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How much income redistribution? An explanation based on vote-buying and corruption

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Abstract

This paper studies how income tax rates are determined and how they are related to government corruption in the form of fund capture. A model is presented where rich voters can block redistribution by buying the votes of some poor voters. In equilibrium there is only limited redistribution and income tax rates are a negative function of government corruption. When rich voters can bribe the government, an additional equilibrium with zero taxation is possible. The link between corruption and tax rates is tested using cross country data; the empirical evidence is fully consistent with the predictions of the model.

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1. Introduction

This paper addresses the question of why and how societies choose to redistribute -or not- income, and to what extent. The main question of interest is the reason why income redistribution is relatively modest in most countries, despite the fact that the majority of voters have below-mean incomes. On a related issue, it is generally the case that tax revenues for the government are negatively associated with corruption; however, most of the literature has identified tax evasion as responsible for this fact, while neglecting the stage that comes prior to tax (compliance or) evasion, namely the choice of tax rates by the government. This stage is the focus of interest here.

A model is presented where politicians are self-interested and corrupt and where two social classes (rich and poor) compete with each other over fixed resources. The model views government as a utility-maximizing Leviathan, much in the spirit of the Brennan and Buchanan (1980) paradigm. Accordingly, the tax rate is not mechanically set at the level preferred by the median voter, but depends on the political environment and on the strategic options and choices of players with different utility functions in a game theoretic setting. By assuming that collective choice by the government and by social groups can be explained in terms of individual utility maximization, the paper follows in the tradition of public choice theory. In the words of James Buchanan (1967: 25-26), *"the individual, as he participates in collective decisions, is guided by the desire to maximize his own utility and […] different individuals have different utility functions"*.

The purpose of the paper is twofold. First, it offers an explanation for why tax rates are relatively low in most countries. In a country with an income distribution skewed to the right, both the electoral motive and politicians' desire to raise a large amount of revenue and divert it into their own pockets imply that income tax rates should be much higher than the ones observed in practice. The main explanation offered here is that rich voters can form a coherent lobby in order to advance their interests, whereas poor voters cannot. In particular, the paper identifies a mechanism of vote-buying as the force which reduces the demand for -and consequently the extent of- income redistribution. The public choice literature has occupied itself with this puzzle and has offered various explanations for it. What is new in this paper is the possibility for the rich

class to choose between two different ways of limiting redistribution, namely buying votes from the poor or bribing the government.

Second, the paper predicts a negative effect of the extent of government corruption on statutory income tax rates. This effect is driven by vote-buying and by the electoral motive of the government. It is therefore only in democratic countries that more corruption leads to lower taxation. In the empirical section this hypothesis is tested against cross country data on income tax rates, corruption and a set of controls. The evidence indeed suggests a negative and significant relationship between corruption and top marginal income tax rates in democracies. Identifying the existence of such a relationship is important from a positive point of view, as it allows us to say something about the effect of restraining government corruption on the extent of income redistribution. It must be noted that the paper views income taxation as an effective tool for affecting the distribution of income. Piketty and Saez (2006: 203), summarizing a large project on the dynamics of income distribution in a large sample of mostly Western countries, argue that *"the long-run impact of tax progressivity on wealth concentration is large enough to explain the magnitude of the observed changes [in income concentration]"*. The relationship between income taxes and income distribution is also advocated in Piketty (2003) for the case of France, in Atkinson (2004) for the United Kingdom and in Piketty and Qian (2009:53) for China and India: *"Progressive taxation is one of the least distortionary policy tools available that controls the rise in inequality by redistributing the gains from growth [in LDCs]"*.

The next section reviews some relevant literature. Section 3 presents a simple game and derives the central results on income tax rates, the role of vote-buying and the relationship between tax rates and corruption. Section 4 adds a new feature to the basic model by allowing the government to take bribes, while section 5 modifies one aspect of the political environment. Section 6 discusses the data along with their limitations and section 7 tests empirically the implications of the model. Section 8 concludes.

2. Related literature

The paper relates to the literature on redistributive taxation. A large part of this literature applies the median voter theorem to predict demand for redistribution and equilibrium tax

rates under majority voting. Seminal works in this line of literature include Meltzer and Richard (1981), Romer (1975), and Roberts (1977). All of these models predict that the tax rate increases with inequality as measured by the distance between the median and mean income. Nevertheless, the median voter theorem predicts a much larger demand for redistribution than what we observe in practice, given the large income inequalities in many countries. Breyer and Ursprung (1998) call this the "paradox of redistribution". A number of models have been developed to account for low rates of redistribution. Benabou and Ok (2001) formalize what they call the "Prospect Of Upward Mobility" hypothesis. They show that, under certain assumptions, it is possible and consistent with rational expectations to have some voters with below mean incomes who oppose redistribution, as long as tomorrow's expected income is an increasing and concave function of today's income. Piketty (1995), Harms and Zink (2003) use similar frameworks, while Ravallion and Lokshin (1999) and Alesina and La Ferrara (2005) provide relevant econometric evidence. In a different spirit, Alesina and Angeletos (2005) build on the Meltzer and Richard (1981) framework and incorporate fairness considerations into the demand for redistribution. Taxler (2009) adds endogenous tax evasion into the classical median voter framework. On the topic of tax evasion, Sanyal et al. (2000) show that with tax evasion and a corrupt public administration an increase in tax rates may actually lead to a net loss in revenue for the government. Friedman et al. (2000: 480) observe a negative correlation between corruption and tax revenue and attribute it to the fact that *"weak institutions undermine the government's ability to collect tax revenue"*.

Turning to the vote-buying mechanism discussed in the paper, Breyer and Ursprung (1998) explain the paradox of redistribution by looking at the behavior of the rich members of society: these can forge a coalition with some members of the middle class, in order to form a voting majority which opposes extensive redistribution. In principle, the rich must bribe a segment of the population large enough to ensure majority. Docquier and Tarbalouti (2001: 263) offer a similar explanation based on "vote bribes": The elite (i.e., the rich class) is in a position to buy the votes of other members of the population, whether that be middle or low income voters. This is the same idea used in this paper, and the authors describe it as follows: *"Typically, a richer group may effect*

financial payments to a poorer group in such a way that the latter opt for the richer group preferred tax rate: the richest group thus cooperates to buy the votes of a poorer group". Hasen (2000: 1325) also argues that *"the poor are more likely to sell their votes than are the wealthy, leading to political outcomes favoring the welathy"*.[1] In Acemoglu et al. (2007: 5), the ruling elite buy the cooperation of some poor voters, by offering them employment in the state bureaucracy; the authors offers evidence from post-WW II Italy, concluding that this mechanism *"may operate even in relatively developed countries"*. On a more general level, Baland and Robinson (2008) offer a detailed account and a number of references on mechanisms through which landowners have kept the votes of their workers under control, across centuries and in different parts of the world.

Finally, some very interesting insights concerning redistributive taxation can be found in Fernandez and Levy (2008). The paper uses a framework with two social classes (rich and poor) and preference heterogeneity within each group. It arrives at two political equilibria, one of which implements extensive redistribution, while in the other a fraction of the poor joins forces with the rich, lowering redistribution. In Levy (2005) coalitions between rich and poor voters are also possible and reduce the extent of redistribution.

Turning to some related empirical work, La Porta et al. (1999) observe that larger governments are also higher quality ones, which implies a negative association between government size and corruption. This is consistent with my findings, although the direction of causality is the reverse. Merrifield (2000) reports a number of political and institutional variables that affect tax revenue (but not tax rates) in the United States. Olken (2006) uses micro evidence from an Indonesian transfer program to show that corruption lowers the extent of redistribution.

3. The model

3.1. General

Consider a stationary endowment economy with a voting population of mass 1. There are two social classes, the rich and the poor, accounting for proportions n and $(1-n)$ of the population respectively, $n<1/2$. In each period the rich receive an exogenous endowment of y_r and the poor an endowment of y_p. The endowment of the poor is defined as the subsistence income and normalized to zero. Rationality and full information are assumed.

Redistribution can be achieved through a linear income tax set by the government (which is positive only for the rich since $y_p=0$), with the tax revenue distributed evenly among the poor in the form of direct transfers. Since this is an endowment economy, and following much of the literature on redistributive taxation, I assume that taxes are non-distortionary and do not impose any deadweight loss.[2] The model distinguishes between statutory and effective tax rates. Statutory rates are denoted by $\hat{\tau}$ and effective rates by τ: Having set the statutory tax rate at $\hat{\tau}$, the government can then collect taxes that correspond to a rate smaller or equal to $\hat{\tau}$; in other words, $\hat{\tau}$ is the maximum rate at which an individual can be taxed. But the effective rate can be lower, if for instance the government gives large rebates or tax refunds or simply overlooks tax evasion. The role of this distinction between effective and statutory rates will become clear in the solution of the model.

