Available online at www.sciencedirect.com
SCIENCE DIRECT®
European Journal of Political Economy
Vol. 21 (2005) 445–465
European Journal of POLITICAL ECONOMY
www.elsevier.com/locate/ejpe

Does democracy preempt civil wars?

Marta Reynal-Querol*

The World Bank, 1818 H Street, NW, Washington DC 29433, USA

Received 24 July 2002; received in revised form 21 July 2004; accepted 31 August 2004
Available online 27 October 2004

Abstract

This paper proposes that the appropriate measure for capturing the political aspects that matter for social conflict is the level of inclusiveness of the political system. I analyze, theoretically and empirically, the relationship between inclusiveness of the political system and its stability. According to the model, high inclusive systems, such as the proportional representation system, are more stable than low inclusive systems that favor political exclusion, such as the majoritarian system. Empirically, it seems that democracy is not enough to deter social conflicts. The level of inclusiveness of the political system is important in explaining the probability of civil wars.

JEL classification: H11; O11
Keywords: Development; Civil wars; Inclusiveness; Political systems

1. Introduction

The effect of social conflict on economic development has been extensively studied. The evidence supports the idea that social conflict and political instability are harmful for growth. Political instability depends on the social and economic structure of a country as well as on the specific political system. This paper analyzes, theoretically and empirically, the stability of different political systems, i.e., their ability to prevent conflict.

* Tel.: +1 202 4580476.
E-mail addresses: mreynalquerol@ifc.org, M.Reynal-Querol-alumni@lse.ac.uk.

0176-2680/$ - see front matter © 2004 Elsevier B.V. All rights reserved.
doi:10.1016/j.ejpoleco.2004.08.003

Recent research has found theoretical and empirical support for the relationship between political instability and slow growth. A society without highly divergent interest (for instance with low levels of polarization or inequality) displays higher political stability and faster growth (Alesina et al., 1996; Perotti, 1996; Benabou, 1996; Rodrik, 1999) because conflict is costly and will be avoided if interests are not highly divergent. Empirical literature has explored the different channels through which political instability slows growth. Mauro (1995) shows that political instability favors corruption, which, in turn, has a negative effect on growth. Another line of research proposes that political instability reduces growth because it retards investment. In particular, Alesina and Perotti (1996) argue that highly polarized societies tend to have radical changes in economic policies, which results in uncertainty and, therefore, in low levels of investment. Svensson (1998) supports this view but argues that the basic uncertainty is about the protection of property rights. The explicit link between ethnic heterogeneity and growth is less-frequently explored. An exception is the research by Easterly and Levine (1997), which focuses on the role of ethnic cleavages in the explanation of Africa's growth tragedy. More recently, Alesina et al. (2003) and Montalvo and Reynal-Querol (2004) consider how ethnicity affects economic development.

Given the relationship between political instability and growth, many authors have searched for institutional arrangements that may prevent social conflict and foster growth. Democracy is usually the first candidate. However, there is no evidence that democracy has any clear effect on economic development or the probability of civil wars. Barro (1997) concludes that the empirical evidence does not support any clear relationship between democracy and economic growth. Moreover, Sambanis (2001), Hegre et al. (2001), Ellingsten (2000), and Reynal-Querol (2002a,b) find that partly democratic countries are more prone to civil war than full democracies and full autocracies.

Therefore, it seems the likelihood of preventing or reducing violence in the context of potentially conflict-ridden societies does not hinge on the democratic status of a country alone. This paper explores the links between social conflict and inclusiveness of the political systems. Inclusiveness is the ability of a system to avoid political exclusion and democracy is just one dimension of this concept. Democratic governments with multiparty decisionmakers are more inclusive than democratic governments with just one decision-maker. I use the core model presented in Reynal-Querol (2002b) to explore theoretically the new concept of inclusiveness.[1] I capture theoretically the basic relationship between the level of inclusiveness and the stability of the political system. According to this theoretical framework, highly inclusive systems are more stable than highly exclusive systems.

