)				
Payment	-.602	-.550	-.703	-.670	-.717	-.676
	(.248)**	(.228)**	(.197)***	(.188)***	(.201)***	(.183)***
Payment x limited information	-.048	-.229				
	(.464)	(.439)				
Payment x consent	-.309	-.416				
	(.522)	(.472)				
Big pot			2.936	12.864		
			(.797)***	(.191)***		
Big pot x payment			-.041	-.063		
			(.346)	(.338)		
High endowment					.216	.216
					(.162)	(.162)
Unequal endowment					1.316	.877
					(.531)**	(.364)**
Sample	Session types A-D		Session types A-E		Session types A-D, F	
Mean dep. var.	7.07	7.07	7.28	7.28	7.18	7.18
Fixed effects		Subject		Subject		Subject
Obs.	2136	2136	2326	2326	2466	2466

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. In Columns (1) and (2), the independent variables are a dummy variable for receiving a payment and its interactions with dummy variables for the limited information framing and the prior consent framing, as well as a dummy variable for the game including payments, also interacted with the limited information and prior consent framing. In Columns (3) and (4), the independent variables include the recipient and payment dummies, a dummy for the big pot game, and the interaction between the payment and big pot dummies. In Columns (5) and (6), the independent variables include the recipient and payment dummies, and the dummy variables for the unequal endowments framing and for an individual receiving a high endowment.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Appendix - for on-line publication only

A Proofs from main text

A.1 Proof of Proposition 1

We begin by noting again that no voter is pivotal in the equilibria of interest; accordingly, no voter benefits from altering his re-election threshold, conditional on the choice of a given threshold λ by all other voters. The politician's expected payoff from playing the strategy λ and winning re-election is $y + \lambda N\tau y + \epsilon$. If he deviates to the maximum expropriation $\lambda^{\max} N\tau y$, he obtains payoff $0.5y + \lambda^{\max} N\tau y$. Thus, the minimum threshold $\lambda^{\min,B}$ that can be sustained in equilibrium can be described implicitly as follows:

$$0.5y + \lambda^{\max} N\tau y = y + \lambda^{\min,B} N\tau y + \epsilon. \tag{12}$$

A.2 Proof of Proposition 2

Assume that n voters receive a payment g, where $n \notin \{N/2, (N+1)/2, (N-1)/2\}$. In the equilibria we consider, no voter is pivotal; accordingly, no voter has a gainful deviation from the equilibrium λ. The politician does not receive a payment, so his utility function is unchanged. Thus, we obtain the same $\lambda^{\min,B}$ as in Proposition 1.

A.3 Proof of Proposition 3

The politician does not receive a payment and does not expect one. The politician's utility is therefore given by

$$u_p = E_p - \frac{1}{\eta}\left(E_p - \sum_{i \neq p}(E_i + g_i)\right)^2. \tag{13}$$

When there are no payments, $g_i = 0$ for each voter. A politician who is re-elected derives utility

$$u_p(\lambda_p) = y + \epsilon + \lambda_p \cdot N \cdot \tau \cdot y - \frac{1}{\eta}\left(\lambda_p \cdot (N+1) \cdot \tau \cdot y + \epsilon\right)^2. \tag{14}$$

A politician who is not re-elected derives utility

$$u_p(\lambda_p) = 0.5 \cdot y + \lambda_p \cdot N \cdot \tau \cdot y - \frac{1}{\eta}\left(\lambda_p \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y\right)^2. \tag{15}$$

The removed politician's utility is increasing in λ_p for $\lambda_p \leq \lambda^{\max}$ if the following condition is satisfied:

$$\eta > \underline{\eta} = (N+1)/N \cdot 2 \cdot (\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y). \tag{16}$$

Under condition (16), the removed politician expropriates the maximum fraction $\lambda^{\max}$. We assume that this condition is satisfied.

Consider an equilibrium in which the median voter's threshold for re-election is λ. Then, the politician is better off expropriating λ and being re-elected compared to expropriating $\lambda^{\max}$ and being removed if

$$0.5 \cdot y + \epsilon - \frac{1}{\eta} (\lambda \cdot (N+1) \cdot \tau \cdot y + \epsilon)^2 - (\lambda^{\max} - \lambda) \cdot N \cdot \tau \cdot y + \frac{1}{\eta} (\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y)^2 \geq 0. \tag{17}$$

Notice that (16) implies that for $\lambda = \lambda^{\max}$, condition (17) is satisfied with strict inequality. The politician is then indifferent between re-election and removal if the inequality (17) holds with equality. Given (17), there exit values $\lambda_1 < \lambda^{\max} < \lambda_2$ such that the condition is satisfied for $\lambda \in [\lambda_1, \lambda_2]$. Label $\lambda^{\min}(n=0)$ as the value λ_1 at which (17) holds with equality:

$$0.5 \cdot y + \epsilon - \frac{1}{\eta} \left(\lambda^{\min}(n=0) \cdot (N+1) \cdot \tau \cdot y + \epsilon\right)^2 = (\lambda^{\max} - \lambda^{\min}(n=0)) \cdot N \cdot \tau \cdot y - \frac{1}{\eta} (\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y)^2. \tag{18}$$

Then, an equilibrium with re-election threshold λ exists if $\lambda \geq \lambda^{\min}$. At $\lambda = \lambda^{\min,B}$, equation (16) holds with strict inequality. Thus, given that the politician's utility is increasing in λ, it follows that $\lambda^{\min} < \lambda^{\min,B}$. Finally, by applying the Implicit Function Theorem in (18), we obtain

$$\frac{\partial \lambda^{\min}}{\partial \eta} > 0. \tag{19}$$

Thus, the value of $\lambda^{\min}$ increases as inequality aversion decreases (as η increases).

A.4 Proof of Proposition 4

Part 1. With $n > 0$, payments the minimum sustainable threshold $\lambda^{\min}(n)$ is given by the value of λ that solves the equivalent of equation (18) for $n > 0$:

$$0.5 \cdot y + \epsilon - \frac{1}{\eta}\left(\lambda^{\min}(n) \cdot (N+1) \cdot \tau \cdot y + \epsilon - \frac{n \cdot g}{N}\right)^2 = (\lambda^{\max} - \lambda^{\min}(n)) \cdot N \cdot \tau \cdot y - \frac{1}{\eta}\left(\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y - \frac{n \cdot g}{N}\right)^2. \quad (20)$$

Notice also that $\eta > \underline{\eta} > \underline{\eta}(n) = (N+1)/N \cdot 2 \cdot (\lambda^{\max} \cdot (N+1) \cdot \tau \cdot y - 0.5 \cdot y - n \cdot g/N)$. Consider an equilibrium threshold $\lambda_p \in \left[\lambda^{\min}(n), \lambda^{\max}\right]$. For voter i, a deviation from λ_p to some λ_i is profitable if

$$u_i(\lambda_p) < u_i(\lambda_i). \quad (21)$$

In the equilibria we consider, no voter is pivotal, and thus a single deviation to λ_i does not change the voting outcome. Accordingly, for voter i, λ_p is sustainable in equilibrium if and only if

$$\lambda_p = \arg\max_{\lambda_i}\left[\Delta\lambda_i \cdot \Delta g_i - \frac{1}{\gamma}\left(\frac{\Delta\lambda_i}{\Delta g_i}\right)^2\right]. \quad (22)$$

Then, for the voter who receives a payment, the sustainable threshold is $\lambda_{i,g}$, and for the voter who does not receive a payment, the sustainable threshold is $\lambda_{i,ng}$. The only equilibrium is therefore the one in which payment non-recipients select $\lambda_{i,ng}$, and payment recipients select $\lambda_{i,g}$.

Part 2. Given the voter thresholds that are sustainable in equilibrium, it follows that the politician selects the same threshold as the majority of voters: $\lambda_{i,ng}$ if $n < N/2$ and $\lambda_{i,g}$ if $n > N/2$.

Part 4. The set of sustainable thresholds for the politician is$[\lambda^{\min}(n), \lambda^{\max}]$. Thus,

$$\lambda^e = \beta \cdot \lambda^{\min}(n) + (1-\beta) \cdot \lambda^{\max}. \quad (23)$$

Applying the Implicit Function Theorem when (17) holds with equality, we obtain

$$\frac{\partial\lambda^{\min}}{\partial n} = \frac{2 \cdot g \cdot \left(\left(\lambda^{\max} - \lambda^{\min}\right) \cdot (N+1) \cdot \tau \cdot y - (0.5 \cdot y + \epsilon)\right)}{\tau \cdot y \cdot N^2 \cdot \left(\eta - \underline{\eta}(n)\right)} > 0. \quad (24)$$

This implies

$$\frac{\partial\lambda^e}{\partial n} = \beta \cdot \frac{\partial\lambda^{\min}}{\partial n} > 0. \quad (25)$$

In the unique equilibrium, each voter chooses a threshold given (22). For the payment

non-recipient, the problem solves to

$$\lambda_{i,ng} = -\frac{\gamma \cdot (n \cdot g)^3}{2 \cdot (N+1)^3} + \lambda^e. \tag{26}$$

Then, the effect of an increase in n is

$$\frac{\partial \lambda_{i,ng}}{\partial n} = -\frac{3 \cdot \gamma \cdot g \cdot (n \cdot g)^2}{2 \cdot (N+1)^3} + \frac{\partial \lambda^e}{\partial n}. \tag{27}$$

For the payment recipients,

$$\lambda_{i,g} = \frac{\gamma \cdot ((N+1-n) \cdot g)^3}{2 \cdot (N+1)^3} + \lambda^e. \tag{28}$$