There are two identical parties that are both selfish, in the sense that they care only about the maximization of their own payoffs. There are no ideological preferences of governments or citizens. The number of consecutive terms that an incumbent is allowed to stay in office is limited to two –this assumption is relaxed in section 5. There is no discounting and actors weigh equally their payoffs during the two periods. Elections are majoritarian with a single voting district, which means that the party which receives more than half of the total number of votes wins the elections. Voting is purely retrospective and a government that pleases its voters in the first term will secure reelection.[3]

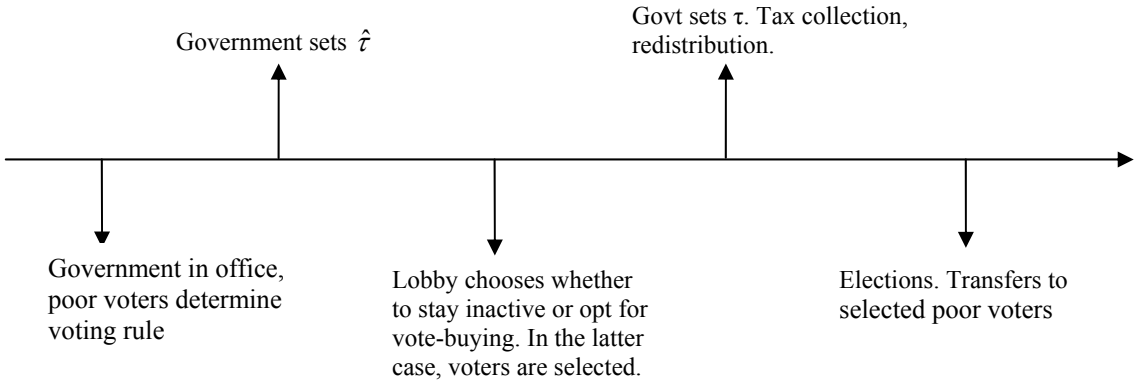
3.2. The actors: Government, rich voters, poor voters

The government is not only selfish, but also corrupt. Corruption here takes the form of diversion of funds:[4] The government appropriates some proportion β of the tax revenue that it has raised, $0 \leq \beta < 1$. The parameter β will therefore be used to relate corruption to redistributive taxation. Corruption is exogenous in this model. This exogeneity assumption may appear unrealistic at first; however, corruption here is envisaged to reflect the set of political and social norms that prevail in a country. For instance, the ability of politicians to divert funds without being caught and punished depends on the efficiency of the judiciary, the freedom and influence of the press, and so on. It is natural

to think that a government cannot change these factors in the short run, or at least it is not easy to do so. In addition, the purpose of the paper is not to explain the extent of corruption, but to show how a given level of corruption in a country relates to income redistribution, and to offer some original insights on potential mechanisms that determine income tax rates. Thus, the choice variable of the government is τ, and not β. The period payoff function of the government is given by: $U = R + \beta\tau n y_r$, where R represents the exogenous rent from being in office. The government's payoff function thus includes an exogenous rent and an endogenous one (the part of the total tax revenue that it captures).

The rich class is able to form a coherent lobby with the purpose of promoting the interests of its members.[5] Redistribution clearly opposes these interests, the more so the higher is the tax rate. In order to block redistribution, the members of the lobby can take the following course of action: they can buy the votes of some members of the poor class, by making an appropriate transfer to them. To be more specific, the lobby transfers an amount x to each of a number of randomly selected poor voters, if and only if the tax rate is set to zero $(\tau=0)$; by means of the transfer the lobby can affect the voting strategies of these poor voters, and consequently the tax rate set by the government. This vote-buying strategy is a central part of the paper. Its objective is to make the majority of the population prefer a zero effective tax rate to any redistribution. If it is successful, there will be no government induced redistribution; still, some of the poor citizens will benefit from the transfers from the rich, so in fact some partial redistribution will take place.

Poor voters adopt a strategic voting rule, which specifies the conditions under which they will reelect an incumbent government and which is shown in the solution of the game in section 3.3.[6] The timing of events is shown below. Note that transfers from the lobby to poor voters are made after the outcome of the elections is known.[7]



3.3. Solution of the game

We begin by looking at the strategies adopted by the lobby and by the poor class:

Lemma 1

If the lobby uses vote-buying to block redistribution, each rich voter makes a transfer of x^* *to each of (1/2n -1) poor voters, where* $x^* = \frac{ny_r}{1-n}(1-\beta)$.

Proof: In order to achieve a majority which wants zero redistribution, the lobby must buy the votes of *(1/2-n)* randomly selected poor citizens. Then, each member of the lobby will have to offer a transfer to *(1/2n-1)* poor voters. These voters will prefer a zero tax rate to a tax rate of 1 (and therefore to any positive tax rate) if: $x \geq \frac{(1-\beta)\tau n y_r}{1-n} = x^*$. Note that the marginal cost of vote-buying is lower than its marginal benefit (from lowering the tax rate), and therefore it is optimal for the lobby to make transfers conditional on $\tau=0$ rather than on any other $\tau \in (0,1)$. The right hand side of the inequality is the payoff from redistribution: the poor receive fraction *(1-β)* of the tax revenue. For *x* high enough, the selected poor voters prefer zero taxes to redistribution.

I call this the vote-buying outcome, or *BUY*. In addition, I call *RED* the redistribution outcome in which the government collects taxes, captures part of the revenue and distributes the rest among the poor.

The voting rule adopted by the poor class is the following:

$$p^{R/NS} = \begin{cases} 1, & if \quad \tau \geq \underline{\tau} \\ 0, & if \quad \tau < \underline{\tau} \end{cases} \quad , \quad p^{R/S} = \begin{cases} 1, & if \quad \tau = 0 \\ 0, & if \quad \tau > 0 \end{cases} \qquad (1)$$

This rule specifies the voting behavior of poor voters in each of the two states that can occur: these are *S* (the voter has been selected to receive a transfer) and *NS* (the voter has not been selected),[8] and the strategies conditional on these states are $p^{R/S}$ and $p^{R/NS}$ respectively, where p^R is the probability of reelecting the incumbent government. $\underline{\tau}$ is a reservation tax rate set strategically by poor voters: voters observe both statutory and effective tax rates, but voting strategies in *(1)* are conditional on effective rates, because these are the ones that determine individual income.

Lemma 2

The voting rule given in (1) is optimal for the poor voters in both states, S and NS.

Proof: Since redistributive taxation is the only policy dimension and the selected voters are always better off with zero than with any positive tax rates, it is optimal for them to set $p^{R/S}$ as given in *(1)*, which will indeed lead to $\tau=0$ given the electoral rule. The rest of the poor set a positive reservation effective tax rate, the value of which under different assumptions is calculated in the Appendix (A1, A2).

I have ignored the voting strategies of the lobby, largely because it is the poor voters who form the majority and determine the electoral outcome. Only if the outcome is vote-buying is it necessary to know that the lobby will reelect the incumbent government if and only if $\tau=0$ (i.e., their voting rule is the same as $p^{R/S}$ in *(1)*).

Applying backwards induction and provided that a government has been reelected, in its second term it will set the statutory and effective tax rate to 1. Since the government does not care about reelection, vote-buying does not serve the interests of the lobby and total expropriation cannot be avoided. In the first period, however, the vote-buying strategy is relevant: The government knows that this strategy would lead to a policy of zero effective taxes ensuring reelection and potentially being optimal. In that respect, the "softness" of the government's tax decision (distinction between statutory and effective tax rates) is crucial for the relevance and effectiveness of the vote-buying strategy. This distinction allows the government to collect no revenue and thus be reelected for a second term in the case of vote-buying, even if tax rates are officially positive.

<u>*Proposition 1*</u>

During its second term in office the government sets the statutory and effective tax rate to $\tau = \hat{\tau} = 1$ *and the equilibrium is RED.*

In the first period the equilibrium is also RED but the tax rate is lower: The government sets the statutory and effective tax rate to $\tau^* = \frac{1-2n}{2-2n}(1-\beta)$ *and is reelected.*

The proof is given in Appendix A1.

<u>*Corollary:*</u> *Income tax rates are a negative function of government corruption.*

This follows directly from the value of τ^* in Proposition 1.

