Endogenous Constitutions

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Abstract

We present a theory of the choice of alternative democratic constitutions, a majoritarian or a consensual one, in an unequal society. A majoritarian democracy redistributes resources from the collectivity toward relatively few people, and has a relatively small government and low level of taxation. A consensual democracy redistributes resources toward a broader spectrum of social groups but also has a larger government and a higher level of taxation. We show that a consensual system turns out to be preferred by society when *ex ante* income inequality is relatively low, while a majoritarian system is chosen when income inequality is relatively high. We also obtain that consensual democracies should be expected to be ruled more often by center-left coalitions while the right should have an advantage in majoritarian constitutions. The implications for the relationship between inequality and redistribution are discussed. Historical evidence and a cross-sectional analysis support our results.

Keywords: Endogenous Constitutions, Consensual Democracy, Majoritarian Democracy, Inequality, Redistribution.

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1 Introduction

Democracy is defined as the "government of the people." As Arend Lijphart stresses (e.g. Lijphart, 1999), however, this expression can be understood in two fundamentally different senses, which correspond to the two kinds of democratic political regimes actually observed around the world. "The people" can be taken to mean "the majority of the people" or, alternatively, "as many people as possible." The first sense corresponds, in Lijphart's terminology, to the model of *majoritarian* democracy (or *Westminster* model), where political power tends to be concentrated in the hands of a limited number of individuals, and the second sense to the model of *consensual* democracy, where political power is instead widely shared and dispersed.

Whereas the institutional architectures of the two democratic models differ along several dimensions, perhaps their single most important distinctive feature is the electoral system. Majoritarian democracies are characterized by a majoritarian ("plurality rule" or "first-past-the-post") electoral system, consensual democracies by a proportional one. Moreover, in terms of the executive-legislative relations, the majoritarian model is characterized by the dominance of the former, and the consensual model by a more balanced distribution of power between the two political bodies.

A typical example of majoritarian democracy is that observed in the U.K. and other Commonwealth countries, which combine a majoritarian electoral law and a parliamentary form of government, leading to a substantial concentration of power in the hands of the prime minister. A majoritarian electoral law typically leads to the formation of a two party system. Moreover, the leader of the largest party is also the head of the government. Vice versa, the combination of a proportional electoral law and of a parliamentary government normally observed in Continental Europe (with the significant exception of France), is a "potent impetus toward consensus democracy" (Lijphart, 1999 p. 303). In fact, a proportional electoral law favors the formation of both a multi-party system and of coalition governments leading to the representation of diverse social interests.

The role of key constitutional norms in shaping fiscal policy outcomes in representative democracies has been emphasized widely in the political economics literature. Important examples include an earlier contribution of Myerson (1993), as well as the more recent ones of Persson, Roland and Tabellini (1997, 2000), Persson and Tabellini (2000), Austen-Smith

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(2000), Lizzeri and Persico (2001) and Milesi-Ferretti, Perotti and Rostagno (2002). All these papers study the effects of constitutional provisions on some fiscal policy outcomes, but are all based on the premise of taking political institutions as given.

In this paper we attempt instead to provide an economic theory of the choice of a democratic constitution on the base of one primitive fundamental: the (pre-tax) distribution of income within a society. Our main result is that a majoritarian constitution is more likely to be chosen when the degree of income inequality is relatively high, while consensual democracy is more likely to arise in relatively homogeneous societies.[1]

We present a simple public finance model where fiscal policy is about the provision of some public goods, financed with proportional taxation of income. The public goods considered are local, or group-specific, in the sense that each of them is desired by one and only one of the three social groups (or "classes") which compose the society and that are identified by their level of pre-tax income: the poor, the middle class and the rich. We go on by characterizing the political equilibrium of the model in a majoritarian and in a consensual democracy respectively. A key assumption that we maintain in each constitutional environment is that politicians are citizen-candidates who have a direct interest in the policy implemented and cannot credibly commit to implement any policy different from their preferred one.

We assume that fiscal policy in a majoritarian democracy is decided by a "leader" elected directly by the people through a majority voting process. We demonstrate that in equilibrium the winner is always a rich citizen-candidate as the rich enjoy a natural advantage over the other two classes, arising from the interaction of their relative fiscal conservatism and the majoritarian electoral law, and conclude that the structure of majoritarian democracy biases policy outcomes in favor of this group.

In a consensual democracy fiscal policy is decided by a coalition government formed as the outcome of some legislative bargaining process among the members of a parliament elected with a proportional electoral law. We show that the government coalition depends on the distribution of income. According to our model, in a consensual democracy a middle class and rich (middle class and poor), or center-right (center-left), government coalition is more likely to be formed when the distribution of income is more (less) polarized. We show that

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[1]The focus on the distribution of income is motivated by the insights provided by the positive political economics theory of taxation and redistribution in democracies (e.g. Meltzer and Richard, 1981), which stresses the importance of this variable in shaping fiscal policy outcomes when individual preferences are aggregated directly by majority voting.

taxation and the size of government in a consensual democracy under a center-left coalition are higher than under a center-right one. Moreover, taxation and the size of government are generally higher in a consensual than in a majoritarian democracy.

Finally, we evaluate from the point of view of the different groups of citizens the welfare implications of the two types of political institutions, and we let individuals vote in an "original position" in the absence of any veil of ignorance on which constitution to adopt. We find that a society with high income inequality prefers a majoritarian constitution while consensual democracy is preferred when inequality is lower.

We go on to discuss historical evidence supporting our claim that the key constitutional principles should be interpreted from an economic perspective, namely as reflecting the interests of particular social groups or classes as opposed to the "public good", as well as our key result of the importance of income inequality for institutional choice. For example, we provide evidence that the constitution of the U.S. has been drafted to reflect essentially the interests of the economic elite of the time, and something similar happened in other majoritarian democracies as diverse as the U.K. and Chile. We show that, consistent with the predictions of our model, consensual constitutions have been chosen by several Continental European countries when income inequality in these societies was relatively low and the political voice of the masses was loud. We also present the results of a cross-sectional analysis in a sample of 57 democracies and in a sub-sample of 31 parliamentary democracies. We use the income inequality at the time of (or before) the adoption of the constitution to avoid problems of endogeneity and find that, as predicted by our theory, the degree of inequality is a highly significant determinant of constitutional choice.

The model has also some other important general implications concerning politico-economic outcomes in representative democracies. A first result, corroborated by the existing empirical evidence, is that taxation and the overall size of government in consensual democracies are higher than in majoritarian ones. However, in our model, this is due to a *selection bias* in the composition of the government coalition. Consensual democracies should be expected to be ruled relatively often by center-left coalitions, more willing to tax and redistribute income, while the more fiscally conservative right should have an advantage in majoritarian constitutions. Finally, our constitution selection theory may shed some light on the relationship between inequality and redistribution, suggesting that the former not only affects fiscal policy (in a nonlinear way) for a given constitution, but it also influences the choice of the

constitution itself. As a result, the relationship between income inequality and redistribution may well be absent or negative.

Our paper is related to a recent literature that investigates, from different perspectives, the endogenous choice of various political institutions. For example, Acemoglu and Robinson (2000) have recently explained the transition from oligarchy to democracy as a strategy pursued by the elites to commit to redistribution to the poor in order to prevent social unrest. Aghion and Bolton (2003) deal with the normative issue of the choice of an optimal majority rule in an incomplete contracting framework. Aghion, Alesina and Trebbi (2004) analyze the optimal degree of "insulation" of policy-makers. Other contributions along these lines include Barbera and Jackson (2004) and Messner and Polborn (2004).

The paper is organized as follows. Section 2 describes the basic economic setting and the public finance problem we focus on. Sections 3 and 4 present the political equilibrium of the model in majoritarian and consensual democracy respectively. Section 5 characterizes the properties of the political equilibrium within and across constitutions. Section 6 deals with the key issue of the endogeneity of the constitution and its relation with the distribution of income. Section 7 presents historical evidence supporting our theory. Section 8 shows the results of our cross-sectional analysis on the relationship between income inequality and constitutional choice. In Section 9, we discuss some empirical studies on the fiscal policy outcomes across constitutions from the perspective of our model. Section 10 concludes.

2   A Simple Model of Public Finance: Basic Setup

We consider a simple model of "local" (that is, group specific) public goods provision based on Persson and Tabellini (2000 ch. 7). A society is made up by $N > 1$ groups of individuals. For convenience, we focus on the case where $N = 3$. Group $j \in \Im \equiv \{p, b, r\}$ has size (measure) m^j and each individual of that group has an exogenous pre-tax income equal to y^j. Total population is made by a continuum of unitary measure $\sum_{j \in \Im} m^j = 1$ and with no loss of generality we assume that $\max\{m^p, m^r\} < m^b < \frac{1}{2}$, that $m^i + m^l > \frac{1}{2}$, $\forall (i, l) \subset \wp(\Im)$, the set of all subsets of $\Im$, and that $y^p < y^b < y^r$. This means that group b is the largest one and has an intermediate level of income, so that it is natural to identify it with the "middle class." Group p and group r correspond vice-versa to the "poor" and to the "rich" people. The absolute majority of votes is reached by the combination of any pair of groups.

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Notice also that the above assumptions are sufficient to ensure that the voter with median income (i.e. the median voter if preferences are single-crossing in income) belongs to group b. Finally, we assume that $y^b < \overline{y} \equiv \sum_{j \in \Im} m^j y^j$: the voter with median income is poorer then the (virtual) mean voter, which means that the distribution of income is skewed to the left consistently with the empirical evidence.

We assume that the utility function of each member of group j has the following quasi-linear form

$$(1) \qquad\qquad w^j = c^j + H(g^j)$$

where c^j denotes the consumption of a private good and g^j the level of the type j public good provided. $H(\cdot)$ is a smooth, increasing and concave function and satisfies the Inada conditions.[2] We also assume that $H(0) = 0$. The Inada conditions guarantee that at the optimum each group will always strictly prefer to have some taxation and some provision of its desired public good to the alternative of no taxation and no public good. All the above properties are satisfied by the constant elasticity functional form $H(g^j) = A(g^j)^\alpha$, where A is a constant and $\alpha \in (0, 1)$. At some point we will use such preference specification to obtain some analytical and numerical results.[3]

Each group is perfectly homogeneous. Heterogeneity is only between groups and is related to the differences in the pre-tax income level and to group-specific preferences on the public good to be provided. The specification of preferences in equation (1) implies that each group values one particular public good only (that is, it gets no utility from the provision of any other public good) and there are as many kinds of public goods as the groups of people. One could think to them as pure Samuelsonian (non rival and non excludable) public goods or as publicly provided private goods, like education, health and housing. The first interpretation corresponds somehow to the extreme case of the existence of three pure public goods, on which the different groups of individuals have different preferences. The second interpretation may capture the fact that a significant part of government expenditure is about the provision of private goods and that different income groups may have very different preferences on

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[2] This means that $H_g(\cdot) > 0$, $H_{gg}(\cdot) < 0$ and $\lim_{g^j \to 0} H_g(g^j) = \infty$.

[3] The quasi-linearity assumption simplifies the analysis but it is not essential. As it will be clear later, what is essential is a preferences specification generating a negative association between the income level and the desired tax rate.

them.[4] For example, Besley and Coate (1991) show that, allowing for different quality levels of the public goods, a *de jure* universal provision scheme does not imply that it is *de facto* universal and explain why some publicly provided private goods like health care may go to the advantage of the poor and not to the rich. Fernandez and Rogerson (1995) discuss the case of higher education and emphasize how the public provision of it can benefit higher-income individuals at the expense of the poor.[5] However, the important feature of our redistribution scheme is the possibility of targeting the benefit of the redistribution toward specific social groups.

Income is taxed at a proportional rate $\tau \in [0, 1]$ that will be determined later as a part of the political equilibrium of the model. Therefore, the budget constraint of the agents of group j is simply $c^j = (1 - \tau) y^j$. We also assume that the government can finance public expenditures only out of the revenues generated by income taxation. In equilibrium, g^j is positive only when group j is part of the government. If we incorporate this result in the public sector budget constraint, the latter can be rewritten as $\sum_{j \in \Omega} g^j \leqslant \tau \sum_{j \in \Im} m^j y^j = \tau \overline{y}$, where $\Omega \equiv \{ j \in \Im : j \text{ is part of the government} \} \subseteq \wp(\Im)$.

In the next two Sections, we derive and characterize the political equilibrium of our model, namely the tax rate τ, the overall level of public expenditure and its composition $G \equiv (g^p, g^b, g^r)$, in the case of both a majoritarian constitution and a consensual one. Since the constitution is at this stage still taken as given, these equilibria can be considered as partial political equilibria. Then, we characterize the general political equilibrium where the constitution will be itself endogenous and chosen by the society.

We assume that voting is sincere in any constitutional environment[6] and model the political process going on within a majoritarian or a consensual democracy drawing on the citizen-candidate apparatus of Osborne and Slivinsky (1996) and Besley and Coate (1997).[7]

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[4]In our formulation the public good's per capita consumption of the group does not depend on the size of the group and this might not be always the case if we refer to the provision of private goods. However, one might think that the provision of such goods implies primarily a fixed cost and a low (at the extreme zero) variable cost.

[5]In other words, the specification of preferences in equation (1) could also be interpreted as a reduced form of a more general model where some form of group-specific heterogeneity in preferences regarding the provisions of different public goods arises as an equilibrium outcome, rather than by assumption, as it does in our model.

[6]The sincere voting assumption can be justified in game-theoretic terms by noticing that each individual regards himself as an atomistic subject and therefore considers his vote irrelevant in determining the outcome of the elections.

[7]Osborne and Slivinsky (1996) assume sincere voting while in Besley and Coate (1997) individuals are strategic. In this sense our model is closer to the first one.

We adopt a model of endogenous political candidacy since we want to emphasize the link existing between individual preferences (of citizens as well as of politicians) and individual income. Moreover, a key advantage of this model is to allow for the existence of an equilibrium even when individual preferences fail to be single-peaked.[8]

3 Majoritarian Democracy

We assume that in a majoritarian democracy fiscal policy is decided by a "leader" elected directly by the people through a majority voting process among the menu of citizen-candidates participating to the election. With this assumption, we mean to capture the winner-takes-all nature of political competition going on within a majoritarian democracy, as well as the dominance of the executive power over the legislature, with a modelling framework as simple as possible.[9] A first interpretation of the model is that of a parliamentary democracy with a majoritarian electoral rule. Indeed, if we had assumed the existence of a parliament whose members are elected in single-candidate districts (as in the U.K.), such that the distribution of agents across them is roughly the same as the overall distribution, we would have obtained the same political equilibrium. The model can also be interpreted as a presidential regime with a legislative assembly elected with a majoritarian electoral law (as U.S.). In this case, the two political bodies should be expected to have roughly the same preferences on fiscal matters as they are elected with the same rule, so that independently on the relative power of the two bodies these democracies are clearly majoritarian. The power of the president relatively to that of the legislative assembly is important when the latter is elected with PR, which is generally the case in Latin American countries. These countries are generally characterized by a relatively powerful president that plays a very important role in the legislative process and that is often also in a dominant position with respect to the legislature.