Then, the effect of an increase in n is

$$\frac{\partial \lambda_{i,g}}{\partial n} = -\frac{3 \cdot \gamma \cdot g \cdot ((N+1-n) \cdot g)^2}{2 \cdot (N+1)^3} + \frac{\partial \lambda^e}{\partial n}. \tag{29}$$

Let

$$\underline{\gamma} \equiv \frac{2 \cdot (N+1)^3}{3 \cdot (N+1-n)^2 \cdot g^3} \cdot \frac{\partial \lambda^e}{\partial n}. \tag{30}$$

$$\bar{\gamma} \equiv \frac{2 \cdot (N+1)^3}{3 \cdot n^2 \cdot g^3} \cdot \frac{\partial \lambda^e}{\partial n} \tag{31}$$

Given $N = 5$, if $n = 4$, then we have that for $\gamma < \underline{\gamma}$, thresholds $\lambda_{i,g}$ and $\lambda_{i,ng}$ increase in n. For $\gamma > \bar{\gamma}$, thresholds $\lambda_{i,g}$ and $\lambda_{i,ng}$ decrease in n. For $\gamma \in \left[\underline{\gamma}, \bar{\gamma}\right]$,, we have $\frac{\partial \lambda_{i,ng}}{\partial n} \leq 0$ and $\frac{\partial \lambda_{i,g}}{\partial n} \geq 0$. If $n = 0$, we have $\lambda_i = \lambda^e$. Then increasing n leads to $\lambda_{i,ng} < \lambda^e < \lambda_{i,g}$. We are not analyzing the $n = 1$ case, since we exclude increasing payments to $n = 2$ or $n = 3$.

A.5 Proof of Proposition 5

From (26) we obtain $\frac{\partial \lambda_{i,ng}}{\partial \gamma} < 0$, and from (28) we obtain $\frac{\partial \lambda_{i,g}}{\partial \gamma} > 0$.

A.6 Proof of Proposition 6

The increase in $\lambda^{\max}$ implies

$$\frac{\partial \lambda^{\min}}{\partial \lambda^{\max}} > 0, \text{ and so } \frac{\partial \lambda^e}{\partial \lambda^{\max}} > 1/2. \tag{32}$$

Thus,from (26) and (28), we obtain

$$\frac{\partial \lambda_{i,ng}}{\partial \lambda^{\max}} = \frac{\partial \lambda_{i,g}}{\partial \lambda^{\max}} = \frac{\partial \lambda^{e}}{\partial \lambda^{\max}} > 0. \tag{33}$$

A.7 Proof of Proposition 7

Consider the case where n voters have higher endowments. For the politician, the problem is analogous to that in Proposition 3, adding $n \cdot g/N$ to the average voter income. We obtain the minimum sustainable threshold $\lambda^{\min}(n)$ as defined in (20). Then, from (24), it immediately follows that $\lambda^{min,E} = \lambda^{\min}(n) > \lambda^{\min}$. Given β, the equilibrium threshold in the game with unequal endowments is $\lambda_p^E = \beta \cdot \lambda^{\min,E} + (1-\beta) \cdot \lambda^{\max}$; the equilibrium threshold in the game with equal endowments is $\lambda_p = \beta \cdot \lambda^{\min} + (1-\beta) \cdot \lambda^{\max}$. Since $\lambda^{\min,E} > \lambda^{\min}$, it follows that $\lambda_p^E > \lambda_p$.

A.8 Pivotality

Notice first that we restrict attention to the pure strategy Nash equilibria in which all voters with the same income play the same strategy. In this class of equilibria, when $N = 5$ and $n = 1$ or $n = 4$, there are four voters who have the same strategy in equilibrium. Only a simple majority of three voters is needed to sustain an equilibrium. Thus, one voter deviating to a different strategy does not change the equilibrium outcome. Similarly, when $n = 0$ or $n = 5$, all voters play the same strategy. A deviation by any one voter to a different threshold does not change the equilibrium outcome. Hence, the deviation is not gainful, and the equilibrium can be sustained. When $n \in \{2, 3\}$ a voter can be pivotal, because the simple majority of three voters is changed if one of these voters deviates.

Consider the case in which $N = 5$ and the number of payments $n = 3$ is such that a simple majority is formed by the voters who receive payments. Any of these three voters is pivotal, because a choice by any single voter to lower his re-election threshold leads to the politician being removed from office. Consider a candidate equilibrium with some $\lambda_p \leq \lambda^{\max}$. If a pivotal voter lowers his threshold, the politician is removed, and the voter pays cost $\kappa \cdot y$ and the politician pays cost $0.5 \cdot y + \epsilon$. Notice that the pivotal voter's deviation does not change λ_p, as this was chosen by the politician. The voter's deviation has effects on incomes only through the costs of politician removal. These costs have the immediate effect of reducing payoffs, and a secondary effect of shifting the level of inequality; the second effect is reflected in the inequality aversion component. Thus the

pivotal voter's gain in utility from lowering λ_i can be written

$$-\kappa \cdot y - \frac{1}{\eta} \cdot \left(\frac{N+1}{N} \cdot \tau \cdot y \cdot \lambda_p - \frac{N+1-n}{N} \cdot g - \frac{(0.5+\kappa) \cdot y}{N} \right)^2 + \frac{1}{\eta} \cdot \left(\frac{N+1}{N} \cdot \tau \cdot y \cdot \lambda_p - \frac{N+1-n}{N} \cdot g + \frac{\epsilon}{N} \right)^2. \quad (34)$$

This gain is negative if η is sufficiently large:

$$\eta \geq \frac{1}{\kappa \cdot y} \cdot \left(\frac{N+1}{N} \cdot \tau \cdot y \cdot \lambda_p - \frac{N+1-n}{N} \cdot g + \frac{\epsilon}{N} \right)^2 - \frac{1}{\kappa \cdot y} \cdot \left(\frac{N+1}{N} \cdot \tau \cdot y \cdot \lambda_p - \frac{N+1-n}{N} \cdot g - \frac{(0.5+\kappa) \cdot y}{N} \right)^2. \quad (35)$$

If condition (35) holds, then the voter suffers a loss in case of a deviation from the candidate equilibrium λ_p, and we have the same conclusion as for the case without pivotal voters. If condition (35) does not hold, then notice that the voter's gain in (34) is increasing in λ_p. This monotonicity implies that there exists $\lambda^* < \lambda^{\max}$ such that an equilibrium exists only for $\lambda_p < \lambda^*$.

B Additional models

In Sections B.1 and B.2 we present two alternative models of preferences to complement the model analysis from the main text. In Section B.3, we present an alternative theoretical model with non-strategic, retrospective voters. We show that the main qualitative predictions of the model can be obtained in this alternative setting, in which there is no equilibrium multiplicity. The predictions are thus not driven by equilibrium selection in our main model.

B.1 Self-interest and reciprocity only

Given preferences that exhibit self-interest and reciprocity only, the utility of each voter i can be written as follows:

$$u_i = E_i + g_i + \left[\Delta\lambda_i \cdot \Delta g_i - \frac{1}{\gamma} \left(\frac{\Delta\lambda_i}{\Delta g_i} \right)^2 \right]. \quad (36)$$

Proposition 8 *Given fixed β and subject preferences characterized by self-interest in conjunction with reciprocity, there exists a unique pure strategy Nash Equilibrium identical to the equilibrium described in Proposition 1.*

Proof. Without gifts, reciprocity is irrelevant, so we are back in the environment with self-interest only. ■

Next, we analyze the introduction of payments.

Proposition 9 *(Effect of payments) Given fixed β and preferences characterized by self-interest in conjunction with reciprocity, introducing payments generates the following effects.*

1. *(Effect of payments) There exists a unique pure strategy Nash Equilibrium identical to the equilibrium described in Proposition 4.*
2. *(Effect of increasing n) Increasing the number of payments n decreases the equilibrium thresholds $\lambda_{i,ng}$ and $\lambda_{i,g}$.*

Proof. The proof of the first part of the proposition (effect of payments) is analogous to the proof of Proposition 4. For the proof of the second part of the proposition, we note that without inequality aversion $\frac{\partial \lambda^e}{\partial n} = 0$. Thus, in (27), we now have $\frac{\partial \lambda_{i,ng}}{\partial n} < 0$ and in (29) we have $\frac{\partial \lambda_{i,g}}{\partial n} < 0$. ■

B.2 Self-interest and inequality aversion only

Given preferences that exhibit self-interest and inequality aversion only, the utility of each voter i can be written as follows:

$$u_i = E_i + g_i - \frac{1}{\eta}\left(E_i + g_i - \frac{1}{N}\sum_{j \neq i}(E_j + g_j)\right)^2. \tag{37}$$

We again consider first the equilibrium without payments.

Proposition 10 *Given fixed β and subject preferences characterized by self-interest in conjunction with inequality aversion, there exists a unique pure strategy Nash Equilibrium identical to the equilibrium described in Proposition 3.*

Proof. The analysis is the same as in the proof to Proposition 3. ■

Next, we analyze the introduction of payments.

Proposition 11 *Given fixed β and preferences characterized by self-interest in conjunction with inequality aversion, introducing payments generates the following effects.*

1. *(Effect of payments) There exists a unique pure strategy Nash Equilibrium in which the politician expropriates fraction λ_p of the treasury and voters set the re-election threshold at $\lambda_i = \lambda_p \in \left[\lambda^{\min,E}, \lambda^{\max}\right]$, where $\lambda^{\min,E} > \lambda^{\min}$. The thresholds chosen by subjects who do and do not receive payments are identical.*

2. *(Effect of increasing n) Given a fixed β, increasing the number of payments n increases the equilibrium threshold λ_p.*

Proof. For the first part, the proof is the same as that of Proposition 7. The second part follows from noting that $\lambda_p = \beta \cdot \lambda^{\min,E} + (1-\beta) \cdot \lambda^{\max}$. The value $\lambda^{\min,E} = \lambda^{\min}(n)$ given in (20). Then, from (24), $\lambda^{\min,E}$ is increasing in n. Then, λ_p must also increase in n. ■

B.3 Alternative theoretical framework

A key underlying assumption of our theoretical framework is that each subject maintains the same β in all versions of the game (with and without payments). This assumption is necessary in order to exclude the possibility that observed changes in thresholds across game rounds are due to subjects switching to another equilibrium, given the presence of multiple equilibria. In this section, we present an alternative theoretical model characterized by a single equilibrium. This model leads to similar qualitative implications as the main model presented in the paper; specifically, we demonstrate that only subject preferences encompassing social preferences yield the main predictions.