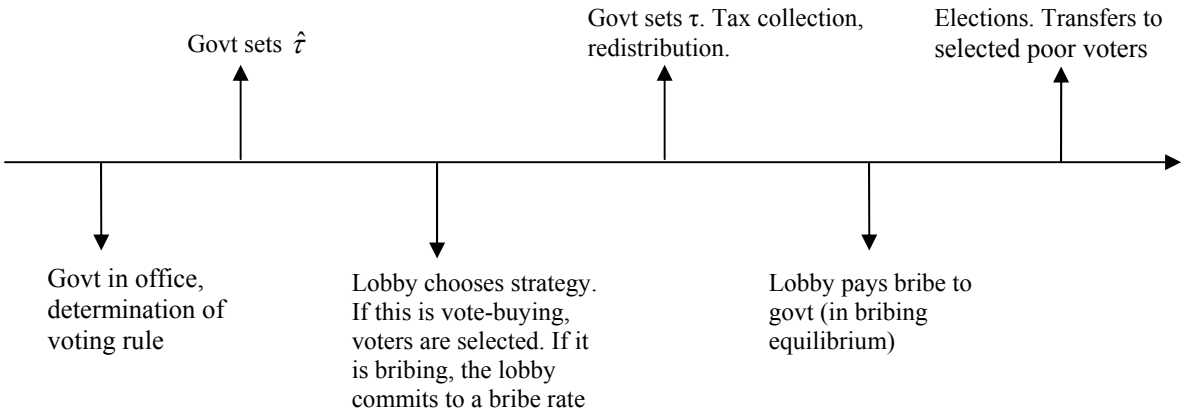
In the first period redistribution is achieved through a positive income tax rate, the level of which is a negative function of government corruption, β. This negative relationship is a central result of the model. The intuition is the following: The higher is β, the cheaper is vote-buying for the lobby, because poor voters do not expect much from the government anyway. But the government prefers redistribution to vote-buying [9] and so it will set τ low enough to ensure that the lobby has the same preference. Hence, the assumption that the rich can buy the votes of the poor drives the result concerning the equilibrium tax rate. If vote-buying did not exist as a possibility, the government would always set $\tau=1$ and be reelected. Total expropriation of the rich is prevented here only because the government sets the tax rate to ensure that the lobby prefers *RED* over *BUY*.

This observation highlights a point made in the introduction: It is partly the comparative advantage of the rich in organizing collective action that prevents more extensive income redistribution; but it is also the inability of the poor voters to form a coherent group that leads to this result. When offered a transfer, it is subgame optimal for each poor voter to accept, and by doing so he allows the lobby to extract a lower effective tax rate from the government.

4. Bribes to the government

I will now give a richer structure to the model by allowing for bribe payments from the lobby to the government. This gives the lobby an alternative means of influencing government decisions; it can now either turn towards the government or towards poor voters, and it will choose the cheaper course of action. Bribes from the lobby to the government introduce an additional form of corruption. This is endogenous, in contrast to the share of funds captured by the government. However, the main insight of the model that links corruption to redistributive taxation refers only to fund capture, or government embezzlement, as measured by the parameter β. Therefore, throughout the paper, the term (government) corruption will be used to describe fund capture.

The features of the political system are the same (finite number of terms in office, majoritarian elections, backward-looking voting), and we still have the voting strategies given in *(1)*. The timing is the same as before, with the addition that, when the lobby decides on its strategy, it has the option of committing to pay a bribe to the government.



Compared to the previous section there is now one more possible outcome, namely the bribing outcome, henceforth *BRB*: The lobby bribes the government and impedes redistribution. Following the announcement of the statutory tax rate, each member can pay fraction α of his (her) income as a bribe to the government in order to persuade it to set the effective tax rate to zero.[10] The period payoff function of the government then becomes: $U = R + n\alpha y_r + \beta\tau n y_r$. The lobby must offer a bribe rate sufficiently high to stop the government from redistributing income; the values of α that ensure this in each of the two periods are calculated in Lemma 3 below.

In the second term of the government, the lobby bribes and achieves a zero effective rate. The bribe rate in this case is β, and it is always an optimal strategy for the lobby to pay it. Compared to the simpler model of section 3, the rich class here is able to avoid total expropriation; this is because bribes are allowed.

Lemma 3

In the first period, if the lobby bribes the government the bribe rate is $\alpha^* = \frac{R}{ny_r} + \beta(1+\tau)$.

Proof: In the first period, if the lobby chooses to bribe, it has to make the government indifferent between *BRB* and *RED*. The respective total expected payoffs for the government are: $U^{BRB} = R + n\alpha y_r$, $U^{RED} = 2R + \beta\tau n y_r + n\beta y_r$. Comparing the two gives the value of α^*.

Proposition 2

When the lobby can make bribe payments to the government the solution of the game is modified as follows: During its second term in office the government sets the statutory rate to $\hat{\tau} = 1$ *and the effective rate to* $\tau=0$*. The equilibrium is BRB with* $\alpha=\beta$*.*
In the first term there are two cases:

(i) *If* $\frac{1-2n}{2-2n} \leq \frac{2R/ny_r + \beta}{(1-\beta)(1-2\beta)}$, (2)

the equilibrium is RED: The statutory and effective tax rate are set to $\tau^* = \frac{1-2n}{2-2n}(1-\beta)$ *and the government is reelected. The outcome is the same if (2) does not hold but* $\alpha^* > 1$*.*
(ii) *If (2) does not hold and* $\alpha^* \leq 1$*, the first period equilibrium is BUY: The statutory tax rate is between* τ^* *and 1, the effective tax rate is zero and the government is reelected.*
The proof is given in Appendix A2.

In the first of the above cases the outcome is the same as in section 3, with redistribution taking place, its extent nevertheless being limited due to the existence of the vote-buying option for the lobby. In case *(ii)* the equilibrium outcome is vote-buying. Thus, allowing for bribe payments from the lobby to the government makes vote-buying a candidate equilibrium! In this case we observe a multiplicity of statutory tax rates in equilibrium. A way out of this multiplicity is the following proposed refinement: Let there be a cost *c* to the government of deviating from the announced tax rates and collecting less revenue in the vote-buying equilibrium.[11] The cost of deviation is positive (although it can be arbitrarily small) and strictly increasing in the distance *d* between statutory and effective tax rates: $c(\hat{\tau} - \tau) = c(d)$, $d \in [0,1]$, $c>0$, $dc/dd>0$, $c(0) = 0$, $c \leq R$. The upper bound on *c* ensures that the vote-buying strategy remains effective.

Introducing this cost of deviation refines the equilibrium in Proposition *2(ii)* and pins down the statutory tax rate to τ^*. Taking the equilibrium refinement into account, the statutory tax rate is τ^* in every case; the proposed negative relationship between corruption and tax rates holds. Effective tax rates, on the other hand, are zero if the outcome of the game is *BUY*, which implies a distance of $d=\tau^*$ between statutory and effective rates.

Note that, from (2), the likelihood of obtaining the redistribution equilibrium is increasing in β. Intuitively this is because a more corrupt government that plans to appropriate a large part of the tax revenue would require a relatively high bribe, thus making *RED* the more likely equilibrium as the lobby would prefer paying the taxes to paying the bribe. In addition to this, high values of β may cause α^* to exceed 1, in which case the bribing strategy is no longer relevant and we end up in the redistribution equilibrium of the baseline model. An implication of this result is that, when bribes to the government are part of the setting, reducing corruption only leads to higher tax rates conditional on *(2)* being satisfied; if β is so low that this is no longer the case, then the equilibrium will be *BUY*, the partial redistribution equilibrium with zero effective taxes.

5. Unlimited consecutive terms in office

This section relaxes the assumption that parties are not allowed to stay in office for more than two consecutive terms. In the model of section 3 the effect of this modification will be to render the result identical in every period; the government always sets the statutory and effective tax rate to τ^* so as to prevent vote-buying. This eliminates the discrepancy in tax rates between periods. When we allow for bribes from the lobby to the government, the analysis is modified as follows. First, if *BRB* is the equilibrium in one period, then –having assumed identical parties– it will also be the equilibrium in the next period with the other party in office, and so after the second period we are faced with the same problem again. Moreover, the redistribution and vote-buying equilibria are stationary. This allows us again to consider only two periods in order to solve the game with a potentially infinite number of consecutive terms in office. Second, the bribe rate is now different. Finally, the effectiveness of the vote-buying strategy requires a slightly stricter condition than in section 4. This is calculated in Appendix A3.

<u>*Lemma 4*</u>

With unlimited terms in office, if the lobby bribes the government in any period the bribe rate is $\tilde{\alpha} = \frac{R}{ny_r} + 2\beta\tau$.

Proof: In any period the lobby has to make the government indifferent between *BRB* and *RED*. The respective payoffs for the government in that period and the next are: $U^{BRB}=R+n\alpha y_r$, $U^{RED} = 2R + 2\beta\tau n y_r$. Comparing the two gives the value of $\tilde{\alpha}$.