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[8]This is a potentially serious problem in our model since the policy space, namely the set $\left\{ (\tau, G) \in [0,1] \times \Re_+^3 : \sum_{j \in \Omega} g^j \leqslant \tau \overline{y} \right\}$, is not unidimensional and it is well known that political equilibria based on simple majority voting may fail to exist when the social choice process has a multidimensional object. The citizen-candidate model allows us to avoid the problem of non-existence of an equilibrium. At the same time, we are able to show that the main drawback of it, namely the generic multiplicity of political equilibria, is not an issue in our economy.

[9]Our characterization of majoritarian democracy may appear as too stylized if referred to the American political system, of which it misses important features as the possibility of observing a "divided government" (e.g. Alesina and Rosenthal, 1996), judicial review and the whole system of checks and balances contemplated by the constitution. A similar assumption is made in Austen-Smith (2000). However, in our view, the main results of the model should be independent from this omission.

Therefore, such countries are examples of majoritarian democracies.[10]

The menu of candidates is endogenous and one individual runs for office if and only if, in equilibrium, the net gain of doing so (the difference between the utility he gets if does-does not run) exceeds the exogenous cost of running. The winner of the election is the candidate gaining the plurality of votes and he alone decides on fiscal policy.

To characterize the political equilibrium under a majoritarian constitution, it is useful to start from the benchmark case of the unconstrained preferred policy of each social group. Then, suppose that a member of group j (which one is irrelevant given the assumption of perfect within group homogeneity) could act as a dictator and implement his preferred policy ("dictatorial policy"). It is clear that he would not spend anything in any public good other than his preferred one, so that $g^i = 0$, $i \neq j$ and $g^j = \tau \overline{y}$. Hence, he would maximize the following utility $w^j = (1 - \tau) y^j + H(\tau \overline{y})$. The (unique) optimal dictatorial tax rate of group j that solves this problem is[11]

$$(2) \qquad \qquad \tau^j = \frac{H_g^{-1}(y^j / \overline{y})}{\overline{y}}.$$

It is straightforward to verify that $\frac{\partial \tau^j}{\partial y^j} < 0$. The richer is a group j member (for a given mean level of income), the higher is the marginal cost of public good provision he faces and the lower is his demand for his preferred public good. Hence, the dictatorial tax rates for the three groups can be ordered as: $\tau^r < \tau^b < \tau^p$.

No commitment technology is assumed to be available, and therefore candidates cannot announce credibly before the election to pursue, if elected, any policy different from their preferred one. This means that in a majoritarian democracy the menu of possible policies is included in the set $\{(\tau^j, G^j)\}_{j \in \Im} \subset \{[0,1] \times \Re_+^3 \times \Omega\}$, where τ^j is defined as in (2), $G^j = (e^j)g^j$, e^j denotes the jth element of the canonical base spanning $\Re_+^3$, and $g^j = \tau^j \overline{y}$. Let k denote some private benefit of being in office, which is either a psychological benefit or a

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[10]Lijphart (1999) and Linz (1994) argue that presidential government as such is inherently an expression of majoritarian democracy as presidential elections are winner-takes-all in nature and all the executive power is concentrated in the hands of one single person (see Shugart and Carey, 1992, for a discussion on this point). In an extension of our model (available from the authors), we show that essentially the same political equilibrium carries over in an institutional environment where the president has relatively large legislative power and the assembly is elected with PR. We therefore conclude that what matters for fiscal policy outcomes in presidential regimes with PR is the electoral law of the president.

[11]It is immediate to verify that the second order condition is satisfied. The Inada conditions imposed on $H(\cdot)$ imply that the tax rate is always strictly positive.

non-taxed monetary income, and ε be the cost of running. Both are exogenous and equal for everybody with $k \geqslant \varepsilon$. Now, we can state the main result of this Section.

Proposition 1. *The model has a unique political equilibrium with the following features. Only rich citizen-candidates run for office, only the public good preferred by the rich is provided and the dictatorial tax rate of the rich τ^r is implemented.*

Proof. See Appendix.■

Notice that four elements of the model are important for the results of Proposition 1. First, no one group has the majority of the votes alone. Second, the utility function is chosen in such a way that the rich, as dictator, is the group that prefers the lowest taxes. Third, the winner-takes-all nature of the electoral process: in two-candidate contests between the rich and another group, the rich always win since they prefer less taxation.[12] Fourth, if a group expects to lose an election, no candidate is forthcoming.

4 Consensual Democracy

In a consensual democracy voters do not elect a leader directly but rather elect their representatives to the parliament. We assume the existence of a parliament composed by a continuum of measure $\rho \in (0,1)$ of members which are elected with a pure proportional electoral rule in a single nation-wide electoral district. The government is formed as the outcome of a process of legislative bargaining among the representatives of the different groups and it expresses a certain parliamentary majority.[13] We also assume that the plurality of parliamentary votes is sufficient to form a government.

The policy formation process corresponds to the following three-stages game: 1) the entry of candidates stage; 2) the voting stage; 3) the legislative bargaining stage.

Assuming that there are three groups in the parliament and that no group has the absolute majority of parliamentary members (which will be the case in equilibrium), events

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[12]This implies that, *off-equilibrium*, it is possible to observe an "extreme coalition" made up by the rich and the poor. As it is clear from the proof of Proposition 1, in case there is a rich and a middle class candidate, the poor prefer to vote for the rich since the latter's fiscal conservatism is the best alternative they have.

[13]In modelling the legislative bargaining process taking place in a consensual democracy, we partly draw on the agenda-setting model of Romer and Rosenthal (1979), as well as on the model of legislative decision making in a three-party proportional representation system offered by Austen-Smith and Banks (1988).

take place at the legislative bargaining stage according to the following protocol.

- *Round 1 of the bargaining game*: the head of the representatives (appointed at random) of the group having the relative majority of seats in the parliament is called to make a policy proposal to the head of the representatives of another group of his choice. Given that "buying" votes is costly, only two groups coalitions will be observed and a version of Riker's minimum size coalition principle will apply.

- If the proposal is accepted, the government coalition is formed and the agreed policy is implemented.

- *Round 2 of the bargaining game*: if the proposal is not approved, a second agenda setter is appointed randomly by nature between the representatives of the two groups of which no member was agenda setter at round 1. More precisely, a member of either of these groups is appointed as agenda setter at round 2 with probability equal to the share of the parliamentary seats of his group, relative to the total number of seats of the two groups. Then, the second agenda setter has the opportunity to form a government and formulates a coalition proposal to another group of his choice.

- If no proposal is approved at round 2, the game ends and the *status quo* policy is implemented. We assume that the *status quo* policy corresponds to no taxation and no public goods provision.

Notice that our modelling of the policy making process in a consensual democracy is innovative in at least two dimensions. First, we study a legislative bargaining process between citizen-candidates representatives. Second, we analyze how the distribution of income shapes fiscal policy outcomes through the non-standard channel of the bargaining power of the different classes, which is endogenous and turns out to depend on the income distribution itself.

4.1   Entry of Candidates, Voting and Bargaining

The equilibrium of the policy formation game must be sequentially rational, which means that the Nash equilibrium at each stage of the game must rationally anticipate its subsequent equilibrium path.

The assumption of sincere voting and the citizen-candidate structure imply that each individual will simply vote for a candidate from his own social group. This fact and the proportionality of the electoral law imply that group j elects a total of ρm^j representatives.[14] That is, the parliament is a mirror-image of society in the sense that the distribution of seats across the three groups exactly reflects the distribution of the population across these groups.

The agenda setter at round 1 is a representative of the middle-class, which (being the largest class) has the largest number of seats in the parliament. Moreover, if the middle class fails to form a government, the second agenda setter is appointed randomly by nature and chosen between the representatives of the poor and the rich. By assumption, the probability that a poor (rich) will be the agenda setter at the second round (conditional of the game reaching it) is equal to the share of the seats of the poor (rich) of the combined number of seats of the poor and of the rich. Hence, $\phi = \frac{\rho m^p}{\rho m^p + \rho m^r} = \frac{m^p}{m^p + m^r}$ is the probability that a poor is appointed as agenda setter at round 2.

It is clear that ϕ can be interpreted as an index of the bargaining power of the poor: the higher is the number of the poor m^p, the higher is ϕ, the higher is the probability that the poor are agenda setter at the second round, the higher is their expected utility at that stage of the game, and therefore the higher will be the public good that the middle class agenda setter (at round 1) provides them for any given level of taxation so to accept her government coalition proposal. Moreover, as we will show later, ϕ is also a measure of income inequality: other things equal, a higher ϕ corresponds to a more unequal income distribution.[15]

The legislative bargaining game has a unique (subgame-perfect) Nash equilibrium. The first agenda setter (from the middle class) formulates a coalition formation proposal based on a fiscal policy program to another group only, given that no more than that is needed to reach a parliamentary majority. The coalition formation offer leaves the group receiving it indifferent between accepting and rejecting it and the offer is accepted. Therefore, the question we need to answer is: which group (among the poor and the rich) is the cheapest to buy? To answer this question, we first solve our bargaining game by backward induction starting from the second round.

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[14]It is straightforward to verify that the supply of candidates from each group is not lower than ρm^j. Since the parliament is large, the policy outcome does not depend on whether any individual does or does not run for office. Therefore, a citizen-candidate of group j runs for office if and only if $pk \geqslant \varepsilon$, where p is the probability of being elected, pinned down at $p = \frac{\varepsilon}{k} \in (0, 1]$ by the assumption of free entry of candidates.

[15]Finally notice that the probability $\phi \in (0, 1)$ because m^p and m^r are always positive. However, in the analysis presented below we also consider the limit cases where $\phi = 0$ and $\phi = 1$ because they allows us to define the tax rates and utilities in the closed interval $[0, 1]$.

We denote the group of the agenda setter with h, the other group part of the government with l and the stage of the game with s. Therefore, $\tau_{s,h,l}$ is the tax rate proposed to group l by the agenda setter h at round s of the game. The correspondent level of public good received by the group i will be $g^i_{s,h,l}$. Similarly, the level of utility of the group i is $w^i_{s,h,l}$.

4.1.1 Round 2 of the Bargaining Game

Lemma 1. *At round 2 of the bargaining game, the poor are always part of the government coalition; the middle class is so only if the agenda setter is a poor and the rich only if the agenda setter is a rich.*

Proof. At round 2, the outside option of each group is its *status quo* utility, i.e. its gross income. Since the agenda setter optimizes giving to the coalition partner what is strictly necessary to induce it to accept the policy proposed, the policy menu $(\tau_{2,h,l}, g^l_{s,h,l})$ offered from the agenda setter h to group l satisfies the condition $(1 - \tau_{2,h,l}) y^l + H(g^l_{2,h,l}) = y^l$. Consider the schedule $g^l_{2,h,l} \equiv g^l_{2,h,l}(\tau_{2,h,l}; y^l)$ defined implicitly by this equation. Holding constant $\tau_{2,h,l}$, this schedule is such that $\frac{\partial g^l_{2,h,l}}{\partial y^l} = \frac{\tau_{2,h,l}}{H_g(g^l_{2,h,l})} > 0$. This means that the richer is a group, the more it has to be compensated in terms of public good provision for any level of taxation. Thus, if the rich is appointed agenda setter at the second round, he will always prefer the poor to the middle class as coalition partner. Alternatively, if the second round agenda setter is poor, the middle class will be cheaper to buy than the rich.∎

Therefore, if at round 2 the agenda setter is a rich, then by Lemma 1 the poor will be the coalition partner. The substitution of the equilibrium government budget constraint $(\tau_{2,r,p}\overline{y} = g^p_{2,r,p} + g^r_{2,r,p})$ in the utility function of the rich implies that their maximization problem is

$$(3) \qquad \max_{\{\tau_{2,r,p}\}} w^r_{2,r,p} = (1 - \tau_{2,r,p}) y^r + H(\tau_{2,r,p}\overline{y} - g^p_{2,r,p})$$

subject to the participation constrain of the poor $(1 - \tau_{2,r,p}) y^p + H(g^p_{2,r,p}) = y^p$. If at round 2 the agenda setter is a poor, he makes a coalition with the middle class and the maximization problem is derived in a similar way.

4.1.2 Round 1 of the Bargaining Game

While the poor are always part of the government coalition if the game reaches round 2 (an off-equilibrium event), this does not need be the case at round 1. At this stage of the game, the middle class agenda setter will form the government coalition with the group that allows her to reach the highest level of utility from the implemented policy. This policy will be such to leave the group receiving the offer just indifferent between accepting it and going to the second round. As we will see, the expected utility of each group at round 2 depends positively on its probability of being agenda setter at that stage. Hence, the higher is the probability ϕ of the poor of being agenda setter at round 2, the higher is their expected utility at this stage of the game, the more costly is for the middle class to buy their vote at round 1, and therefore the less likely is that they are part of the government coalition. In what follows, we will establish a global result which identifies the winning coalition in terms of a critical value of ϕ. To proceed in this direction, we first define the maximization problems of the middle class under the two possible coalitions.

If the government coalition is made up by the middle class and the rich, the participation constraint of the rich at round 1 is

$$(4) \qquad (1 - \tau_{1,b,r})\, y^r + H(g^r_{1,b,r}) \geqslant (1 - \phi) \left[(1 - \tau_{2,r,p})\, y^r + H(g^r_{2,r,p}) \right] + \phi \left(1 - \tau_{2,p,b} \right) y^r.$$

The left hand side of (4) represents the utility of the rich if the middle class' policy proposal at round 1 is implemented, while the right hand side is their expected utility conditional on the game reaching round 2.

Substituting the equilibrium government budget constraint $(\tau_{1,b,r}\,\overline{y} = g^b_{1,b,r} + g^r_{1,b,r})$ in the utility function of the middle class, their maximization problem becomes

$$(5) \qquad \max_{\{\tau_{1,b,r}\}} w^b_{1,b,r} = (1 - \tau_{1,b,r})y^b + H(\tau_{1,b,r}\,\overline{y} - g^r_{1,b,r})$$

subject to the participation constraint of the rich (4). This constraint may not be always binding however. This is the case when the dictatorial policy of the middle class gives to the rich a higher utility than their expected utility at round 2. In this situation the consensual democracy equilibrium is equivalent to the dictatorship of the middle class which obtains

the maximum level of utility by implementing her unconstrained preferred policy.[16] When the participation constraint of the rich is binding, the first order condition relative to the maximization problem (5) is

$$(6) \qquad y^b = H_g(\tau_{1,b,r}\overline{y} - g^r_{1,b,r})\left(\overline{y} - \frac{y^r}{H_g(g^r_{1,b,r})}\right)$$

and this equation allows us to get $\tau_{1,b,r}$ and $g^r_{1,b,r}$ if combined with equation (4). Then, $g^b_{1,b,r}$ is obtained from the government budget constraint.