Consider a setting identical to the one presented in the main model. However, rather than assuming that voters are strategic players in a voting game, we now assume that each voter is voting sincerely and retrospectively (as in Barro, 1973 and Ferejohn, 1986), and allow for voter heterogeneity. Thus, each voter i has a reservation utility ω_i, independently drawn from a continuous distribution $l(\omega)$ over $[0, \bar{\omega}]$. Voter i would prefer to re-elect the politician if his expected utility given the politician's policy choices is higher than his reservation utility. That is, the voter observes his reservation utility ω_i and would prefer to re-elect the politician if the expropriation λ is such that

$$u_i(\lambda) \geq \omega_i. \tag{38}$$

If the voter's utility $u_i(\lambda)$ is decreasing in λ, then there exists a maximum value of λ at which the voter is still willing to re-elect the politician. We denote this value by λ_i. Thus, the voter's critical threshold is derived from

$$u_i(\lambda_i) = \omega_i. \tag{39}$$

Given preferences captured by u_i for voter i, we can derive λ_i for each voter. We can then order the N voters in ascending order, according to their λ_i. Under sincere voting, by the median voter theorem, the politician is re-elected if he chooses a threshold λ_p equal to at most that of the median voter, $\lambda_{(N+1)/2}$.[36]

We begin by examining how the voter's threshold changes in response to vote payments, under different types of preferences, and subsequently discuss the politician's choice.[37]

Self-interest only First, we consider the benchmark case in which each voter is purely self-interested, such that $u_i(\lambda_p) = E_i$. In this case, each voter would re-elect the politician who expropriated λ_p if

$$y - \lambda_p \cdot \tau \cdot y \geq \omega_i. \tag{40}$$

This implies that the voter's threshold for expropriation is

$$\lambda_i = \frac{1}{\tau} - \frac{\omega_i}{\tau \cdot y}. \tag{41}$$

Introducing a vote payment increases a voter's utility by the value of the payment. Thus, a voter who receives a payment derives utility

$$u_i(\lambda_p) = y - \lambda_p \cdot \tau \cdot y + g, \tag{42}$$

and the resulting threshold conditional on a voter payment, $\lambda_i(g)$, is given by

$$\lambda_i(g) = \frac{1}{\tau} - \frac{\omega_i - g}{\tau \cdot y}. \tag{43}$$

This leads us to the following benchmark prediction.

Proposition 12 (Voter responses under self-interest) *If preferences are characterized by self-interest,*

1. *(Re-election threshold) Each voter sets his re-election threshold equal to λ_i as described in equation* (41)*.*

2. *(Effect of payments on voters) The threshold λ_i increases if the voter receives a payment, and remains identical to the threshold chosen in the baseline without payments if the voter does not receive a payment.*

[36] We assume for simplicity that N is odd.

[37] Since each voter is voting sincerely given her reservation utility, the value of λ_p chosen by the politician only matters for the re-election outcome. It does not matter for the voter's threshold.

3. *(Effect of increasing n) The threshold λ_i does not change in response to a change in the total number of payments n.*

Multifaceted social preferences As in the main model, we consider the case in which each voter has multifaceted social preferences — reciprocity and inequality aversion —in addition to self-interest. Voter i's utility is described as follows:

$$u_i \;=\; E_i + g_i + \left[\Delta\lambda_i \cdot \Delta g_i - \frac{1}{\gamma}\left(\frac{\Delta\lambda_i}{\Delta g_i}\right)^2\right] - \frac{1}{\eta}\left(E_i + g_i - \frac{\sum_{j\neq i,P}(E_j + g_j)}{N}\right)^2. \quad (44)$$

The term $E_i + g_i$ captures the voter's monetary payoff, with $g_i \in \{0, g\}$. As in the model presented in the main text, the term in square brackets represents the reciprocal component of preferences. For simplicity, we take $\gamma \to \infty$. The terms $\Delta\lambda_i \equiv \lambda_i - \lambda^e$ and $\Delta g_i \equiv g_i - g^e$ capture the derivations of the threshold λ_i and the payment g_i from their respective equitable values. We define the equitable expropriation threshold λ^e to equal the voter's threshold in the absence of vote payments, and define the equitable payment to equal the expected payment, $g^e \equiv n/(N+1) \cdot g$ given the number of subjects. The final term of equation (44) captures inequality aversion, as a decreasing function of the gap between the voter's payoff and the average payoffs of all other voters.[38] We assume that $\eta \geq g$, so that a payment recipient's utility increases after he receives a gift.

Given these preferences, consider first the case without vote payments. In this case, no payment is expected, all voters expect the same income, and there is no inequality among voters. Thus, the voter's threshold λ_i is the same as in equation (41).

Next, consider the effect of introducing n vote payments. The value of λ_i for a voter who has not received a payment is determined by

$$\begin{aligned} y \;&-\; \lambda_i \cdot \tau \cdot y + \left[(\lambda_i - \lambda^e) \cdot \frac{(-n)\cdot g}{N+1} - \frac{1}{\gamma}\left(\frac{(\lambda_i - \lambda^e)\cdot(N+1)}{(-n)\cdot g}\right)^2\right] \\ &-\; \frac{1}{\eta}\left(\frac{n\cdot g}{N-1}\right)^2 = \omega_i. \end{aligned} \quad (45)$$

Intuitively, vote payments increase inequality. The voter who did not receive a payment has an income below average and pays a cost of inequality; by lowering his threshold, this voter can offset this cost and maintain his utility at ω_i. Moreover, the voter derives utility from a reciprocal response in which he punishes the politician for his failure to receive a vote payment. Hence, he does not have to lower his threshold as much as would be observed in the case of inequality aversion alone.

[38] Adding inequality aversion with respect to the politician would deliver similar results, but it would complicate the derivations, so we excluded it in this extension.

Next, consider a voter who has received a payment g. This voter has sets his λ_i so that

$$y+g \;-\; \lambda_i\cdot\tau\cdot y+\left[(\lambda_i-\lambda^e)\cdot\frac{(N+1-n)\cdot g}{N+1}-\frac{1}{\gamma}\left((\lambda_i-\lambda^e)\cdot\frac{N+1}{(N+1-n)\cdot g}\right)^2\right] \\ -\;\frac{1}{\eta}\left(\frac{(N-n)\cdot g}{N-1}\right)^2=\omega_i. \tag{46}$$

Receiving a vote payment increases this voter's income relative to the average income in the game. Thus, this voter also experiences lower utility due to the resulting inequality, decreasing his re-election threshold. However, this voter derives a reciprocity benefit from responding to his receipt of a vote payment with a higher threshold. This second effect leads to a higher threshold λ_i compared to a voter who has not received a payment.

Proposition 13 (Voter responses under social preferences) *For preferences characterized by self-interest in conjunction with reciprocity and inequality aversion:*

1. *(Equilibrium without vote payments) Each voter sets a re-election threshold as described in equation* (41)*.*
2. *(Effect of payments on voters) Voters who do not receive a payment decrease their thresholds relative to voters who receive a payment.*
3. *(Effect of increasing n) There exists threshold $\underline{\eta}>0$ such that:*
   (a) *If $\eta<\underline{\eta}$, a voter who does not receive a payment lowers his threshold in response to an increase in n, and a voter who receives a payment raises his threshold in response to an increase in n.*
   (b) *If $\eta>\underline{\eta}$, all voters lower their thresholds in response to an increase in n.*

The above result shows that the same qualitative implications observed in the primary model are obtained if social preferences are sufficiently sensitive to changes to income: the reciprocal component of the utility function is sufficiently strong (implied by $\gamma\to\infty$), and the inequality aversion component is also sufficiently strong (implied by $\eta<\underline{\eta}$).

Politician's response Notice that the politician does not receive any payment from the experimenter in this game. Thus, reciprocity is irrelevant for the politician. Only inequality aversion is relevant, defined as a function of the difference in incomes between the politician and the average voter. The politician's utility is given by

$$u_p=E_p-\frac{1}{\eta}\left(E_p-\frac{\sum_{j\neq p}(E_j+g_j)}{N}\right)^2. \tag{47}$$

The politician is re-elected if he chooses a threshold at most equal to that chosen by the median voter, i.e., $\lambda_p \leq \lambda_{(N+1)/2}$. Conditional on re-election, the politician's preferred expropriation threshold is given by the value λ_p^E at most equal to $\lambda_{(N+1)/2}$, such that he maximizes his utility

$$\lambda_p^E = \arg \max_{\lambda_p \leq \lambda_{(N+1)/2}} y + \lambda_p \cdot N \cdot \tau \cdot y + \epsilon - \frac{1}{\eta}\left(\lambda_p \cdot \tau \cdot y \cdot (N+1) + \epsilon - \frac{n \cdot g}{N}\right)^2. \quad (48)$$

Notice that if the politician is sufficiently inequality averse, i.e., if η is sufficiently small, then

$$\lambda_p^E < \lambda_{(N+1)/2}. \quad (49)$$

If the politician is not re-elected, he expropriates a fraction λ_p^{NE} given by

$$\lambda_p^{NE} = \arg \max_{\lambda_p > \lambda_{(N+1)/2}} 0.5 \cdot y + \lambda_p \cdot N \cdot \tau \cdot y - \frac{1}{\eta}\left(\lambda_p \cdot \tau \cdot y \cdot (N+1) + \epsilon - \frac{n \cdot g}{N}\right)^2. \quad (50)$$

Thus, the politician expropriates a fraction λ_p^E if he expects higher utility via re-election, rather than via choosing λ_p^{NE} and forgoing re-election. Below, we examine the more interesting case in which the politician prefers to be re-elected.