Proposition 3

With unlimited terms in office and when bribes from the lobby are allowed, there are two possible equilibria:

(i) If $$\frac{1-2n}{2-2n} \leq \frac{R}{(1-\beta)(1-2\beta)ny_r}, \qquad (3)$$

the equilibrium is RED in every period: The government sets the statutory and effective tax rate to $\tau^* = \frac{1-2n}{2-2n}(1-\beta)$ *and is reelected. The same result is obtained if (3) does not hold but* $\tilde{\alpha} > 1$.

(ii) If (3) does not hold and $\tilde{\alpha} \leq 1$*, the equilibrium is BUY in every period: The statutory tax rate is* τ^**, the effective tax rate is zero and the government is reelected.*

The proof is given in Appendix A3. As in the previous section, the unique determination of the statutory tax rate at $\hat{\tau} = \tau^*$ in case *(ii)* relies on the existence of the cost of deviation, *c*.

From *(3)*, which is the analog of *(2)* in Proposition 2, the likelihood of being in the redistribution equilibrium is increasing in the extent of government corruption, β. As in the simple case, relaxing the assumption of no more than two consecutive terms in office has the effect of eliminating the difference between first and second period tax rates. The statutory tax rate is always τ^*, while the effective rate is either τ^* or zero.

6. Data

The testable hypothesis of the model is that statutory income tax rates are a negative function of government corruption in the form of fund capture in democratic countries. This follows from the value τ^* that was calculated in the solution of the game, both for the simple model of section 3 and for those of sections 4 and 5 (see Propositions 1, 2, 3).

Statutory income tax rates are obtained from two sources: The Index of Economic Freedom from the Heritage Foundation and the Annual Report on the Economic Freedom of the World by the Fraser Institute (Gwartney and Lawson 2005). They both provide top

marginal income tax rates, but there are some minor differences in the data reported. Note that the empirical section uses statutory and not effective tax rates as the dependent variable: this is mainly due to the fact that the model predicts unique values for the statutory rate (equal to τ^*), while it predicts that the effective rate is either τ^* or zero. Moreover, I know of no reliable cross country dataset on effective tax rates, i.e., the actual extent to which individuals pay income taxes relative to their income. Therefore, statutory tax rates are a better fit than effective tax rates for this particular model and for the available data.

In order to distinguish between democratic and non-democratic countries I used the Political Rights (Gastil) index, published by the Freedom House. Countries with a score of 1-4 are classified as democratic, whereas those with scores of 5-7 as non-democratic. To check robustness, an alternative classification is used, with countries scoring strictly less than 4 classified as democracies.

The way to measure government corruption is less straightforward due to the nature of the phenomenon, which is hard to define. The most commonly employed instruments are aggregate survey-based subjective indices, two of which are used in this paper. Corruption indices suffer from certain weaknesses, and of particular relevance here is the fact that differences in the institutional environment make comparisons between democratic and nondemocratic countries very problematic. For instance, a given practice that is defined as corrupt according to the formal institutions in a democracy, may not be classified as such in the calculation of the index in a nondemocracy.[12] With these qualifications in mind, corruption indices are arguably the best available tools for measuring corruption across countries. The first one used here is an index of "Diversion of Public Funds" (henceforth *DIV*), from the World Economic Forum's *Global Competitiveness Report*. This index corresponds quite closely to the particular form of corruption in this paper, as it is based on a survey question on the frequency of "diversion of public funds to companies, individuals or groups due to corruption". The second index is the Transparency International Corruption Perceptions Index (*CPI*), a composite indicator that uses surveys from various sources. The survey questions typically refer to the frequency of irregular payments to government officials. This is quite different from the definition of corruption in this paper; nevertheless one expects different aspects of

corruption to be highly correlated.Both *DIV* and *CPI* were rescaled, so that they measure from 0 to 10 and higher values correspond to more corruption.

The controls in the basic regressions are log GDP per capita and log population. Wagner's Law states that the share of public expenditure in national income increases with the level of development, so one should expect a positive relationship between GDP per capita and tax rates. Log population is used to account for the fact that countries with larger populations tend to rely more on income taxes and less on trade taxes.[13] One must therefore expect a positive sign for log population in the regressions.

Table 1 shows summary statistics for the main variables, including the instruments that are used to check robustness. Figures 1 and 2 give a rough impression of the relationship between corruption, tax rates and regime type. Figure 1 plots tax rates against corruption for the subsample of democratic countries, whereas Figure 2 includes only non-democratic ones. There is a clear negative relationship in the first figure, whereas in the second the direction of this relationship is inverted.

[Table 1 about here]
[Figures 1 and 2 about here]

Specification

The regression specification is:

$$TAX_i = \alpha + \beta_1 * DEM_i + \beta_2 * CORRUPTION_i + \beta_3 * (CORRUPTION_i * DEM_i) + \beta_4 * LGDPPC_i + \beta_5 * LPOP_i + u_i \ ,$$

where the index *i* denotes different countries, *TAX* is the top marginal income tax rate, *DEM* is a dummy variable that takes the value 1 if a country is classified as democratic and 0 otherwise, *CORRUPTION* is one of the corruption indices, *LGDPPC* is log GDP per capita and *LPOP* is log population. The regressions use data for 2004. The number of countries included in each specification is constrained by data availability; in total, the sample comprises 118 countries. Thirty-eight of those are located in Europe, 24 in Asia, 23 in Sub-Saharan Africa, 20 in Latin America and the Caribbean, 9 in North Africa and the Middle East, 2 in North America and 2 in Oceania.

The main hypothesis is that the effect of corruption on tax rates in a democracy should be negative and significant. This effect is captured by the combined coefficient $(\beta_2 + \beta_3)$, for which one should expect a negative sign. On the other hand, the effect of corruption on tax rates in non-democracies is given by β_2. This paper does not predict anything about that effect, but one would ideally see a clear distinction between democracies and non-democracies. Such a distinction would be captured by a significant coefficient for the interaction variable.

7. Regression results

Table 2 shows the results of running the above regression using Ordinary Least Squares. Specifications 1-2 use the tax rates obtained from the Heritage Foundation, while specifications 3-5 those from the Fraser Institute. The last column excludes nondemocratic countries, in order to give to the reader a clearer picture of the relationship between corruption and tax rates when a democratic regime is in place.

[Table 2 about here]

All specifications confirm the main result that corruption has a negative impact on income tax rates in democracies. Calculating the combined coefficient $(\beta_2 + \beta_3)$ allows us to estimate the magnitude of this impact: a one-unit increase in the corruption index leads to a fall in income tax rates which ranges from 1.39% to 2.19 %. Running a test on the restriction $\beta_2 + \beta_3 = 0$ reveals that this impact is always statistically significant at 1%.

The interaction variable is highly significant in all specifications, thereby supporting the hypothesis that the relationship between corruption and tax rates is affected by the nature of the political system; it is in democracies only that a negative empirical relationship is observed. Hence, the paper supports the relevance of voting models by providing evidence that democracy matters. The coefficient on the corruption variable, which corresponds to the effect of corruption on tax rates in non-democracies, is significant in only one specification, but it is very interesting to see that it is as high as 4.14. Moreover, the coefficient is positive in every specification. This points to a positive relationship between corruption and tax rates in non-democracies; intuitively, one could

think that a more corrupt government will have stronger incentives to raise tax rates and appropriate part of the tax revenue, unconstrained by electoral considerations.

The democracy dummy captures the direct effect of democracy on tax rates, beyond its interaction with corruption. Accountability to the electoral body implies a positive effect. Indeed, *DEM* enters all regressions highly significantly and with a positive sign: democracies tend to have higher income tax rates on average. Log GDP per capita has the expected positive sign in the specifications where it is significant; log population is always positive and it is also significant in four out of five specifications.

IV estimation and robustness checks

Endogeneity would imply that income tax rates determine the right-hand side variable, namely corruption.[14] In order to account for such a possibility, I ran two regressions using instrumental variables. Finding plausible instruments for corruption is an empirical challenge, and various solutions have been proposed in the literature.[15] Since IV is performed here only to check robustness, I have used three of the variables commonly employed as instruments. These are: *(i)* state antiquity, from Bockstette et al. (2002), to account for the possibility that countries with a longer history of state-level institutions produce better outcomes in terms of governance, *(ii)* latitude, from La Porta et al. (1999), as a proxy for the negative effect of tropical climates on development and institutions, and *(iii)* ethnolinguistic fractionalization, also from La Porta et al. (1999), which is generally associated with worse governance and higher corruption.[16] The signs from the first stage regression of corruption on the instruments, reported in Table 4, are consistent with these presuppositions in the cases of state antiquity and ethnolinguistic fractionalization. However, latitude has a counterintuitive positive coefficient. The tests of overidentifying restrictions suggest that the instruments are valid.