If the coalition government is made up by the middle class and the poor, the participation constraint of the poor at round 1 is

$$(7) \qquad (1 - \tau_{1,b,p})\,y^p + H(g^p_{1,b,p}) \geqslant (1 - \phi)\,y^p + \phi\left[(1 - \tau_{2,p,b})\,y^p + H(g^p_{2,p,b})\right].$$

The left hand side of (7) is the utility of the poor at round 1 if the middle class' policy proposal is implemented, while the right hand side corresponds to their expected utility if the game reaches the second round. This participation constraint is always binding (if $y^p > 0$), and therefore hold with the equality sign, because the expected utility of the poor at round 2 is at least equal to their level of income (i.e. what they get if the *status quo* policy is implemented) given that they are always part of the government coalition at this stage.

The substitution of the equilibrium government budget constraint $(\tau_{1,b,p}\overline{y} = g^b_{1,b,p} + g^p_{1,b,p})$ in the utility function of the middle class implies that their maximization problem can be written as

$$(8) \qquad \max_{\{\tau_{1,b,p}\}} w^b_{1,b,p} = \left(1 - \tau_{1,b,p}\right) y^b + H(\tau_{1,b,p}\overline{y} - g^p_{1,b,p})$$

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[16]From an inspection of (4), it is immediate to verify that this is always the case whenever, as ϕ approaches one, the middle class dictatorial tax rate τ^b is lower than $\tau_{2,p,b}$. For example, it is easy to prove analytically that $\tau^b < \tau_{2,p,b}$ at $\phi = 1$ if $y^p = 0$. Indeed, under these conditions $\tau_{2,p,b}$ is defined by the equation $\frac{y^b}{H_g(\tau_{2,p,b}y^b)} = \overline{y}$ and the dictatorial tax rate of the middle class by $\frac{y^b}{H_g(\tau^b\overline{y})} = \overline{y}$, which imply that $\tau_{2,p,b}y^b = \tau^b\overline{y}$. From $y^b < \overline{y}$ follows that $\tau^b < \tau_{2,p,b}$. Our numerical simulations, that we discuss in the next Section, show that this result also holds for values of ϕ different from one or when the income of the poor is positive. Clearly, the lower is the income of the poor and the higher is $\tau_{2,p,b}$, which in turn makes more likely that the participation constraint of the rich is not binding.

subject to the participation constraint of the poor (7). The first order condition of this problem reads

$$(9) \qquad y^b = H_g(\tau_{1,b,p}\overline{y} - g^p_{1,b,p}) \left(\overline{y} - \frac{y^p}{H_g\left(g^p_{1,b,p}\right)} \right).$$

From (9) and (7) we obtain $\tau_{1,b,p}$ and $g^p_{1,b,p}$, while $g^b_{1,b,p}$ is derived from the government budget constraint.

The next Proposition characterizes the outcome of the coalition formation process at the first round of the legislative bargaining game.

> **Proposition 2.** *There exists a threshold value of ϕ, $\phi^* \in (0,1)$ such that*
>
> *(i) if $\phi < \phi^*$, the government coalition is made by the middle class and by the poor;*
>
> *(ii) if $\phi > \phi^*$, the government coalition is made by the middle class and by the rich.*
>
> **Proof.** See Appendix.∎

The intuition for this result is straightforward. When ϕ is relatively low ($\phi < \phi^*$), the probability that the poor are agenda setter at round 2 is also low, and so is their expected utility at the second round. This means that their vote is relatively cheap to buy at round 1. On the other hand, when ϕ is relatively small, $1 - \phi$ is relatively high, and so is the probability of the rich of being agenda setter at round 2, which in turn implies that their expected utility at the second round is high and their vote is costly to buy at round 1. Therefore, there exists a level of ϕ sufficiently small that the middle class prefers to make a government coalition with poor because their vote is cheaper to buy (than that of the rich). Clearly, the opposite is true when ϕ is relatively high ($\phi > \phi^*$). At the threshold ϕ^*, the middle class is just indifferent between forming a coalition with the rich or with the poor.[17]

It is worth noting that this result is independent on the *status quo* policy assumed. It is clear that changing the *status quo* may imply a variation in the government coalitions

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[17]The result in Proposition 2 can be regarded as an application of the general principle by which, in coalition formation games, it can be in fact advantageous to be in a relatively weak bargaining position as that increases the likelihood of becoming a member of the coalition. This is much to the contrary of what happens in a Nash bargaining process, where a lower bargaining power only reduces the share of the surplus of which one can appropriate.

observed at round 2 with the poor not being always the cheapest to buy. However, what is key for our results is that the expected utility of poor and rich at round 2 is increasing in their probability of being agenda setter at that stage of the game. And this is always the case because the utility of any group (poor or rich) when it is agenda setter is higher than when it is not (independently that it belongs or not to the ruling coalition). The *status quo* may affect the absolute level of the expected utility of each class at round 2 for a given level of ϕ and, therefore, the level of the threshold ϕ^*. However, the middle class will prefer the poor to the rich when ϕ is lower than this threshold, and vice versa.

5 The Size of Government Across Constitutions and Coalitions

While the tax rate chosen under a majoritarian constitution is only a function of the income of the rich (relative to the average one), the tax rate in a consensual democracy under the two possible coalitions is a function of the income distribution, i.e. of both the incomes of the classes $(y^p, y^b, \overline{y}, y^r)$ and the value of ϕ. A comparison of these tax rates is not straightforward due to the strong non-linearity present in the first order conditions defining them. However, by making some assumptions on the levels of income of the classes and the utility function of the individuals we can state the results presented and discussed below. First, we assume a power function specification for the utility derived from the public good: $H(g^j) = A(g^j)^\alpha$, with $\alpha \in (0,1)$ and $A > 0$.

Result 1. *If the income of the poor is equal to zero and the income of the rich is sufficiently high relative to the average income, then the level of taxation and public expenditure (and the size of government) obtaining in a consensual democracy under a government coalition made by the middle class and the poor is always higher than that obtaining under a middle class and rich coalition, which in turn is higher than the taxation and public expenditure obtaining in a majoritarian democracy. In other words, for all values of ϕ the following inequalities hold: $\tau^r < \tau_{1,b,r} < \tau_{1,b,p}$.*[18]

Proof. See Appendix.■

Without the above assumptions it is not possible to derive further analytical results and,

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[18]A graphical representation of the tax rates is provided in Figure 1.

therefore, we have run several numerical simulations. The simulations show that the two assumptions on the income of the poor and the rich, which guarantee that Result 1 holds and can be proved analytically, are not necessary. Nevertheless, these assumptions provide an insight into the characteristics of the income distribution that lead to that result. In particular, the result that $\tau^r < \tau_{1,b,r} < \tau_{1,b,p}$ for all ϕ is easy to obtain when the income of the poor y^p and the income of the rich y^r are respectively low and high with respect to the average income $\overline{y}$ or, in other words, when there is enough dispersion in the income of the three classes.

From the numerical analysis we have obtained two interesting results. First, a level of y^r sufficiently high relative to $\overline{y}$ is enough to obtain the taxation ranking of Result 1 ($\tau^r < \tau_{1,b,r} < \tau_{1,b,p}$) even when y^p and y^b are both very close to $\overline{y}$. Second, with an extremely equal income distribution, taxation in majoritarian democracy is always higher than taxation in consensual democracy (regardless of the ruling coalition). These results can be illustrated using two parameterizations for the income of the three classes.[19] The first is: $y^p = 0.9$, $y^b = 0.95$, $\overline{y} = 1$, $y^r = 1.1$. In the second one we just change the income of the rich and use $y^r = 4$. The first parameterization corresponds to a very equal society given that the income of the poor is only 10% lower than the average income while the income of the rich is only 10% higher than the mean.[20] Figure 2 shows the tax rates obtained with these two parameterizations. In this case the tax rate set in consensual democracy is lower than the tax rate set in majoritarian democracy. The increase in the income of the rich from 1.1 to 4 leads to a reduction in the tax rate set in majoritarian democracy higher than the reduction in the tax rate of the middle class and rich coalition up to the point that the ranking of tax rates of Result 1 generally holds.[21] The explanation for this result is the following.

The fiscal policy of a single group government should involve, other things equal (i.e. if all groups have a similar income as it is in the first parameterization), a higher tax rate and total expenditure than the policy of a two groups government coalition regardless of how the tax revenues are divided among the public goods provided. Indeed, recall that a public good is provided only if the group which likes it is part of the government coalition and the optimal tax rate of a group is such that the marginal cost of taxation equals the marginal benefit

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[19]In the numerical simulations we have used the power function specification for $H(\cdot)$ with $A = 1$ and $\alpha = 0.5$.

[20]In this case the variation in the size of the classes, and therefore of ϕ, cannot change the fact that the distribution is very equal even when there are many poor (ϕ high).

[21]Notice that the tax rate of the middle class and poor coalition is not affected by the income of the rich.

from the public good provision. While the marginal cost of taxation is independent on the number of public goods that are financed with the tax revenues (i.e. the number of groups in the government coalition), the marginal benefit from that increase in taxation decreases with the number of public goods among which this increase in taxation is split. This implies that the tax rate should decrease with the number of groups in the government coalition, which in turn implies that, other things equal, the tax rate in majoritarian democracy should be higher than tax rate in consensual democracy.

However, we now need to explain why Result 1 and most numerical simulations lead to the opposite result, namely that generally the tax rate in consensual democracy is higher than the tax rate in majoritarian democracy. This result is due to the fact that in majoritarian democracy fiscal policy is decided by the group with the highest level of income (the rich), while in consensual democracy fiscal policy is chosen by a government coalition representing two groups with an average level of income lower than the income of the rich. Similarly, the middle class and poor coalition taxes and spends more than the middle class and rich one exactly because it contains a group (the poor) with lower income. If the incomes of the three classes are sufficiently spread, then the latter effect more than compensate the effect (described above) generated by the number of groups in the government leading to the taxation ranking of Result 1 ($\tau^r < \tau_{1,b,r} < \tau_{1,b,p}$).

There are also other features of the relationship between the tax rates across constitutions for different income distributions that deserve to be more deeply analyzed. Our numerical simulations have shown that taxation in majoritarian democracy is lower than taxation under the middle class and poor coalition even if the dispersion in the income levels of the three classes is very small.[22] A slightly higher spread in this distribution is necessary if we want the tax rate of the middle class and rich coalition to be higher than the tax rate in majoritarian democracy for all $\phi > \phi^*$. As it will be clear in the next Section, we are interested in the case where $\tau^r < \tau_{1,b,r}$ when $\phi > \phi^*$ and the numerical simulations suggest that this result holds if there is a minimum degree of dispersion in the income levels of the three groups. Indeed, using the previous parametrization ($y^p = 0.9$, $y^b = 0.95$, $\overline{y} = 1$) and increasing the income of the rich to 1.6 is enough to have $\tau^r < \tau_{1,b,r}$ for all $\phi > \phi^*$ and a further increase in y^r implies that $\tau^r < \tau_{1,b,r}$ also for most values of $\phi < \phi^*$.[23] The result of the numerical

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[22]For example, with the above parameterization ($y^p = 0.9$, $y^b = 0.95$, $\overline{y} = 1$) an income level of the rich higher than 1.3 is enough to obtain $\tau^r < \tau_{1,b,p}$ for all $\phi \in (0, 1)$.

[23]Moreover, notice that an increase in the income of the rich always leads to a reduction in ϕ^*.

simulation with such parameters is reported in Figure 3, while Figure 4 presents an example with a different parameterization.[24]

6 Income Inequality and Constitutional Choice

Having characterized the political equilibrium of the model under the two possible institutional arrangements, we now turn to the question of which of them would be chosen *ex ante* by society, when the constitution is endogenous. We assume that the process of constitutional choice takes place in an original position where individuals know their class-status and preferences and before any other politico-economic interaction. We also assume that the decision is taken by simple majority voting, and that the available alternatives are the two constitutional regimes we have considered. Given that there is no veil of ignorance and uncertainty, individuals correctly anticipate what their level of utility would be under the two possible constitutions, and vote consequently. Finally, we assume that there is a minimum degree of dispersion in the income levels of the three groups so that the tax rates ranking of Result 1 holds, or at least that the tax rate set under the middle class and rich coalition is higher than the tax rate under majoritarian democracy when $\phi > \phi^*$.

Proposition 3. *If $\phi < \phi^*$ society chooses consensual democracy while it prefers majoritarian democracy when $\phi > \phi^*$.*

Proof. It is clear that for the rich and the middle class the constitutional choice has a trivial, albeit opposite, solution. Since majoritarian democracy expresses the dictatorship of the rich, they will prefer it unconditionally. Similarly, given that the middle class has the relative majority of votes, which allows her to be the first agenda setter in the legislative bargaining game, she will prefer unconditionally the consensual constitution.[25] The most interesting decision is the one of the poor, who turn out to be the swing voters. The poor do gain from the higher political inclusion which is typical of consensual democracy, only if

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[24]The results presented above are robust to all parameterizations we have used. Additional numerical simulations are available from the authors. It is also worth noting that all simulations confirms that the utility of the middle class in the government coalition with the rich $w^b_{1,b,r}$ is monotonically increasing in ϕ, while the utility of the middle class in the coalition with the poor $w^b_{1,b,p}$ is strictly monotonically decreasing in ϕ, so that ϕ^* is unique.

[25]It is trivial to deduce that the middle class is always better-off in a consensual democracy than in a majoritarian one. Indeed, notice that in consensual democracy the middle class would always have the option of replicating the majoritarian outcome by offering to the rich of forming a coalition and implementing their own preferred policy.

they are part of the government coalition as partner of the middle class agenda setter. In this case they are clearly better-off than they are in a majoritarian setting.[26] However, we know that this needs not to be always the case, since the ruling coalition does not include them whenever $\phi \in (\phi^*, 1)$. In this instance the poor are actually worse-off in a consensual democracy: they do pay higher taxes (see the discussion in the previous Section) but get as well no provision at all of their specific public good. Therefore, if $\phi \in (0, \phi^*)$ the majority prefers consensual democracy while majoritarian democracy is chosen when $\phi \in (\phi^*, 1)$. ∎

We now present two mean preserving spread of the distribution of income which show that an increase in income inequality makes more likely the adoption of a majoritarian democracy.

Mean Preserving Spread 1. We first consider a transformation of the income distribution that affects the size of the three classes. We suppose that m^p and m^r increase and that m^b decreases in such a way that both the size of the population and the average level of income $\overline{y}$ remain constant. Then, society has a smaller middle class, more rich and more poor; that is, it is more unequal.