Consider the introduction of vote payments for n voters. This shifts the politician's choice of expropriation, regardless of whether the median voter receives a payment, because the introduction of payments changes the level of inequality between the politician and the voters. Moreover, by Proposition 13, the median voter responds to the introduction of vote payments. If the median voter does not receive a vote payment, he reduces his threshold. If the median voter receives a vote payment, then he increases his threshold.

The vote payments are distributed randomly to voters, and thus the politician cannot observe who receives payments. Clearly, if $n = N$, then everyone receives payments and the politician knows that the median voter's threshold has increased. Otherwise, the politician chooses λ_p to maximize his expected utility given the expectation of $\lambda_{(N+1)/2}$. Given n payments, there are $\binom{N}{n}$ possible allocations of payments to voters. The politician maximizes his expected utility given all these possible voter income distributions.

To render the analysis more tractable, we present for simplicity the analysis when all voters are ex-ante identical, characterized by the same reservation utility, $\omega_i = \omega$. Then, there are two possible responses we can expect from the politician. In the first case, η is sufficiently large such that the politician does not pay a high utility cost from inequality aversion. In that case, he chooses the same threshold as the median voter: $\lambda_p^E = \lambda_{(N+1)/2}$. Thus, if the median voter receives a vote payment, i.e., if $n \geq (N+1)/2$, then the politician increases his expropriation. If the median voter does not receive a vote payment, i.e., if $n < (N+1)/2$, then the politician decreases his expropriation.

In the second case, η is sufficiently small such that the politician is highly averse to inequality. In this case, introducing vote payments increases the average income of voters. This in turn reduces the inequality between voters and the politician, allowing the politician to expropriate more without incurring a high cost due to inequality aversion. We therefore obtain the following prediction.

Proposition 14 *(Politician's response) For preferences characterized by self-interest in conjunction with reciprocity and inequality aversion, the politician's choices can be described as follows.*

1. *(Equilibrium without vote payments) The politician chooses an expropriation fraction at most equal to the median voter's re-election threshold as given in* (41) *for the median voter* $i = (N+1)/2$.

2. *(Effect of vote payments) There exists threshold* $\eta_p(n)$ *such that:*

   (a) *If* $\eta < \eta_p$, *the politician increases his expropriation fraction. Increasing the number of payments* n *increases the politician's expropriation.*

   (b) *If* $\eta > \eta_p$, *the politician's expropriation fraction equals the threshold set by the median voter. Increasing the number of payments* n *leads to a lower level of expropriation if* $n < (N+1)/2$, *and leads to a higher level of expropriation if* $n \geq (N+1)/2$.

The above result again shows that the predictions of the main model presented in the paper are obtained here as well, as long as inequality aversion is sufficiently strong.

B.3.1 Proofs from this section

Proof of Proposition 12 Follows immediately from examining expressions 41 and 43.

Proof of Proposition 13 The fact that voter's expropriation threshold equals the expression in (41) follows from substituting $g = 0$ in the voter's utility function. Consider the case in which $\gamma \to \infty$. In that case, a voter i who did not receive a vote payment sets a threshold

$$\lambda_{i,ng} = \frac{y - \omega_i - \frac{1}{\eta} \cdot \left(\frac{-n \cdot g}{N-1}\right)^2}{\tau \cdot y + \frac{n \cdot g}{N+1}} - \frac{y - \omega_i}{\tau \cdot y \cdot (\tau \cdot y + \frac{n \cdot g}{N+1})} \cdot \frac{n \cdot g}{N+1}. \tag{51}$$

A voter who receives a payment sets a threshold

$$\lambda_{i,g} = \frac{y - \omega_i - \frac{1}{\eta} \cdot \left(\frac{(N-n) \cdot g}{N-1}\right)^2}{\tau \cdot y - \frac{(N+1-n) \cdot g}{N+1}} + \frac{y - \omega_i}{\tau \cdot y \cdot (\tau \cdot y - \frac{(N+1-n) \cdot g}{N+1})} \cdot \frac{(N+1-n) \cdot g}{N+1}. \tag{52}$$

It then follows that $\lambda_{i,g} > \lambda_{i,ng}$.

Finally, consider the change in thresholds due to an increase in n. For the voter who does not receive a vote payment,

$$\frac{\partial \lambda_{i,ng}}{\partial n} = \frac{-\frac{1}{\eta} \cdot \frac{g^2 \cdot n}{(N-1)^2} \cdot \left(2 \cdot \tau \cdot y + \frac{n \cdot g}{N+1}\right) - (y - \omega_i) \cdot \frac{g}{N+1} \cdot \left(1 - \frac{ng}{\tau y (N+1)}\right)}{\left(\tau \cdot y + \frac{n \cdot g}{N+1}\right)^2} - \frac{y - \omega_i}{\tau \cdot y + \frac{n \cdot g}{N+1}} \cdot \frac{g}{\tau \cdot y \cdot (N+1)} < 0. \quad (53)$$

For the voter who receives a vote payment,

$$\frac{\partial \lambda_{i,g}}{\partial n} = \frac{1}{\eta} \cdot \frac{\frac{(N-n) \cdot g^2}{(N-1)^2} \cdot \left(2 \cdot \tau \cdot y - \frac{(N-n) \cdot g}{N+1}\right)}{\left(\tau \cdot y - \frac{(N-n) \cdot g}{N+1}\right)^2} - \frac{(y - \omega_i) \cdot \frac{g}{N+1} \cdot \left(1 - \frac{(N+1-n)g}{\tau y (N+1)}\right)}{\left(\tau \cdot y - \frac{(N-n) \cdot g}{N+1}\right)^2} - \frac{y - \omega_i}{\tau \cdot y - \frac{(N+1-n) \cdot g}{N+1}} \cdot \frac{g}{\tau \cdot y \cdot (N+1)}. \quad (54)$$

Then, let $\underline{\eta}$ be the value of η at which $\frac{\partial \lambda_{i,g}}{\partial n} = 0$. Then, for $\eta < \underline{\eta}$, we conclude that $\frac{\partial \lambda_{i,g}}{\partial n} > 0$. If $\eta > \underline{\eta}$, then $\frac{\partial \lambda_{i,g}}{\partial n} < 0$.

Proof of Proposition 14 The politician is re-elected if his expropriation fraction is at most equal to the median voter's expropriation threshold. Thus, we obtain (49). Given (48),

$$\lambda_p^E = \frac{1}{\tau y (N+1)} \cdot \left(\frac{N}{N+1} \cdot \frac{\eta}{2} + \frac{n \cdot g}{N}\right) \quad (55)$$

Thus, there exists $\eta_p(n)$ defined as

$$\eta_p(n) \equiv \frac{N+1}{N} \cdot 2 \cdot \left(\lambda_{(N+1)/2} \cdot \cdot y \cdot (N+1) - \frac{n \cdot g}{N}\right), \quad (56)$$

such that if $\eta < \eta_p$, then $\lambda_p^E < \lambda_{(N+1)/2}$, and if $\eta > \eta_p$, then $\lambda_p^E = \lambda_{(N+1)/2}$. Then, for $\eta < \eta_p$, equation (55) implies that an increase in n increases λ_p^E. For $\eta > \eta_p$, the politician's choice equals the median voter's threshold, and the comparative statics are described in Proposition 13.

C Comparing game sessions in the U.S. and Kenya

The relative ratios of key game parameters were maintained fixed across experimental sessions in the U.S. and Kenya to ensure that the choices faced by subjects were uniform.

The voter endowment, y, was set to be $20 in the U.S. and 500 shillings (approximately $5.80) in Kenya. Thus all parameters in the voting game in the U.S. can be multiplied by 25 to yield the corresponding parameter (in shillings) in Kenya.

Half of the endowment was taxed away, and 30% of tax revenue was vulnerable to expropriation. Accordingly, the common treasury was equal to 15% of the total endowment of the five voters, $15 in the U.S. and 350 shillings in Kenya. The politician's salary was also $20 shillings or 500 shillings, of which half was forfeited if the politician was not re-elected.

Vote payments were 10% of the voters' endowment: $2 in the U.S. and 50 shillings in Kenya. The re-election bonus was set to be between 0 and 10% of the politician's salary, again $2 in the U.S. and 50 shillings in Kenya. Subjects were not informed of the distribution of the re-election bonus, but were simply informed that it was a positive amount between 0 and the specified upper limit.[39]

In determining subject earnings in Kenya relative to the U.S., the objective was threefold: first, to comply with the Busara lab's policies on minimum subject payments, which is around $3-$6 for a (maximum) four-hour experimental session, depending on the distance traveled by subjects; second, to ensure that incentives in the game (particularly the vote payment) were large enough to be salient to the subjects; and third, to maximize the subject pool relative to available funds. The subject pool at Busara is predominantly drawn from nearby informal settlements, particularly the Kibera slum, where 50 shillings is the price of a bag of maize flour or one-way transportation to the city center; 50 shillings is also the lowest available denomination of paper money. Accordingly, this was viewed as an important psychological break point above which a payment would be regarded as significant, and all other game parameters were set relative to this minimum vote payment.