IV estimation yields generally robust results, which are shown in columns 6 and 7, Table 3. The negative effect of corruption on income tax rates in democracies remains significant at the 5% level, with a one-unit increase in the *CPI* corruption index leading to a fall of 2.45% in the income tax rate (column 6). In non-democracies the same effect is positive and insignificant, while the interaction effect is negative and significant at the 1% level. When the instrumented corruption variable is *DIV* (column 7), the sample size

is considerably smaller and the results are weaker: the effect of corruption on tax rates in democracies is found to be smaller (1.84 %) and no longer significant.

[Tables 3 and 4 about here]

Table 3 presents a number of further robustness checks. I tried alternative specifications using a more extended set of controls. Column 8 adds openness of the economy (exports plus imports in % of GDP) and column 9 adds the lag of government debt as a share of GNI to control for fiscal stress. These variables are insignificant and do not change any of the results. Specification 10 controls for differences in the income level above which the top marginal tax rate applies. Specification 11 is similar to 1, with the difference that a country is classified as a democracy if its score in the Gastil index is not higher than 3. This "stricter" definition of democracy is adopted here to ensure that the results do not depend on the somewhat arbitrary choice of a democracy threshold.

The main regressions were also run using Tobit, without any differences in the results. Further robustness checks were performed including in the set of controls the lag of government final consumption expenditure as % of GDP, a Scandinavian and a sub-Saharan Africa dummy. A number of regressions were run to account for the possibility that both corruption and tax rates may be correlated with institutional quality: I controlled for three measures of institutional quality from Kaufmann et al. (2005), which were always insignificant and did not change any of the results. These variables were *voice and accountability*, *government effectiveness*, and *regulatory quality*.

In any case, the results could suffer from an omitted variable bias, to the extent that there may be more factors that influence the government's fiscal policy and have not been accounted for. As a final remark, one must point out the limits in the generality of the empirical results, due to the fact that they are based on a single year.

8. Concluding remarks

Income taxation is a key tool that governments can employ in order to influence the distribution of income among citizens. Much of the traditional political economy literature explains the level of income tax rates by focusing exclusively on voter demand

for redistribution. This paper has looked at a somewhat different mechanism, with a government that is not only concerned about elections, but has a stake in the level of taxation because it diverts part of the revenue. A model was presented where the interaction between social classes shapes voting preferences and consequently equilibrium tax rates. More specifically to this last point, the paper identified vote-buying by the rich as an explanation for the relatively limited extent of income redistribution and persistent income inequality. A further result of the paper was the negative impact of government corruption on income tax rates, conditional on the existence of a democratic regime. This impact was derived theoretically and tested empirically, with the evidence corroborating the theory.

On a theoretical level, possible next steps would be to consider party heterogeneity, and to endogenize government corruption in order to look at the joint determination of corruption and redistribution. Another interesting direction would be the use of the model's predictions about statutory and effective tax rates in order to analyze and predict levels of tax evasion. Finally, the analysis could be extended to include public goods provision and a broader set of redistributive policies, the latter also being an empirical challenge.

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Appendix

A1. Proof of Proposition 1

In the second period the electoral motive disappears and the government sets the tax rate to 1 so as to maximize the diverted tax revenue. The government's payoff in the second period is therefore $R + n\beta y_r$. The total ex ante payoffs of the government in period 1 are: $U^{BUY} = 2R + n\beta y_r$, $U^{RED} = 2R + \beta\tau n y_r + n\beta y_r$

For *BUY* to be sustainable in equilibrium, the vote-buying strategy on part of the lobby must be effective and lead to zero taxes and reelection. If the lobby opts for vote-buying, then the government should either set $\tau=0$ (if it wants to be reelected) or $\tau>0$ (if it chooses to implement the statutory rate and forgo reelection). Even if $\tau=1$, the respective payoffs are: $U^{BUY} = 2R + n\beta y_r$, $U^{1}=R + n\beta y_r$, so that an effective tax rate of zero is always the best response by the government to vote-buying.

The total ex ante cost of the two strategies (which correspond to the two different equilibria) available to the lobby in period 1 are (costs for an individual member of the lobby, as fractions of y_r):

$$C^{BUY} = \frac{1-2n}{2-2n}(1-\beta)+1,$$

$$C^{RED} = \tau + 1$$

Comparing these costs we have the following condition for the lobby:

RED is preferred to *BUY* when $\tau \le \frac{1-2n}{2-2n}(1-\beta)$

It follows from the government's payoffs that *BUY* is dominated by *RED*, and so the government will set the statutory rate in order to ensure that the lobby never chooses *BUY* over *RED*, that is: $\hat{\tau} = \frac{1-2n}{2-2n}(1-\beta)$. I call this value of the tax rate τ^*.

Let us now consider the strategy of the poor class. From Lemma 2, it is optimal for the selected voters to set $p^{R/S}$ as given in *(1)*. As for $p^{R/NS}$, note the following. Given rationality and full information, the poor that are not selected face the following problem: they can set $\underline{\tau} \le \tau^*$, in which case the equilibrium will be *RED* and the effective tax rate will be τ^*. This gives us the tax rate in Proposition 1. Or they can set $\underline{\tau} > \tau^*$. In this case redistribution is no longer feasible, as it requires the government to set a statutory tax rate greater or equal to $\underline{\tau}$, and therefore strictly greater than τ^*. However, for such a tax rate, the lobby strictly prefers *BUY* to *RED*. In fact, when $\underline{\tau} > \tau^*$ it is optimal for the government to set the statutory rate greater or equal to τ^*. This will trigger the vote-buying strategy on part of the lobby and the equilibrium will be *BUY*. If, instead, the government were to set some $\hat{\tau} < \tau^*$, its payoff, say U', would be lower: $U' = R + n\beta\tau y_r < U^{BUY}$.

From the point of view of the poor class *RED* is preferred to *BUY*, since it yields a higher expected payoff. They will therefore set $\underline{\tau} \le \tau^*$ (any $\tau \in [0, \tau^*]$ will do) and the equilibrium will always be *RED* with $\tau = \tau^*$.

This completes the proof.

A2. Proof of Proposition 2

In the second period the equilibrium is *BRB*, the lobby pays fraction $\alpha=\beta$ of its income to the government, the effective tax rate is zero and the government's payoff is $R + n\beta y_r$. In period 1, if $\alpha^*>1$, the bribing strategy is not relevant and the analysis is the same as in the basic model, leading to the same first period equilibrium *(RED)* as in Proposition 1. If $\alpha^* \leq 1$, the possible total ex ante payoffs of the government in period 1 are:

$U^{BUY} = 2R + n\beta y_r, \quad U^{BRB} = R + n\alpha^* y_r, \quad U^{RED} = 2R + \beta\tau n y_r + n\beta y_r$

The total ex ante costs of the three different strategies (which correspond to the three different equilibria) available to the lobby in period 1 are (as fractions of y_r):

$$C^{BUY} = \frac{1-2n}{2-2n}(1-\beta) + \beta, \quad C^{BRB} = 2\left[\frac{R}{ny_r} + \beta(1+\tau)\right], \quad C^{RED} = \tau + \beta$$

If *BRB* is the equilibrium in the first period, it will be the equilibrium with a new government in the following period assuming a stationary environment and identical parties; this is why both terms in C^{BRB} are multiplied by 2.

Comparing these costs pairwise we have the following conditions for the lobby:

(i) *RED* is preferred to *BUY* when $\tau \leq \frac{1-2n}{2-2n}(1-\beta)$

(ii) *RED* is preferred to *BRB* when $\tau \leq 2\left(\frac{R}{ny_r} + \beta\tau\right) + \beta$ *(A1)*

(iii) *BUY* is preferred to *BRB* when $\frac{1-2n}{2-2n}(1+\beta) + \beta \leq 2\left[\frac{R}{ny_r} + \beta(1+\tau)\right]$ *(A2)*

As in the simple model, $U^{BUY}<U^{RED}$, and the government will set the statutory rate to ensure that the lobby never chooses *BUY* over *RED*, that is: $\hat{\tau} = \tau^* = \frac{1-2n}{2-2n}(1-\beta)$

Let us assume for now that $\underline{\tau} \leq \tau^*$. Upon the announcement of $\hat{\tau} = \tau^*$, the lobby prefers *RED* to *BUY*. The equilibrium then depends only on *(A1)*, while *(A2)* is redundant. Indeed, if from *(A1) RED* is preferred to *BRB*, then *RED* is preferred to both alternatives and is the choice of the lobby, with the effective rate also at the level of τ^*. In the opposite case that *BRB* is preferred to *RED*, then by transitivity it is also preferred to *BUY*. Thus, given $\hat{\tau}$, the decision of the lobby is only based on *(A1)*. According to the direction of this inequality the first period equilibrium will either be *BRB* or *RED*.

