

Endogenous Constitutions*

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First Draft: February 2002

This Draft: February 2003

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 a low level of taxation. A consensual democracy, based on proportional elections and post-electoral legislative bargaining, redistributes resources toward a broader spectrum of social groups but also has a larger government and a higher level of taxation. A consensual system turns out to be preferred by the society when *ex ante* income inequality is relatively low, while a majoritarian system is chosen when income inequality is relatively high. Thus, we also provide a new rationale, based on the endogeneity of the political system, of the positive or absent (rather than negative) association between equality and redistribution transpiring from the cross-sectional evidence of developed countries presented in some recent studies.

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

JEL Classification Numbers: D31, D72, P16.

*We wish to thank Daron Acemoglu, Alberto Alesina, Roland Bénabou, Antonio Ciccone, Gene Grossman, Arend Lijphart, Massimo Morelli, Torsten Persson, Stefano Sacchi, Gilles Saint-Paul, James Snyder, Guido Tabellini and seminar participants at Princeton University, Brown University and MIT for useful comments. A special thank to Howard Rosenthal for long discussions, encouragements, and many highly valuable comments and suggestions. Ticchi gratefully acknowledges financial support from the European Commission through the RTN grant “Specialization Versus Diversification.” Vindigni gratefully acknowledges financial support from Princeton University and MIT. The usual disclaimers apply.

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“...So long as redistribution can be achieved by steep income taxes on a very small minority then the majority principle lends itself to redistribution. But as the minority grows in size, the chances also increase that a majority coalition will be formed against further redistribution. Why should the great bulk of the voters in the middle ranges of the income distribution coalesce with the poor in favor of further redistribution rather than with the rich against further redistribution?”

(Robert Dahl, *Dilemmas of Pluralist Democracy*, ch. 6).

“...Suppose, on the other hand, that substantially all of the merchants, money lenders, security holders, manufactures, shippers, capitalists and financiers and their professional associates are to be found on one side in support of the Constitution and that substantially all or the major portion of the opposition came from non-slaveholding farmers and the debtors - would it not be pretty conclusively demonstrated that our fundamental law was not the product of an abstraction known as “the whole people,” but of a group of economic interests which must have expected beneficial results from its adoption? Obviously all the facts here desired cannot be discovered, but the data presented in the following chapters bear out the latter hypothesis, and thus a reasonable presumption in favor of the theory is created.”

(Charles A. Beard, *An Economic Interpretation of the Constitution of the United States*, ch. 1).

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) and the second sense to the model of *consensual* democracy.

Majoritarian and consensual democracies do differ in variety of institutional dimensions. Among them, three are of particular importance. First of

all, majoritarian democracies are characterized by a majoritarian (“plurality rule” or “first-past-the-post”) electoral system whereas consensual democracies by a proportional one. Second, in terms of the executive-legislative relations, the majoritarian model is characterized by the dominance of the former, and the consensual model by a balance between executive and legislative power. Finally, whereas in majoritarian democracy the executive power is typically concentrated in one-party, bare-majority cabinets, in consensual democracy it is much more spread, and governments are normally the expression of a coalition of different parties.¹

Among developed countries, the U.K. and other Commonwealth countries including Australia, Canada and New Zealand, are typical examples of majoritarian democracies. The U.S. are also in many ways (though not in all) an example of a majoritarian democracy. The consensual model of democracy is best represented by some Northern European countries including the Netherlands, Belgium, Norway, Austria and Switzerland. However, many important institutional elements of the consensual model are also shared by several other countries of Continental Europe.²

The role of key constitutional provisions 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), Austen-Smith (2000), Persson and Tabellini (2000), Lizzeri and Persico (2001) and Milesi-Ferretti, Perotti and Rostagno (2002). All of these papers have provided answers to important questions relative to such issues as the different incentives for politicians to extract rents, and to supply cash transfers versus public goods, and different types of public goods, to the citizens, across different electoral rules and political systems. All of them are, however, based on the premise of taking political institutions as “given”.

Here 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. 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.

¹ Other important institutional differences between majoritarian and consensual democracy are related to the structure of the party (two versus multiparty), the interest groups systems, the nature of the bicameralism (asymmetric versus balanced), the degree of federalism of the state, the presence or not of a written constitution and minority veto rights.

² A major exception is represented by France, which is also a majoritarian democracy, but atypical in terms of policy outcomes (see below).

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. However, in our model, the distribution of income will affect fiscal policy in a completely novel way, that is to say by influencing the process of social choice among different political institutions, which will have different first-order effects on policy itself.

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, that is to say each of them is desired by one and only one of the three social groups (or “classes”) present, and identified by their level of pre-tax income: the poor, the middle class and the rich.

We go on to characterize the political equilibrium of the model across different “constitutions,” corresponding to the essence of majoritarian and of consensual democracy respectively. A key assumption that we maintain is that, in each constitutional environment, politicians are citizen-candidates who have a direct interest in the policy implemented and, also, cannot credibly commit to implement any policy different from their preferred one.

We demonstrate first of all that in a majoritarian democracy, where fiscal policy is decided by a leader elected in a nation-wide district, the rich enjoy a natural advantage over the other classes, which arises from their relative fiscal conservatism. While no social group has any incentive to provide any of the public goods desired by the others (and cannot credibly commit to do so), the rich look preferable since they desire less taxation than anyone else, facing the highest marginal cost of it. In equilibrium, only rich citizen-candidates run for office since any opponent from a different class would be defeated by any of them, and would therefore bear only some cost in running. This result indicates that the *structure* of majoritarian democracy biases policy outcomes in favor of the rich.

In a consensual democracy vice versa, fiscal policy is decided by a coalition government formed in a parliament elected with a proportional electoral law. More precisely, the government is formed as outcome of some legislative bargaining process where a member of the social group having the largest number of parliamentary seats has the right to formulate a coalition proposal to the members of one other group of his choice. The proposal includes the specification of the level of income taxation as well as of provision of the public goods. If the proposal is rejected, a second agenda setter is appointed and the process repeated; if no coalition is formed at the second round of the game, a default policy is implemented. The second round is not reached by the equilibrium-path of the game, but it is relevant as it determines the

outside options of the classes at the first round, which are endogenous. The first agenda setter turns out to be from the middle-class, which is by assumption the largest social group. The middle class looks to form a government coalition with the class having the lowest bargaining power. A key result we demonstrate is that, in a more unequal society, the rich are in weaker bargaining position and are thus more appealing as a coalition partner. Intuitively, the rich are more afraid of the formation of a government lead by the poor given that they would be expropriated more and are thus more willing to accept any coalition proposal is made to them by the middle class. Hence, 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 complete the description of the political equilibria of the model by demonstrating that, regardless on the nature of the government coalition, taxation is always higher in a consensual than in a majoritarian democracy and that, in the former, it is higher under a center-left coalition.

Finally, we go one step backward and evaluate from the point of view of the different groups of citizens, the welfare implications of different types of political institutions and let individuals vote in an “original position” on which constitution to adopt. Our basic result is that majoritarian political institutions are more likely to be chosen by a society when the degree of pre-tax income inequality is relatively *high*. To the contrary, consensual democracy is more likely to arise in relatively more homogeneous societies. Intuitively, the poor prefer to be in a consensual democracy only if they expect to be part of the government coalition and this is the case when inequality is relatively low. If the poor do not expect to be part of the government in a consensual democracy, they do prefer strictly the adoption of a majoritarian constitution given that a rich “dictator” would tax them less than a center-right parliamentary coalition, and neither of them would supply any amount of their desired public good.

The model has some important general implications. A first one is that, in consensual democracies, center-left coalitions should be observed (much) more often than center-right ones. A second one is that more equality can well be associated in a cross-section of countries, through the endogeneity of the constitution, with more, and not with less, redistribution, just as it appears to be, through different mechanisms, in other recent theoretical papers (e.g. Bénabou (2000)), as well as in recent empirical contributions (e.g. Perotti (1996)). A third very related implication is that a shock increasing income inequality and socio-economic polarization (e.g. skilled biased

technological change) can induce a process of political transformation away from consensual procedures and institutions and toward majoritarian ones. Similarly, a shock reducing inequality, an example of which is sometime the economic effects of a war (see Piketty (2001) for an argument of this kind) has the opposite effect of stimulating the adoption of a consensual constitution.

Our paper is related to a recent literature that investigates, from different perspectives, the endogenous choice of some constitutional norms. For example, 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 (2002) analyze the optimal degree of “insulation” of policy-makers. Other contributions along these lines can be found in Barbera and Jackson (2001) and Messner and Polborn (2002).

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 deal with the political equilibrium of the model across different constitutions. Section 5 characterizes the properties of the political equilibrium, within and across constitutions in terms of public finance outcomes. Section 6 deals with the key issue of the endogeneity of the constitution and its relation with the distribution of income. Section 7 presents some pieces of historical evidence supporting our theory. Section 8 discusses the relation between income inequality and redistribution from the perspective of our model and Section 9 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 will focus on the case where $N = 3$. Group $j \in \mathfrak{S} \equiv \{p, b, r\}$ has size (measure) m^j and $\sum_{j \in \mathfrak{S}} m^j = 1$ (i.e. the total population is made by a continuum of unitary measure) and an exogenous pre-tax income equal to y^j . With no loss of generality, we also assume that $\max\{m^p, m^r\} < m^b < \frac{1}{2}$, that $m^i + m^l > \frac{1}{2} \forall (i, l) \subset \wp(\mathfrak{S})$, the set of all subsets of \mathfrak{S} , and that $y^p < y^b < y^r$. Group b is the largest one, and has an intermediate level of income, so 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 (or plurality) of votes is reached by the combination of any pair of groups.

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 $y^b < \bar{y} \equiv \sum_{j \in \mathfrak{S}} m^j y^j$: the voter with median income is poorer than the (virtual) mean voter, which means that the distribution of income is skewed to the left (consistently with the empirical evidence on the shape of the distribution of income).

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

$$w^j = c^j + H(g^j) \tag{1}$$

where c^j indicates 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.³ 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.⁴

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 captures 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 them. For example, Besley and Coate (1991) show that, allowing for different qualities of the

³This means that $H_g(\cdot) > 0$, $H_{gg}(\cdot) < 0$ and $\lim_{g^j \rightarrow 0} H_g(g^j) = \infty$.

⁴The quasi-linearity assumption simplifies the analysis but it is not essential. What is essential is a preferences specification generating a negative association between the income level and the “desired” tax rate.

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 and college education and emphasize how the public provision of it can benefit higher-income individuals at the expense of the poor.⁵ 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 the case if we refer to the provision of private good. However, one might think that the provision of such goods implies primarily a fixed cost and a low (at the extreme zero) variable costs.⁶ In any case, it is clear that in this economy fiscal redistribution takes place in the form of the selective provision of in-kind (rather than cash) transfers.

Income is taxed at a proportional rate $\tau \in [0, 1]$ ⁷ that will be determined later as a part of the political equilibrium of the model.⁸ Therefore, the budget constraint of agents of group j is simply

$$c^j = (1 - \tau) y^j. \quad (2)$$

We 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

$$\sum_{j \in \Omega} g^j \leq T(\tau) = \tau \sum_{j \in \mathfrak{S}} m^j y^j = \tau \bar{y} \quad (3)$$

where $\Omega \equiv \{j \in \mathfrak{S} : j \text{ is part of the government}\} \subseteq \varphi(\mathfrak{S})$.

⁵For an extensive evidence on the differences between U.S. and Europe in the public provision of private goods see Alesina, Glaeser and Sacerdote (2001).