Recruitment in each experimental site employed the labs' centralized database. In the U.S., subjects were contacted by email with information about the study and an invitation to sign up; in Kenya, they were contacted by text message. In both cases, the experimental session was described as focusing on political behavior. Subjects could sign up on-line (in the U.S.) or by text message (in Kenya). In the event the number of subjects who showed up for a particular session was not divisible by six (the polity size), excess subjects were paid the show-up fee and invited to sign up again.

There were, however, some minor differences in the structure of the U.S. and Kenya sessions. These differences were largely dictated by the requirements of adopting a relatively complex game protocol to accommodate a population with more limited literacy

[39]In both cases, the re-election bonus was chosen from a uniform distribution between 0 and the upper limit, rounded to the nearest $.25 in the U.S. and the nearest 10 shillings in Kenya.

and numeracy in Kenya. Differences in the game session are described in the order in which activities were conducted.

C.1 Social games

In the U.S., the dictator endowment E_d was equal to \$10, the trust endowment E_t was equal to \$4, and the ultimatum game endowment was equal to \$10; in Kenya, the comparable magnitudes were 100 Ksh, 40 Ksh, and 120 Ksh. Thus while the relative endowments in the trust and dictator games are comparable across U.S. and Kenya, the ratio of the endowment in the social games to the voter's endowment in the subsequent voting game is lower in Kenya. This choice was made primarily to maximize the sample size given budget constraints, and is presumed to have limited relevance given that subjects have no information about the voting game at this point in the experimental session.[40]

In both the U.S. and Kenya, subjects were required to choose an amount that was an integer (in the U.S.) or divisible by 10 (in Kenya), i.e. the choice was not fully continuous. Subjects in the U.S. inputted their choice directly, while Kenyan subjects selected a button from an interactive touch screen.

In the U.S., subjects were not paid on the basis of their choices in social games. In Kenya, subjects were paid on the basis of their choices in this game; they were randomly assigned to one of four or six roles (dictator sender, dictator receiver, trust sender, or trust receiver in 2013, and dictator sender, dictator receiver, trust sender, trust receiver, ultimatum sender, or ultimatum receiver in 2014) and paid their earnings from that role. They also received 50 Ksh bonuses if they correctly estimated the average amount sent in the dictator and trust games.

C.2 Introduction to the voting game

Subjects in the U.S. and Kenya were not provided with identical introductory materials and comprehension questions. In the U.S., subjects began with an overview of the game described on screen in the experimental terminal. They answered simple questions about the game structure, and were then asked to consider a number of game scenarios, identify whether or not the politician would be re-elected in that scenario, and calculate the associated payoffs. After each set of comprehension questions, they were shown the correct responses and were required to remain on the associated screen for a minimum of sixty seconds. Subjects were also provided with a scripted oral explanation of the game and an explanatory graphic. While they were free to pose questions directly to the supervising research staff, they were not required to interact with anyone else.

[40] The endowment in the ultimatum game is also slightly higher in Kenya.

In Kenya, information was provided primarily orally and graphically given the more limited literacy of the subject population. While the same comprehension questions about basic game structure were employed, subjects were not asked to calculate a full set of payoffs given specific scenarios. The focus in comprehension questions was clarifying the structure of the payoffs, the available choices faced by both voters and politicians, and the use of a majority vote in determining re-election outcomes. Subjects were also asked to calculate how much would be redistributed to voters given various expropriation choices by the politician.

All comprehension questions were posed using multiple-choice touch screens. If a subject answered a question incorrectly, a supervising staff member was required to unlock the screen in order to allow the subject to make a new selection, and would use this opportunity to discuss the question and clarify any misconceptions. Ultimately, the number of incorrect choices made by the subject prior to the correct choice was recorded. The written explanatory materials were provided in English, as this is standard practice in the laboratory, and subjects would have been exposed to English-language instruction in school. However, staff members could speak Swahili in providing explanations as necessary.

C.3 Voting game without payments

The only difference between the voting game without payments as played by the subjects in the U.S. and Kenya was in the specification of the choice made by the voter and the politician. As described above, in the U.S., subjects could specify the maximum amount they would allow the politician to expropriate and still re-elect him/her, naming any integer between 0 and $15, inclusive. Similarly, they could specify the amount that they would expropriate as the politician.

In Kenya, subjects were asked to respond to a series of questions inquiring whether or not they would vote to re-elect a politician who expropriated a specified amount: 0, 75, 150, 250, 300, and 375 Ksh. As politicians, they were allowed to choose how much to expropriate from the same set of choices. The reason for this alternate design was to increase comprehension by presenting the voters with a series of binary choices. These responses are employed to construct a variable corresponding to the subject's maximum threshold for re-election that is equal to the median of the maximum threshold at which the subject stated he would re-elect and the minimum threshold at which he stated he would not re-elect: for example, the re-election threshold for a subject who would re-elect a politician who expropriated 75 shillings, but not a politician who expropriated 150 shillings, was set at 112.5 shillings.

C.4 Introduction to voting games with payments

There were no major differences in the overview material and comprehension questions provided here. The same information was delivered on-screen in the U.S. and orally and using graphics in Kenya. The structure of comprehension questions followed the model described above: in the U.S., subjects were required to review the correct answers, while in Kenya, subjects were required to interact with a laboratory staff member following any incorrect response.

C.5 Voting game with payments

Here, subjects again made their choices as voters and as politicians by specifying an integer choice in the U.S. and responding to a series of questions about thresholds in Kenya.

C.6 Questionnaire

The questionnaire was generally parallel in both countries, though slightly shorter in the Kenya sessions given the time required for experimental activities.

D Structure of social preference games

In the first part of the experimental session, social games, subjects were informed they possessed a hypothetical endowment in the dictator game E_d and allowed to freely choose how much to send to another, unidentified, subject. Next, they were provided with a (different) hypothetical endowment for the trust game, E_t, and they could choose whether to send E_t or zero to another, unidentified subject; they were advised that this amount would be tripled, and the recipient would then have the opportunity to choose how much to return to the sender. Subjects were allowed to specify their behavior as both senders and receivers. They were also asked to estimate how much, on average, subjects would send in both the dictator and trust games.

Finally, they were provided with a new hypothetical endowment in the ultimatum game, E_u, and were asked to specify how much they would propose to send to a partner, and the minimum amount they would accept when sent by a partner. The ultimatum game was implemented only in 2014.

In games conducted in 2014 and 2015 in the U.S., the trust game was implemented with a larger set of choices: the subject could choose to send any integer amount of the endowment ($4) to the partner; this amount was again tripled. The subject could then

specify how much of the endowment he would return if he received each hypothetical level of transfer.

E Subject compensation

Subject compensation is calculated and distributed at the conclusion of the experimental session. As an example of how subject compensation was calculated, consider a session with two game rounds: the voting game without payment, and the voting game with four payments. In each round, subjects specify their choices as both voters and politicians without any information about other subjects' choices. At the conclusion of the session, the experimenter uses the following procedure to calculate compensation.

1. One game round is randomly chosen as the basis of payment: either the voting game without payment, or the voting game with payment.

2. Each subject is randomly assigned to a role: a voter who did not receive a payment, a voter who did receive a payment (if applicable), or the politician.[41]

3. The experimenter calculates the game outcome: how much the politician expropriated (using the choice of the subject randomly assigned to play the politician's role), the median of the voters' re-election thresholds, and the re-election outcome. (To calculate the median threshold, the experimenter employs the thresholds specified unconditional on payment for subjects randomly assigned to play the role of voters who did not receive payments, and the thresholds specified conditional on payment for the subjects randomly assigned to play the role of voters who did receive payments.)

4. The experimenter then calculates each subject's earnings. For the subject assigned to play the role of politician, his compensation consists of his salary, the amount expropriated, and a re-election bonus if applicable. For the subjects assigned to play the role of voters who do not receive payments, compensation consists of the untaxed portion of the original endowment, plus any unexpropriated funds returned from the treasury, minus a transition fee if applicable. For the subjects assigned to play the role of voters who receive payments, their compensation is parallel, but also includes the vote payment itself.

[41] In experimental sessions with more than six subjects, subjects were randomly constituted into polities of six prior to randomly assigning game roles.

5. Subjects are informed of the preceding information: the game round chosen as a basis for payment, subjects' choices in this game round, the game outcome, and their own compensation.

Two additional points are relevant to consider in analyzing subject compensation. In the U.S., subjects were not paid on the basis of their choices in social games (i.e., these choices were not incentivized). In Kenya, subjects were paid on the basis of their choices in this game; they were randomly assigned to one of four or six roles (dictator sender, dictator receiver, trust sender, or trust receiver in 2013, and dictator sender, dictator receiver, trust sender, trust receiver, ultimatum sender, or ultimatum receiver in 2014) and paid their earnings from that role. They also received 50 Ksh bonuses if they correctly estimated the average amount sent in the dictator and trust games. These earnings were appended to their earnings from the primary voting game.

However, questions about the subjects' expectation of the behavior of others in the voting games (how much the politician is expected to expropriate, and whether the politician is expected to be re-elected) were not incentivized in the U.S. or Kenya.

In the U.S., subjects were paid in cash at the conclusion of the game; payments were distributed in envelopes to maintain confidentiality and ensure that subjects could not compare their payoffs. In Kenya, subjects received at the conclusion of the session the show-up fee of 200 Ksh in cash as well as a bonus of 50 Ksh if they arrived on time or early on the day of the experimental sessions. The full payoff from their choices in the experimental session was subsequently distributed (within 1-2 days) via the electronic money transfer system Mpesa.

Given the game parameters, it is useful to note that any equilibrium in the baseline voting game yields higher earnings for the politician. Returning to equation (3) and using $\epsilon = 1$, we can calculate that given the minimum sustainable level of expropriation, the politician's payoff is 15% higher than the voter's payoff. If we assume equal bargaining weights, the gap is 30%.[42] This is consistent with the general stylized fact that politicians' income is higher than voters' income.