The empirical analysis uses the data on Checks and Balances (CHECKS) from the Database of Political Institutions (DPI) database constructed by Keefer et al. (2001) to capture the notion of inclusiveness. Using this data (CHECKS), I find that the more inclusive the system, the lower the probability of civil war. These results are robust to different specifications, explanatory variables and sample coverage (all countries, non-OECD countries, democratic countries, and democratic non-OECD countries). The results

[1] In my (2002b) paper, I concentrate on the analysis of specific political systems (proportional and majoritarian), without providing an analysis of inclusiveness.

are in line with the results of my study (2002b) which analyzes the relation between the specific type of political system and the probability of civil war using data on Political Systems (POLS) constructed primarily using Colomer (2001).

Proportional representation systems have a higher correlation with checks and balances, or with governments with multiparty decisionmakers, when compared with majoritarian or presidential systems. However, these two variables measure different dimensions of inclusiveness. The political system measure, POLS, measures potential inclusiveness while CHECKS measures actual inclusiveness. By definition, CHECKS depends on the particular composition of the parties in a country during a particular period. Therefore, it may be that countries with a Proportional system and with large political parties have low levels of CHECKS, or conversely that countries with a majoritarian system but without large parties have more checks and balances.

These results also clarify the role of democracy itself. We observe that some democratic countries suffer periods of violence and, therefore, the mere fact of having civil liberties and freedom does not seem to protect them against violence. I argue that the level of inclusiveness of the system matters more than the level of democracy per se.

This paper is organized in five sections. Section 2 develops the theory behind the basic relationship between the level of inclusiveness and stability of political systems. Section 3 describes the data. Section 4 presents the empirical results on the relationship between democracy, the level of inclusiveness, and the probability of civil war. Section 5 concludes.

2. Inclusiveness and stability of political systems

2.1. A model of political systems

I base our theoretical analysis on the core model of political systems on my (2002b) paper. In this model, the economy consists of citizens divided into G social groups that support G political parties. Groups have preferences over policies. We assume that all individuals belonging to a given group share the same preferences. We identify each group by the policy they prefer most. Policies[2] are points in R_+. We assume that preferences over policies are single picked and linear in the distance between each policy and the ideal policy. Let α_i be the ideal policy for group i, then the valuation of policy α_j by group i is given by,[3]

$$u_i(\alpha_j) = -|\alpha_j - \alpha_i| \tag{1}$$

Generally speaking, the information relevant to any political system is the location of the ideal policy and the size of each group. The groups' true preferences are public

[2] Of course, in fact, we have multiple dimension of policy choice, which, theoretically, I do not consider in order to keep the analysis simple and clear. This may be problematic for the applicability of the theory to real world data, but this is a standard problem when trying to test the main results of any simple theoretical model.

[3] Humphreys (2001) use the square of the distance between the ideal point and the state variable as the subutility of the utility function.

knowledge. I thus exclude the possibility that groups strategically manipulate their location on the political spectrum.

A **Political Situation** is described by a vector $\alpha \in R^G$ of most desired policies. An actual policy, $\hat{\alpha}$, is a point in the real line. A political system f is a function that assigns a policy in $[\alpha_1, \alpha_G]$ to each political situation,

$$\hat{\alpha} = f(\alpha). \tag{2}$$

Without loss of generality, we use the convention that $\alpha_i \leq \alpha_{i+1}$ $\forall i \in G$. Clearly, $|\alpha_1 - \alpha_G| \geq |\alpha_i - \alpha_j|$ $\forall_{i=1,2\ldots G}$.

We restrict attention to political systems that are linear in α. Therefore, a political system will be a vector p in the unit simplex.[4] The policy, $\hat{\alpha}$, implemented by p is

$$\hat{\alpha} = \sum_{i=1}^{G} p_i \alpha_i. \tag{3}$$

I focus on the role of the location of the groups on the policy spectrum on conflict and leave the role of group sizes aside. Therefore, I shall assume that all groups have the same size.[5] Furthermore, and again for the sake of simplicity, I use three groups.

This representation of political systems is abstract. However, it is straightforward to use it to describe the standard political systems in the literature. The majoritarian system, for instance, always selects the policy considered ideal by the median voter. This corresponds to a vector p with $p_2=1$ and $p_1=p_3=0$. Indeed, $\hat{\alpha}^{\text{maj}}=\alpha_2$, where $\hat{\alpha}^{\text{maj}}$ denotes the outcome of majority rule. The proportional system gives to each group a say equal to its support, that is, $p_i=n_i$, where n_i is the share of total population supporting alternative i. In our case, because we use equally sized groups, $p_i=1/G$ for all i. Let $\hat{\alpha}^{\text{pr}}$ denote the outcome of the proportional rule; Eq. (3) then produces $\hat{\alpha}^{\text{pr}} = \frac{1}{3}\sum_{i=1}^{3} \alpha_i$. A dictatorship by an extreme groups is represented by $p_i=1$, with $i=1$ or 3.