⁶In 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.

⁷It is clear that the assumption of proportional taxation implies a restriction of the policy space. More generally, one may think to more or less progressive or regressive taxation schemes. However, we do believe that our main results should be robust to a more general specification of the model allowing for non-linear taxation as long as the admissible degree of progressivity (or regressivity) remains constrained.

⁸In our model there is no economic equilibrium as distinct from the political one, given that agents do not face meaningful economic decisions.

In the next two sections we derive and characterize the political equilibrium of our model, i.e. the overall level of public expenditure (that is, the tax rate τ) 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 still taken as given, these equilibria can be considered as partial political equilibria. In the general political equilibrium of the model (characterized later on), institutions will be themselves endogenous however.

We assume that *voting is sincere* in any constitutional environment and that candidate politicians are always endogenous.⁹

3 Majoritarian Democracy

We model the political process going on within a majoritarian democracy drawing on the citizen-candidate apparatus of Osborne and Slivinsky (1996) and Besley and Coate (1997).¹⁰ 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.¹¹ 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, and when therefore there may not be an equilibrium under simple majority voting with exogenous candidates. This is a potentially serious problem in our model since the policy space, namely the set

$$\left\{ (\tau, G) \in [0, 1] \times \mathbb{R}_+^3 : \sum_{j \in \Omega} g^j \leq \tau \bar{y} \right\}$$

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.

⁹The assumption of sincerity in the individual voting behavior 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 conditioning the outcome of the elections.

¹⁰Osborne 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.

¹¹The relevance of this link is further discussed later, when we will present some important pieces of historical evidence supporting our model (see in particular the discussion of the making of the American constitution).

We assume that in a majoritarian democracy fiscal policy is decided by a “leader”¹² 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 essentially two related features of majoritarian democracy (see on this Lijphart (1999), ch. 7). These are the “winner-takes-all” nature of the outcome of elections and the dominance of the executive over the legislative power.¹³ To do so, we focus on the limit case where the existence of the latter as a separate institutional body is ignored. Alternatively, we could have assumed the existence of a parliament whose members are elected in single-candidate districts. If the distribution of agents across districts is roughly the same as the overall distribution then the outcome would be the same as the one of the framework we are using here.

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 some specified cost of running. The winner of the election is the candidate gaining more than fifty percent of votes (or the plurality) and he alone decides on fiscal policy. Voting takes place only once.

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. It is clear that he would not spend anything in any public good other than his preferred one: $g^i = 0, i \neq j$ and $g^j = T = \tau \bar{y}$. Therefore, the preferred level of taxation and expenditure of a member of group j maximizes his utility given the government budget constraint. Formally, it is the solution to the following problem¹⁴

$$\max_{\{\tau\}} w^j = (1 - \tau) y^j + H(\tau \bar{y}).$$

¹²A similar assumption is made in a recent contribution of Austen-Smith (2000).

¹³Our characterization of majoritarian democracy may appear as too stylized if referred to the American political system, of which it misses a feature as important as the possibility of observing a “divided government” (e.g. Alesina and Rosenthal (1996)). However, in our view, the main results of the paper should be essentially independent from this omission. This point will be further discussed later on, when we deal with the issue of the endogeneity of the constitution.

¹⁴It is clear that this level of taxation also maximizes the utility of group j as a whole.

The first order condition of this problem implies that¹⁵

$$y^j = H_g(\tau \bar{y}) \bar{y}. \quad (4)$$

Let

$$\tau^j = \frac{H_g^{-1}(y^j/\bar{y})}{\bar{y}} \quad (5)$$

indicate the unique solution of equation (4). 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 own public good. We refer to the tax rate defined by (5) as the “dictatorial tax rate,” which can be ordered for the different groups as

$$\tau^r < \tau^b < \tau^p. \quad (6)$$

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. Therefore, in a majoritarian democracy the menu of possible policies is included in the set $\{(\tau^j, G^j)\}_{j \in \mathfrak{S}} \subset \{(0, 1) \times \mathfrak{R}_+^3 \times \Omega\}$, where τ^j is defined as in (5), $G^j = (e^j)g^j$, e^j indicating the j^{th} element of the canonical base spanning \mathfrak{R}_+^3 , and $g^j = \tau^j \bar{y}$.

Let k indicate some private benefit of being in office, which is either a psychological benefit or a not taxed monetary income, and ε be the cost of running. Both are exogenous and equal for everybody with $k \geq \varepsilon$. To avoid the existence of rents in the political process we assume that $k = \zeta \varepsilon$, where $\zeta \in \{1, 2, 3, \dots\}$. Now, we can state the main result of this Section, which is contained in Proposition 1.

Proposition 1. *The model has a unique political equilibrium with the following features. Only rich citizen-candidates run for office and each of them is elected with probability ε/k . Rich people are indifferent between running and not running; only the public good r is provided and the tax rate τ is set at the level defined by equation (5) for $y^j = y^r$.*

Proof. See Appendix. ■

¹⁵The Inada conditions imposed on $H(\cdot)$ imply that taxation is strictly positive.

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. This implies that, *off equilibrium*, it is possible to observe an “extreme coalition” made up by the rich and the poor: in case there are two candidates, a rich and a middle class agent, the poor prefer to vote for the rich since the latter’s fiscal conservatism is the best alternative they have.¹⁶ Fourth, if a group expects to lose an election, no candidate is forthcoming.

Two other features of the majoritarian democracy outcome are interesting. On the one hand, the size of the government is relatively small since fiscal policy is decided by the most fiscally conservative group. Moreover, the election’s outcome involves a departure from the standard Downsian (Downs (1957)) convergence to the median result. Indeed, the rich exercise their leadership no matter how many they are, that is even if they are the smallest social group. In this case our model of majoritarian democracy would imply a sort of “dictatorship of the absolute minority”, as opposed to the one of the median voter. It is worthy to emphasize that this bias in favor of the rich in the process of collective decision making arise directly, i.e. regardless to other factors, such as a low electoral turn-out rate among poor, low human capital individuals or the presence of credit constraints in lobbying model.

4 Consensual Democracy

In a consensual democracy, voters do not elect a leader directly but rather elect their representatives to the parliament. We assume that the electoral rule corresponds to pure proportional representation with a single nationwide electoral district: this configuration corresponds to the most extreme form of proportional representation. Equivalently, we could assume the existence of a number of electoral districts greater than one, each one representing the mirror image of the economy at large, and obtain the same political equilibrium.

The parliament is composed of a continuum of measure $\rho \in (0, 1)$ of

¹⁶Extreme coalition equilibria are not uncommon in the political economy literature. For instance, they have been found to arise in other models of public provision of private goods, such as Epple and Romano (1996a,b).

members. Similarly to the majoritarian democracy framework, candidates to the parliamentary elections are endogenous. 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. This reflects the different balance of powers between the executive and the legislative, which distinguishes consensual from majoritarian democracy.¹⁷ We also assume that the plurality of parliamentary votes is sufficient to form a government. This assumption does not correspond to the pure ideal of consensual democracy, which requires that (at least some) collective decisions are backed by a unanimous agreement or, equivalently, that the minority is entitled to exercise a binding veto right on the decisions of the majority. In our model instead we interpret the principle of power sharing which is at the root of consensual democracy in a more restricted sense. We compare the government of one elected with a majoritarian electoral law (majoritarian constitution) to the government of the majority of a parliament elected with a proportional electoral law (consensual democracy).

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 our model), at the legislative bargaining stage events take place 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 one other group of his choice. Given that “buying” votes is costly, only two groups coalitions will be observed and a version of Riker’s (1962) minimum size coalition principle will apply.
- If the proposal is accepted, the government coalition is formed, the agreed policy is implemented and the game ends.

¹⁷The classical reference on legislative bargaining in parliamentary democracies is the paper of Austen-Smith and Banks (1988), on which we draw in the modelling of the bargaining game. Austen-Smith and Banks in turn draw on the agenda setting model proposed by Romer and Rosenthal (1978, 1979).

- *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 (just as the first one) and formulates a coalition proposal to one other group of his choice.
- If no proposal is approved within the second round, 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.

The structure of the legislative bargaining model we have assumed may look at a first sight as *ad hoc* and one may wonder how critical it will be for our results. Indeed, a well-known general criticism often raised against the results obtained in several models of the industrial organization literature is that everything can be proved by writing down the appropriate extensive form game. In the light of such criticism, our assumption that the appointment of the first agenda setter is determined by a deterministic rule while the appointment of the second one is random may appear as too arbitrary. We do not find such a potential objection as very compelling on the ground of factual observations. Even casual empiricism shows that in practice a clear bias typically exists in favor of the relative majority party, in terms of the allocation of agenda setting rights, and going well beyond the relative share of the votes of such a party. Moreover, we believe that our main results are robust to a more general specification of the model, where the first agenda setter is randomly selected among the representatives of all of the three social groups, as long as a strong enough bias toward the relative majority party is assumed.

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 turns out to depend on the income distribution itself).

4.1 Entry of Candidates and Voting

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 citizen-candidate structure imply that each individual will vote for a candidate from his own social group if available whatever the resulting equilibrium policy will be. This in turn implies that in equilibrium there will be candidates of all the three groups. These results are formalized in the following Lemma.

Lemma 1.1. *In the Nash equilibrium of the voting stage of the game each individual from group j votes for a citizen-candidate from group j if available, whatever the equilibrium at the legislative bargaining stage is, $\forall j \in \mathfrak{S}$.*

Proof. By assumption voting is sincere. Since the policy preferences of the citizen-candidates from group j coincide with those of the members of that group, voting for the best policy alternative (that is, voting sincerely) is equivalent for the latter to voting for the former. ■

Next, we show that each social group has a set of seats in the parliament proportional to its size.

Lemma 1.2. *In the Nash equilibrium of the entry stage of the game, a set of measure $\lambda^j = \frac{k}{\varepsilon} \rho m^j$ of individuals from group j runs for office, a set of measure ρm^j of them is elected, and all members of group j are indifferent between running and not running, $\forall j \in \mathfrak{S}$.*

Proof. Given that individuals are atomistic, the policy outcome and therefore the gross-of-office-benefit utility of a citizen-candidate does not depend on whether any individual runs for office or is elected or not. Then, a citizen-candidate of group j runs for office if and only if

$$\{p [w^j(\tau, G) + k] + (1 - p) w^j(\tau, G)\} - w^j(\tau, G) = pk \geq \varepsilon$$

where (τ, G) is the equilibrium policy resulting from the legislative bargaining game to be played and p is the probability of being elected. Free entry of candidates implies that in equilibrium the above weak inequality holds as an equality, which means that the probability that a member of group j is elected is $p = \frac{\varepsilon}{k} \in (0, 1)$, $\forall j$.¹⁸ By this result, by Lemma 1.1 and

¹⁸Or, in other words, k/ε represents the number of citizens from each group that compete for each seat that the group wins.

by the proportionality of the electoral law follows that group j elects ρm^j representatives, and the set of candidates of group j running for office has measure $\lambda^j = \frac{\rho m^j}{p} = \frac{\varepsilon}{k} \rho m^j$. ■

4.2 The Legislative Bargaining Stage

Lemmas 1.1 and 1.2 imply that the parliament will be a mirror-image of society in the sense that the distribution of seats across the three groups will exactly reflect the distribution of individuals across social groups. This in turn means that 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,

$$\phi = \frac{m^p}{m^p + m^r} \quad (7)$$

is the probability that a poor is appointed as agenda setter at round 2. Conversely, the probability that the second round agenda setter is rich is equal to the complementary probability $(1 - \phi)$. It is clear that ϕ can be interpreted as an index of the bargaining power of the poor: 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 (conditional of the game reaching round 2) and therefore the higher will be the public good that they receive at round 1 for any given level of taxation so to accept the middle class government coalition proposal.