[42]In the first case, we calculate $\lambda^{min} = .08$, yielding a payoff of \$22.20 for the politician and \$19.20 for the voter. In the second case, we calculate $\lambda^{p} = .19$, yielding a payoff of \$23.85 for the politician and \$18.10 for the voter.

F Appendix Figures and Tables

Figure F1: Structure of game session: U.S.

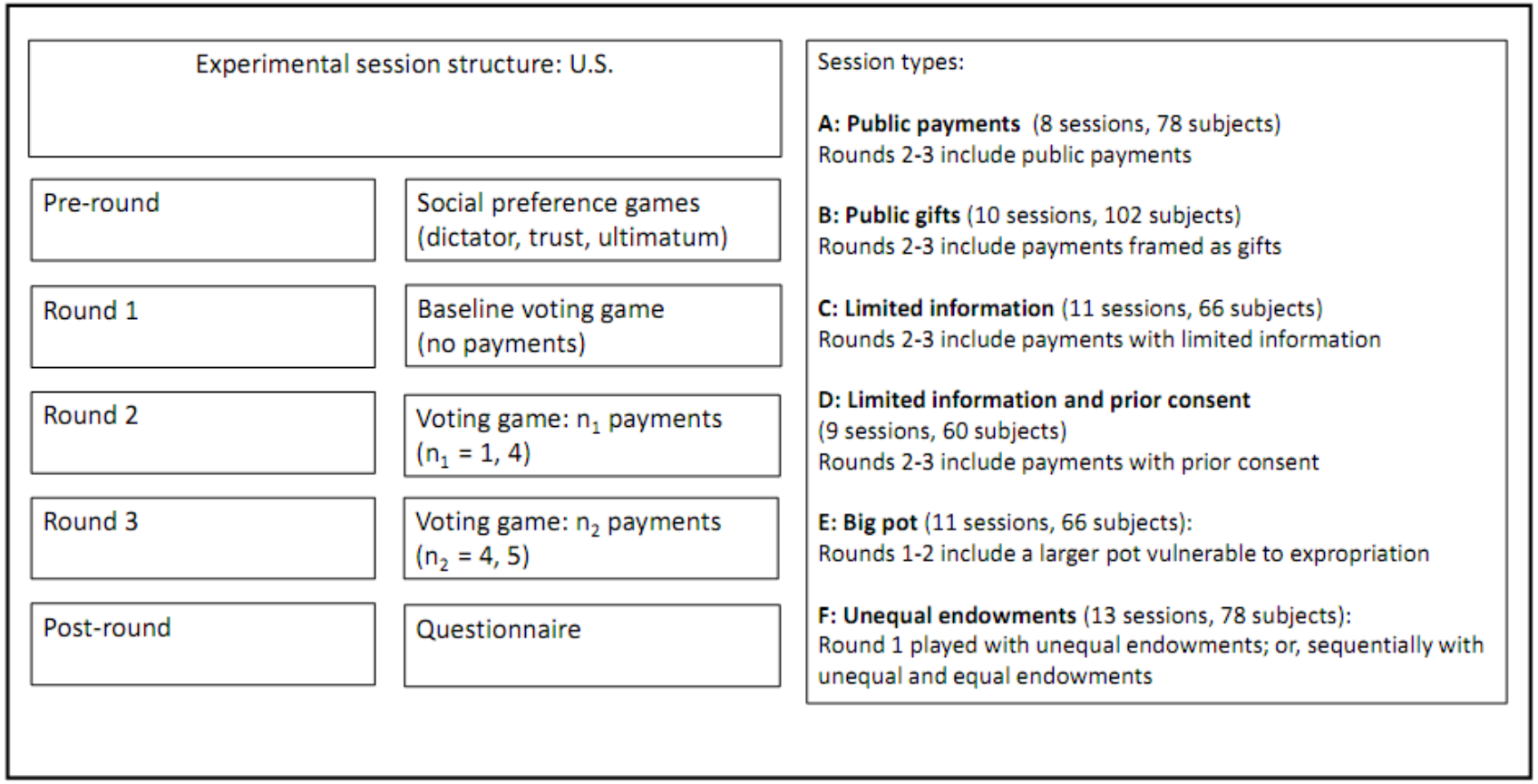


Figure F2: Structure of game session: Kenya

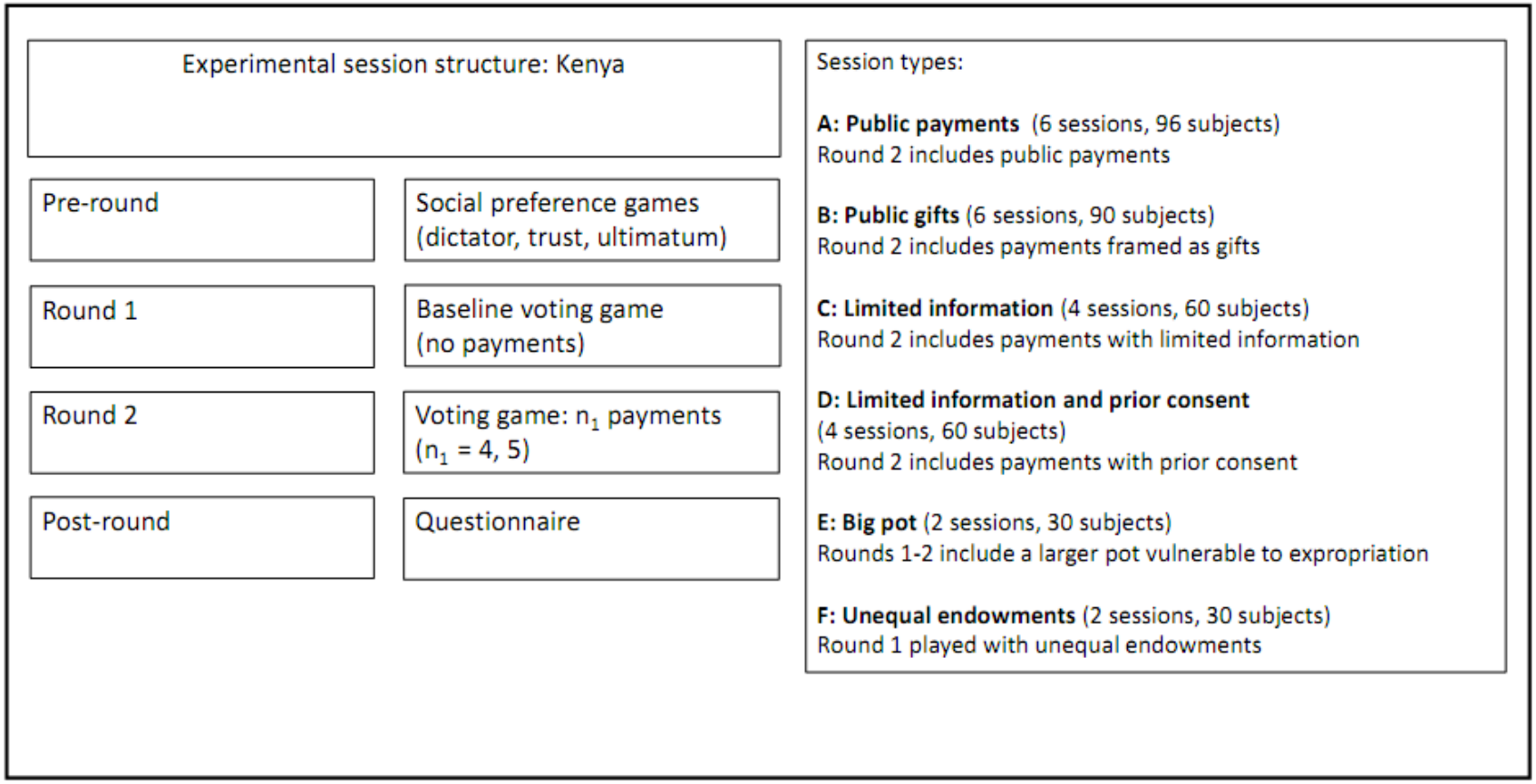
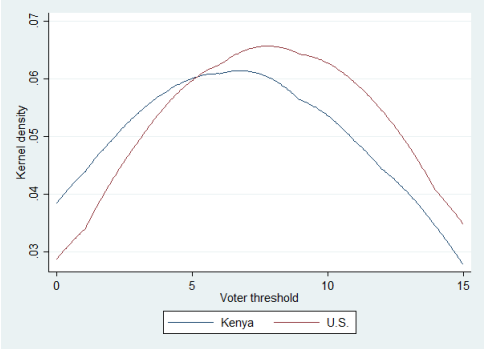
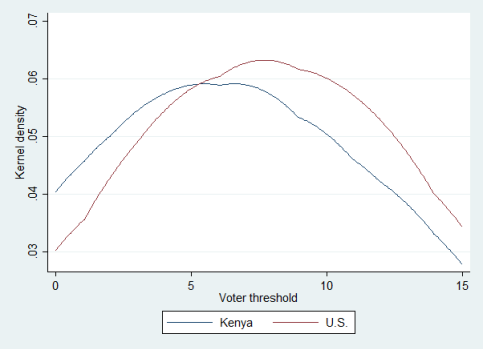