We are interested in characterizing political systems that are socially stable; that is, no group wants to rebel against the system. We shall now define the conditions under which a group may decide to rebel.

We define a status quo, sq, as the initial political system, characterized by a particular p. $u_i^{\text{sq}} = -|\hat{\alpha}^{\text{sq}} - \alpha_i| \forall_{i=1,\ldots,G}$ is the utility of group i under the status quo.

Players decide whether to fight against the sq situation or not. The rebels will fight against the sq situation if the expected benefits from rebellion are positive. The aim of a rebellion is to exchange the current political system for a new one assigning weight 1 to the policy most preferred by the rebels. Therefore, if group k rebels and wins, they will establish the political system with $p_k=1$ and $p_i=0$ $\forall i \neq k$, implementing α_k with probability 1. Notice that we are implicitly assuming that rebel groups act myopically in the sense that

[4] f corresponds to social decision functions in Esteban and Ray (2001).

[5] This restriction has no empirical cost because, in our test, we shall not be able to control for the size of the group because of the lack of high-quality data on group size. The assumption implies, however, that our theoretical results may have an ambiguous interpretation for the case where groups have different size. In some cases, there may be a reversal of the effect. If the group that contains the median voter is larger than the other groups, then, majoritarian system may be more stable than an alternative system that tries to incorporate the other group's preferences.

the winners impose their most preferred political system, irrespective of whether it is stable or not.[6]

The direct expected gain from a rebellion is given by $\tilde{ui}-u_i^{sq}$, where $\tilde{ui}$ is the utility of group i when α_i is the policy implemented. If the rebellion fails the sq political system remains and a fixed penalty, c, is imposed on the rebels. Rebellion has a fixed cost F and has a probability of success π. Groups will rebel if the expected net benefit exceeds the expected cost. That is, a group will rebel if

$$\pi\tilde{u}_i + (1-\pi)(u_i^{sq} - c)F > u_i^{sq}. \tag{4}$$

In order to simplify notation, we shall normalize to $\alpha_3-\alpha_1=1$, and without loss of generality take $\alpha_1=0$. A political situation will thus be fully described by $\alpha=\alpha_2$.

2.2. Efficiency and inclusiveness of political systems

2.2.1. Efficiency

Policies may harm some interest groups. Let the total harm be $D=\sum_i|\hat{\alpha}-\alpha_i|$. It is standard to consider the most efficient policy to be the one that minimizes total harm, D. That is, $\alpha^* = \arg\min_{\hat{\alpha}} \sum_i |\hat{\alpha} - \alpha_i|$. It is a well-known result that the most efficient policy, α^*, is α, the alternative most preferred by the median voter.[7] Therefore, the majoritarian system implements the most efficient policy.

This approach is consistent with the Benthamite view that total social benefit—equal to the sum of individual benefits—should be the rule for collective choice. This criterion, however, has the drawback of not controlling for the distribution of the losses over the different interest groups. Notice that the majoritarian system can produce extreme losses. For instance, if α is located close to 0 or 1, then even if the total loss is minimal, one of the groups might experience a large enough loss so to challenge the system. Therefore, just seeking efficiency has the risk of severely hurting some interest groups. If we are concerned about the stability of political systems, it is plain that the system should avoid outcomes that hurt particular interests to the point of making it attractive to rebel. Therefore, if we are interested in the stability of policies, we should choose policies that also give some weight to how losses are distributed.

2.2.2. Inclusiveness

In order to evaluate political systems, some political scientists have introduced complementary concepts such as "inclusiveness" and "checks and balances". Colomer (2001), for instance, has made the point that the key feature in explaining the stability of a political system is its degree of inclusiveness. Although he does not provide a formal, analytical definition, he considers a political system to be more inclusive when the threshold of its electoral rule is larger. For instance, an electoral rule that requires 60% to implement a decision is more inclusive than another electoral rule that requires only 50%.