The legislative bargaining game has a unique (subgame-perfect) Nash equilibrium. The first agenda setter (middle class) formulates a coalition formation proposal based on a fiscal policy program to one other group only, given that no more than one group is needed to reach a parliamentary majority. The proposed policy is such to leave the group receiving the coalition formation offer just indifferent between accepting and rejecting it as no more than this is needed to buy its vote. This implies that the coalition proposal gives to the recipient a level of utility equal to his outside option, and the offer is in fact accepted. Therefore, the first question we

need to answer is the following: whose vote 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. However, we first introduce some more notation.

We indicate 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 generic group i will be $g_{s,h,l}^i$. Similarly, the level of utility of the group i is $w_{s,h,l}^i$. Let also be $\Omega_s \equiv \{j \in \mathfrak{S} : j \text{ is part of the government formed at round } s\} = \{h, l\}$.

4.2.1 Round 2 of the Bargaining Game

The following Lemma is a first step in the understanding of which vote among the poor and the rich is the cheapest to buy.

Lemma 2. *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, namely his gross income. Hence, the policy menu $(\tau_{2,h,l}, g_{s,h,l}^l)$ offered from the agenda setter h to group l satisfies the condition

$$(1 - \tau_{2,h,l}) y^l + H(g_{2,h,l}^l) = y^l. \quad (8)$$

Consider the schedule $g_{2,h,l}^l \equiv g_{2,h,l}^l(\tau_{2,h,l}, y^l)$ defined implicitly by equation (8). Holding constant $\tau_{2,h,l}$, this schedule implies that

$$\frac{\partial g_{2,h,l}^l}{\partial y^l} = \frac{\tau_{2,h,l}}{H_g(g_{2,h,l}^l)} > 0.$$

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. Finally, the assumptions on the protocol of the legislative bargaining game imply that the middle class is never the agenda setter at round 2. ■

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. And it is precisely this feature of the legislative bargaining game's equilibrium which makes the issue of the constitutional choice an interesting one. To see this, let us proceed to the backward induction solution of the game, starting from round 2 where only two situations are possible, namely the circumstances that nature appoints a rich or a poor as agenda setter. We remind that if no agreement is reached at round 1, the game goes on: nature appoints a poor agenda setter with probability ϕ and a rich one with probability $(1 - \phi)$.

Case 1. If at round 2 the agenda setter is a rich, then by Lemma 2 the poor will be the coalition partner, i.e. $\Omega_2 = \{r, p\}$. The participation constraint for the poor implies that the policy proposed $(\tau_{2,r,p}, g_{2,r,p}^p)$ is such that their utility is at least equal to the *status quo* level ($w_{2,r,p}^p \geq y^p$), and therefore¹⁹

$$(1 - \tau_{2,r,p}) y^p + H(g_{2,r,p}^p) = y^p. \quad (9)$$

The optimal tax rate for the rich solves the following maximization problem

$$\max_{\{\tau_{2,r,p}\}} w_{2,r,p}^r = (1 - \tau_{2,r,p}) y^r + H(g_{2,r,p}^r) \quad (10)$$

subject to the participation constraint for the poor (9) and the government budget constraint

$$\tau_{2,r,p} \bar{y} = g_{2,r,p}^p + g_{2,r,p}^r. \quad (11)$$

Substituting (11) into (10) implies that the optimization problem for the rich can be rewritten as

$$\max_{\{\tau_{2,r,p}\}} w_{2,r,p}^r = (1 - \tau_{2,r,p}) y^r + H(\tau_{2,r,p} \bar{y} - g_{2,r,p}^p). \quad (12)$$

¹⁹We already take into account the fact that the agenda setter will optimize giving to the coalition partner what is strictly necessary to accept the policy proposed. This explains why we write the participation constraint (and later the government budget constraint) with the equality sign.

The optimal tax rate is implicitly defined by the first order condition

$$y^r = H_g(\tau_{2,r,p}\bar{y} - g_{2,r,p}^p) \left(\bar{y} - \frac{\partial g_{2,r,p}^p}{\partial \tau_{2,r,p}} \right) \quad (13)$$

where

$$\frac{\partial g_{2,r,p}^p}{\partial \tau_{2,r,p}} = \frac{y^p}{H_g(g_{2,r,p}^p)} \quad (14)$$

is obtained from the participation constraint for the poor (9).²⁰ The second order condition is always satisfied given that $w_{2,r,p}^r$ is globally concave in $\tau_{2,r,p}$:

$$\frac{\partial^2 w_{2,r,p}^r}{\partial (\tau_{2,r,p})^2} = H_{gg}(g_{2,r,p}^r) \left[\bar{y} - \frac{y^p}{H_g(g_{2,r,p}^p)} \right]^2 + H_{gg}(g_{2,r,p}^p) \frac{(y^p)^2 H_g(g_{2,r,p}^r)}{[H_g(g_{2,r,p}^p)]^3} < 0.$$

Case 2. If at round 2 the agenda setter is a poor, the coalition partner will be the middle class, i.e. $\Omega_2 = \{p, b\}$. The participation constraint for the middle class is

$$(1 - \tau_{2,p,b})y^b + H(g_{2,p,b}^b) = y^b. \quad (15)$$

The optimal tax rate for the poor solves the maximization problem

$$\max_{\{\tau_{2,p,b}\}} w_{2,p,b}^p = (1 - \tau_{2,p,b})y^p + H(g_{2,p,b}^p) \quad (16)$$

subject to the participation constraint (15) and the government budget constraint

$$\tau_{2,p,b}\bar{y} = g_{2,p,b}^b + g_{2,p,b}^p. \quad (17)$$

²⁰Notice that from (9) it is immediate to verify that $g_{2,r,p}^p = H^{-1}(\tau_{2,r,p}y^p)$.

Substituting (17) into (16) we get

$$\max_{\{\tau_{2,p,b}\}} w_{2,p,b}^p = (1 - \tau_{2,p,b}) y^p + H(\tau_{2,p,b} \bar{y} - g_{2,p,b}^b). \quad (18)$$

The following first order condition implicitly defines the optimal tax rate

$$y^p = H_g(\tau_{2,p,b} \bar{y} - g_{2,p,b}^b) \left(\bar{y} - \frac{\partial g_{2,p,b}^b}{\partial \tau_{2,p,b}} \right) \quad (19)$$

where from (15)²¹

$$\frac{\partial g_{2,p,b}^b}{\partial \tau_{2,p,b}} = \frac{y^b}{H_g(g_{2,p,b}^b)}. \quad (20)$$

Again, the second order condition is always satisfied given that $w_{2,p,b}^p$ is globally concave in $\tau_{2,p,b}$:

$$\frac{\partial^2 w_{2,p,b}^p}{\partial (\tau_{2,p,b})^2} = H_{gg}(g_{2,p,b}^p) \left[\bar{y} - \frac{y^b}{H_g(g_{2,p,b}^b)} \right]^2 + H_{gg}(g_{2,p,b}^b) \frac{(y^b)^2 H_g(g_{2,p,b}^p)}{[H_g(g_{2,p,b}^b)]^3} < 0.$$

4.2.2 Round 1 of the Bargaining Game

At round 1 of the legislative bargaining game the middle class agenda setter will form the government coalition with the group (the rich or the poor) that allows her to reach the highest level of utility from the implemented policy. In what follows, we will establish a global result which identifies the winning coalition in terms of a critical value of ϕ (as defined by (7)). To proceed in this direction, we first define the maximization problems of the middle class when she makes the coalition with rich and the poor respectively.

Case 1: Middle class and rich coalition.

If the coalition government is made up by the middle class and the rich, the maximization problem for the middle class is

²¹From (15) we also know that $g_{2,p,b}^b = H^{-1}(\tau_{2,p,b} y^b)$.

$$\max_{\{\tau_{1,b,r}\}} w_{1,b,r}^b = (1 - \tau_{1,b,r}) y^b + H(g_{1,b,r}^b) \quad (21)$$

subject to the government budget constraint

$$\tau_{1,b,r} \bar{y} = g_{1,b,r}^b + g_{1,b,r}^r. \quad (22)$$

and the participation constraint for the rich. Notice the for the rich to be convinced to accept the proposal of the middle class agenda setter they must be given a level of utility at least equal to the expected utility they get conditional on the game reaching round 2, which is given by

$$E(w_2^r) = (1 - \phi) [(1 - \tau_{2,r,p}) y^r + H(g_{2,r,p}^r)] + \phi (1 - \tau_{2,p,b}) y^r. \quad (23)$$

This means that the policy menu $(\tau_{1,b,r}, g_{1,b,r}^r)$ the rich must be offered at round 1 is such that

$$(1 - \tau_{1,b,r}) y^r + H(g_{1,b,r}^r) \geq E(w_2^r). \quad (24)$$

Then, combining (23) and (24) we get the following participation constraint for the rich at the first round

$$(1 - \tau_{1,b,r}) y^r + H(g_{1,b,r}^r) \geq (1 - \phi) [(1 - \tau_{2,r,p}) y^r + H(g_{2,r,p}^r)] + \phi (1 - \tau_{2,p,b}) y^r. \quad (25)$$

Now, substituting (22) in (21) the above maximization problem can be rewritten as

$$\max_{\{\tau_{1,b,r}\}} w_{1,b,r}^b = (1 - \tau_{1,b,r}) y^b + H(\tau_{1,b,r} \bar{y} - g_{1,b,r}^r) \quad (26)$$

subject to (25). Assuming that the participation constraint for the rich is binding the first order condition of this problem is²²

²²In that case the constraint (25) holds with equality sign because the agenda setter proposes to the rich a policy that leaves them indifferent between accepting and rejecting it.

$$y^b = H_g \left(\tau_{1,b,r} \bar{y} - g_{1,b,r}^r \right) \left(\bar{y} - \frac{\partial g_{1,b,r}^r}{\partial \tau_{1,b,r}} \right). \quad (27)$$

where from (25)²³

$$\frac{\partial g_{1,b,r}^r}{\partial \tau_{1,b,r}} = \frac{y^r}{H_g \left(g_{1,b,r}^r \right)} > 0. \quad (28)$$

The second order condition is always satisfied as

$$\frac{\partial^2 w_{1,b,r}^b}{\partial (\tau_{1,b,r})^2} = H_{gg}(g_{1,b,r}^b) \left[\bar{y} - \frac{y^r}{H_g \left(g_{1,b,r}^r \right)} \right]^2 + H_{gg}(g_{1,b,r}^r) \frac{(y^r)^2 H_g(g_{1,b,r}^b)}{\left[H_g \left(g_{1,b,r}^r \right) \right]^3} < 0 \quad (29)$$

which proves that the objective function $w_{1,b,r}^b$ is globally concave in $\tau_{1,b,r}$.