Figure F3: Subject choices in the U.S. and Kenya

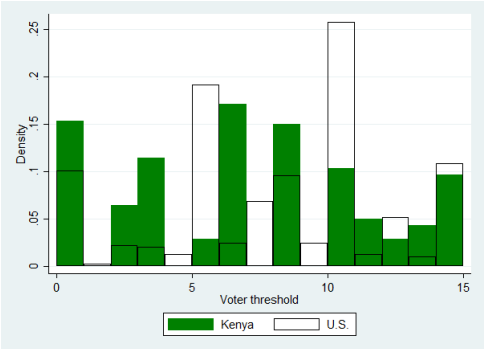
(a) Voters: Simple voting game



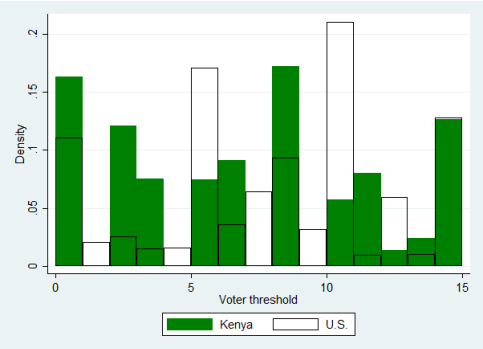
(b) Voters: Full sample



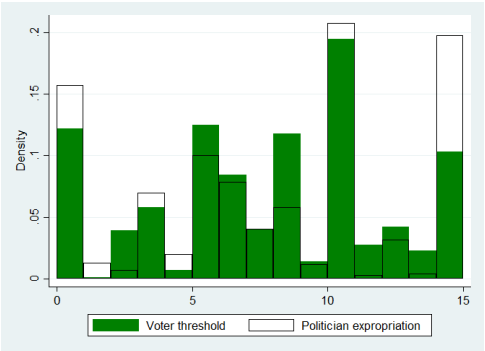
(c) Voters: Simple voting game



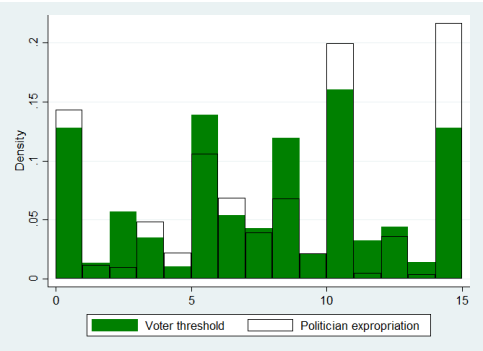
(d) Voters: Full sample



(e) Voters and politicians: Simple voting game



(f) Voters and politicians: Full sample



Notes: These kernel densities and histograms show the subjects' choice of re-election threshold and expropriation in the U.S. and Kenya. All subject choices are normalized to lie on the scale employed in the U.S. sessions, from 0 to $15. In Figures F3a, F3c and F3e, the sample is restricted to the simple voting game with no payments. Figures F3b, F3d and F3f employ data from all game rounds observed.

Table F1: Sample size by session

Session type	Framing	Location	Sessions	Subjects	Subject-game rounds	Subject-decisions	Monotonic only
A1	Public payments	U	8	78	234	378	378
A2	Public payments	K	6	96	192	288	258
B1	Public gift	U	10	102	306	510	510
B2	Public gift	K	6	90	180	270	231
C1	Limited - prior	U	11	66	192	252	252
C2	Limited - prior	K	4	60	120	180	111
D1	Limited - posterior	U	9	60	180	240	240
D2	Limited - posterior	K	4	60	120	180	156
E	Big pot	U, K	13	96	192	192	190
F1	Unequal endowments	U, K	7	60	120	180	162
F2	Unequal endowments	U	8	48	144	192	192
	Total		86	816	1980	**2862**	**2680**

Note: 30 sessions were conducted in 2013, 41 in 2014 and 15 in 2015. 366 subjects were included in experimental sessions in 2013 (180 in the U.S., and 186 in Kenya); 360 subjects were included in experimental sessions in 2014 (180 in the U.S., and 180 in Kenya); and 90 subjects were included in experimental sessions in 2015, all in the U.S.

Table F2: Demographic characteristics of subjects

	U.S. mean	Kenya mean	U.S. obs.	Kenya obs.	p-value
Age	33.46	32.53	444	323	.349
Years of education	15.58	10.55	444	365	.000
Female	.50	.62	443	365	.000
Married	.11	.45	444	365	.000
Voted in last presidential election	.72	.86	425	366	.000
Attempted to persuade others (in same election)	.46	.51	424	366	.202
Attended event in support of candidate (in same election)	.20	.59	426	366	.000
Joined a protest event in last year	.16	.17	426	366	.779

Notes: For each characteristic, the mean is reported by experimental site; the p-value reports a test for equality of the specified covariate comparing across the U.S. and Kenyan sample. 450 subjects are observed in the U.S.; questionnaire data was missing for six subjects, and some subjects failed to provide responses to other questions. 366 subjects are observed in Kenya, but age data for some subjects was missing from the laboratory's subject database.

Table F3: Definition of dummy variables

Session type	Framing	Game round I	Game round II	Game round III	Location
A1	Public payments	All zero	$P^1_{gs} = 1$	$P^4_{gs} = 1$	U
A2	Public payments	All zero	$P^4_{gs} = 1$		K
B1	Public gift	$Gift_{gs} = 1$	$Gift_{gs} = 1$, $P^1_{gs} = 1$	$Gift_{gs} = 1$, $P^4_{gs} = 1$	U
B2	Public gift	$Gift_{gs} = 1$	$Gift_{gs} = 1$, $P^4_{gs} = 1$		K
C1	Limited - prior	$Lim_{gs} = 1$, $Cons_{gs} = 1$	$Lim_{gs} = 1$, $Cons_{gs} = 1$	$All_{gs} = 1$	U
C2	Limited - prior	$Lim_{gs} = 1$, $Cons_{gs} = 1$	$Lim_{gs} = 1$, $Cons_{gs} = 1$		K
D1	Limited - posterior	$Lim_{gs} = 1$	$Lim_{gs} = 1$	$All_{gs} = 1$	U
D2	Limited - posterior	$Lim_{gs} = 1$	$Lim_{gs} = 1$		K
E	Big pot	$Big_{gs} = 1$	$Big_{gs} = 1$, $All_{gs} = 1$		U, K
F1	Unequal endowments	$Ineq_{gs} = 1$	$All_{gs} = 1$		U, K
F2	Unequal endowments	All zero	$Ineq_{gs} = 1$	$All_{gs} = 1$	U

Table F4: Voter behavior - including non-monotonic subjects

	Voter re-election threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	.988 (.140)***	.990 (.137)***			.968 (.189)***	.980 (.184)***
Recipient x one payment			.278 (.205)	.278 (.205)		
Recipient x four payments			1.132 (.166)***	1.132 (.166)***		
Payment	-.831 (.196)***	-.803 (.190)***			-.858 (.290)***	-.844 (.267)***
One payment			-.681 (.314)**	-.686 (.254)***		
Four payments			-.887 (.189)***	-.871 (.188)***		
All payments			.507 (.304)*	.645 (.228)***		
Recipient x gift					.045 (.273)	.033 (.271)
Payment x gift					.093 (.387)	.125 (.344)
$\beta_1 + \beta_2$	.157 (.19)	.188 (.188)				
$\beta_1 + \beta_3$			-.403 (.272)	-.408 (.228)*		
$\beta_2 + \beta_4$			.245 (.217)	.261 (.214)		
Sample	Session types A-D					
Mean dep. var.	7.37	7.37	7.37	7.37	7.37	7.37
Fixed effects		Subject		Subject		Subject
Obs.	2298	2298	2298	2298	2298	2298

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician, and the sample includes subjects reporting non-monotonic behavior. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; the recipient and payment dummies interacted with a dummy for the gift framing; and the all payment dummy interacted with a big pot dummy. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F5: Voter behavior - high-comprehension sample

	Voter re-election threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	.968	1.010			.897	.958
	(.149)***	(.145)***			(.191)***	(.186)***
Recipient x one payment			.200	.200		
			(.239)	(.239)		
Recipient x four payments			1.187	1.187		
			(.171)***	(.171)***		
Payment	-.706	-.764			-.576	-.694
	(.200)***	(.199)***			(.264)**	(.256)***
One payment			-.398	-.655		
			(.286)	(.272)**		
Four payments			-.808	-.839		
			(.198)***	(.199)***		
All payments			.365	.683		
			(.270)	(.227)***		
Recipient x gift					.201	.140
					(.298)	(.298)
Payment x gift					-.397	-.199
					(.413)	(.402)
$\beta_1 + \beta_2$	.262	.246				
	(.178)	(.178)				
$\beta_1 + \beta_3$			-.198	-.455		
			(.261)	(.246)*		
$\beta_2 + \beta_4$			.379	.348		
			(.199)*	(.199)*		
Sample	Session types A-D					
Mean dep. var.	7.12	7.12	7.12	7.12	7.12	7.12
Fixed effects		Subject		Subject		Subject
Obs.	1966	1966	1966	1966	1966	1966

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician, and the sample is restricted to exclude those subjects scoring in the bottom decile of game comprehension. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; the recipient and payment dummies interacted with a dummy for the gift framing; and the all payment dummy interacted with a big pot dummy. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F6: Voter behavior: Excluding sessions with errors

	Voter re-election threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	.957 (.143)***	.974 (.139)***			.909 (.196)***	.935 (.188)***
Recipient x one payment			.250 (.217)	.250 (.217)		
Recipient x four payments			1.130 (.166)***	1.130 (.166)***		
Payment	-.665 (.195)***	-.680 (.190)***			-.639 (.277)**	-.703 (.259)***
One payment			-.463 (.300)	-.603 (.261)**		
Four payments			-.737 (.189)***	-.737 (.189)***		
All payments			.525 (.291)*	.721 (.232)***		
Recipient x gift					.133 (.278)	.108 (.275)
Payment x gift					-.072 (.392)	.073 (.370)
$\beta_1 + \beta_2$	.292 (.172)*	.293 (.172)*				
$\beta_1 + \beta_3$			-.213 (.261)	-.353 (.229)		
$\beta_2 + \beta_4$			.393 (.192)**	.393 (.192)**		
Sample	Session types A-D					
Mean dep. var.	7.07	7.07	7.07	7.07	7.07	7.07
Fixed effects		Subject		Subject		Subject
Obs.	2076	2076	2076	2076	2076	2076