We now show that, whilst the threshold ϕ^* is not affected by this transformation, the value of ϕ necessarily increases. Therefore, it becomes more likely that ϕ belongs to the interval $(\phi^*, 1)$ and that a majoritarian democracy is chosen. To this end, let us consider the definition of the average income, $\overline{y} = m^p y^p + m^b y^b + m^r y^r$, and divide both sides by $(1 - m^b) = (m^p + m^r)$ taking into account that $\phi = \frac{m^p}{m^p + m^r}$. Then, rearranging terms we get

$$\text{(10)} \qquad y^r - \phi(y^r - y^p) = \overline{y} + \frac{m^b}{1 - m^b}(\overline{y} - y^b).$$

A decrease in m^b implies a reduction in the right hand side of (10) as $\overline{y} > y^b$. Therefore, ϕ must increase given that $y^r > y^p$. This means that ϕ can also be interpreted as a measure of income inequality. Again, our model predicts that when income inequality is relatively low ($\phi < \phi^*$) society prefers a consensual democracy, while it chooses a majoritarian system when income inequality is relatively high ($\phi > \phi^*$).

Mean Preserving Spread 2. Another mean preserving spread we consider is generated

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[26] If the poor are part of the government coalition they get a utility at least as high as their income level, while in majoritarian democracy they always get a lower level of utility because of positive taxation and no provision of their public good.

by a transformation of both the size of the classes and the income of the rich. In particular, we analyze the effect on constitutional choice of an increase in inequality caused by the increase in the income of the rich, accompanied by an equi-proportional increase in the number of the rich and of the poor (and a reduction of the middle class) so that both ϕ and $\overline{y}$ are unaffected.[27]

Given that ϕ remains constant, we need to determine how ϕ^* changes so to understand which constitution is more likely to be chosen by the society. To this end, we need to find out how the two schedules representing the utility of the middle class under the two possible coalitions vary as y^r increases. First, observe that the utility of the middle class in the coalition with the poor $w_{1,b,p}^b$ does not depend on the income of the rich y^r and therefore it is not affected by any variation of it. The utility of the middle class in the government coalition with rich $w_{1,b,r}^b$ is instead a function of y^r. We are not able to show analytically how this schedule changes with the income of the rich but the numerical simulations we discussed in the previous Section point out that it shifts upward (i.e. $w_{1,b,r}^b$ increases) as y^r goes up leading to a reduction in ϕ^*.[28] This means that this increase in income inequality leads to a reduction of the range $(0, \phi^*)$ where consensual democracy is chosen, and therefore it makes more likely the adoption of a majoritarian constitution.

At this point, two issues are worth mentioning. The first is that the model is robust to the removal of some assumptions. For example, the introduction of a general public good would not change our conclusions as long as the taste of the agents for this good is not too high relative to that of the specific public good.[29] Assuming a purely deterministic agenda setting scheme in consensual democracy does not affect the results either. Details of these extensions of the baseline framework are available from the authors.

The second issue is about the potential dynamic stability of our model. Although the model is purely static, it contains forces that would make it dynamically stable. If income inequality is relatively high, society should choose a majoritarian constitution. The fiscal policy in this constitutional system should favor the rich and therefore not reduce (or even

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[27]This particular mean preserving spread corresponds to the shocks driving, according to our theory, the cases of constitutional change in France, Germany and Italy that we discuss next.

[28]More precisely, it is possible to observe for certain parameterizations that $w_{1,b,r}^b$ shifts upward for almost all ϕ except for values close to one where it shift down. However, this is always irrelevant because it happens for values of ϕ very far from ϕ^*.

[29]A similar result obtains assuming that the poor derive some positive utility also from the public good of the middle class.

increase) the initial degree of inequality. Then, society should continue to prefer a majoritarian constitution. Conversely, if income inequality is relatively low, society will prefer a consensual democracy under which fiscal policy generally reflects the preferences of middle class and poor. This should lead to the provision of public goods that reduce or maintain the initial level of inequality and, therefore, a majority for a consensual constitution.

7 Some Historical Evidence on Constitutional Choice

In this Section we present historical evidence on the making of the oldest majoritarian constitutions, like that one of the U.S. and the U.K., and the more recent case of Chile. Then, we analyze the adoption of consensual constitutions in Continental European countries in the 20th century.

7.1 The Making of Majoritarian Constitutions

The U.S. have the oldest written constitution of the world, dating to 1787. It was drafted by a Constitutional Convention of delegates from all States (with the exception of Rhode Island). Apart from some relatively minor changes, it has remained essentially the same up today. An economic analysis of the American constitution has been provided by Beard (1913), which shares with ours the basic premise that key constitutional principles ought to be interpreted as reflecting the interests of particular social groups or classes as opposed to the "public good". In particular, Beard points out that the economic interests of the members of the Convention essentially corresponded only to those of the rich (the commercial and financial elite as well as of the landlords), who were concerned of securing individual property rights and of guaranteeing the best possible institutional framework for private economic activity. Vice versa, the middle and the lower classes had very little if any voice at all in the Convention, due to both the strong franchise restriction of the time and the low "class-consciousness" of many of the less well-off among the enfranchised. Beard also demonstrates the extraordinary awareness of the economic elite, and of its political and intellectual leadership, about the nature of her interests in the process of constitution making.[30] Remarkably, in the tenth number of *The Federalist*, Madison argues that "The first object of government is the protection of the diversity in the faculties of men, from which the rights of property

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[30]This also confirms that our assumption on the absence of a veil of ignorance in choosing the constitution is appropriate.

originate" and that this requires the creation of an institutional framework preventing the exploitation of the rich by the lower classes.

England has the oldest unwritten constitution of the world. It consists in a collection of different documents including the *Magna Charta* of 1215, the *Bill of Rights* of 1689, commonly observed practices and conceptions, as well as some laws. Despite experiencing significant transformations over time, including a gradual extension of franchise since the first decades of the 19th century (1832, 1867 and 1884), the constitution of England always remained majoritarian. The making of the English constitution, like that one of the U.S., occurred over a period of time during which the political voice of the upper classes was overwhelming, and our model predicts that the rich always opt for a majoritarian democracy.

The rich have occasionally been able to impose their constitutional preferences even in much more recent times and, just as our theory suggest, they have opted for the majoritarian model. A notable example is the majoritarian constitution of Chile implemented under the leadership of General Pinochet, who arguably represented the political and economic interests of the elites. A politico-economic analysis of this constitution has been offered by Baldez and Carey (1999), who assert (at p. 52) that "The Chilean military regime consciously crafted the 1980 Constitution, the budget process, and the electoral system in order to constrain the policy outcomes generated by elected civilian politicians. To a certain extent, the institutional engineers appear to have succeeded—particularly in designing an electoral system that has disproportionately rewarded the right and a budget process that generally encourages fiscal austerity."

7.2   The Birth of Consensual Democracies

Essential elements of the model of consensual democracy, and in particular a proportional electoral system, have been first introduced in Scandinavian countries (Denmark, Norway, Sweden, Finland) and elsewhere in Northern Europe (the Netherlands) between the 19th century and the beginning of the 20th century. By 1921, all Scandinavian countries had adopted some form of proportional representation (PR) and none of them has been discarded afterwards, even for a short period (see for instance Lakeman and Lambert, 1963).

The first national election based on some form of PR took place in Denmark in 1856, and the degree of proportionality of the Danish electoral system increased gradually until

1920. The evidence on income distribution in Denmark presented in Morrisson (2000) clearly suggests that during the same period the degree of income inequality was overall relatively low and decreasing over time.[31]

Norway introduced PR in 1921, when the degree of income inequality was low. The available evidence illustrated in Morrisson (Table 2, p. 224) shows a fall in the Gini coefficient from 0.68 in 1855 to 0.49 of the period 1865-1900 to 0.40 of 1900-1910 to 0.34 of 1920.

The Netherlands adopted a proportional electoral law as early as 1917. While no precise evidence at the time of the adoption of the constitution is available, income inequality seems to have generally decreased in the Netherlands since the end of the 19th century (Morrisson, 2000).

While the political development of Denmark, Norway and the Netherlands appear to be consistent with our theory, that of Finland and Sweden are less so. Sweden switched to PR in 1907 and, according to Morrisson, inequality has increased in Sweden since 1870, and has had a declining trend from 1914 to 1970, when it has stabilized. Finland adopted PR in 1906, a period where there is limited information on income inequality of this country. However, Morrisson (p. 228) reports that inequality in Finland has increased from 1881 to 1890 and decreased in the 20th century.

It is worth noting that in all the above countries there is clear evidence that income inequality has declined after the adoption of PR, which suggests that a consensual constitution should help in reducing over time the initial degree of inequality, as predicted by our model.

Piketty (2003) documents the occurrence in France during the period 1914-1945 and mostly during World War II, of a sharp fall in income inequality associated to a sensible drop in the top percentile income share. This trend has been driven primarily by the shocks represented by the two World Wars and by the events of the inter-war period (inflation and the Great Depression), which roughly correspond to a change in the income distribution equivalent to our mean preserving spread 2, and which we expect to lead to the adoption of a consensual constitution. Interestingly, in the immediate aftermath of both the First and the Second World War, France switched to PR. In 1919, the Third Republic did so, even if the proportionality of the electoral system was weakened. This system was abandoned after

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[31]The data on income inequality in Denmark are based on the maximum equalization coefficient (MEC), which indicates the share of total income which has to be transferred from the population with income above the average to those below in order to achieve an equal distribution. This index falls sharply from 0.50 to 0.35 between 1870 and 1900 and was 0.36 in 1925.

the 1924 election, when France reverted to the second ballot in single-member constituencies used until the war. In October 1945, a real proportional system was applied to the election of the first Constituent Assembly. The same system was applied for the election of the Second Constituent Assembly in June 1946 and of the National Assembly in November.

The two World Wars (especially the second one) affected, in terms of capital disruption and reduction of inequality, other Continental European countries such as Italy and Germany. Italy had adopted a majoritarian electoral law at the time of the unification, and switched to PR in 1919, used until the rise of fascism. A proportional system was again adopted for the parliamentary democracy established with the constitution of 1948. PR has also been adopted in Germany with the constitution of the Weimar Republic in 1919 and reintroduced after 1945. The available evidence (see Morrisson, p. 232) indicates that income inequality strongly decreased in Germany from 1913 to 1926 and it was low after World War Two.

Alesina and Glaeser (2004) present historical evidence showing that the diffusion of PR in several European countries reflected the political strength enjoyed by the left and by the workers' movement. In our view, this finding is in agreement with the predictions of our model as we obtain that the left is in favor of PR when income inequality is not too high. This appears to have been the case at the time of constitutional choice for most countries discussed above.

8 Empirical Evidence

The theory presented in this paper has many interesting predictions, but the main result is that income inequality has an important effect on the choice of the constitution. More unequal countries are expected to choose a majoritarian democracy while equal societies should prefer a consensual constitution.

We test this prediction by analyzing the relationship between the type of constitution adopted and the income inequality of the country at the time, or before, the constitution was chosen in order to avoid problems of endogeneity.[32] Given that constitutional reforms are rare (a feature consistent with our model), we perform a cross-sectional analysis. To carry out this empirical study, we make use of the dataset compiled by Persson and Tabellini (2003,

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[32]In fact, our theory predicts that income inequality determines the choice of the constitution, which in turn affects the distribution of income through its effects on fiscal policy outcomes.

2004) (PT from now on) to analyze the economic effects of constitutions.[33] As a measure of income inequality, we employ the Gini index and use the dataset compiled by Deininger and Squire (1996).

PT report the variables *maj* and *pres* that define the electoral system and the form of government of each country. In particular, *maj* is a dummy variable equal to 1 if all the lower house is elected under plurality rule and 0 under a proportional (or mixed) electoral system, while *pres* is a dummy variable for the form of government, equal to 1 in presidential regimes and 0 in parliamentary democracies. PT classify as presidential only those regimes where the confidence of the assembly is not necessary for the executive and, therefore, most semi-presidential and premier-presidential systems are classified as parliamentary.[34]

PT classify the electoral rule and the form of government considering the countries at the beginning of the 1990s. We have taken this classification and identified the first year when this constitution (represented by *maj* and *pres*) was first introduced and summarized it in the variable *yearcons*. Then, we have selected a Gini coefficient for each country from the Deininger and Squire dataset according to the following rules. We have first considered the high quality data and selected the Gini coefficient correspondent to the year when the constitution was introduced, which is given by the variable *yearcons*. If there was not a data in that year, we have gone backward and selected the first Gini coefficient available. When there was no data before the year of the constitution, we have taken the first Gini coefficient available after that year with the constraint that it was not more than 5 years older.[35] Following this procedure, we have obtained a high quality Gini coefficient for 43 countries. When we did not find a high quality Gini coefficient with this procedure, we have relied on the other (low quality) data available in this dataset following the same procedure. When more than one coefficient was available in the same year, we have taken the average.

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[33]The dataset used in their cross-sectional analysis contains 85 countries that have been selected on the base that they can be classified as free or partly free democracies for the period 1990-98.

[34]For example, France and Portugal are coded as parliamentary because the legislature in these countries has an exclusive and unrestricted right of censure of the executive. Moreover, the president nominates the government or has an influence over it but the parliament must approve it. See PT (2003, ch. 4) for details and clarifications.

[35]The choice of taking a Gini coefficient that refers to few years later the constitutional choice is based on the same rationale that has led PT (2003) to exclude the reforms that some countries have made during the 1990s in their cross-sectional analysis for the period 1990-98. They argue that it takes some time before constitutional reforms have an impact on fiscal policy outcomes (see p. 88). However, if this is true (as we believe), then there will also need some time before the constitution has an impact on income inequality given that this effect should mainly work through fiscal policy.

This has allowed us to obtain a Gini coefficient for a total of 57 countries.[36] The data from Deininger and Squire specify whether the Gini coefficient is computed using information on income or on expenditure, if the income is gross or net of taxes and if the recipient unit is an individual or a household. Deininger and Squire argue that the most important distinction is between the Gini coefficients that are based on information on income and those based on expenditure. In order to ensure intertemporal and international comparability, they strongly suggest adjusting for differences between income-based and expenditure-based coefficients by adding 6.6 points to the latter. We have therefore made this adjustment and denoted with *giniycai* the Gini coefficient with this correction.

An important point that we need to address concerns the classification of the countries into majoritarian and consensual democracies. As explained before, this classification is straightforward for parliamentary systems given that the executive is accountable to the parliament so that the electoral rule, majoritarian versus proportional, is enough to classify the type of democracy. In presidential regimes fiscal policy is the outcome of a bargaining process between the president and the legislative assembly. If the assembly is elected with plurality rule, then it is reasonable to classify these systems as majoritarian democracies given that both subjects that have a role in fiscal policy decisions are elected with a winner-takes-all process and are, therefore, expected to have the same fiscally conservative preferences. Instead, when the congress is elected with PR, it is important to understand the power of the president in fiscal policy decisions. We now argue that the presidential systems with PR in our dataset are characterized by a relative powerful president and should, therefore, be considered majoritarian democracies.[37]

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[36]Cyprus and South Africa are not in the dataset although we had a Gini coefficient for these countries. Cyprus has been excluded because we had a Gini coefficient for one year only and two constitutional choices very close to that year. While the more reasonable constitution would in principle favor our hypothesis, including Cyprus with either constitutions leaves our results unchanged. Details can be found in the data appendix. The exclusion of South Africa can be justified on both empirical and theoretical grounds. Empirically, it can be shown that it is an outlier and an influential observation. An additional appendix (available from the authors) shows that the inclusion of this observation in the sample has a very large impact on the estimates. This is not surprising given that South Africa is a parliamentary democracy with a proportional electoral system and has a very high Gini coefficient (62.3). South Africa is composed mainly by two groups, rich-white and poor-black, with the latter having a large absolute majority. This violates the assumption of our theory that there is not a well defined group which alone accounts for more than 50% of the population. Finally, notice that our sample does not contain the oldest democracies like U.S., U.K. or the Scandinavian and Northern European countries. However, we have provided historical evidence for these countries which appears to be consistent with our theory.