The participation constraint for the rich does not need to be necessarily binding for all values of ϕ however. Indeed, as ϕ approaches one, the expected utility of the rich at round 2 approaches to $(1 - \tau_{2,p,b}) y^r$. Now, if the middle class dictatorial tax rate τ^b as defined by (5) is lower than $\tau_{2,p,b}$, then the participation constraint for the rich (25) is not binding. In this case the consensual democracy equilibrium under the middle class and rich coalition is equivalent to the dictatorship of the middle class which will obtain her (global) maximum level of utility by setting a tax rate $\tau_{1,b,r}$ equal to τ^b and spending all the government revenues in her preferred public good: $g_{1,b,r}^b = \tau^b \bar{y}$ and $g_{1,b,r}^r = 0$. In many numerical simulations we have found that when ϕ is sufficiently close to one the participation constraint for the poor ceases to be binding (see for example Figure 3). This result can be obtained also analytically at $\phi = 1$ in the particular case where the income of the poor y^p is equal to zero. Indeed, in this case the taxation of the government coalition between the poor agenda setter and middle class at the second round $\tau_{2,p,b}$ turns out to be defined by the following equation

$$\frac{y^b}{H_g(\tau_{2,p,b} y^b)} = \bar{y} \quad (30)$$

²³It is immediate to notice that the right hand side of (25) is independent both on $\tau_{1,b,r}$ and that the policy vector implemented at round 2 is independent on ϕ .

while the dictatorial tax rate of the middle class is given by

$$\frac{y^b}{H_g(\tau^b \bar{y})} = \bar{y}. \quad (31)$$

Combining (30) and (31) it turns out that $\tau_{2,p,b} y^b = \tau^b \bar{y}$. Then, it is immediate to verify that $\tau_{2,p,b} > \tau^b$ given that $y^b < \bar{y}$.

Case 2: Middle class and poor coalition.

When the middle class forms the government coalition with the poor, she solves the following optimization problem

$$\max_{\{\tau_{1,b,p}\}} w_{1,b,p}^b = (1 - \tau_{1,b,p}) y^b + H(g_{1,b,p}^b) \quad (32)$$

subject to the government budget constraint

$$\tau_{1,b,p} \bar{y} = g_{1,b,p}^b + g_{1,b,p}^p \quad (33)$$

and the participation constraint for the poor. The poor accept the proposal of the middle class agenda setter if the policy proposed guarantees them a level of utility at least equal to their expected utility conditional on the game reaching round 2, which is given by

$$E(w_2^p) = (1 - \phi) y^p + \phi \left[(1 - \tau_{2,p,b}) y^p + H(g_{2,p,b}^p) \right]. \quad (34)$$

This implies that for the poor to be willing to join the middle class at round 1, the following weak inequality must hold

$$(1 - \tau_{1,b,p}) y^p + H(g_{1,b,p}^p) \geq E(w_2^p). \quad (35)$$

From (34) and (35) we get the participation constraint for the poor at round 1

$$(1 - \tau_{1,b,p}) y^p + H(g_{1,b,p}^p) \geq (1 - \phi) y^p + \phi \left[(1 - \tau_{2,p,b}) y^p + H(g_{2,p,b}^p) \right]. \quad (36)$$

At this point it is worthy to emphasize that the participation constraint (36) for the poor is always binding. Indeed, the poor are always part of the government coalition at round 2 and this implies that their expected utility at this stage $E(w_2^p)$ will at least be equal to their level of income, which is what they get from the *status quo* policy. This means that for any level of $\tau_{1,b,p}$ the poor have to be compensated with a strictly positive amount of their preferred public good $g_{1,b,p}^p$, and therefore (36) is always binding.²⁴

The substitution of the government budget constraint (33) in (32) allows us to rewrite the middle class maximization problem as

$$\max_{\{\tau_{1,b,p}\}} w_{1,b,p}^b = (1 - \tau_{1,b,p}) y^b + H(\tau_{1,b,p} \bar{y} - g_{1,b,p}^p) \quad (37)$$

subject to (36). The first order condition of this problem reads

$$y^b = H_g(\tau_{1,b,p} \bar{y} - g_{1,b,p}^p) \left(\bar{y} - \frac{\partial g_{1,b,p}^p}{\partial \tau_{1,b,p}} \right). \quad (38)$$

where from the participation constraint for the poor (36)

$$\frac{\partial g_{1,b,p}^p}{\partial \tau_{1,b,p}} = \frac{y^p}{H_g(g_{1,b,p}^p)} > 0. \quad (39)$$

The second order condition is

$$\frac{\partial^2 w_{1,b,p}^b}{\partial (\tau_{1,b,p})^2} = H_{gg}(g_{1,b,p}^b) \left[\bar{y} - \frac{y^p}{H_g(g_{1,b,p}^p)} \right]^2 + H_{gg}(g_{1,b,p}^p) \frac{(y^p)^2 H_g(g_{1,b,p}^b)}{[H_g(g_{1,b,p}^p)]^3} < 0 \quad (40)$$

which means that also $w_{1,b,p}^b$ is globally concave in $\tau_{1,b,p}$.

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*

²⁴Clearly, given that the middle class proposal is such to leave the poor just indifferent between accepting and rejecting (36) holds with equality sign.

(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 ($\phi < \phi^*$) this means that there are few poor and their bargaining position is relatively weak as they can expect to become agenda setter at round 2 with low probability. Hence, they do look as a more appealing potential coalition partner to the middle class.²⁵ On the other hand, when ϕ is small ($1 - \phi$ is big) the rich have a relatively high probability 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. Therefore, when ϕ is small the middle class prefers to make a government coalition with poor because their vote is cheaper to buy. 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.²⁶

This result 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.

5 The Size of the Government Across Different Constitutions

A comparison of the level of the tax rate chosen under a majoritarian and under a consensual constitution is not straightforward due to the strong non-linearity present in the first order conditions defining them. However, we can state that, according to our model, the overall size of the government is generally higher in a consensual democracy than it is in a majoritarian one.

Result 1. *Taxation is strictly higher in a consensual democracy than it is in a majoritarian one, for a given mean level of income. The level of*

²⁵We remind that no more than one partner is needed to form a government coalition.

²⁶Figure 1 provide a graphical representation of the utility of the middle class across the two coalitions for given values of the parameters that are specified below.

public expenditure (and the size of the government) is thus also higher and its composition broader. Moreover, in a consensual democracy the level of taxation obtaining under a government coalition made by the middle class and the poor is generally higher than that obtaining under a middle class and rich coalition.

Proof. See Appendix. ■

This result also tells us that in a consensual democracy the middle class and poor coalition taxes and spends more than a middle class and rich coalition. As it will be clear soon and , since the latter government coalition is more likely to be formed in a more unequal society, the model also predicts the existence of a negative relation between inequality and redistribution in a cross-section of democracies of consensual type.

The predictions of our model relative to the systematic effects of constitutional principles on public finance outcomes appear in agreement with the empirical results found in some important related works. For instance Milesi-Ferretti, Perotti and Rostagno (2001) present evidence from OECD and Latin American countries, according to which transfers, that can be targeted to social groups with relative ease (e.g. unemployment benefits, pensions, etc.), are higher under proportional than majoritarian electoral systems. Moreover, according to Lijphart (1999, ch. 16) consensual democracies spend on average 5.3% percent more of their gross domestic product on welfare programs. The very same relation is manifest (and robust) in terms of the well known index of “decommodification” elaborated by G. Esping-Andersen, which measures the extent to which welfare benefits (with regard to unemployment, illness, disability and age) are independent on market outcomes. This is quite in agreement with our model, as welfare expenditures are promoted mostly by governments representing center-left constituencies, which are precisely the governments that should be more often than not expected to be in office in consensual democracies.

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 (one man-one vote), and that the available alternatives are the two 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.

Proposition 3. *If $\phi < \phi^*$ the society chooses the consensual democracy while it prefers the majoritarian system 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.²⁷ 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 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.²⁸ 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 Result 1) but get as well no provision at all of their specific public good. Therefore, if $\phi \in (0, \phi^*)$ the majority prefers the consensual democracy while the majoritarian democracy is chosen when $\phi \in (\phi^*, 1)$. ■

We now focus the attention on constitutional changes generated by different mean preserving spreads to the pre-tax distribution of income. We present two mean preserving spread to the distribution of income which show that an increase in income inequality makes more likely the adoption of a majoritarian democracy instead than a consensual one.²⁹

²⁷It 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.

²⁸Again, it is immediate to verify that if the poor are part of the government coalition they get a level of utility which is at least as high as their pre-tax income level, while in majoritarian democracy they always get a lower level of utility because of positive taxation and no provision of their preferred public good.

²⁹We have analyzed other kinds of mean preserving spread to the distribution of income that we do not present here but that confirm the same results.

Mean preserving spread 1.

We first consider a transformation of the distribution of income 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 \bar{y} remain constant. Then, society has a smaller middle class, more rich and more poor; that is, it is more unequal.

Observe that the threshold ϕ^* is not affected by this transformation but, as we show below, the value of ϕ necessarily increases. Therefore, it is more likely that ϕ belongs to the interval $(\phi^*, 1)$ and that a majoritarian democracy is chosen.

We now show that the mean preserving spread considered implies an increase in ϕ . Let us consider the definition of the average income

$$\bar{y} = m^p y^p + m^b y^b + m^r y^r$$

and divide both sides by $(1 - m^b) = (m^p + m^r)$ taking into account the definition of ϕ in (7)

$$\frac{\bar{y}}{1 - m^b} = \phi y^p + \frac{m^b}{1 - m^b} y^b + (1 - \phi) y^r.$$

Rearranging terms we get

$$y^r - \phi(y^r - y^p) = \bar{y} + \frac{m^b}{1 - m^b} (\bar{y} - y^b). \quad (41)$$

An increase in m^b implies a reduction in the right of (41) as $\bar{y} > y^b$ and therefore, given that $y^r > y^p$, ϕ must increase. This means that ϕ can also be interpreted as a measure of income inequality. Again, our model predict 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 by a transformation of both the size and the income of the three classes. One case of particular interest for the available historical evidence (e.g. Piketty (2001))

is that of a variation of the income of the rich, accompanied by an equi-proportional change in the number of the rich and of the poor (and reduction of the middle class), leaving both ϕ and \bar{y} unaffected. What happens in this case? To answer to this question, we proceed in five separate steps.

Step 1. First of all, observe that the utility of the middle class in the case of the coalition with the poor at round 1 does not depend on y^r , and therefore it is not affected by any variation of it.

Step 2. Notice then that the utility of the rich when they are agenda setter at the second round of the game can be written as

$$w_{2,r,p}^r = (1 - \tau_{2,r,p}) y^r + H(\tau_{2,r,p} \bar{y} - g_{2,r,p}^p(\tau_{2,r,p}; y^b)).$$

Hence

$$\frac{dw_{2,r,p}^r}{dy^r} = \frac{\partial w_{2,r,p}^r}{\partial \tau_{2,r,p}} \frac{\partial \tau_{2,r,p}}{\partial y^r} + \frac{\partial w_{2,r,p}^r}{\partial y^r} = \frac{\partial w_{2,r,p}^r}{\partial y^r} = (1 - \tau_{2,r,p})$$

since $\frac{\partial w_{2,r,p}^r}{\partial \tau_{2,r,p}} = 0$ around $\tau_{2,r,p}$ by the envelope theorem.

Step 3. Assume that the participation constraint for the rich (25) is binding (therefore it holds with strict equality in equilibrium) and differentiate it with respect to y^r .³⁰ By the results obtained in step 2 we have that

$$\frac{\partial H(g_{1,b,r}^r)}{\partial g_{1,b,r}^r} \frac{\partial g_{1,b,r}^r}{\partial y^r} = \tau_{1,b,r} - [(1 - \phi) \tau_{2,r,p} + \phi \tau_{2,p,b}]. \quad (42)$$

The term in parenthesis on the right-hand-side corresponds to the expected tax rate if the game reaches round 2. Suppose that the rich become richer, and that the tax rate they expect to pay if the game reaches round 2 is higher than the one set at round 1. Then, the difference between their (expected) tax payments conditional on the game reaching round 2 and as of round one of the game increases. This in turn weakens the bargaining position of the rich as of round 1 of the game, by making it for them more costly (in expected value), to turn down any policy coalition proposal formulated by the middle class agenda setter. Hence, the level of specific public good that must be offered them to buy their vote at round 1 is smaller.