Finally, substituting $\tau=\tau^*$ in *(A1)* we get the result that the outcome is redistribution if and only if $\frac{1-2n}{2-2n} \leq \frac{2R/ny_r + \beta}{(1-\beta)(1-2\beta)}$, *(A3)*

which is condition *(2)*.

The analysis for the strategy of the poor class is the following (for $p^{R/NS}$): If the poor set $\underline{\tau} \leq \tau^*$, the equilibrium is either *RED* or *BRB* depending on *(A3)*. If they set $\underline{\tau} > \tau^*$, redistribution is not feasible. It is then optimal for the government to set the statutory tax rate in the interval $\hat{\tau} \in [\tau^*, 1]$ in order to trigger vote-buying. This is

because, absent the redistribution option, vote-buying can easily be shown to be the best possible outcome for the government.

From the point of view of the poor class, the best equilibrium is *RED*, since it yields a higher expected payoff than *BUY*. The worst equilibrium is *BRB*. If they know that *(A3)* holds, their choice is between *RED* and *BUY*. They will then set $\underline{\tau} \le \tau^*$ (any $\tau \in [0, \tau^*]$ will do) and the equilibrium will be *RED* with $\tau = \tau^*$. If, however, they know that *(A3)* does not hold, then their choice is between *BRB* and *BUY*, in which case they will set $\underline{\tau} > \tau^*$ (any $\tau \in [\tau^*, 1]$ will do) and the equilibrium will be *BUY* with $\hat{\tau} \in [\tau^*, 1]$.

This completes the proof.

A3. Proof of Proposition 3

In this case, the various payoffs to the government and costs to the lobby become (it has been shown in the text that we can restrict our attention to two periods only):

$U^{BUY} = 2R$, $U^{BRB} = R + n\tilde{a}y_r$, $U^{RED} = 2R + 2\beta\tau n y_r$,

$C^{BUY} = \dfrac{1-2n}{2-2n}(1-\beta)$, each period

$C^{BRB} = \dfrac{R}{ny_r} + 2\beta\tau$, »»

$C^{RED} = \tau$, »»

Proceeding as in the proof of Proposition 2 and using the cost of deviation *c* to get rid of the multiplicity of statutory tax rates in the vote-buying equilibrium, we arrive at the result that the equilibrium is either *RED* with $\tau = \hat{\tau} = \tau^*$, or *BUY* with $\hat{\tau} = \tau^*$ and $\tau=0$. The condition that determines whether the equilibrium is *RED* or *BUY* is derived in the same manner as in Proposition 2, and it is the following: The outcome is redistribution if and only if $\dfrac{1-2n}{2-2n} \le \dfrac{R}{(1-\beta)(1-2\beta)ny_r}$, which is condition *(3)*.

Finally, the necessary condition for vote-buying to be an effective strategy is now $c \le R - n\beta y_r$. If in a given period the lobby opts for vote-buying, the alternative government utility levels for that period and the next are: $U^{BUY} = 2R - c(1)$, $U^1 = R + n\beta y_r$. Comparing the two gives the above condition. Note that, if it is optimal for a party to set $\tau=1$ when faced with vote-buying, this will also be the case for the other party in the next period. So after one period the first party will be in power again and the problem will be the same. This allows us to consider only two periods, even though there is now no limit in the number of consecutive terms in office. This relies on the assumption that the parties are identical.

This completes the proof.

A4. Issues of commitment and discounting

The results obtained in this paper rely on the implicit assumption that the lobby is able to commit credibly to make the payments to the other agents, whether that be the

government or the selected poor voters (the timing is such that the government and poor voters would have no incentive to renege on their agreements with the lobby).

One way to motivate this assumption is to invoke trigger strategies in a repeated game. Consider the basic model in section 3 and the following idea: If the lobby does not make the promised transfers to the selected voters, these will not trust the lobby in any subsequent period. In other words the lobby loses its credibility and therefore the ability to use the vote-buying strategy in the future. This means that we move from the equilibrium in Proposition 1 to the equilibrium with redistribution and $\tau=1$ in every period. In the second term of every government the two equilibria are the same. However, in the first term the equilibrium with $\tau=1$ is more costly to the lobby, and the difference in costs is (as a share of y_r): $\Delta C = 1 - \frac{1-2n}{2-2n}(1-\beta) = \frac{1+\beta(1-2n)}{2(1-n)}$. This additional cost is borne every second period. The benefit from not making the transfer in some period is (as a share of y_r): $B = \frac{n}{1-n}(1-\beta)$. Given that there is no discounting, if we extend the horizon of the game and take all future periods into account the total cost is bound to be greater than the benefit and the lobby will never break its promise to make the transfer, leading to the result that commitment is in fact credible.

The reason why there is no discounting in the model is that it would add nothing substantial to the analysis, in the light of the fact that we can restrict attention to just two periods to define the equilibrium of the game. However, in the context of the discussion on commitment in a repeated game, it makes sense to introduce a discount factor and derive a condition for credible commitment. Let δ be the discount factor. Then the future cost to the lobby of losing credibility is: $\delta^2 \Delta C + \delta^4 \Delta C + \ldots = \frac{\delta^2 \Delta C}{1-\delta^2}$. Comparing this with the one-off benefit B, it follows that the lobby has no incentive to break its commitment as long as $\frac{2n(1-\beta)}{1+\beta(1-2n)} \leq \frac{\delta^2}{1-\delta^2}$, i.e., when the lobby cares sufficiently about the future.

The same argument can be applied to payments from the lobby to the government. Suppose that, in the bribing equilibrium of the second period in Proposition 2, if the lobby does not pay the promised bribe the government never trusts it again. This means that the lobby loses the bribing option and we move from the equilibrium in Proposition 2 to the one in Proposition 1. Comparing the two equilibria, we can verify that in the first period the cost to the lobby is the same in any equilibrium (*RED* in Proposition 1, *RED* or *BUY* in Proposition 2), and equal (as a function of y_r) to $\frac{1-2n}{2-2n}(1-\beta)$. We can therefore restrict the comparison to the second period, when the equilibrium in Proposition 2 comes at a cost of β, whereas that in Proposition 1 comes at a cost of 1. Hence the cost to the lobby from the loss of credibility is $1-\beta$, and is borne every second period. The total cost is: $(1-\beta)\delta^2 + (1-\beta)\delta^4 + (1-\beta)\delta^2 + \ldots = \frac{\delta^2(1-\beta)}{1-\delta^2}$. On the other hand, the one-off benefit from not paying the bribe in any period is β. It follows that the lobby has no incentive to break its commitment as long as $\frac{\beta}{1-\beta} \leq \frac{\delta^2}{1-\delta^2}$, i.e., when the horizon is sufficiently long relative to the immediate benefit of cheating today.

Notes

1. See also Buchanan and Lee (1986) on vote-buying in general.

2. See, for instance, Lindbeck and Weibull (1987), Persson and Tabellini (1999).

3. The assumption of retrospective voting is common in the literature. The idea is that parties are unable to make binding and credible commitments to the public, and that one should therefore focus on the behavior of the incumbent government rather than on pre-election politics. See, among others, Barro (1973), Persson and Tabellini (1999).

4. Svensson (2005: 19) argues that *"the most devastating forms of corruption include the diversion and outright theft of funds for public programs"*.

5. The assumption that the lobby is "coherent" is crucial, as it allows its members to take collective action and share the costs of this action, as will be seen in the rest of the model. Assuming -explicitly or implicitly- that lobbies are free of collective action problems is common in the literature. See, for instance, Grossman and Helpman (1996), Besley and Coate (2001). Similarly, the literature typically assumes that lobbies divide the lobbying expenditures equally among their members. In the vote-buying model of Docquier and Tarbalouti (2001), the authors assume that the richest group can *"cooperatively buy votes from a part or the whole of another poorer segment" [p.264]*.

6. Such voting rules are common in the literature. In Barro (1973) voters adopt a strategic voting rule such that the government is reelected if and only if it provides a public good above some level. Similarly, in Persson and Tabellini (1999) voters set strategically their reservation utilities.

7. See the Appendix (A4) for a discussion on the issue of credible commitment. I discuss in particular the ability of the lobby to commit to make its payments, both in the simple version of this section and in the one of section 4.

8. Note that the state *NS* occurs not only when a voter is not among the selected ones, but also when there is no vote-buing at all.

9. This follows from the comparison of the government's utility under different outcomes. See the proof of Proposition 1 for more details.