[6] This model can be rewritten under more sophisticated hypotheses that assumes the rebels have higher degrees of farsightedness. However, enriching the model in this direction leads to results that are qualitatively identical to the ones obtained under the shortsightedness assumption.

[7] See Davis et al. (1970) or Huber and Bingham Powell Jr. (1994).

Following this line, he argues that proportional representation systems are more inclusive than presidential and majoritarian systems.

In the literature, there are other notions closely related to, if not interchangeable with, that of inclusiveness. One example is "Checks and Balances" as defined by Keefer et al. (2001) in the presentation of the data in the Database of Political Institutions (DPI). According to them, the variable "Checks and Balances" captures the number of decisionmakers whose agreement is necessary before policies can be changed. They argue that numerous decisions makers with different policy preferences are likely to respond differently to reform opportunities as compared to the case of one single decisionmaker. Countries with multiple decisionmakers may also offer greater protection from arbitrary government action to individuals and minorities. This variable has two facets. One refers to the number of actors that have veto power and hence can block policies that are too far from their ideal preferences. The second aspect focuses more explicitly on not leaving any minority group out. The lower the value of the checks variable, the larger the level of political exclusion, and hence the lower the level of inclusiveness of the system. Therefore, the variable "Checks and Balances" captures the level of inclusiveness and consensus of the system.

Notice that, in both cases, the motivation for such concepts is the idea that groups left outside the decisionmaking process may create social and political unrest, hence rendering political systems unstable.[8] In this paper, I assume that the only difference among groups is the location of their ideal policy and not their relative size, which is assumed here to be the same. Therefore, I take the second facet of Keefer's notion as the concept of inclusiveness. In my view, inclusiveness can be defined in a nutshell as a political system that avoids political exclusion.

In this paper, I provide a formal presentation of these arguments. A formal definition of inclusiveness is proposed and examined, both theoretically and empirically, whether political stability is related to the degree of inclusiveness of political systems.

In the framework, the degree of exclusion is captured by the distance of the location of each group with respect to the location of the policy implemented. Therefore, given a political situation and a political system, the level of inclusiveness is related to the distance of the group that is farthest away from the location of the policy implemented.

Definition. Let f and g be two political systems. Then f is more inclusive than g, if and only if, $I(f,\alpha)\geq I(g,\alpha)\forall\alpha$ where,

$$I(f,\alpha) = 1 - \left[\max_i |f(\alpha) - \alpha_i|\right]$$

$$I(g,\alpha) = 1 - \left[\max_i |g(\alpha) - \alpha_i|\right] \tag{5}$$

The notion of inclusiveness seems suited to capture the distribution of the losses included by any policy. In order to examine this formally suppose now that instead of

[8] See Falkinger (1999).

minimizing the sum of losses, we minimize the maximum loss produced by every policy. The most extreme concern for the inequality in the distribution of losses corresponds to the Rawlisian valuation.[9] This is based on the largest loss. According to Rawls's criteria, we should choose the policy that satisfies $\alpha^* = \text{argmin}\left[\max_i |\hat{\alpha} - \alpha_i|\right]$. The political system that implements this policy is p_1=1/2, p_2=0, p_3=1/2.

The policy implemented is α^*=1/2 irrespective of the location of the median voter. We shall call this the mid-gap system.

Given a political system f, we define $\bar{\alpha}(f)$ to be the location of the median voter needed in order to implement the policy equal to 1/2, i.e., $f(\bar{\alpha})$=1/2.

The definition of inclusiveness only allows for a partial ordering of political systems because we require that $I(f,\alpha) \geqslant I(g,\alpha)$ has to be true for all α. Lemma 1 defines the conditions under which political systems can be compared.

We define the bias of f as the distance between $\bar{\alpha}(f)$ and 1/2; that is,

$$B(f) = \bar{\alpha}(f) - 1/2 = \frac{1}{2}\left|\frac{p_1 - p_3}{p_2}\right|. \tag{6}$$

Notice that the bias of a system is proportional to the differences of weights given to the extremes in the case of G=3.

Lemma 1. *f and g can be ranked according to the inclusiveness criteria, if and only if, f and g have the same bias.*[10]
(Proof in the Appendix).