³⁰If the constraint (25) is not binding, the policy implemented by the middle class corresponds to her preferred policy, which does not depend on the income of the rich for any mean level of income.

Step 4. Finally, observe that the utility of the middle class at round 1, when she forms a government coalition with the rich can be written as

$$w_{1,b,r}^b = (1 - \tau_{1,b,r}) y^b + H(\tau_{1,b,r} \bar{y} - g_{1,b,r}^r(\tau_{1,b,r}; y^r)).$$

Around the political equilibrium we have that

$$\frac{dw_{1,b,r}^b}{dy^r} = \frac{\partial w_{1,b,r}^b}{\partial \tau_{1,b,r}} \frac{\partial \tau_{1,b,r}}{\partial y^r} + \frac{\partial w_{1,b,r}^b}{\partial y^r} = - \frac{\partial g_{1,b,r}^r}{\partial y^r} \frac{\partial H(g_{1,b,r}^b)}{\partial g_{1,b,r}^b}$$

since, by the envelope theorem, $\frac{\partial w_{1,b,r}^b}{\partial \tau_{1,b,r}} = 0$ and $\frac{\partial g_{1,b,r}^b}{\partial y^r} = - \frac{\partial g_{1,b,r}^r}{\partial y^r}$. Moreover, given that $\frac{\partial w_{1,b,r}^b}{\partial g_{1,b,r}^b} > 0$, the sign of the effect of an increase in y^r on the utility of the middle class in a coalition with the rich depends on the sign of $\frac{\partial g_{1,b,r}^r}{\partial y^r}$ and it is positive (negative) when the latter is negative (positive).

Step 5. In the Appendix we have demonstrated that the schedule $w_{1,b,r}^b(\phi)$ is increasing in ϕ and, by the result of step 4, we can conclude that the same schedule shifts upward as y^r increases, provided that

$$\tau_{1,b,r} < [(1 - \phi) \tau_{2,r,p} + \phi \tau_{2,p,b}] \equiv E(\tau_2).$$

Since (recall step 1) the schedule $w_{1,b,p}^b(\phi)$ does not depend on y^r , the threshold ϕ^* at which the two of them cross shifts to the left as y^r increases if $\tau_{1,b,r} < E(\tau_2)$.

Unfortunately, it is not possible to determine analytically the sign of expression (42). Nevertheless, numerical simulations indicate that the sign of (42) is negative. We assume a power function specification for $H(\cdot)$ with the following baseline parameters: $A = 1$, $\alpha = 0.5$, $y^p = 0.2$, $y^b = 0.8$, $\bar{y} = 1$, $y^r = 2.5$. Given this baseline parameterization, the right hand side of equation (42) appears to be negative, for different values of ϕ , as it is clear from the following table reporting its computations.

| ϕ | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
|----------------------------|--------|-------|--------|-------|--------|-------|--------|--------|--------|
| $\tau_{1,b,r} - E(\tau_2)$ | -0.224 | -0.27 | -0.289 | -0.29 | -0.284 | -0.27 | -0.249 | -0.226 | -0.199 |

Figure 4 portrays the utility of the middle class, as a function of ϕ , in the two cases of the formation of the government coalition with the poor and with rich. Holding constant the mean income, y^r is let increase to 3, 5 and 7. As y^r increases, a coalition with the rich becomes more appealing for the middle class for any value of ϕ : hence ϕ^* decreases.

The reduction of ϕ^* generated by the increase in inequality considered implies that the range $(0, \phi^*)$ where the consensual democracy is chosen decreases, and therefore it is more likely the adoption of a majoritarian constitution.

7 Some Historical Evidence on Inequality, Class Preferences and Constitutional Choice

This Section discusses some important pieces of historical evidence that appear consistent with our theory. We focus the attention on salient episodes of the legal and political history of some European countries and of the U.S. over roughly the last two centuries.

While the constitutional history of each country is of course very specific, it is nonetheless possible to identify some general patterns of institutional evolution. These patterns correspond to the following groups of countries:

- Historically majoritarian democracies (U.K., U.S.).
- Scandinavian and other Northern European countries.
- Continental European Countries (France, Germany, Italy).

Overall, the historical evidence presented is in agreement with some of our main results, including the propositions that the structures of majoritarian democracy are the expression of the interests of the rich, who have therefore a natural preference for this democratic model, and that, in general political equilibrium, a higher (lower) income inequality should be expected to induce the adoption of a majoritarian (consensual) constitution.³¹

³¹The fact that key constitutional principles and norms ought to be interpreted from an economic perspective, that is to say as reflecting the interests of particular social groups or classes as opposed to the “public good” has also been recognized by Charles A. Beard (1913) in “An Economic Interpretation of the Constitution of the United States.” In the first chapter of his study, he writes (see page 13) that “Inasmuch as the primary object of a government, beyond the mere repression of physical violence, is the making of the rules which determine property relations of members of society, the dominant classes whose rights are thus to be determined must perforce obtain from the government such rules as

7.1 The Making of the Constitution of the United States

The United States have the oldest written constitution of the world, dating to 1787. It was drafted by a Constitutional Convention of delegates from all States (apart Rhode Island) that met in Philadelphia. Apart from some relatively minor changes, it has remained essentially the same up today, representing along with the British constitution the archetype of the model of majoritarian democracy. A seminal economic analysis of the American constitution has been provided by the legal historian Charles Beard, in a classic work of 1913.³²

Beard's work shares with our paper the premise that key constitutional principles ought to be interpreted from an economic perspective and his basic argument is that the constitution of the United States had been drafted to reflect essentially the interests of the economic elite of the time. These were essentially those of securing individual property rights, and of guaranteeing the best possible institutional framework for private economic activity. Beard (see page 324) writes:

“The movement for the Constitution of the United States was originated and carried through principally by four groups of personal interests which had been adversely affected under the Articles of Confederation: money, public securities, manufactures, and trade and shipping.

The first firm steps toward the formation of the Constitution were taken by a small and active group of men immediately interested through their personal possessions in the outcome of their labors.”

“...A large property mass was, under the prevailing suffrage qualifications, excluded at the outset from participation (through representatives) in the work of framing the Constitution.

are consonant with the larger interests necessary to the continuance of their economic process, or they must themselves control the organs of government. In a stable despotism, the former takes place; under any other system of government, where political power is shared by any portion of the population, the methods and nature of this control become the problem of prime importance - in fact, the fundamental problem in constitutional law. The social structure by which one type of legislation is secured and another prevented - that is, the constitution - is a secondary or derivative feature arising from the nature of the economic groups seeking positive action and negative restraint.”

Political and economic development have also been recognized by a long tradition of thought to be intimately connected processes. A modern important reference is the contribution of Lipset (1981). A very recent restatement of it is contained in the paper of Acemoglu and Robinson (2000). This paper however focuses on the interplay between economic development and the process of democratization, rather than on transformation of *democratic* institutions.

³²We thank Alberto Alesina for bringing this book to our attention.

The Members of the Philadelphia Convention which drafted the Constitution were, with few exceptions, immediately, directly, and personally interested in, and derived economic advantages from, the establishment of the new system.”

He also adds (see page 325) that:

“In the ratification, it became manifest that the line of cleavage for and against the Constitution was between substantial personalty interests on the one hand and the small farming and debtor interests on the other.

The Constitution was not created by “the whole people” as jurists have said; neither was it created by “the states” as Southern nullifiers long contended; but it was the work of a consolidated group whose interests knew no state boundaries and were truly national in their scope.”

Beard bases his conclusions on a large body of diverse pieces of evidence, ranging from the records of the debates in the Convention to the contemporary pamphlets and newspapers such as *The Federalist*. Two particularly interesting pieces of evidence reviewed by Beard are reported below.

The first one concerns the economic interests of the members of the Convention. Not one member represented in his own personal interests the small farming or “mechanic” classes. Vice versa, other interests such as public security, personalty invested in lands for speculation, personalty in mercantile, manufacturing and shipping lines, and personalty in slaves were all extensively represented. In other words, the Convention clearly represented only the interests of the rich (that is, the interests of the commercial and financial elite as well as of the landlords), whereas the middle and the lower classes basically did not have any voice in it at all. This reflected both the strong franchise restriction of the time, by which large masses were deprived of any political right, and the low “class-consciousness” and ability to organize themselves of those people who had the right to vote, but not enough income or education to let their voice be heard.

The second piece of evidence cited by Beard demonstrates the extraordinary awareness of the economic elite about the nature of her interests in the process of constitution making. *The Federalist* presents the political science of the new system as conceived by Hamilton, Madison and Jay. Its main practical goal was to convince the economic aristocracy, the landlords, as well the bankers, financiers and entrepreneurs of the safety of the new constitution for their own interests. It is remarkable that in the tenth number of *The Federalist*, Madison argues that the first concern of every government is economic. According to Madison, “The first object of government is the protection of the diversity in the faculties of men, from which the rights of

property originate.” For this to be possible, a fundamental goal to be pursued by an appropriate constitution is of creating a legal and institutional framework allowing to prevent the exploitation of a minority, the rich, by a majority, which he prophesied to be the landless proletariat.

7.2 Electoral Reforms in 19th Century England

England has, along with the U.S., the oldest constitution of the world. Unlike the American one, however, the English is not a written constitution. Rather, it consists in a collection of different written documents including the *Magna Charta* of 1215, the *Bill of Rights* of 1689, commonly observed practices and conceptions, as well as some laws.

It is striking that the two oldest democratic constitutions, adopted at times during which the political voice of the rich was determinant, and therefore reflecting presumably the latter’s economic interests, are both majoritarian constitutions. Our model, with its implication that majoritarian democratic institutions represent the interests of the rich, can account for this fact.

Our model can also shed light on a salient episode of the British legal and political history, that is to say on the process of electoral reform that took place during the 19th century when England reformed her electoral system three times (in 1832, 1867 and 1884 respectively).

This sequence of reforms gradually extended franchise by reducing the minimum amount of personal income necessary to vote. Strikingly enough, despite the considerable expansion of the size of electorate, the parliament, composed by the House of Commons and the House of Lords, kept representing afterwards primarily the interests of the economic elites, the landlords as well as the new rich, who created their fortunes with commerce and trade. In other words, the enlargement of suffrage did not entail any political (and economic) gains for most of those concerned, for a relatively long period. Walter Bagehot (1873), in his classic volume *The English Constitution* writes that the people, largely from the lower middle class, that were given the right to vote by the new laws did not elect their own representatives, but preferred representatives from the economic elite, whether lords or simply rich people. Bagehot (see page 8) writes that “...they liked to have one of their “betters” to represent them; if he was rich, they respected him much; and if he was a lord, they liked him better. The issue put before these electors was, which of two rich people will you choose? And each of those rich people was put forward by great parties whose notions were the notions of the rich, whose plans were their plans. The electors only selected one or two wealthy men

to carry out the schemes of one or two wealth associations.”