[37]In an extension of our model (available from the authors) we show that when the president has a significant power in the making of fiscal policy, a presidential regime with PR is essentially equivalent to our model of majoritarian democracy. Very briefly, we assume in this extension that the president acts as (first) agenda setter, offering a policy proposal to the legislature. If this proposal is not accepted by a parliamentary

First, we remind that we take the classification of PT who classify as presidential only those regimes where the confidence of the assembly is not necessary for the executive and, therefore, consider most semi-presidential and premier-presidential systems as parliamentary democracies. Second, the presidential countries with PR in our dataset are classified as "direct presidential" in the Database of Political Institutions compiled by Beck et al. (2000). The three elements they consider are: a) veto power: president can veto legislation and the parliament needs a supermajority to override the veto; b) appoint prime minister: president can appoint and dismiss prime minister and/or other ministers; c) dissolve parliament: president can dissolve parliament and call for new elections. The system is a "direct presidential" if (a) is true, or if (b) *and* (c) are true. Third, notice that presidential countries with an assembly elected with PR are typically observed in Latin America. 15 out of 17 countries with this system in our sample are located there.[38] While the exact distribution of the legislative power varies across countries, according to many scholars of comparative politics the president in Latin American countries typically plays a key role in the legislative process regarding fiscal policy. For instance, Morgenstern (2002) argues that Latin American legislatures are only "reactive", namely they only have the ability to amend/veto legislative proposals made by the president. Such prerogatives are also limited as presidents facing a hostile legislature typically have many ways to bypass it by using their "unilateral powers", such as various types of decrees and regulatory rule making, as well as their own veto powers on parliamentary deliberations.[39]

Based on the above considerations, we have structured our empirical analysis as follows. First, we have analyzed the relationship between income inequality and electoral system in the sub-sample of parliamentary democracies. This choice is justified by the fact that our model describes precisely this system and also allows us to consider a more homogenous

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majority, the leader of the party having the largest number of seats in the legislature is nominated (second) agenda setter, and has a chance of forming a majority itself. If no agreement is reached within the second bargaining round, or if the president exercises its veto right on the policy approved by the parliament, a *status quo* policy is implemented. In equilibrium, the president is a rich and the policy implemented is its preferred policy, or a policy very close to that one, under many different specifications of the *status quo*.

[38] These countries are Argentina, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay, Venezuela. The two exceptions are South Korea and Sri Lanka.

[39] According to Cox and Morgenstern (2002 p. 461) "...presidents in Latin America regularly make policy decisions almost unilaterally. Presidents in Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela have tremendous advantages in structuring the budget process, as the legislatures there are constitutionally restricted from making significant changes." As a result, according to the same authors, "Latin American legislatures are hindered by a lack of time, resources and experience. This combination of constitutional and organizational limits has converted many Latin American presidents into virtual budget dictators."

sample. Second, we have considered the whole sample classifying the type of democracy on the base of the electoral system only. In this case, the presidential systems with PR enter as consensual democracies. As we will see, this is the worst specification for our theory because the income distribution in these countries is generally very unequal. Finally, we develop the empirical work with the classification that we consider more reasonable and closer to our model, namely by classifying the presidential regimes with PR as majoritarian systems. This implies that countries that are parliamentary with PR enter as consensual democracies while presidential regimes and parliamentary with plurality rule are all classified as majoritarian.

Table 1 provides descriptive statistics for income inequality in various samples. Among the parliamentary democracies, the countries with a majoritarian electoral rule are more unequal than those with PR. The difference in the average Gini coefficient is almost 10 points and it is statistically significant at the 1% level. The unconditional correlation between the Gini coefficient and a majoritarian electoral system is 0.485. The table also reports the average Gini coefficient for presidential regimes when the assembly is elected with majoritarian and proportional electoral system. We observe that the average income inequality is high (the Gini index is about 49) and independent on the electoral formula of the assembly. In our view, this is consistent with the majoritarian characteristics of both systems. When we consider the whole sample and distinguish on the base of the electoral rule, we find that countries with plurality rule have higher income inequality than those with PR but this difference is lower with respect to the sample of parliamentary democracies and its significance is at 10% level. The unconditional correlation between the Gini coefficient and the electoral system is positive but not very high (it is 0.174). Finally, the last part of the table shows the statistics when presidential systems with PR are classified as majoritarian democracies. Majoritarian democracies are much more unequal than consensual ones and the difference in average inequality is about 13 points with a statistically significance at 1% level. As expected, there is also a high correlation (0.532) between Gini coefficient and majoritarian democracy.

Panel A of Table 2 reports the majoritarian and consensual countries in each quartile of the income distribution for the sample of parliamentary democracies. The first quartile contains just one majoritarian country and seven consensual ones, while we observe the opposite pattern in the last quartile of the distribution. The number of majoritarian (consensual) countries is also monotonically increasing (decreasing) in the degree of income inequality. Panel B shows the results of the same analysis for the whole sample when we consider the

classification based of the electoral system only. As expected from the above discussion, we observe a positive relationship between degree of income inequality and number of majoritarian democracies, though this is weaker than in the sample of parliamentary democracies. The positive link between inequality and majoritarian electoral system can be appreciated if we consider two groups, countries with inequality below and above the median. The number of majoritarian countries with income inequality higher than the median is the double of those with inequality lower than the median. Finally, Panel C provides the results of this analysis when presidential regimes with an assembly elected with PR are classified as majoritarian systems. The positive relationship between income inequality and majoritarian democracy is very strong as, with the exception of one country, there are no consensual democracies with inequality above the median. We can therefore conclude that the unconditional relationship between income inequality and constitution is strongly supportive of our theory.

We now present the results of logit regressions when the relationship between income inequality and the type of constitution is analyzed conditioning for different variables that may potentially affect the choice of the constitution. The most important variable is ethnic fragmentation. Lijphart (1999) suggests the existence of a positive relationship between PR and ethnic fragmentation. Instead, Aghion, Alesina and Trebbi (2004) find a negative correlation and reconcile the different results with the fact that Lijphart considers a smaller number of countries and democracies only. Hence, we always control for ethnic fragmentation and use the variables *ethnic* and *language* from Alesina et al. (2004). The advantage in using these two variables is related to the possibility of disentangling different kinds of heterogeneity as the first one is based on a broad measure of ethnicity while the second is strictly based on language. Alesina et al. make clear that these data come from the 1990s but there is no problem of endogeneity for a 30 years horizon, which approximately coincide with the period of our analysis.[40] We also control for religious fractionalization using the variable *religion* taken from the same authors.[41] However, we do not include it in the baseline specification because Alesina et al. argue that the endogeneity problems for this variable may be more serious.

We control for country size and level of development by including the log of population in 1960 (*lpop_60*) and the GDP per capita expressed relative to the U.S. in 1960 (*y_60*) taken

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[40] Only few countries in our sample have a constitution chosen before 1960 and, in any case, all after WWII.

[41] The variables *ethnic*, *language* and *religion* take values in the range between zero and one that are increasing in the degree of ethnic, linguistic and religious fractionalization respectively. There is no data for the variable *language* for El Salvador.

from the Penn World Table 6.1.[42] Indeed, Lijphart (1977) argues that smaller countries are potentially exposed to more serious external threats by foreign powers and therefore more likely to promote intersegmental cooperation by adopting consensual constitutions. While we do not have in mind any specific causal mechanism from economic development to constitutional choice, we recognize that diverse traditions of thought in political sociology including modernization theory argue the existence of some link between income and political institutions.

We consider three regional dummies to take into account the role of geography. In particular, we use a dummy variable for continental location in Africa (*africa*), in eastern and southern Asia (*asiae*) and southern and central America including the Caribbean (*laam*). To take into account the possible effects of religious and cultural factors, we control for the percentage of the population in each country professing the Protestant religion in 1980 (*prot80*), the percentage of the population belonging to the Roman Catholic religion in 1980 (*catho80*), and if the majority of population is Confucian-Buddhist-Zen (*confu*). PT (2003, 2004) argue that ex-British colonies tend to be parliamentary and majoritarian while all former Spanish-Portuguese colonies are presidential. To take into account these effects, we control for British (*col_uk*), for Spanish-Portuguese (*col_esp*) and other (*col_oth*) colonial origins. All the above variables are taken from the PT dataset.

Table 3 presents the relationship between constitution and income inequality in the sample of parliamentary democracies. Column (1) shows the results for our baseline specification where we consider the degree of income inequality and of ethnic fragmentation. Higher inequality is positively correlated with a majoritarian electoral system and this relationship is statistically significant at 1%. The quantitative effect of an increase in income inequality on the probability of adopting a majoritarian system is also very high as the marginal effect at the mean is 0.03.[43] In columns (2) and (3) we control for the population and level of income respectively. In column (4), we include dummies for Africa and Asia while the dummy for

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[42]There are a few countries for which the data on the level of income per capita relative to the U.S. and the size of population are not available in 1960. In these cases, we have taken the first year available. This is equivalent to assuming that the ratio between the GDP per capita of these countries and that one of the U.S. has remained unchanged between 1960 and the first year available. As a robustness check, we have also run regressions with the log of the GDP per capita in 1960. For the countries where GDP per capita in 1960 was not available, we have multiplied their per capita income relative to the U.S. in the first year available with U.S. per capita income in 1960. Using the log of this variable instead of the GDP per capita expressed relative to U.S. yields basically the same results.

[43]Recall that the Gini coefficient employed is measured in a scale from 0 to 100. Therefore, this means that an increase of one point in the Gini coefficient increases the probability of adopting a majoritarian system by 3%.

Latin America is omitted because the four parliamentary democracies in this region are all majoritarian. Column (5) shows the results when we add the religious characteristics of each country that are likely to be correlated with cultural factors. In all specifications, we find that the relationship between inequality and constitution is unchanged with respect to the baseline one.[44] In column (6), we control for colonial origins and find that the correlation between income inequality and majoritarian democracy has the expected sign but it is not statistically significant at standard levels. This is due to the inclusion of the dummy variable for former British colonies.[45] In this sample, 8 out of 9 ex-British colonies have a majoritarian electoral rule. It is worth noting that these former British colonies are also very unequal. The mean Gini coefficient for these 9 countries is 46.58 and the most equal one has a coefficient of 38.1. This in turn implies that all former British colonies have a degree of inequality above average (see Table 1). Such collinearity between the Gini coefficient and British colonial origin, combined with measurement errors in inequality, could be at the root of inequality becoming insignificant. In other words, while controlling for colonial origins substantially weakens our results, it is not clear to us whether former colonies have chosen a certain type of democracy to imitate the colonizer's institutions or because these type of institutions suit well with their economic fundamentals. Finally, column (7) shows that the results are robust when we control for religious fractionalization.

Table 4 reports the results for the same analysis using the whole sample with the classification based on the electoral rule. While the unconditional correlation between income inequality and electoral system in this sample is not very high, the correlation becomes strong when we control for ethnic fragmentation. In fact, in the baseline specification reported in column (1) we find that the marginal effect evaluated at the mean of an increase in inequality on the probability of adopting a majoritarian electoral rule is 0.016 and this is statistically significant at 5% level. The linguistic fractionalization coefficient has also a positive statistically significant effect. The same result is obtained controlling for population and income (columns (2) and (3)). The Gini coefficient has the same magnitude but it is less precisely estimated when we include the three regional dummies. The p-value of the coefficient is 10.7% however. In columns (5) and (6) we control for religious and for colonial origins respectively. The estimated Gini coefficient is pretty large (about 0.03) and

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[44]The Gini coefficient in column (5) is less precisely estimated but the p-value is 5.2%.

[45]There are no Spanish-Portuguese colonies in the sample and the inclusion of *col_oth* alone would not change the results with respect to the baseline specification. When we control only for *col_uk*, the Gini estimate is 0.02 and the p-value 12.4%.

significant at 5% in both specifications. Results are also robust when controlling for religious fractionalization which is positively correlated with plurality rule (see column (7)).

Table 5 shows the results when presidential regimes with PR are classified as majoritarian democracies. The relationship between income inequality and majoritarian democracy is very strong. The marginal effect on the probability of adopting a majoritarian democracy evaluated at the mean is large, about 0.024, and statistically significant at 1% level in all specifications.[46]

Finally, we have performed the following three robustness checks. First, we have estimated the relationship between inequality and constitution also with probit and linear probability models. This yielded similar results. Second, we have used three other Gini coefficients: the unadjusted Gini; the Gini adjusted if the data is based on net income rather than gross (along with the adjustment for income versus expenditure); the Gini coefficient with a further adjustment if the information is based on households instead than individuals (see the data appendix for details). Using these Gini coefficients yields very similar estimates in all samples. Third, we have tried to understand if the quality of the Gini coefficients could play a role in our estimate even though, in principle, the inclusion of lower quality data should work against our hypothesis. To this purpose, we have first restricted the sample to high quality data only and the estimates are similar to those presented above. A second check was to add a dummy variable for the quality (high or low) of the Gini coefficient in each specification. Again, the estimate for income inequality remained basically unchanged while the estimate of the variable for the quality of the Gini coefficient was always statistically insignificant. The results of the above robustness checks are available from the authors.

Therefore, we conclude that there is a strong positive relationship between income inequality and majoritarian democracy as predicted by our model.

9   Constitutions and Politics in Contemporary Democracies

In this Section, we discuss the available empirical evidence confirming other results of our model. A first prediction of our theory is that consensual democracies should have bigger

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[46]We have also replicated the same analysis excluding the presidential regimes with PR. The results (available from the authors) are very close to those obtained for the sample of parliamentary democracies reported in Table 3.

governments than majoritarian ones and a larger part of government expenditure should go to the advantage of a greater number of social groups and, in particular, to lower income individuals (the poor and the middle class). These results are in line with the recent theoretical literature, e.g. Persson and Tabellini (2000 ch. 8 and 9), Lizzeri and Persico (2001), Milesi-Ferretti, Perotti and Rostagno (2002), that generally predicts that proportional electoral systems should be associated with the provision of more public goods, larger and more universalistic welfare programs, and a larger overall size of government, arguably preferred by the poor and by the middle class. The empirical literature on this topic also confirms our results. Persson and Tabellini (2003, 2004) present cross-country evidence suggesting that a switch from proportional to majoritarian elections reduces total government spending by almost 5% of GDP and welfare spending by 2-3% of GDP. Results are similar for a switch from a parliamentary to a presidential regime. Milesi-Ferretti, Perotti and Rostagno (2002) and Lijphart (1999) provide other empirical evidence going in the same direction.