2.3. Inclusiveness and political stability

Here we address the main question: whether the concept of inclusiveness is related to the degree of stability of a political system. We start by defining the concept of political stability. As in Esteban and Ray (2001), we consider that a political system is stable if no group is better off by triggering a rebellion.

Definition. A political system p is stable, given α, if the following inequality is satisfied for all groups:

$$\pi\tilde{u}_i + (1-\pi)(u_i^{sq} - c) - F \leq u_i^{sq} \qquad \forall i = 1, \ldots, G. \tag{7}$$

Now we turn to the study of the connection between stability and inclusiveness of a political system.

Proposition 1. *If f is more inclusive than g, that is, if $I(f,\alpha) \geq I(g,\alpha)$, then whenever g is stable, so is f, but not the other way around.*
(Proof in the Appendix).

[9] Rawls (1971).
[10] This result is valid for linear political systems only. We can find nonlinear systems, in spite of having the same bias, are not comparable in terms of inclusiveness.

Lemma 2. *The necessary and sufficient condition for the existence of a stable political system is that,*

$$|\alpha_G - \alpha_1| \leq 2\delta. \tag{9}$$

(Proof in the Appendix).

Therefore, from now on, we shall consider only situations for which stable political systems exist.

The set of stable policies relative to α consists of all $p \in P$ vectors of the unit simplex satisfying the following inequality,

$$\alpha_G - \delta \leq \sum_{i=1}^{G} p_i \alpha_i \leq \alpha_1 + \delta \quad i = 1, \ \ldots, \ G. \tag{10}$$

Given the political system, majoritarian and/or proportional, we are interested in knowing which is more stable. We consider the case of G=3. As before, in order to simplify notation, we shall normalize to $\alpha_3 - \alpha_1 = 1$, and without loss of generality take $\alpha_1 = 0$. And then, a political situation will thus be fully described by $\alpha = \alpha_2$.

Proposition 2. *Whenever the majoritarian system is stable, so is the proportional system, but not the other way around.*
(Proof in the Appendix).

It should be clear that the main results depend on the assumption that groups are of the same size. This does not mean that the results do not apply for groups with different sizes. If groups have different size, the results may be different in some cases: Imagine a case in which the group that contains the median voter is larger than the other ones. Such a majoritarian system may be more stable than a proportional representation system. This does not mean that, on average, this will be true, but that theoretically the results are unambiguous when groups are of the same size. In Reynal-Querol (2002b), I consider different group sizes, and doing a Monte Carlo simulation finds that on average the proportional system is more stable than the majoritarian system. Here we see that more inclusiveness is associated with more stability.

3. Institutions: data and statistics

3.1. The data

There are different sources of data on the level of democracy. Freedom House bases the level of democracy on the level of civil liberties and political rights.[11] A longer and more complete account on levels of democracy is provided by the data of the Polity III project.[12]

[11] This index of democracy is commonly used by economists.

[12] Scales of democracy and autocracy were created through the aggregation of authority characteristics, reflecting the different dimensions of authority, the recruitment of chief executives, and the centralization of government structure. See: http://weber.ucsd.edu/~kgledits/Polity.html.

Although the criteria for the construction of these indices of democracy are different, they look very similar and the correlation among them is about 0.9.

To capture the level of inclusiveness of the political system, or the ability to avoid political exclusion, there are two alternative indicators based, respectively, on Colomer (2001) and Keefer et al. (2001).

In Reynal-Querol (2002b), I constructed a time series of cross-section databases on political systems from 1960 to 1995 based on Colomer (2001)[13] who distinguishes the following categories of democratic institutional formulas: parliamentary-majoritarian, presidential and semipresidential, and parliamentary-proportional representation. In Reynal-Querol (2002b), I use the data of Colomer (2001) to capture the democratic rule of the country at the beginning of the period. For the non-free countries, I used data from the Freedom House and Polity III project. Using these additional sources of data, I defined five categories using dummies: non-free; partly free; parliamentary-majoritarian; presidential and semipresidential; and parliamentary-proportional. Colomer (2001) classifies and orders the political systems according to its level of inclusiveness, defined in the previous section. The proportional system is the more inclusive, followed by presidential and majoritarian. The less inclusive are the partially free and autocratic systems. The variable POLS represents the above systems.