The main effect of these electoral reforms, at least for several years, was a reorganization of the division of the political power *within* the existing economic elite of the country. After 1832, and particularly after 1867, the aristocracy gradually lost her predominance in the House of Commons, that become more and more filled of representatives whose economic interests were mainly connected with the new trading wealth.³³ Bagehot also writes that “The main interests of both of these classes is now identical, which is to prevent or to mitigate the rule of uneducated members. But, to prevent effectually, they must not quarrel among themselves; they must not bid one against the other for the aid of their common opponent. And this is precisely the effect of a division between Lords and Commons.”

This historical puzzle can be accounted for through our model, which has precisely the implication that in a majoritarian democracy, the poor should be expected to have a conservative voting behavior. Indeed, a restriction of franchise based on income or wealth or ownership of land should be immaterial in a majoritarian democracy, given that fiscal policy reflects here the preferences of the rich, even under universal suffrage.³⁴

7.3 The Birth of Consensual Democracy in Scandinavian Countries

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 system and none of them has been discarded afterwards, even for a short period (see for instance Lakeman and Lambert (1963)).

³³Or, to use Bagehot’s words (see page 17), the aristocracy and the plutocracy respectively.

³⁴Acemoglu and Robinson (2000) have recently explained the extension of voting rights in Western societies as a strategy pursued by the political elites in order to prevent social unrest and possibly the outbreak of a revolution. We believe that this argument is not incompatible with our story. But what we wish to emphasize is that, within a majoritarian democracy, franchise restrictions need not be indeed very important in aligning fiscal policy to the interests of the rich. If this is so, the extension of franchise can well be a strategic decision of the elite, as Acemoglu and Robinson (2000) claim, with a relatively small trade-off in terms of fiscal redistribution. If, for instance, voting rights are valued by people *per se*, then the extension of franchise can set-off the potential socio-political tensions generated by the perception of the masses of the “unfairness” of a *status quo* where this is restricted.

The two cases of political development in Scandinavian nations that appear more consistent with our theory, are those of Denmark and of Norway. The first national election based on the principle of proportional representation took place in Denmark in 1856, but the particular method employed was restricted to 55 out of the 80 members of the single-chamber parliament. The degree of proportionality of the Danish electoral system has then been increased gradually over time through a sequence of partial reforms until 1920, when it has been entirely put on a proportional base.

Some evidence on the evolution of income inequality in Denmark is presented in Morrisson (2000) and it is 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 (\bar{y}) to the other people in order to achieve an equal distribution. This index falls sharply from 0.50 to 0.35 between 1870 (first year for which the data are available) and 1900. The index increases somewhat during the First World War years but quickly reverts to the pre-war values: in 1925 it was 0.36. It is then again constantly decreasing going from 0.34 in 1939 to 0.28 in 1952-1953 to 0.27 in 1963. The available evidence on the evolution of inequality from deciles and quantiles is of same vein of that based on the MEC. For instance, the top decile of income distribution declines from 50% in 1870 to 38% in 1903, to 36% in 1925 and keeps falling to reach the value of 27.1% in 1963.

Norway first introduced proportional representation in 1921. The available evidence demonstrates that income inequality has fallen constantly in the decades before that year. The Gini coefficient falls in Norway from the 0.49 value of the period 1865-1900 to 0.40 of 1900-1910 to 0.34 of 1920 (see Morrisson (2000), table 2, page 224).

The Netherlands adopted a proportional electoral law as early as 1917. There is evidence that income inequality has decreased in the Netherlands since the end of the nineteenth century, with the exception of some temporary increments due to exogenous shocks. For instance, Morrisson (see page 229) reports that "...some income data in Amsterdam since 1877 allows us to conclude that inequality was wide in this town from 1877 to 1890, before a moderate fall during the last decade followed by a period of stability between 1900 and 1914."

The cases of Finland and of Sweden appear instead to be somewhat less consistent with our theory. Finland adopted proportional representation in 1906, while income inequality has increased from 1881 to 1890 and decreased thereafter (Morrisson (2000), page 228). Sweden switched to proportional representation in 1907. According to the data reported in Morrisson, in-

equality has increased in Sweden since 1870, reaching its peak between 1890 and 1913, and has had a declining trend from 1914 to 1970, when it has stabilized.

7.4 France, Germany and Italy (1919-1948)

Piketty (2001) documents that a sharp fall in income inequality has taken place in France during the period 1914-1945, and mostly during and in the immediate aftermath of World War II. Moreover, this downward trend has been due primarily by a sensible drop in the top percentile income share. For instance, the top decile income share dropped to an absolute minimum of 29-30% of total household income in 1944-1945. This trend has been driven primarily to the shocks represented by the two World Wars and by the events of the inter-wars period (inflation and Great Depression). All of them have strongly reduced income inequality and negatively affected capital owners. For example, both wars have led to a very significant compression of the wage structure. Moreover, during World War Two, the fighting between the Germans and the Allied that took place in the French national territory after the D-Day left firms largely disorganized and the wage push implemented by the provisional government cut down profits substantially. According to our model, a sizable income loss for the richest people, should be expected to drive to the adoption of elements of the consensual democratic model, such as a proportional electoral law.

Interestingly, in the immediate aftermath of both the First and the Second World War, France switched to a proportional electoral law. In 1919, the Third Republic did so, even if the proportionality of the electoral system was quite weakened by compromises made with advocates of the majoritarian system. This system was abandoned after the 1924 election, and 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 and especially the Second one, have presumably affected, in terms of capital disruption and reduction of inequality, other Continental European countries directly hit by them such as Italy and Germany.

Italy had adopted a majoritarian electoral law at the time of her unification. In 1919, the country switched to proportional representation, adopted until the rise of fascism. After the war, a proportional system was again

adopted for the parliamentary democracy established with the constitution of 1948.

Germany has adopted representative institutions for nearly fifty years since 1918. However, the German political system has always been characterized by the leadership of a strong executive (a key feature of majoritarian democracy), a bequest of Bismarck political legacy. A true parliamentary system, with proportional representation has been introduced with the constitution of the Weimar Republic in 1919, and lasted until her collapse in 1933. A parliamentary system with proportional representation has been again introduced after 1945. The available evidence (see Morrisson (2000), page 232) indicates that income inequality has strongly decreased in Germany from 1913 to 1926, and increased again, particularly because the economic policy of the Nazi government favored capital revenues. After the Second World War, inequality decreased again, and to the detriment of the tenth decile and, after 1950, also of the seventh to ninth deciles.

We can conclude that the history of the political and economic development of France, Germany and Italy in the first half of the twentieth century is quite in agreement with our model: a substantial and persistent reduction of inequality has been associated twice (and just about at the same time) in all of these countries, with the adoption of a constitution of consensual nature.

8 On Constitutions and Redistribution

Our model helps us to shed some new light on one important open problem in political economics, namely the relation between the distribution of income in an economy and fiscal policy outcomes. Much of the research existing on this topic is based on the seminal contribution of the model of majority voting on linear tax schedules of Meltzer and Richard (1981).³⁵ It is well known that the key reduced form prediction of this model is that a higher (pre-tax) inequality in the distribution of income should be expected to generate the political support for a larger fiscal redistribution of resources. This theory faces however a major empirical problem, as the available evidence hardly provides any support in favor of it.³⁶ To the contrary, a number

³⁵ A notable example is of course represented by the literature of the political economics of fiscal policy and endogenous economic growth (e.g. Alesina and Rodrik (1994) or Persson and Tabellini (1994)).

³⁶ The application of the median voter theorem, as done in many political economy models, is also questionable on purely theoretical grounds. The median voter theorem is based on the assumption that individuals vote directly on policy, that is to say that direct

of recent important contributions (e.g. Perotti (1996), Rodriguez (1999), Bénabou (2000) and Saint-Paul (2001)) document that, if anything, the cross-sectional correlation between inequality and redistribution in OECD countries is negative, as opposed to positive. In other words, taxation and the size of government transfers and social expenditures (and along them the extent of the fiscal redistribution of income) appear to be larger where the pre-tax distribution of income is more (e.g. Continental Europe), rather than less (e.g. the U.S.), equal.

A number of different approaches have been followed to resolve this puzzle. For instance, Bénabou (2000) maintains the assumption of a majority voting-based political mechanism, but allows for some income-human capital related bias in the political system, motivated by the observation that turn-out rates are usually (much) lower for the relatively poor and uneducated. Alternatively, Rodriguez (1999) does away with voting and proposes a very different political mechanism based on lobbying activities, in which the political voice of the poor is limited by credit constraints.

In our paper we demonstrate that more unequal societies can actually be characterized by a lower level of taxation and redistribution and this can be so due to the effect of income inequality on constitutional choice. More equal societies are more likely to adopt a consensual constitution, under which taxation and redistribution are higher than under a majoritarian one. However, it is also possible to observe a negative (or the absence of) correlation between inequality and redistribution for a given constitution. Indeed, in a consensual democracy an increase in inequality can determine a change in the ruling coalition, namely a switch from a middle class and poor to a middle class and rich majority government and, consequently, a reduction of taxation. In a majoritarian democracy, an increase in inequality does not necessarily have any effect on taxation; it does so to the extent that it is associated to a variation of the income of the rich. If inequality increases as the rich become richer, for a given mean level of income, taxation should be expected to fall under a majoritarian constitution.

democracy exists. However, this is not the case in virtually any contemporary democratic state (and it has hardly ever been so in any historical instance - e.g. Pericles' Athens) where decisions are taken by elected representatives or leaders. In principle, it is not at all obvious that the policy outcome predicted by the median voter theorem should be observed also in a richer and more realistic politico-institutional setting, namely closer to the description of a representative democracy.

9 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 consensual democracies tax more and spend more (that is, have larger governments) than majoritarian ones, for a given mean level of income. 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. In our model, the mechanism driving this result comes from the effect of inequality on the bargaining power of the different classes: in a more unequal society the poor are potentially stronger and the rich weaker within a coalition government with the middle class. Therefore, the poor become less appealing as coalition partners than the rich because they do demand more redistribution in their favor. This induces the middle class to try to form a government with the rich. Anticipating this outcome, the poor will prefer the dictatorship of the rich (which, according to our model, obtains under a majoritarian constitution) to a coalition between rich and middle class, given that the latter taxes more than the former and still does not provide the public good desired by the poor.

Our basic model is admittedly a very stylized one but, as we have argued, our basic results should be robust, at least over some range, under more general specifications of it. In particular, we expect them to be so if the domain of fiscal policy is extended to include some general public good provision and in-cash redistribution. We also believe that our characterization of majoritarian democracy encompasses both the British Parliamentary and the American presidential-congressional version of it. What appears to be critical is the interplay between a majoritarian electoral rule and the concentration of the executive power in one person only, together with the correlation between policy preferences and income that arises under the assumption of lack of commitment. Then, our model does not seem inappropriate for either of the versions, the “strong” British and the “weak” American one, of majoritarian democracy.

Finally, our model also provides a new and alternative rationalization, based on the choice of different democratic constitutions, and of the different fiscal policy outcomes that these induce, to the sign of the cross-sectional relation observed between income inequality, government size and redistribution.