Our contribution can also shed some light on the argument usually made that public expenditure is higher under proportional electoral systems than under majoritarian ones because the former favor the representation of many groups and the formation of multi-party coalition governments, which in turn spend more because they need to please broader and more diverse constituencies than single-party executives. Our model has the same prediction, but suggests that the greater level of public expenditure observed in consensual democracies is due to a *selection bias* in the composition of the government coalition. Consensual democracies should be expected to be ruled relatively more often by center-left coalitions, while the fiscally conservative right should have an advantage in majoritarian constitutions. A large body of empirical evidence both in political science and economics about the effects of the government's ideology on fiscal policy outcomes suggests that left-wing executives are willing to tax and spend more than right-wing ones (see on this the comprehensive study of Alesina, Roubini and Cohen, 1997, and the references cited therein, as well as the recent work of Perotti and Kontopoulos, 2002). Moreover, there is also some evidence that center-left government coalitions are observed more often in PR systems and right-wing governments in majoritarian democracies (see Powell, 2002).

The results of our model can also help us to better understand the relationship between the distribution of income and fiscal policy outcomes. Much of the research on this topic is based on the seminal contribution of Meltzer and Richard (1981), which has the well known reduced form prediction that higher (pre-tax) inequality should be expected to generate

political support for a larger fiscal redistribution of resources. This theory, however, does not seem to be corroborated by the data (e.g. Perotti, 1996, Bénabou, 1996, Alesina, Glaeser and Sacerdote, 2001) which, if anything, indicate that more equal societies tend to redistribute more rather then less. Our theory suggests that the absence or a negative relationship between inequality and redistribution may be due to the fact that more unequal societies are more likely to choose a majoritarian system, which in turn generates lower redistribution. Moreover, income inequality may have ambiguous effects also for a given constitution. In a consensual democracy, an increase in inequality generally leads to an increase in taxation and redistribution for a given government coalition, but has the opposite effect if it leads to the formation of a center-right majority instead than a center-left one. In a majoritarian democracy, more inequality affects taxation and redistribution only if it is associated to a variation in the income of the rich.

10   Conclusions

This paper shares with other recent contributions in political economics the premise that constitutional principles are of great importance in shaping fiscal policy outcomes in representative democracies. We show that generally consensual democracies have higher taxation and bigger governments than majoritarian ones. In our model, this is driven by a *selection bias* in the composition of the government coalition, as consensual democracies should be expected to be ruled more often by center-left coalitions, while the right should have an advantage under majoritarian constitutions. But on top of this we demonstrate that, once institutions are viewed as endogenous, consensual democracy is more difficult to sustain politically in a more unequal society since greater inequality tends to undermine the stability of the coalition supporting it.

The results of our model concerning the effects of inequality on institutional choice, as well as on fiscal policy, appear to be not only significant *per se*, but for the guidelines they offer for future empirical research on the economic consequences of constitutions. In particular, they provide a firm theoretical background for the intuitive claim that the assignment of constitutions across countries is not random, but reflects a number of "fundamentals", among which the extent of income inequality is of special importance. The results of our empirical analysis strongly support this theoretical finding.

11 Appendix

11.1 Proof of Proposition 1

We first prove that only the rich run for office and then that the set of citizen-candidates running for office is not empty.

Step 1. Assume that at least one rich candidate runs for office. Would anyone else run for office? The answer is no. If a middle class agent also run, he would be defeated by the rich candidate because both the rich and the poor would vote for the rich. The poor find it convenient to vote for the rich candidate because in their eyes he is the less bad of the two of them: he offers to the poor none of their preferred public good but demands lower taxes. Similarly, if a poor agent runs for office against a rich candidate, he would be defeated by the vote of the middle class and the rich. Lastly, notice it cannot be the case that a candidate from each group runs for office. Indeed, the middle class candidate would win the election with certainty in that instance (recall that $m^b > \max\{m^p, m^r\}$ by assumption), and therefore neither a poor nor a rich candidate would run against him.

Step 2. We now demonstrate that the set of citizen-candidates running for office is not empty, i.e. that at least one rich candidate runs for office. Let p denote the probability of victory for a rich citizen-candidate (in a symmetric equilibrium, this will be the same across identical citizen-candidates). A rich agent wants to run for office if and only if the expected gain of running exceeds its cost, namely if $\{p[w^r(\tau^r, G^r) + k] + (1-p)w^r(\tau^r, G^r)\} - w^r(\overline{\tau}, \overline{G}) \geqslant \varepsilon$, where $(\overline{\tau}, \overline{G})$ denotes the policy vector implemented if he does not run and the term in the graph parenthesis is the expected utility if he runs, given that only rich candidates do so. To show that the set of citizen-candidates running for office is not empty, it is sufficient to demonstrate that this condition is satisfied when only one rich person runs for office for all $(\overline{\tau}, \overline{G}) \in ([0,1] \times \Re^3_+)$. To see this, observe that in this case $p = 1$ and the participation constraint of the rich candidate reads $w^r(\tau^r, G^r) + k - w^r(\overline{\tau}, \overline{G}) \geqslant \varepsilon$. Since the policy vector (τ^r, G^r) maximizes the welfare of the rich, $w^r(\tau^r, G^r) > w^r(\overline{\tau}, \overline{G})$, for all $(\overline{\tau}, \overline{G}) \in ([0,1] \times \Re^3_+)$ with $(\overline{\tau}, \overline{G}) \neq (\tau^r, G^r)$, and given that $k \geqslant \varepsilon$, the participation constraint of the rich candidate always holds with strict inequality when $p = 1$.

11.2 Proof of Proposition 2

In this Appendix we show that exist a value of ϕ, that we call ϕ^*, such that the utility derived by the middle class from the government coalition with the poor $w^b_{1,b,p}$ is higher than the corresponding utility from the coalition with the rich $w^b_{1,b,r}$ if $\phi < \phi^*$, and that the opposite is true whenever $\phi > \phi^*$. To this aim, we first show that $w^b_{1,b,r}$ is monotonically increasing in ϕ, while $w^b_{1,b,p}$ is strictly monotonically decreasing in ϕ. Then, to prove that there is a single crossing between these two schedules in the range where $\phi \in (0,1)$, we show that $w^b_{1,b,p}$ is higher than $w^b_{1,b,r}$ at $\phi = 0$, and that the opposite holds at $\phi = 1$.

The utility of the middle class in the government coalition with the rich $w^b_{1,b,r}$ is defined by the maximization problem (5) subject to the participation constraint of the rich (4). Differentiating (5) with respect to ϕ and applying the envelope theorem we get that

$$(11) \qquad \frac{dw^b_{1,b,r}}{d\phi} = -H_g(g^b_{1,b,r})\frac{\partial g^r_{1,b,r}}{\partial \phi} \geqslant 0.$$

Indeed, assuming that (4) is binding and applying the implicit function theorem we get

$$(12) \qquad \frac{\partial g^r_{1,b,r}}{\partial \phi} = -\frac{\left[(1-\tau_{2,r,p})\,y^r + H(g^r_{2,r,p})\right] - (1-\tau_{2,p,b})\,y^r}{H_g(g^r_{1,b,r})} < 0$$

given that the numerator is positive because it is the difference between the utility of the rich when they are agenda setter at round 2 (which is greater than y^r) and their utility under the poor and middle class government coalition (which is lower than y^r). In this case $\frac{dw^b_{1,b,r}}{d\phi}$ is strictly positive. Instead, if the participation constraint of the rich (4) is not binding, then $w^b_{1,b,r}$ is at its global maximum, $\frac{\partial g^r_{1,b,r}}{\partial \phi} = 0$ and $\frac{dw^b_{1,b,r}}{d\phi} = 0$. Hence, the result in (11) shows that $w^b_{1,b,r}$ is monotonically increasing in ϕ.

The utility of the middle class in the government coalition with the poor $w^b_{1,b,p}$ is defined by the maximization problem (8) subject to the participation constraint of the poor (7). If we differentiate (8) with respect to ϕ and apply the envelope theorem we obtain that

$$(13) \qquad \frac{dw^b_{1,b,p}}{d\phi} = -H_g(g^b_{1,b,p})\frac{\partial g^p_{1,b,p}}{\partial \phi} < 0$$

given that from (7)

$$(14) \qquad \frac{\partial g^p_{1,b,p}}{\partial \phi} = -\frac{y^p - \left[(1 - \tau_{2,p,b}) \, y^p + H(g^p_{2,p,b})\right]}{H_g(g^p_{1,b,p})} > 0.$$

Indeed, the numerator at the right hand side of (14) is negative because it is the difference between y^p and the utility of the poor when they are agenda setter at round 2 (which is greater than y^p). The result in (13) means that $w^b_{1,b,p}$ is strictly monotonically decreasing in ϕ.

Then, it remains to show that $w^b_{1,b,p}(0) > w^b_{1,b,r}(0)$ and that $w^b_{1,b,p}(1) < w^b_{1,b,r}(1)$. We prove the first inequality by showing that the participation constraints of the rich and the poor at $\phi = 0$ imply that, for any given level of tax rate chosen by the middle class, the rich have to be compensated with a greater amount of their preferred public good. Indeed, the participation constraint of the poor at $\phi = 0$ implies that

$$(15) \qquad H(g^p_{1,b,p}) = \tau_{1,b,p} y^p$$

while from the participation constraint of the rich we get[47]

$$(16) \qquad H(g^r_{1,b,r}) = \left[(1 - \tau_{2,r,p}) \, y^r + H(g^r_{2,r,p})\right] - (1 - \tau_{1,b,r}) \, y^r.$$

The expression in the square brackets in the right hand side of (16) is the utility of the rich when they are agenda setter at round 2 and it is clearly greater than y^r. Hence, it is of course the case that

$$(17) \qquad H(g^r_{1,b,r}) > \tau_{1,b,r} y^r.$$

By combining (15) and (17) and taking into account also the fact that $y^r > y^p$, one can easily verify that for any given level of tax rate $\tau_{1,b,r} = \tau_{1,b,p} = \tau$ we have that $g^r_{1,b,r} > g^p_{1,b,p}$. This in turn implies that the middle class agenda setter obtains a higher level of utility by making a coalition with the poor instead than with the rich, i.e. $w^b_{1,b,p}(0) > w^b_{1,b,r}(0)$.

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[47]The participation constraint of the rich is always binding at $\phi = 0$ as their expected utility at round 2 is greater than y^r.

At $\phi = 1$ the utility of the middle class under the government coalition with the poor $w^b_{1,b,p}$ is equal to y^b. This result can be obtained by observing that at $\phi = 1$ the maximization problem of the middle class is subject to the participation constraint of the poor where they are agenda setter with probability one at round 2 and maximize their utility subject to the constraint of giving to the middle class a level of utility equal to the *status quo* (which corresponds to their level of income y^b).[48]

From the maximization problem of the middle class when she forms a government coalition with rich, it is immediate to verify that $w^b_{1,b,r}$ is always greater than y^b at $\phi = 1$. Indeed, from the participation constraint of the rich at $\phi = 1$, i.e. $(1 - \tau_{1,b,r})\, y^r + H(g^r_{1,b,r}) \geqslant (1 - \tau_{2,p,b})\, y^r$, we know that the middle class could implement the following policy: $0 < \tau_{1,b,r} \leqslant \tau_{2,p,b}$, $g^r_{1,b,r} = 0$, $g^b_{1,b,r} = \tau_{1,b,r}\overline{y}$. This policy satisfies the participation constraint of the rich and gives to the middle class a higher utility than her income level y^b. Given that the optimal policy gives to the middle class a higher utility than this policy, and therefore of y^b, it is clear that $w^b_{1,b,r}(1) > w^b_{1,b,p}(1)$.

11.3   Proof of Result 1

In this Appendix we show that under the assumptions stated in the main text the following inequalities hold for all ϕ: $\tau^r < \tau_{1,b,r} < \tau_{1,b,p}$. To this aim, we first prove that $\tau^r < \tau_{1,b,r} \leqslant \tau^b$ by showing that $\tau_{1,b,r} = \tau^r$ at $\phi = 0$, $\tau_{1,b,r} = \tau^b$ at $\phi = 1$, and that $\tau_{1,b,r}$ is monotonically increasing in ϕ. Next, we show that $\tau^b < \tau_{1,b,p}$.

At $\phi = 0$ the rich are agenda setter with probability one at round 2, and they form the government coalition with the poor. If the income of the poor is equal to zero, the fiscal policy implemented at the second round corresponds to the dictatorial policy of the rich as the poor do not need to be compensated with a positive amount of their preferred public good. Thus, to form a government coalition at round 1, the middle class has to propose a policy to the rich such that their level of utility is the same they obtain at round 2. Given

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[48]Formally, the maximization problem when $\phi = 1$ is the following:

$$\max_{\{\tau_{1,b,p}\}} w^b_{1,b,p} = (1 - \tau_{1,b,p})y^b + H(\tau_{1,b,p}\overline{y} - g^p_{1,b,p})$$

$$s.t. \quad (1 - \tau_{1,b,p})\, y^p + H(g^p_{1,b,p}) \geqslant \max_{\{\tau_{2,p,b}\}} (1 - \tau_{2,p,b})\, y^p + H(\tau_{2,p,b}\overline{y} - g^b_{2,p,b})$$

$$s.t. \quad w^b_{2,p,b} \equiv (1 - \tau_{2,p,b})\, y^b + H(g^b_{2,p,b}) = y^b$$

and it is immediate to verify that $w^b_{1,b,p} = w^b_{2,p,b} = y^b$.

that the latter is equal to its global unconstrained maximum, the middle class can only implement the dictatorial policy of the rich, that is: $\tau_{1,b,r} = \tau_{2,r,p} = \tau^r$, $g^r_{1,b,r} = g^r_{2,r,p} = \tau^r \overline{y}$ and $g^b_{1,b,r} = 0$. In other words, the policy implemented (and the tax rate chosen) by the government coalition formed by the middle class and the rich at $\phi = 0$ (if $y^p = 0$) is the same as the one in majoritarian democracy.

We have previously shown that $\tau_{1,b,r} = \tau^b$ for all values of ϕ such that the participation constraint of the rich is not binding and that this is always the case at $\phi = 1$ if $y^p = 0$.