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; and the recipient and payment dummies interacted with a dummy for the gift framing. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F7: Politician behavior: Excluding sessions with errors

	Politician expropriation					
	(1)	(2)	(3)	(4)	(5)	(6)
Payment	.558	.558			.538	.433
	(.204)***	(.204)***			(.274)*	(.281)
One payment			.727	.558		
			(.253)***	(.199)***		
Four payments			.509	.509		
			(.241)**	(.241)**		
All payments			.593	.830		
			(.350)*	(.264)***		
Payment x gift					.061	.375
					(.424)	(.359)
Sample	Session types A-D					
Mean dep. var.	7.82	7.82	7.82	7.82	7.82	7.82
Fixed effects		Subject		Subject		Subject
Obs.	1368	1368	1368	1368	1368	1368

Notes: The dependent variable is the politician's level of expropriation. The independent variables are dummy variables for the game including payments, and for the game including one or four payments; a dummy for the game including payments for all subjects; and the payment dummy interacted with a dummy for the gift framing. Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F8: Comparative statics: Excluding sessions with errors

	Voter threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	1.066	.986	.973	.974	.987	.969
	(.185)***	(.163)***	(.142)***	(.139)***	(.147)***	(.137)***
Recipient x secret	-.647	-.566				
	(.501)	(.496)				
Recipient x consent	.160	.241				
	(.279)	(.259)				
Payment	-.532	-.561	-.663	-.680	-.672	-.687
	(.248)**	(.230)**	(.195)***	(.190)***	(.198)***	(.185)***
Payment x secret	-.261	-.233				
	(.450)	(.445)				
Payment x consent	-.378	-.404				
	(.519)	(.474)				
Big pot			3.017	12.861		
			(.807)***	(.192)***		
Big pot x payment			-.078	-.062		
			(.345)	(.339)		
High endowment					.115	.115
					(.198)	(.198)
Unequal endowment					1.221	.937
					(.602)**	(.378)**
Sample	Session types A-D		Session types A-E		Session types A-D, F	
Mean dep. var.	7.07	7.07	7.28	7.28	7.18	7.18
Fixed effects		Subject		Subject		Subject
Obs.	2076	2076	2266	2266	2358	2358

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. In Columns (1) and (2), the independent variables are a dummy variable for receiving a payment and its interactions with dummy variables for the limited information framing and the prior consent framing, as well as a dummy variable for the game including payments, also interacted with the limited information and prior consent framing. In Columns (3) and (4), the independent variables include the recipient and payment dummies, a dummy for the big pot game, and the interaction between the payment and big pot dummies. In Columns (5) and (6), the independent variables include the recipient and payment dummies, and the dummy variables for the unequal endowments framing and for an individual receiving a high endowment.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F9: Voter behavior: U.S. only

	Voter re-election threshold					
	(1)	(2)	(3)	(4)	(5)	(6)
Recipient	.738 (.153)***	.734 (.144)***			.709 (.239)***	.741 (.228)***
Recipient x one payment			.278 (.205)	.278 (.205)		
Recipient x four payments			.853 (.202)***	.853 (.202)***		
Payment	-.501 (.259)*	-.436 (.240)*			-.253 (.359)	-.185 (.311)
One payment			-.520 (.350)	-.508 (.287)*		
Four payments			-.508 (.245)**	-.471 (.241)*		
All payments			.668 (.298)**	.813 (.235)***		
Recipient x gift					-.028 (.263)	-.060 (.255)
Payment x gift					-.615 (.488)	-.683 (.450)
$\beta_1 + \beta_2$	.237 (.196)	.298 (.188)				
	1380	1380	1380	1380	1380	1380

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; and the recipient and payment dummies interacted with a dummy for the gift framing. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F10: Voter behavior: Kenya only

	Voter re-election threshold			
	(1)	(2)	(3)	(4)
Recipient	1.429	1.429	1.177	1.177
	(.243)***	(.243)***	(.264)***	(.264)***
Payment	-1.040	-1.040	-1.303	-1.303
	(.282)***	(.282)***	(.341)***	(.341)***
Recipient x gift			.823	.823
			(.489)*	(.489)*
Payment x gift			.861	.861
			(.544)	(.544)
$\beta_1 + \beta_2$	.389	.389		
	(.327)	(.327)		
Obs.	756	756	756	756

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. The independent variables are a dummy variable for receiving a payment and receiving a payment in a game with one or four payments; the dummy variables for the game including payments or including one or four payments; a dummy for the game including payments for all subjects; and the recipient and payment dummies interacted with a dummy for the gift framing. $\beta_1 + \beta_2$ reports the sum of the coefficients on recipient and payment. $\beta_1 + \beta_3$ and $\beta_2 + \beta_4$ report the sum of the recipient and payment dummies interacted with the one payment and four payment dummies, respectively.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F11: Politician behavior: U.S. only

	Politician expropriation					
	(1)	(2)	(3)	(4)	(5)	(6)
Payment	.501	.590			.473	.394
	(.168)***	(.130)***			(.274)*	(.140)***
One payment			.481	.490		
			(.357)	(.178)***		
Four payments			.489	.546		
			(.199)**	(.180)***		
All payments			.559	.817		
			(.344)	(.245)***		
Payment x gift					.084	.562
					(.545)	(.261)**
e(N)	900	900	900	900	900	900

Notes: The dependent variable is the politician's level of expropriation. The independent variables are dummy variables for the game including payments, and for the game including one or four payments; a dummy for the game including payments for all subjects; and the payment dummy interacted with a dummy for the gift framing. Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F12: Politician behavior: Kenya only

	Politician expropriation			
	(1)	(2)	(3)	(4)
Payment	.496	.496	.354	.474
	(.472)	(.472)	(.590)	(.649)
Payment x gift			.464	.071
			(.748)	(.793)
e(N)	504	504	504	504

Notes: The dependent variable is the politician's level of expropriation. The independent variables are dummy variables for the game including payments, and for the game including one or four payments; a dummy for the game including payments for all subjects; and the payment dummy interacted with a dummy for the gift framing. Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F13: Comparative statics: U.S. only

	Voter threshold				
	(1)	(2)	(3)	(4)	(5)
Recipient	1.073	.968	.975	.699	.724
	(.179)***	(.156)***	(.137)***	(.153)***	(.145)***
Recipient x limited information	-.654	-.548			
	(.506)	(.494)			
Recipient x consent	.153	.259			
	(.274)	(.255)			
Payment	-.602	-.550	-.703	-.502	-.457
	(.248)**	(.228)**	(.197)***	(.258)*	(.229)**
Payment x limited information	-.048	-.229			
	(.464)	(.439)			
Payment x consent	-.309	-.416			
	(.522)	(.472)			
Big pot			2.936		
			(.797)***		
Big pot x payment			-.041		
			(.346)		
High endowment				.064	.064
				(.174)	(.174)
Unequal endowment				.865	.841
				(.594)	(.448)*
e(N)	2136	2136	2326	1638	1638

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. In Columns (1) and (2), the independent variables are a dummy variable for receiving a payment and its interactions with dummy variables for the limited information framing and the prior consent framing, as well as a dummy variable for the game including payments, also interacted with the limited information and prior consent framing. In Columns (3) and (4), the independent variables include the recipient and payment dummies, a dummy for the big pot game, and the interaction between the payment and big pot dummies. In Columns (5) and (6), the independent variables include the recipient and payment dummies, and the dummy variables for the unequal endowments framing and for an individual receiving a high endowment.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.

Table F14: Comparative statics: Kenya only

	Voter threshold				
	(1)	(2)	(3)	(4)	(5)
Recipient	1.564	1.564	1.429	1.556	1.429
	(.326)***	(.326)***	(.243)***	(.255)***	(.243)***
Recipient x limited information	-.507	-.507			
	(.520)	(.520)			
Recipient x consent	-.213	-.213			
	(.528)	(.528)			
Payment	-.755	-.755	-1.040	-1.040	-1.040
	(.307)**	(.307)**	(.282)***	(.282)***	(.282)***
Payment x limited information	-.245	-.245			
	(.931)	(.931)			
Payment x consent	-1.207	-1.207			
	(.624)*	(.624)*			
Big pot			4.517		
			(1.065)***		
Big pot x payment			-.768		
			(.457)*		
High endowment				.708	.708
				(.064)***	(.064)***
Unequal endowment				2.190	.720
				(1.258)*	(.251)***
e(N)	756	756	814	828	828

Notes: The dependent variable is the maximum threshold of expropriation at which the subject will vote to re-elect the politician. In Columns (1) and (2), the independent variables are a dummy variable for receiving a payment and its interactions with dummy variables for the limited information framing and the prior consent framing, as well as a dummy variable for the game including payments, also interacted with the limited information and prior consent framing. In Columns (3) and (4), the independent variables include the recipient and payment dummies, a dummy for the big pot game, and the interaction between the payment and big pot dummies. In Columns (5) and (6), the independent variables include the recipient and payment dummies, and the dummy variables for the unequal endowments framing and for an individual receiving a high endowment.

Fixed effects are as specified in the table; specifications without subject fixed effects include a Kenya dummy, a dummy for ordering of the payment questions, and comprehension index fixed effects. All specifications include standard errors clustered at the experimental session level. Asterisks indicate significance at the ten, five, and one percent level.