10 Appendix

10.1 Proof of Proposition 1

Step 1. We first prove that only the rich run for office. 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 poor would vote for the latter. Indeed, 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 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 (at least) a candidate from each group runs for office. Indeed, the middle class candidate would win the election with certainty in that case (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 indicate the probability of victory for a rich citizen-candidate (in a symmetric equilibrium, this will be identical across identical citizen-candidates). Given that only the rich run for office, the expected utility of a rich candidate is

$$E(w^r) = p[w^r(\tau^r, G^r) + k] + (1 - p)w^r(\tau^r, G^r).$$

A rich agent want to run for office if and only if the expected gain of running exceeds its cost, i.e. provided that

$$\{p[w^r(\tau^r, G^r) + k] + (1 - p)w^r(\tau^r, G^r)\} - w^r(\bar{\tau}, \bar{G}) \geq \varepsilon \quad (43)$$

where $(\bar{\tau}, \bar{G})$ indicates the policy vector implemented if he does not run. To show that the set of citizen-candidates running for office is not empty it is sufficient to show that (43) is satisfied when only one rich person runs for office $\forall (\bar{\tau}, \bar{G}) \in \{[0, 1] \times \mathfrak{R}_+^3\}$. To see this, observe that in this case $p = 1$ and (43) becomes

$$w^r(\tau^r, G^r) + k - w^r(\bar{\tau}, \bar{G}) \geq \varepsilon.$$

Since the policy vector (τ^r, G^r) maximizes the welfare of the rich, $w^r(\tau^r, G^r) > w^r(\bar{\tau}, \bar{G})$, $\forall (\bar{\tau}, \bar{G}) \in ([0, 1] \times \mathfrak{R}_+^3)$ with $(\bar{\tau}, \bar{G}) \neq (\tau^r, G^r)$. Hence, given that $k \geq \varepsilon$, (43) always holds with strict inequality when $p = 1$. This means that the unique rich candidate running for office is strictly better-off than his peers, which in turn implies that more than one rich candidate will run. Therefore, $(\bar{\tau}, \bar{G}) = (\tau^r, G^r)$ and the no-deviation condition assumes the form $pk \geq \varepsilon$. Finally, free entry of candidates drives the net gain of running down to zero in equilibrium which implies that $p = \frac{\varepsilon}{k} \in (0, 1)$.

10.2 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 is higher than the corresponding utility from the coalition with the rich if $\phi < \phi^*$, and that the opposite is true whenever $\phi > \phi^*$. To this aim, we first show that the utility of the middle class when she makes the government coalition with the rich $w_{1,b,r}^b$ is monotonically increasing in ϕ , while the utility of the middle class when the coalition is made with the poor $w_{1,b,p}^b$ is 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 $w_{1,b,p}^b$ is higher than $w_{1,b,r}^b$ at $\phi = 0$, and that the opposite is true at $\phi = 1$.

The utility of the middle class in the government coalition with the rich is defined by the maximization problem in (26) subject to the participation constraint for the rich (25). If the constraint (25) is binding, then differentiating (26) with respect to ϕ and applying the envelope theorem we get

$$\frac{dw_{1,b,r}^b}{d\phi} = -H_g(g_{1,b,r}^b) \frac{\partial g_{1,b,r}^r}{\partial \phi} > 0. \quad (44)$$

Indeed, from (25)

$$\frac{\partial g_{1,b,r}^r}{\partial \phi} = \frac{\tau_{2,r,p} y^r - H(g_{2,r,p}^r) - \tau_{2,p,b} y^r}{H(g_{1,b,r}^r)} < 0 \quad (45)$$

given that $[H(g_{2,r,p}^r) - \tau_{2,r,p} y^r] \geq 0$ because it represents the net gain of the rich when they are agenda setter at the second round. If the participation constraint for the rich is not binding, then $w_{1,b,r}^b$ is at its global maximum and $\frac{dw_{1,b,r}^b}{d\phi} = 0$. The result in (44) proves that the utility of the middle class

in the government coalition with the rich $w_{1,b,r}^b$ is monotonically increasing in ϕ .

The utility of the middle class when she makes the government coalition with the poor is defined by the maximization problem in (37) subject to the participation constraint for the poor (36).³⁷ If we differentiate (37) with respect to ϕ and apply the envelope theorem we obtain that

$$\frac{dw_{1,b,p}^b}{d\phi} = -H_g(g_{1,b,p}^b) \frac{\partial g_{1,b,p}^p}{\partial \phi} < 0 \quad (46)$$

given that from (36)

$$\frac{\partial g_{1,b,p}^p}{\partial \phi} = \frac{-\tau_{2,p,b} y^p + H(g_{2,p,b}^p)}{H_g(g_{1,b,p}^p)} > 0. \quad (47)$$

Indeed, the numerator at the right hand side represents the net gain of the poor when they are agenda setter at round 2. The result in (46) means that the utility of the middle class when she forms the government coalition with the poor $w_{1,b,p}^b$ is strictly monotonically decreasing in ϕ .

Then, it remains to show that $w_{1,b,p}^b(0) > w_{1,b,r}^b(0)$ and that $w_{1,b,p}^b(1) < w_{1,b,r}^b(1)$. First, notice that at $\phi = 0$ if the game reaches round 2 the rich will be agenda setter with probability one and they will make a government coalition with the poor. The poor will receive a level of utility from the policy implemented equal to their income y^p and the utility of the rich will be at least their income level y^r . In other words, the rich have a higher expected utility than the poor $E[w_2^r(0)] = y^r > y^p = E[w_2^p(0)]$. This means that for each level of taxation the rich have to be compensated with a greater amount of public good for two reasons. First, their expected utility at round 2 is higher and this implies that for any given level of taxation the level of specific public good they require is higher. Second, for any given level of utility to be provided they pay higher taxes, given that they have a higher income ($y^r > y^p$), and this also requires more of their specific public good to compensate the higher taxation loss. This implies that the middle class obtains a higher level of utility by making a government coalition with the poor instead than with the rich, i.e. $w_{1,b,p}^b(0) > w_{1,b,r}^b(0)$.

At $\phi = 1$ the utility of the middle class agenda setter that makes a government coalition with the poor ($w_{1,b,p}^b$) is equal to y^b . Indeed, notice

³⁷As we explained before, the constraint (36) is always binding.

that the poor are agenda setter with probability one at round 2 and they maximize their utility subject to the constraint of giving to the middle class a level of utility equal to the *status quo* (y^b). From the maximization problem of the middle class in the government coalition with rich it is immediate to verify that $w_{1,b,r}^b$ is greater than y^b . This means that $w_{1,b,r}^b(1) > w_{1,b,p}^b(1)$.

10.3 Proof of Result 1

The analytical proof of Result 1 is made assuming that the income of the poor y^p is equal to zero and a power utility function $H(g^j) = A(g^j)^\alpha$, where A is a constant and $\alpha \in (0, 1)$. Afterwards, we have removed the assumption of $y^p = 0$ and the numerical simulations have confirmed Result 1.

In what follows we show that under the above assumptions ($y^p = 0$ and power function for the utility of the public good) the tax rate $\tau_{1,b,r}$ of the government coalition between middle class and rich is in the range between the dictatorial tax rate of the rich τ^r (which corresponds to the level of taxation in majoritarian democracy) and the dictatorial tax rate of the middle class τ^b . Taxation under a middle class and poor coalition, $\tau_{1,b,p}$, is always higher than τ^b . Therefore, we obtain that $\tau^r \leq \tau_{1,b,r} \leq \tau^b \leq \tau_{1,b,p}$.

We now want to show that $\tau^r \leq \tau_{1,b,r} \leq \tau^b$. To this aim we first prove that $\tau_{1,b,r}$ is monotonically increasing in ϕ and then that $\tau_{1,b,r} = \tau^r$ at $\phi = 0$ and $\tau_{1,b,r} = \tau^b$ at $\phi = 1$. Consider the first order condition for the maximization problem of the middle class when it makes the government coalition with the rich

$$y^b = H_g(\tau_{1,b,r}\bar{y} - g_{1,b,r}^r) \left(\bar{y} - \frac{y^r}{H_g(g_{1,b,r}^r)} \right) \quad (48)$$

and differentiate it with respect to ϕ . After rearranging terms we get

$$\begin{aligned} & \frac{\partial \tau_{1,b,r}}{\partial \phi} \left\{ H_{gg}(g_{1,b,r}^b) \left[\bar{y} - \frac{y^r}{H_g(g_{1,b,r}^r)} \right]^2 + H_{gg}(g_{1,b,r}^r) \frac{(y^r)^2 H_g(g_{1,b,r}^b)}{[H_g(g_{1,b,r}^r)]^3} \right\} + \\ & + \frac{\partial g_{1,b,r}^r}{\partial \phi} \left\{ -H_{gg}(g_{1,b,r}^b) \left[\bar{y} - \frac{y^r}{H_g(g_{1,b,r}^r)} \right] + H_{gg}(g_{1,b,r}^r) \frac{y^r H_g(g_{1,b,r}^b)}{[H_g(g_{1,b,r}^r)]^2} \right\} = 0. \end{aligned} \quad (49)$$

Equation (49) allows us to determine the sign of $\frac{\partial \tau_{1,b,r}}{\partial \phi}$. First, notice that from the differentiation of the participation constraint for the rich (25) it is immediate to verify that

$$\frac{\partial g_{1,b,r}^r}{\partial \phi} < 0. \quad (50)$$

Hence, 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 (49). If

$$-H_{gg}(g_{1,b,r}^b) \left[\bar{y} - \frac{y^r}{H_g(g_{1,b,r}^r)} \right] + H_{gg}(g_{1,b,r}^r) \frac{y^r H_g(g_{1,b,r}^b)}{[H_g(g_{1,b,r}^r)]^2} < 0 \quad (51)$$

then $\frac{\partial \tau_{1,b,r}}{\partial \phi} > 0$, and vice versa. Even though in general it is not possible to give a definite sign to the left hand side of (51), assuming a power function for the utility of the public good it turns out that (51) is satisfied if

$$\frac{A(g_{1,b,r}^r)^\alpha}{\tau_{1,b,r} y^r} < \frac{1}{\alpha}. \quad (52)$$

Notice that the numerator of the left hand side of (52) is the utility that the rich get from the public good provided and the denominator represents the taxes they pay. It is easy to verify that (52) is always satisfied when $y^p = 0$ if we notice two things. First, the policy implemented by the government coalition between middle class agenda setter and the rich is the same as the one in majoritarian democracy at $\phi = 0$. Indeed, at $\phi = 0$ the rich are agenda setter with probability one at the second round, they form the government coalition with the poor, and the fiscal policy implemented corresponds to the dictatorship of the rich.³⁸ Thus, to form a government coalition at round 1, the middle class has to provide to the rich the same level of utility that they get at round 2. Given that the level of utility of the rich is equal to its global unconstrained maximum, the middle class can only implement the preferred policy of the rich, that is $\tau_{1,b,r} = \tau^r$, $g_{1,b,r}^r = \tau^r \bar{y}$ and $g_{1,b,r}^b = 0$. The dictatorial tax rate of the rich in this case is

³⁸This is so because the *status quo* utility of the poor is zero given that their income is zero.

$$\tau^r = \left(\frac{\alpha A \bar{y}^\alpha}{y^r} \right)^{\frac{1}{1-\alpha}}$$

and it is easy to verify that at $\phi = 0$

$$\frac{A(g_{1,b,r}^r)^\alpha}{\tau_{1,b,r}^r y^r} = \frac{A(\tau^r \bar{y})^\alpha}{\tau^r y^r} = \frac{1}{\alpha}. \quad (53)$$

As ϕ increases the left hand side of (53) decreases monotonically because the expected utility of the rich is monotonically decreasing in ϕ . Therefore, (52) is always satisfied and this implies that $\frac{\partial \tau_{1,b,r}}{\partial \phi} > 0$. At this point we know that $\tau_{1,b,r}$ is monotonically increasing in ϕ , that $\tau_{1,b,r} = \tau^r$ at $\phi = 0$ and (from section 4.2.2) that $\tau_{1,b,r} = \tau^b$ at $\phi = 1$. This implies that taxation under the government coalition between middle class and rich is in the range between the dictatorial tax rate of the rich and the dictatorial tax rate of the middle class: $\tau^r \leq \tau_{1,b,r} \leq \tau^b$.