10. It can be checked that when the lobby bribes the government, the target will not simply be to lower the tax rate, but actually to push it all the way down to zero.

11. This cost can be due to international monitoring bodies which may impose sanctions on the country. Alternatively, it can be thought of as a loss in the government's overall credibility which may affect its ability to implement other policies in the future.

12. I thank an anonymous referee for pointing this out.

13. Easterly and Rebelo (1993) attribute this scale effect to the fact that income taxes are associated with high set-up costs but low marginal administrative costs, so they are more likely to be used extensively in countries with larger populations.

14. One such channel could work in the following way: High tax rates induce individuals to invest more effort in tax evasion, leading to more corruption. Such a link implies a positive correlation between tax rates and corruption, implying that the magnitude of the effect of corruption on tax rates may be even greater than the one identified in this paper. Of course, other stories could be told that would imply a negative impact of tax rates on corruption. For example, high taxation increases state revenue which can be used to improve institutions and fight corruption.

15. A survey and classification of relevant instruments can be found in Pande and Udry (2005).

16. See also Mauro (1995), Hall and Jones (1999), Easterly and Levine (2003) for discussions on the effects of ethnolinguistic fractionalisation and latitude on institutions and on their use as instruments.

References

Acemoglu D., Ticchi D., Vindigni A. (2007). Emergence and persistence of inefficient states. NBER Working Paper no. 12748

Alesina, A., Angeletos, G. (2005). Fairness and redistribution. *American Economic Review 95*: 960-980

Alesina, A., La Ferrara, E. (2005). Preferences for redistribution in the land of opportunities. *Journal of Public Economics* 89: 897-931

Atkinson, A.B. (2004). Income tax and top incomes over the twentieth century. *Hacienda Pública Española* 168: 123-141

Baland, J-M., Robinson, J. (2008). Land and power: Theory and evidence from Chile. *American Economic Review* 98: 1737-1765

Barro, J. (1973). The control of politicians: An economic model. *Public Choice* 14: 19-42

Benabou, R., Ok, E.A. (2001). Social mobility and the demand for redistribution: The POUM hypothesis. *The Quarterly Journal of Economics* 116: 447-487

Besley, T., Coate, S. (2001). Lobbying and welfare in a representative democracy. *Review of Economic Studies* 68: 67-82

Bockstette, V., Chanda, A., Putterman, L. (2002). States and markets: The advantage of an early start. *Journal of Economic Growth* 7: 347-369

Breyer, F., Ursprung, H. (1998). Are the rich too rich to be expropriated?: Economic power and the feasibility of constitutional limits to redistribution. *Public Choice* 97: 135-156

Brennan, G., Buchanan, J. (1980). *The power to tax: Analytical foundations of a fiscal constitution.* Cambridge University Press

Buchanan, J., Tullock, G. (1967). *The calculus of consent: Logical foundations of constitutional democracy*. Ann Arbor: University of Michigan Press

Buchanan, J., Lee, D. (1986). Vote buying in a stylized setting. *Public Choice* 49: 3-15

Docquier F., Tarbalouti E. (2001). Bribing votes: A new explanation to the 'inequality-redistribution' puzzle in LDC's. *Public Choice* 108: 259-272

Easterly, W., Levine, R. (2003). Tropics, germs, and crops: How endowments influence economic development. *Journal of Monetary Economics* 50: 3-39

Easterly, W., Rebelo, S. (1993). Fiscal policy and economic growth: An empirical investigation. *Journal of Monetary Economics* 32: 417-458

Fernandez, R., Levy, G. (2008). Diversity and redistribution. *Journal of Public Economics* 92: 925-943

Friedman, E., Johnson, S., Kaufmann, D., Zoido-Lobaton, P. (2000). Dodging the grabbing hand: The determinants of unofficial activity in 69 countries. *Journal of Public Economics* 76: 459-493

Gwartney, J., Lawson, R. (2005). *Economic freedom of the world: 2005 annual report*. Vancouver: The Fraser Institute.

Hall, R., Jones, C. (1999). Why do some countries produce so much more output per worker than others? *The Quarterly journal of Economics* 114: 83-116

Hasen, R. (2000). Vote buying. *California Law Review* 88: 1323-1371

Harms, P., Zink, S. (2003). Eating the rich vs. feeding the poor: Borrowing constraints and the reluctance to redistribute. *Public Choice* 116: 351-366

Kaufmann, D., Kraay, A., Mastruzzi, M., 2005. "Governance matters IV: Governance indicators for 1996-2004". World Bank

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W. (1999). The quality of government. *The Journal of Law, Economics, and Organization* 15: 222-279

Levy, G. (2005). The politics of public provision of education. *The Quarterly Journal of Economics* 120: 1507-1534

Lindbeck, A., Weibull, J. (1987). Balanced-budget redistribution as the outcome of political competition. *Public Choice* 52: 273-297

Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics* 110: 681-712

Meltzer, A.H., Richard, S. (1981). A rational theory of the size of government. *Journal of Political Economy* 89: 914-927

Merrifield, J. (2000). State government expenditure determinants and tax revenue determinants revisited. *Public Choice* 102: 25-50

Olken, B.A. (2006). Corruption and the costs of redistribution: Micro evidence from Indonesia. *Journal of Public Economics* 90: 853-870

Pande, R., Udry, C. (2005). Institutions and development: A view from below. Yale University Working Paper

Persson, T., Tabellini, G. (1999). The size and scope of government: Comparative politics with rational politicians. 1998 Alfred Marshall Lecture. *European Economic Review* 43: 699-735

Persson, T., Tabellini, G. (2000). *Political economics: Explaining economic policy*. MIT Press

Piketty, T. (1993). Income inequality in France, 1901-1998. *Journal of Political Economy* 111: 1004-1042

Piketty, T. (1995). Social mobility and redistributive politics. *The Quarterly Journal of Economics* 110: 551-584

Piketty, T., Qian, Q. (2009). Income inequality and progressive income taxation in China and India, 1986-2015. *American Economic Journal: Applied Economics* 1: 53-63

Piketty, T., Saez, E. (2006). The evolution of top incomes: A historical and international perspective. *American Economic Review* 96: 200-205

Ravallion, M., Lokshin, M. (2000). Who wants to redistribute? Russia's tunnel effect in the 1990s. *Journal of Public Economics* 76: 87-104

Roberts, K. (1977). Voting over income tax schedules. *Journal of Public Economics* 8: 329-340

Romer, T. (1975). Individual welfare, majority voting and the properties of a linear income tax. *Journal of Public Economics* 7: 163-168

Sanyal, A., Gang, I., Goswami, O. (2000). Corruption, tax evasion and the Laffer curve. *Public Choice* 105: 61-78

Svensson, J. (2005). Eight questions about corruption. *Journal of Economic Perspectives* 19: 19-42

Traxler, C. (2009). Voting over taxes; the case of tax evasion. *Public Choice* 140: 43-58

World Economic Forum (2004). *The global competitiveness report 2004-2005*

Table 1: Summary statistics

	CPI	***DIV***	***HER***	***FRA***	***LGDPPC***	***LPOP***	***ELF***	***ANT***	***LAT***
All countries									
Mean	5.73	5.13	33.53	36.81	3.41	7.10	0.35	0.43	0.28
Max	8.50	8.67	60.00	65.00	4.68	9.11	0.86	1.00	0.72
Min	0.30	0.67	12.00	12.00	2.05	5.45	0.00	0.07	0.01
St. deviation	2.30	2.33	9.78	10.76	0.68	0.69	0.30	0.26	0.19
No. of observations	118	82	118	85	118	118	92	92	92
Democracies									
Mean	5.33	5.11	34.15	36.26	3.53	7.03	0.30	0.43	0.30
Max	8.50	8.67	60.00	59.00	4.68	9.03	0.86	0.98	0.72
Min	0.30	0.67	13.00	12.00	2.22	5.45	0.00	0.07	0.01
St. deviation	2.37	2.37	9.29	9.75	0.69	0.71	0.28	0.26	0.20
No. of observations	89	72	89	71	89	89	67	67	67
Non-democracies									
Mean	6.95	5.28	31.64	39.57	3.02	7.31	0.47	0.44	0.20
Max	8.50	7.67	60.00	65.00	4.37	9.11	0.86	1.00	0.39
Min	0.70	1.17	12.00	13.00	2.05	6.14	0.00	0.07	0.01
St. deviation	1.52	2.11	11.13	15.03	0.48	0.60	0.31	0.26	0.14
No. of observations	29	10	29	14	29	29	25	25	25