To prove that $\tau_{1,b,r}$ is monotonically increasing in ϕ, we differentiate the first order condition (6) with respect to ϕ by taking into consideration the fact that from the participation constraint of the rich (4), $g^r_{1,b,r} = g^r_{1,b,r}\left(\phi; \tau_{1,b,r}(\phi)\right)$ and $\frac{\partial g^r_{1,b,r}}{\partial \tau_{1,b,r}} = \frac{y^r}{H_g(g^r_{1,b,r})}$.[49] After some algebra we obtain

$$\frac{\partial \tau_{1,b,r}}{\partial \phi}\left\{ H_{gg}(g^b_{1,b,r})\left[\overline{y} - \frac{y^r}{H_g(g^r_{1,b,r})}\right]^2 + H_{gg}(g^r_{1,b,r})\frac{(y^r)^2 \, H_g(g^b_{1,b,r})}{\left[H_g(g^r_{1,b,r})\right]^3}\right\} +$$

$$(18) \qquad + \frac{\partial g^r_{1,b,r}}{\partial \phi}\left\{ -H_{gg}(g^b_{1,b,r})\left[\overline{y} - \frac{y^r}{H_g(g^r_{1,b,r})}\right] + H_{gg}(g^r_{1,b,r})\frac{y^r \, H_g(g^b_{1,b,r})}{\left[H_g(g^r_{1,b,r})\right]^2}\right\} = 0.$$

which allows us to determine the sign of $\frac{\partial \tau_{1,b,r}}{\partial \phi}$. Indeed, notice that the term in graph parenthesis that multiplies $\frac{\partial \tau_{1,b,r}}{\partial \phi}$ is always negative and from (12) we know that $\frac{\partial g^r_{1,b,r}}{\partial \phi} < 0$. Therefore, the sign of the relationship between $\tau_{1,b,r}$ and ϕ depends on the sign of the term in the second graph parenthesis of (18) which multiplies $\frac{\partial g^r_{1,b,r}}{\partial \phi}$. In particular, $\frac{\partial \tau_{1,b,r}}{\partial \phi} \geqslant 0$ if and only if

$$(19) \qquad -H_{gg}(g^b_{1,b,r})\left[\overline{y} - \frac{y^r}{H_g(g^r_{1,b,r})}\right] + H_{gg}(g^r_{1,b,r})\frac{y^r \, H_g(g^b_{1,b,r})}{\left[H_g(g^r_{1,b,r})\right]^2} \leqslant 0$$

and vice versa. Even though in general it is not possible to give a definite sign to the left hand side of (19), assuming a power function for the utility of the public good it turns out that inequality (19) is satisfied if

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[49]We remind that $\tau_{1,b,r} = \tau^b$ when the participation constraint is not binding.

$$(20) \qquad \frac{A(g^r_{1,b,r})^\alpha}{\tau_{1,b,r} y^r} \leqslant \frac{1}{\alpha}$$

where the numerator of the left hand side of (20) is the utility that the rich get from their preferred public good provided and the denominator represents the taxes they pay. It is useful to rewrite inequality (20) as

$$(21) \qquad A(g^r_{1,b,r})^\alpha - \tau_{1,b,r} y^r \leqslant (1-\alpha) A(g^r_{1,b,r})^\alpha.$$

By using a power function specification for $H(\cdot)$ and substracting y^r to both sides, we can rewrite the participation constraint of the rich (4) as

$$(22) \qquad -\tau_{1,b,r} y^r + A(g^r_{1,b,r})^\alpha = (1-\phi)\left[-\tau_{2,r,p} y^r + A(g^r_{2,r,p})^\alpha\right] - \phi \tau_{2,p,b} y^r.$$

The substitution of (22) into (21) leads to the following weak inequality

$$(23) \qquad (1-\phi)\left[-\tau_{2,r,p} y^r + A(g^r_{2,r,p})^\alpha\right] - \phi \tau_{2,p,b} y^r - (1-\alpha) A(g^r_{1,b,r})^\alpha \leqslant 0.$$

Now, if we take into consideration the fact that the dictatorial policy of the rich is implemented at round 2 under the rich and poor coalition (see the discussion above), we are able to rewrite (23) as[50]

$$(24) \qquad (1-\phi)(1-\alpha)\alpha^{\frac{\alpha}{1-\alpha}} A^{\frac{1}{1-\alpha}} \left(\frac{\overline{y}}{y^r}\right)^{\frac{\alpha}{1-\alpha}} - \phi \tau_{2,p,b} y^r - (1-\alpha) A(g^r_{1,b,r})^\alpha \leqslant 0.$$

Notice that only the first component of the left hand side of (24) is positive and this term decreases until zero as y^r increases.[51] Therefore, there exists a y^r sufficiently high relatively to $\overline{y}$ such that (24) is always satisfied, which in turn means that $\frac{\partial \tau_{1,b,r}}{\partial \phi} \geqslant 0$.[52]

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[50] We are using the fact that $\tau_{2,r,p} = \tau^r$, $g^r_{2,r,p} = \tau^r \overline{y}$ with $\tau^r = \left(\frac{\alpha A \overline{y}^\alpha}{y^r}\right)^{\frac{1}{1-\alpha}}$.

[51] The first component of (23) and (24) represents the net gain (with respect to the status quo) of the rich in utility terms when they are agenda setter at round 2 multiplied by $(1-\phi)$. Clearly, this component goes to zero as ϕ tends to one.

[52] Using the fact that the dictatorial policy of the rich is implemented at $\phi = 0$ and therefore $g^r_{1,b,r}(0) = \tau^r \overline{y}$, it is immediate to verify that the left hand side of (24) is equal to zero at $\phi = 0$. Moreover, notice that the left hand side of (24) is more likely to be positive when ϕ is small. In this case $\tau_{1,b,r}$ would be decreasing in ϕ. When y^r in not sufficiently high, the numerical simulations confirm that $\tau_{1,b,r}$ is decreasing for values of ϕ low and then it becomes increasing when ϕ is big enough.

At this point we know that $\tau_{1,b,r}$ is monotonically increasing in ϕ, that $\tau_{1,b,r}(0) = \tau^r$ and that $\tau_{1,b,r}(1) = \tau^b$ and this implies that $\tau^r < \tau_{1,b,r} \leqslant \tau^b$.

We now want to prove that $\tau_{1,b,p}$ is always higher than τ^b and to this aim we show that $\tau_{1,b,p} = \tau^b$ at $\phi = 0$ and that $\tau_{1,b,p}$ is increasing in ϕ. The first point is easily shown by observing that the middle class agenda setter in the coalition with the poor can implement her dictatorial policy at $\phi = 0$ if $y^p = 0$ because the participation constraint of the poor (7) is not binding. To prove the second point we differentiate the first order condition (9) with respect to ϕ by taking into account that from the participation constraint of the poor (7), $g^p_{1,b,p} = g^p_{1,b,p}\left(\phi; \tau_{1,b,p}(\phi)\right)$ and $\frac{\partial g^p_{1,b,p}}{\partial \tau_{1,b,p}} = \frac{y^p}{H_g(g^p_{1,b,p})}$. After rearranging terms we get

$$\frac{\partial \tau_{1,b,p}}{\partial \phi}\left\{ H_{gg}(g^b_{1,b,p})\left[\overline{y} - \frac{y^p}{H_g\left(g^p_{1,b,p}\right)}\right] + H_{gg}(g^p_{1,b,p})\frac{(y^p)^2\, H_g(g^b_{1,b,p})}{\left[H_g\left(g^p_{1,b,p}\right)\right]^3}\right\} +$$

$$(25) \qquad + \frac{\partial g^p_{1,b,p}}{\partial \phi}\left\{ -H_{gg}(g^b_{1,b,p})\left[\overline{y} - \frac{y^p}{H_g\left(g^p_{1,b,p}\right)}\right] + H_{gg}(g^p_{1,b,p})\frac{y^p\, H_g(g^b_{1,b,p})}{\left[H_g\left(g^p_{1,b,p}\right)\right]^2}\right\} = 0.$$

From (14) we know that $\frac{\partial g^p_{1,b,p}}{\partial \phi} > 0$ and, given that the term in the first graph parenthesis is always negative, the sign of $\frac{\partial \tau_{1,b,p}}{\partial \phi}$ depends on the sign of the term in the second graph parenthesis that multiplies $\frac{\partial g^p_{1,b,p}}{\partial \phi}$. If

$$(26) \qquad -H_{gg}(g^b_{1,b,p})\left[\overline{y} - \frac{y^p}{H_g\left(g^p_{1,b,p}\right)}\right] + H_{gg}(g^p_{1,b,p})\frac{y^p\, H_g(g^b_{1,b,p})}{\left[H_g\left(g^p_{1,b,p}\right)\right]^2} > 0$$

then $\frac{\partial \tau_{1,b,p}}{\partial \phi} > 0$, and vice versa. In this case we don't need to use a power function specification for $H(\cdot)$ because using the fact that $y^p = 0$ and $g^p_{1,b,p} > 0$ for all $\phi > 0$, inequality (26) becomes $-H_{gg}(g^b_{1,b,p})\overline{y} > 0$, which is always satisfied given that $H_{gg}(\cdot) < 0$. This implies that $\tau_{1,b,p}$ is monotonically increasing in ϕ and its minimum level is equal to τ^b at $\phi = 0$.

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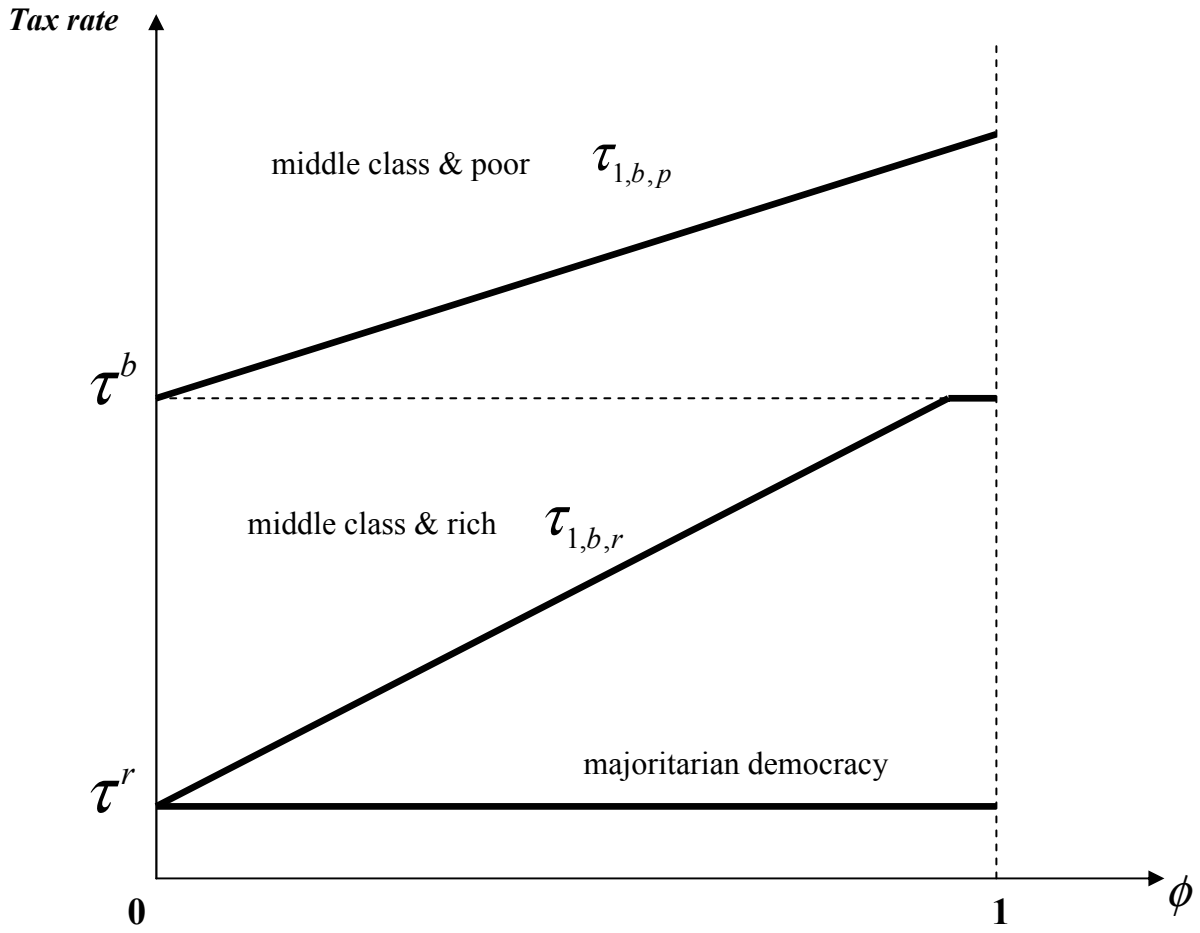
Figure 1. Taxation across constitutions and coalitions when $y^p = 0$ and y^r is high relative to $\bar{y}$.

Figure 2. Taxation with $y^p = 0.9$, $y^b = 0.95$, $\bar{y} = 1$, $y^r = 1.1$. The schedules with (new) and ϕ^{**} refer to $y^r = 4$.

Figure 3. Taxation with $y^p = 0.9$, $y^b = 0.95$, $\bar{y} = 1$, $y^r = 1.6$. The schedules with (new) and ϕ^{**} refer to $y^r = 2.5$.

Figure 4. Taxation with $y^p = 0.3$, $y^b = 0.8$, $\bar{y} = 1$, $y^r = 1.6$. The schedules with (new) and ϕ^{**} refer to $y^r = 2.4$.

Table 1. Descriptive statistics of income inequality (variable: *giniycai*).