We now want to show that $\tau_{1,b,p} \geq \tau^b$. Now, we take the first order condition for the maximization problem of the middle class when she makes the coalition with the poor

$$y^b = H_g(\tau_{1,b,p} \bar{y} - g_{1,b,p}^p) \left(\bar{y} - \frac{y^p}{H_g(g_{1,b,p}^p)} \right) \quad (54)$$

and we differentiate it with respect to ϕ . After rearranging terms we get

$$\begin{aligned} & \frac{\partial \tau_{1,b,p}}{\partial \phi} \left\{ H_{gg}(g_{1,b,p}^b) \left[\bar{y} - \frac{y^p}{H_g(g_{1,b,p}^p)} \right] + H_{gg}(g_{1,b,p}^p) \frac{(y^p)^2 H_g(g_{1,b,p}^b)}{[H_g(g_{1,b,p}^p)]^3} \right\} + \\ & + \frac{\partial g_{1,b,p}^p}{\partial \phi} \left\{ -H_{gg}(g_{1,b,p}^b) \left[\bar{y} - \frac{y^p}{H_g(g_{1,b,p}^p)} \right] + H_{gg}(g_{1,b,p}^p) \frac{y^p H_g(g_{1,b,p}^b)}{[H_g(g_{1,b,p}^p)]^2} \right\} = 0. \end{aligned} \quad (55)$$

From the differentiation of the participation constraint for the poor (36) we obtain that

$$\frac{\partial g_{1,b,p}^p}{\partial \phi} > 0. \quad (56)$$

Therefore, the sign of $\frac{\partial \tau_{1,b,p}}{\partial \phi}$ depends on the sign of the term in the second graph parenthesis of (55). If

$$-H_{gg}(g_{1,b,p}^b) \left[\bar{y} - \frac{y^p}{H_g(g_{1,b,p}^p)} \right] + H_{gg}(g_{1,b,p}^p) \frac{y^p H_g(g_{1,b,p}^b)}{[H_g(g_{1,b,p}^p)]^2} > 0 \quad (57)$$

then $\frac{\partial \tau_{1,b,p}}{\partial \phi} > 0$, and vice versa. Also in this case it is not possible to give a definite sign to the left hand side of (57) unless we assume a power function for the utility of the public good. In this case (57) is satisfied whenever

$$A(g_{1,b,p}^p)^\alpha > \frac{\tau_{1,b,p} y^p}{\alpha} \quad (58)$$

where the left hand side represents the utility that the poor get from the public good and the right hand side is the ratio between the taxes they pay and α . Notice that if $y^p = 0$ the level of taxation is set by the middle class (when she forms the government coalition with the poor) to their dictatorial tax rate τ^b (with $g_{1,b,p}^b = \tau^b \bar{y}$ and $g_{1,b,p}^p = 0$) at $\phi = 0$ because the participation constraint of the poor is not binding.³⁹ Given that $\tau_{1,b,p} y^p = 0$, (58) holds with equality sign at $\phi = 0$ and it is always satisfied for $\phi > 0$ because $g_{1,b,p}^p$ will be strictly positive while the right hand side remains equal to zero. This implies that $\tau_{1,b,p}$ is monotonically increasing in ϕ with a minimum level equal to τ^b (at $\phi = 0$). Summarizing, $\tau_{1,b,p}$ is always higher τ^b , which represents the upper bound of the taxation of the government coalition between the middle class and the rich (which in turn is higher than the level of taxation obtaining in majoritarian democracy). Figure 2 gives a representation of the above results.

We have removed the assumption that the income of the poor is zero and we have run numerical simulations which confirm that taxation in a consensual democracy is higher than the taxation in a majoritarian democracy. The simulations also confirm that the taxation of the government coalition between the middle class and poor is higher than taxation of the middle class and rich coalition. The numerical simulations have been run assuming

³⁹We remind that have a zero expected utility at round 2 at $\phi = 0$.

a power function specification for $H(\cdot)$ with the baseline parameters: $A = 1$ and $\alpha = 0.5$. Figure 3 shows the taxation under the following values of the income of the different classes: $y^p = 0.2$, $y^b = 0.8$, $\bar{y} = 1$, $y^r = 2.5$. From Figure 1 we can see that under this specification the value of $\phi^* \approx 0.3$. Variations of these parameters leads to the same qualitative results.

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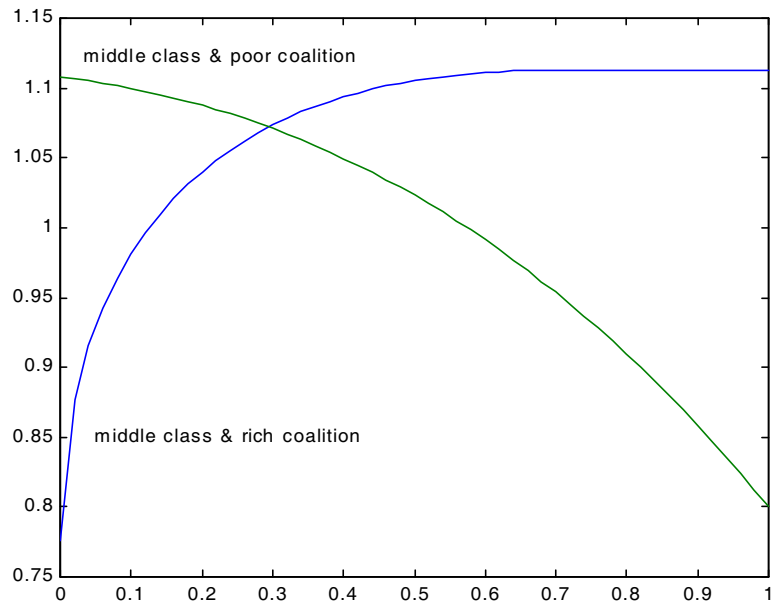


Figure 1: Utility of the middle class across coalitions in consensual democracy (with baseline parameterization).

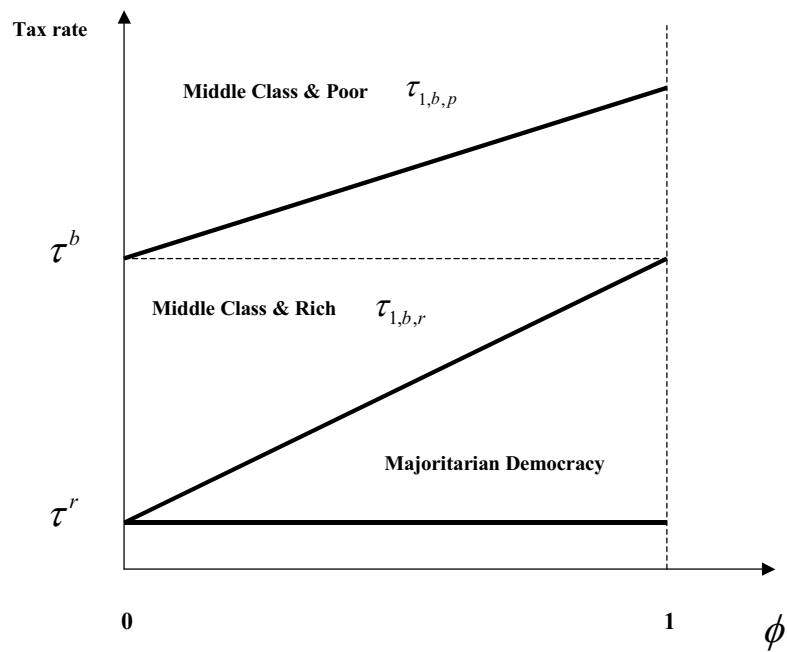


Figure 2: Taxation across constitutions and coalitions when the income of the poor is zero.

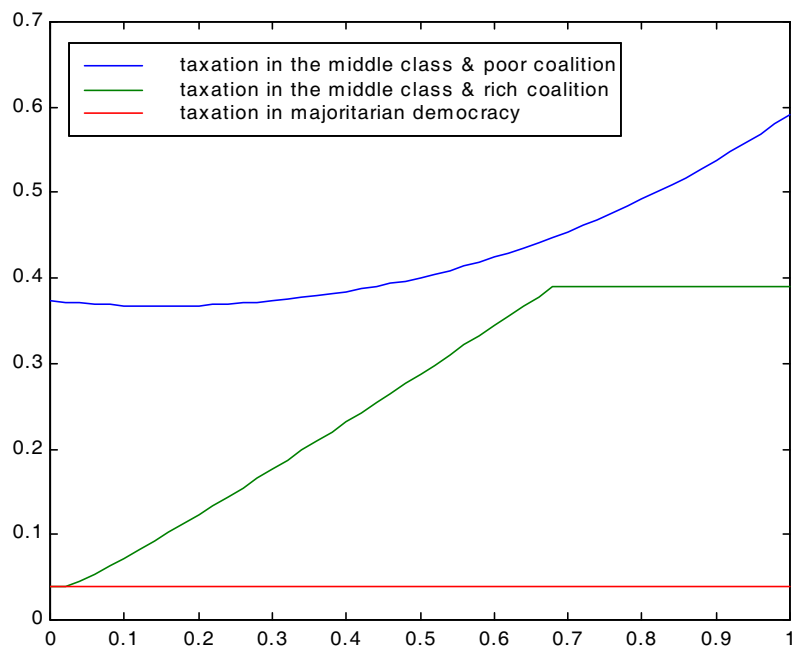


Figure 3: Taxation across constitutions and coalitions with the baseline parameterization.

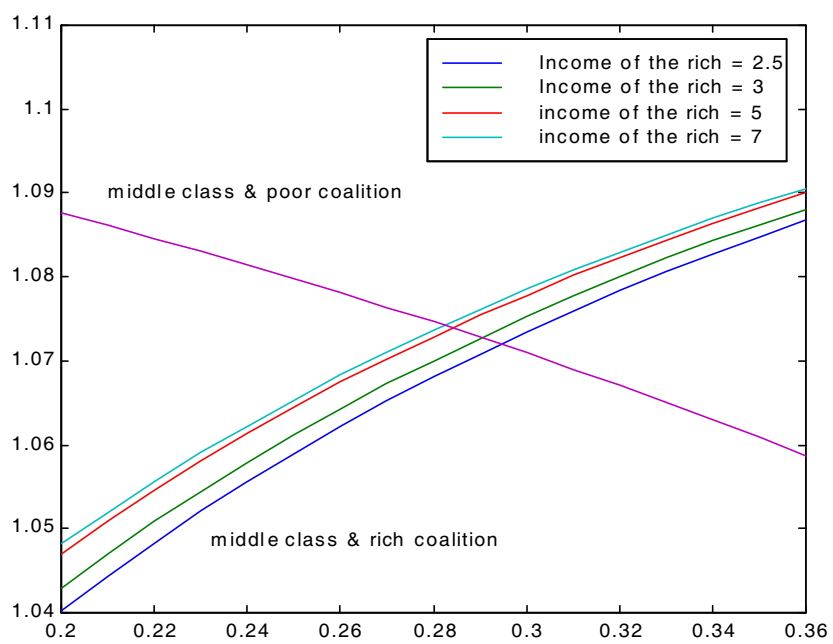


Figure 4: Variation of the utility of the middle class in the mean preserving spread 2.