CPI: Corruption Perceptions Index, DIV: Diversion of Public Funds Index, HER: Tax rates (Heritage Foundation), FRA: Tax rates (Fraser Institute), LGDPPC: Log GDP per capita, LPOP: Log population, ELF: Ethnolinguistic fractionalisation, ANT: State antiquity, LAT: Latitude

Table 2: Basic Regression Results

OLS estimation. Dependent variable: Top marginal income tax rates					
	1	**2**	**3**	**4**	**5**
Intercept	-24.1 (14.902)	3.849 (12.559)	-15.129 (15.083)	-13.655 (15.982)	-3.566 (12.047)
DEM	18.481 *** (4.897)	19.63 *** (5.266)	22.313 *** (6.773)	31.92 *** (5.181)	
DIV	1.681 (1.29)		2.168 (1.776)		-1.572 *** (0.411)
CPI		0.628 (0.93)		4.141 *** (1.306)	
*DIV*DEM*	-3.073 *** (1.142)		-4.142 ** (1.685)		
*CPI*DEM*		-2.82 *** (0.865)		-6.125 *** (1.166)	
LGDPPC	4.983 ** (1.955)	-0.286 (2.173)	4.871 *** (1.826)	4.43 * (2.627)	6.888 *** (1.354)
LPOP	4.097 *** (1.203)	3.324 *** (1.139)	2.993 *** (1.131)	1.662 (1.316)	3.175 *** (1.179)
R^2 *adj.*	0.346	0.205	0.405	0.400	0.567
N	82	118	82	85	72

*Robust standard errors in brackets. *, **, *** denotes significance at the 10%, 5%, 1% level respectively.*
DIV and CPI : corruption indices , DEM: democracy dummy, LGDPPC: log GDP per capita,LPOP: log population.

Table 3: Robustness checks

Dependent variable: Top marginal income tax rates

	IV **6**	***IV*** **7**	***OLS*** **8**	***OLS*** **9**	***OLS*** **10**	***OLS*** **11**
Intercept	2.66 (25.00)	-24.582 (21.046)	-25.06 (17.832)	-20.815 (17.564)	-26.375 * (14.072)	-8.49 (14.3)
DEM	37.972 *** (9.924)	21.028 *** (5.827)	18.956 *** (7.059)	-16.00 (10.723)	23.944 *** (5.166)	16.028 ** (7.641)
DIV		2.129 (1.586)	1.751 (1.44)	1.584 (1.561)	2.813 *** (0.823)	0.156 (1.095)
CPI	3.692 ** (1.641)					
*DIV*DEM*		-3.971 *** (1.214)	-3.143 ** (1.293)	-3.182 ** (1.567)	-4.257 *** (0.887)	-2.28 ** (1.145)
*CPI*DEM*	-6.146 *** (1.402)					
LGDPPC	-1.529 (3.812)	3.984 (3.932)	4.964 ** (1.988)	6.818 *** (1.374)	5.999 *** (1.312)	3.877 ** (1.87)
LPOP	1.829 (1.204)	4.578 *** (1.29)	4.155 *** (1.316)	3.396 *** (1.274)	3.402 *** (1.276)	3.595 *** (1.28)
OPEN			0.002 (0.019)			
DEBT				-0.000 (0.000)		
THRESHOLD					0.045 (0.092)	
R^2 *adj.*	0.274	0.47	0.337	0.451	0.518	0.409
N	92	64	82	72	64	82

*Robust standard errors in brackets. *, **, *** denotes significance at the 10%, 5%, 1% level respectively.*

OPEN: openness (exports plus imports, % of GDP), DEBT: central government debt, % of GNI, THRESHOLD: income above which top marginal tax rate applies, % of GDP per capita.

Table 4: First stage regression results (from specification 6)

Dependent variable: *CPI*			
	coefficient	*st. error*	*p-value*
Intercept	14.346	2.156	0.000
ELF	2.228	1.294	0.089
LAT	5.861	3.116	0.064
ANT	-3.912	1.341	0.005
R^2 *adj. = 0.77, N=92*			

ELF=ethnoliguistic fractionalisation; LAT=latitude: distance from the equator scaled between 0 and 1, ANT=state antiquity. The list of independent variables further includes DEM, LGDPPC, LPOP, and the interactions of the three instruments with the democracy dummy.

Sargan chi-square test of overidentifying restrictions= 7.81 (p=0.099)
Basmann chi-square test of overidentifying restrictions= 7.61 (p=0.11)

Figure 1

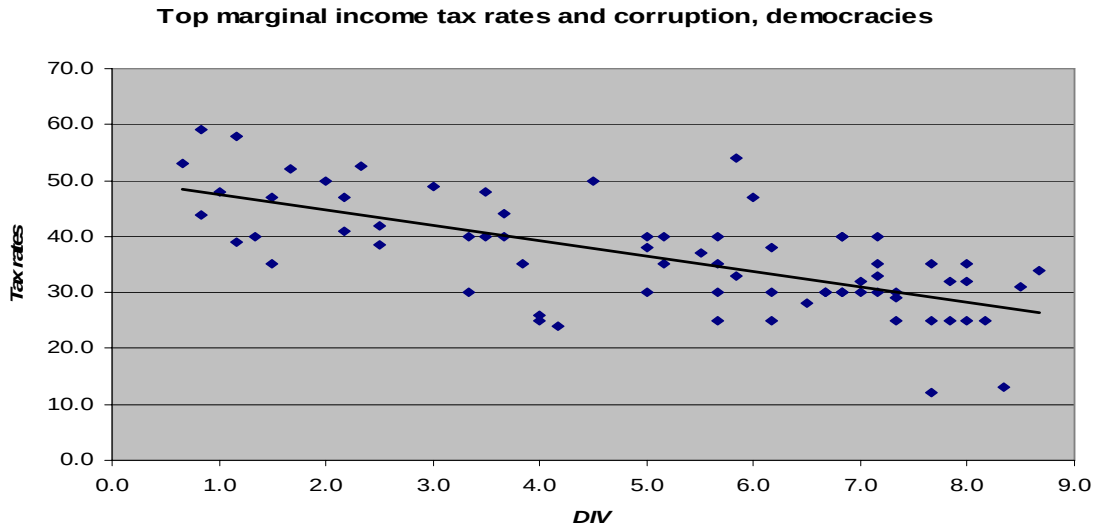
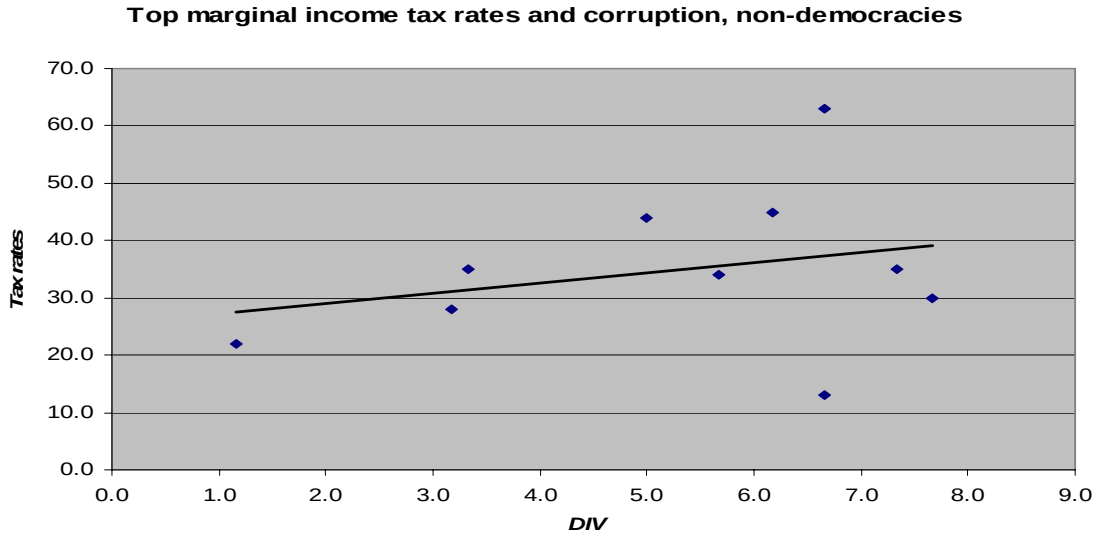


Figure 2



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How much income redistribution? An explanation based on vote-buying and corruption

Abstract

This paper studies how income tax rates are determined and how they are related to government corruption in the form of fund capture. A model is presented where rich voters can block redistribution by buying the votes of some poor voters. In equilibrium there is only limited redistribution and income tax rates are a negative function of government corruption. When rich voters can bribe the government, an additional equilibrium with zero taxation is possible. The link between corruption and tax rates is tested using cross country data; the empirical evidence is fully consistent with the predictions of the model.

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