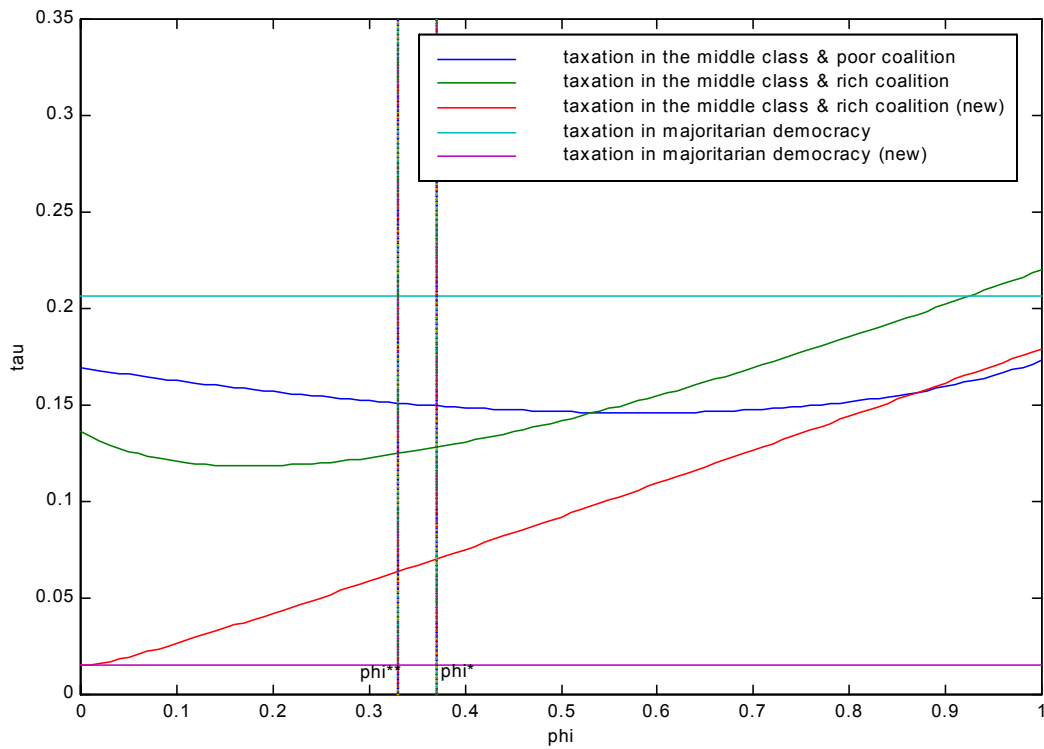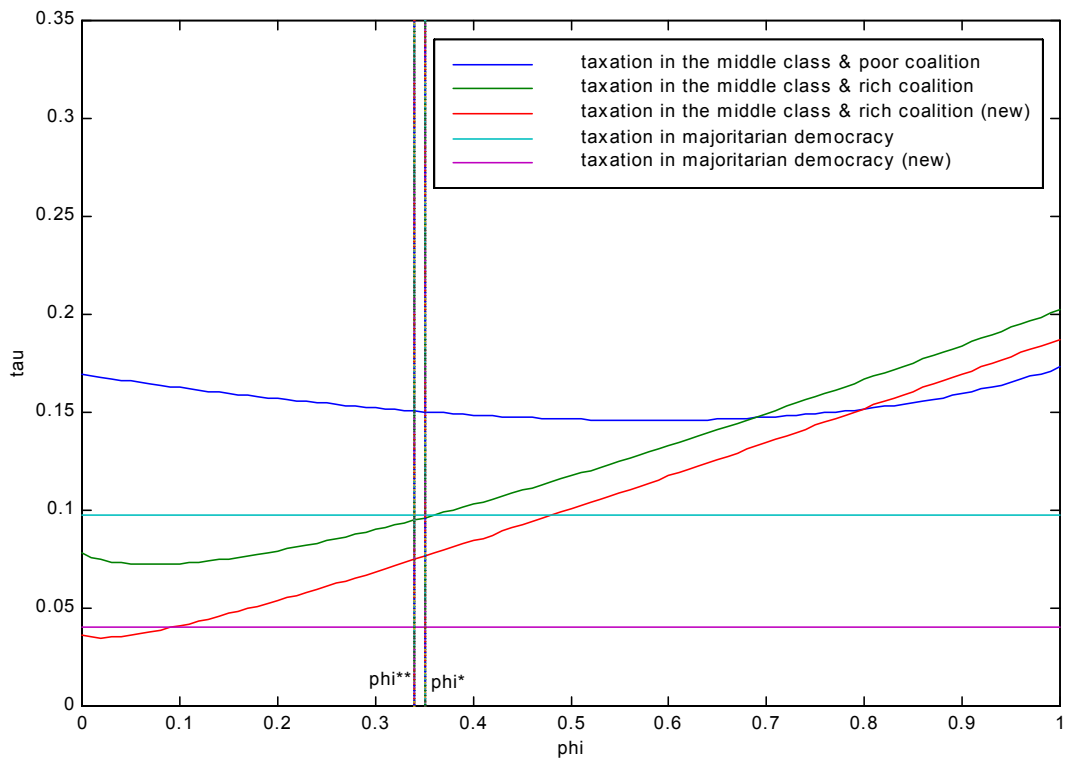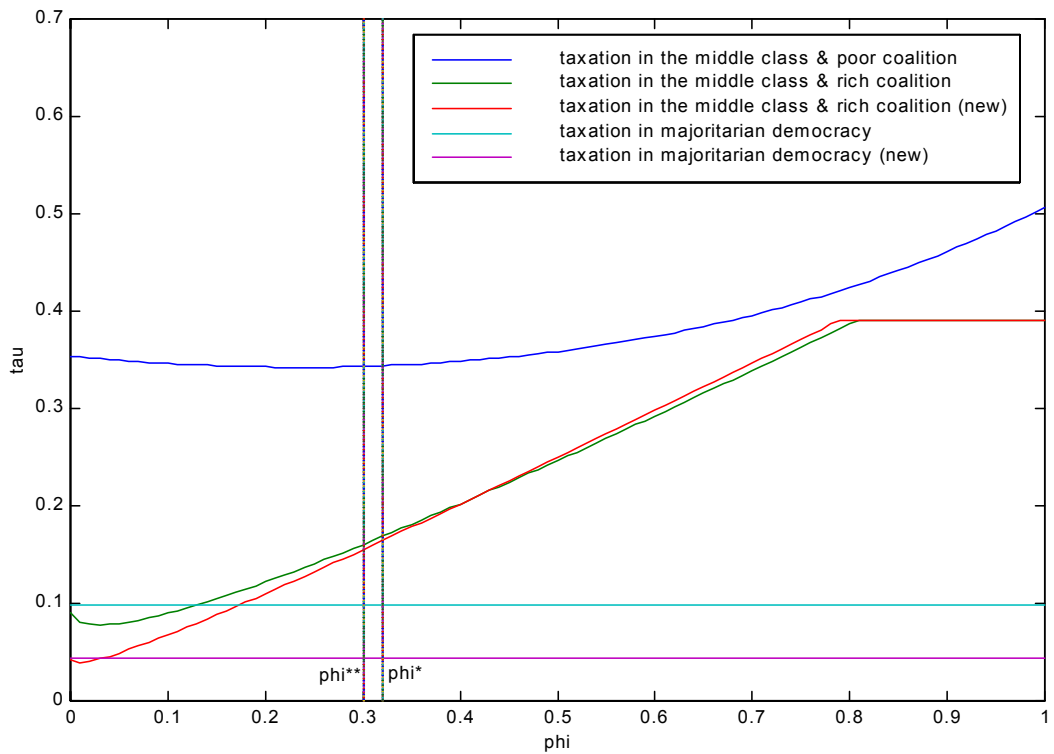**Sample: PARLIAMENTARY DEMOCRACIES**

Electoral system	Obs	Mean	Std. Dev.	Min	Max
Majoritarian	14	43.936	8.933	25.71	57.4
Proportional	17	34.179	9.132	21.5	51
Total	31	38.585	10.17	21.5	57.4

Sample: PRESIDENTIAL DEMOCRACIES

Electoral system	Obs	Mean	Std. Dev.	Min	Max
Majoritarian	9	48.95	12.723	28.53	68.6
Proportional	17	49.534	9.33	33.64	65.38
Total	26	49.332	10.373	28.53	68.6

Sample: WHOLE – classification: based on the electoral system

	Obs	Mean	Std. Dev.	Min	Max
Majoritarian	23	45.898	10.596	25.71	68.6
Consensual	34	41.856	11.974	21.5	65.38
Total	57	43.487	11.515	21.5	68.6

Sample: WHOLE – classification: presidential systems with PR enter as majoritarian

	Obs	Mean	Std. Dev.	Min	Max
Majoritarian	40	47.443	10.118	25.71	68.6
Consensual	17	34.179	9.132	21.5	51
Total	57	43.487	11.515	21.5	68.6

Table 2. Income distribution and constitution selection.

Panel A. Income distribution in parliamentary democracies.

	1st quartile 21.5≤gini≤26.98	2nd quartile 30.06≤gini≤40.58	3rd quartile 41.71≤gini≤45.49	4th quartile 46.02≤gini≤57.4	Total
Majoritarian	Ukraine	Nepal, Bangladesh, Malaysia	India, Bahamas, Barbados	Trinidad&T., Japan, Singapore, France, Thailand, Jamaica, Botswana	
Consensual	Slovak R., Hungary, Romania, Bulgaria, Czech R., Poland, Latvia	Taiwan, Spain, Italy, Germany, Portugal	Greece, Estonia, Fiji, Senegal	Turkey	
Majoritarian	1	3	3	7	14
Consensual	7	5	4	1	17
Total	8	8	7	8	31

	Below the median	Above the median	
Majoritarian	4	10	14
Consensual	12	5	17
Total	16	15	31

Panel B. Income distribution in the whole sample. Classification of majoritarian and consensual based on the electoral system.

	1st quartile 21.5≤gini≤35.45	2nd quartile 37.11≤gini≤43	3rd quartile 45≤gini≤50.11	4th quartile 51≤gini≤68.6	Total
Majoritarian	Ukraine, Belarus, Nepal, Bangladesh	Pakistan, Malaysia, Ghana, India	Bahamas, Barbados, Trinidad&T.,Philippines Japan, Uganda, Singapore, France, Zambia	Thailand, Jamaica, Botswana, Chile, Zimbabwe, Malawi	
Consensual	Slovak R., Hungary, Romania, Bulgaria, Czech R., Poland, Latvia, Taiwan, South Korea,Sri Lanka	Spain, Italy, Paraguay, Germany, Portugal, Uruguay, Greece, Argentina, Estonia, Fiji, Senegal	Dominican R,Venezuela El Salvador, Bolivia, Guatemala	Turkey, Peru, Brazil, Mexico, Nicaragua, Colombia, Honduras, Ecuador	
Majoritarian	4	4	9	6	23
Consensual	10	11	5	8	34
Total	14	15	14	14	57

	Below the median	Above the median	
Majoritarian	8	15	23
Consensual	21	13	34
Total	29	28	57

Panel C. Income distribution in the whole sample. Classification: presidential regimes with PR are classified as majoritarian democracies.

	1st quartile 21.5≤gini≤35.45	2nd quartile 37.11≤gini≤43	3rd quartile 45≤gini≤50.11	4th quartile 51≤gini≤68.6	Total
Majoritarian	Ukraine, Belarus, Nepal, South Korea, Sri Lanka, Bangladesh	Pakistan, Malaysia, Paraguay, Ghana, Uruguay, Argentina, India	Dominican R., Bahamas, Barbados, Trinidad&T., Venezuela, Philippines, Japan, Uganda, Singapore, El Salvador, France, Bolivia, Guatemala, Zambia	Thailand, Jamaica, Peru, Brazil, Mexico, Nicaragua, Botswana, Chile, Colombia, Honduras, Zimbabwe, Ecuador, Malawi	
Consensual	Slovak R., Hungary, Romania, Bulgaria, Czech R., Poland, Latvia, Taiwan	Spain, Italy, Germany, Portugal, Greece, Estonia, Fiji, Senegal		Turkey	
Majoritarian	6	7	14	13	40
Consensual	8	8	0	1	17
Total	14	15	14	14	57

	Below the median	Above the median	
Majoritarian	13	27	40
Consensual	16	1	17
Total	29	28	57

Table 3. Constitution selection and income inequality in parliamentary democracies.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Sample: Parliamentary democracies – Logit estimates						
Dep. var.	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*
giniycai	0.03 (0.012)***	0.031 (0.012)***	0.03 (0.012)**	0.033 (0.016)**	0.032 (0.016)*	0.02 (0.015)	0.033 (0.012)***
ethnic	0.16 (0.649)	0.469 (0.911)	0.152 (0.637)	0.762 (0.715)	0.339 (0.676)	-0.517 (0.818)	-0.129 (0.703)
language	0.233 (0.504)	0.031 (0.634)	0.096 (0.531)	-0.758 (0.759)	-0.2 (0.596)	0.561 (0.711)	0.486 (0.506)
lpop_60		[0.626]					
y_60			[0.555]				
regional dummies				[0.215]			
prot80, catho80, confu					[0.234]		
colonial origins						[0.238]	
religion							[0.173]
Observations	31	31	31	31	31	31	31
Pseudo R-squared	0.2	0.21	0.21	0.31	0.29	0.31	0.26

Notes: Robust standard errors in parentheses. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Logit coefficients are marginal effects on the probability of having a majoritarian system evaluated at the mean. The table includes *p*-values for Chi-square test of joint significance of the control sets. Regional dummies include *africa* and *asiae*. Regional dummy *laam* has not been included because all four parliamentary democracies in Latin America are majoritarian. Colonial origins include *col_uk* and *col_oth* but not *col_esp* as there are not Spanish-Portuguese colonies in the sample.

Table 4. Constitution selection and income inequality in the whole sample (classification based on the electoral rule).

	Whole sample – Logit estimates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. var.	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*
giniycai	0.016	0.016	0.017	0.015	0.032	0.029	0.023
	(0.007)**	(0.007)**	(0.007)**	(0.009)	(0.014)**	(0.013)**	(0.009)***
ethnic	-0.755	-0.757	-0.729	-0.617	-0.81	-1.089	-0.782
	(0.615)	(0.615)	(0.629)	(0.57)	(0.511)	(0.525)**	(0.504)
language	1.344	1.344	1.414	0.843	1.081	1.277	1.403
	(0.498)***	(0.498)***	(0.499)***	(0.542)	(0.402)***	(0.398)***	(0.411)***
lpop_60		[0.980]					
y_60				[0.665]			
regional dummies				[0.518]			
prot80, catho80, confu					[0.027]		
colonial origins						[0.004]	
religion							[0.012]
Observations	56	56	56	56	56	56	56
Pseudo R-squared	0.21	0.21	0.21	0.24	0.39	0.43	0.34

Notes: Robust standard errors in parentheses. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Logit coefficients are marginal effects on the probability of having a majoritarian system evaluated at the mean. The table includes *p*-values for Chi-square test of joint significance of the control sets. Regional dummies include a*frica*, *asiae*, *laam*. Colonial origins include *col_uk*, *col_esp*, *col_oth*.

Table 5. Constitution selection and income inequality when presidential regimes with PR are classified as majoritarian democracies.

	Whole sample – Logit estimates						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. var.	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*	*maj*
giniycai	0.024	0.024	0.023	0.025	0.025	0.022	0.025
	(0.006)***	(0.006)***	(0.006)***	(0.008)***	(0.007)***	(0.008)***	(0.007)***
ethnic	0.153	0.222	0.125	0.339	0.31	0.06	0.12
	(0.283)	(0.299)	(0.267)	(0.329)	(0.311)	(0.283)	(0.296)
language	0.162	0.129	0.028	-0.071	0.072	0.054	0.137
	(0.199)	(0.227)	(0.222)	(0.358)	(0.214)	(0.229)	(0.208)
lpop_60		[0.538]					
y_60				[0.167]			
regional dummies				[0.297]			
prot80, catho80, confu					[0.198]		
colonial origins						[0.401]	
religion							[0.261]
Observations	56	56	56	56	56	56	56
Pseudo R-squared	0.28	0.29	0.30	0.33	0.34	0.32	0.31

Notes: Robust standard errors in parentheses. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Logit coefficients are marginal effects on the probability of having a majoritarian system evaluated at the mean. The table includes *p*-values for Chi-square test of joint significance of the control sets. Regional dummies include *africa* and *asiae*. Regional dummy *laam* has not been included because all nineteen countries in Latin America enter as majoritarian. Colonial origins include *col_uk* and *col_esp* but not *col_esp* because all fifteen former Spanish-Portuguese colonies in the sample enter as majoritarian democracies.