The Database of Political Institutions (DPI) constructed by Keefer et al. (2001) provides data after 1975. The variable "Checks and Balances" (CHECKS[14]) captures the number of decisionmakers whose agreement is necessary before policies can be changed. The construction of the variable CHECKS is based on legislative and executive indices of electoral competitiveness and different measures reflecting the number of the parties in the government coalition. As explained in the previous section, countries with multiple decisionmakers may be expected to offer greater protection from arbitrary government action toward individuals and minorities. The lower the value of the variable checks, the higher the level of political exclusion and, therefore, the lower the level of inclusiveness of the system. Therefore, we use the variable, CHECKS as a proxy for the actual level of inclusiveness and consensus of the government. I consider the value of this variable at the beginning of each period.[15]

3.2. Comparing indicators of inclusiveness

Before analyzing the effect of the level of inclusiveness (CHECKS), on civil wars, I analyze the relationship between political systems, POLS, and inclusiveness, CHECKS. The variable CHECKS from the DPI dataset takes values from 1 to 9 in the sample,

[13] Colomer (2001) considers democratic institutional changes in 84 countries with more than 1 million inhabitants during a 125-year period, 1894–1999.

[14] This variable corresponds to CHECKS3 of the DPI database, which is the latest version of "Checks and Balances".

[15] Of course, one could argue that the level of inclusiveness could also depend on the level of federalism or autonomy of the region. I agree with this view. However, there is no good data on the "level of autonomy".

having value 1 for the countries with the lowest number of key decisionmakers, and value 9 for the countries with the highest number of key decisionmakers. I create dummy variables for the different values of CHECKS. Level1 takes value 1 if CHECKS has value 1, and zero otherwise. I do the same for all the possible values of CHECKS. I create nine dummy variables: level1, level2, level3, level4, level5, level6, level7, level8, and level9.

Table 1 shows the relationship between the level of inclusiveness captured through checks and balances and the political system from Colomer (2001). We can see that 40.5% of the countries with majoritarian system have level 4 of inclusiveness while only 26.2% have level 3. Notice also that 27.6% of the countries with presidential systems have level 4, 24.13% of them have level 2 and 20.68% have level 1. Finally, notice that 45.28% of countries with proportional system have level 5 or 6, and 15% have higher levels of inclusiveness. These results show that high levels of inclusiveness, captured through checks and balances, are associated with proportional representation systems rather than majoritarian systems. Presidential systems remain as the system with the lowest level of inclusiveness.

The indicator on Checks and Balance (CHECKS) better represents the actual level of inclusiveness than POLS. It covers related but different dimensions. By definition, the variable Checks and Balance depends on the particular composition of the parties in a country in a particular period. A country with a proportional representation system and one party with majority in the government will have low levels of inclusiveness because one party has the majority of votes. The same result may have been obtained if the system had been majoritarian instead of proportional. Moreover, a country with a majoritarian system but with very fragmented parties can have more than one party in government and, therefore, high levels of inclusiveness. However, the level of inclusiveness would have been higher with a proportional representation system. Therefore, POLS and CHECKS measure different dimensions of inclusiveness. We can say that POLS measures potential inclusiveness while CHECKS measures actual inclusiveness.

The following sections analyze empirically the effect of democracy and level of inclusiveness in preventing or reducing the probability of civil wars.

Table 1
Comparing CHECKS and POLITICAL SYSTEMS

Level of freedom at the beginning of the period	Political system under freedom at the beginning of the period		Level1 (checks=1)	level2 (checks=2)	Level3 (checks=3)	Level4 (checks=4)	Level56 (checks=5 or 6)	Level789 (checks=7 or 8 or 9)
Autocracy		156	97.4	0.64	1.28	0.64	0	0
Partially free		140	67.8	15.71	10.71	2.14		
Free		113						
	Majoritarian	42	2.38	4.76	26.19	40.47	23.80	2.38
	Presidential	58	20.68	24.13	6.89	27.58		
	Proportional	53	9.43	3.7	7.5	18.86	45.28	15.09

4. An empirical investigation

4.1. Inclusiveness and civil wars: a first look

Civil wars are one of the most extreme forms of political violence. For this reason, there have been attempts to implement peace agreements in potentially conflict-prone societies by increasing political rights and civil liberties. However, the empirical evidence on the effect of these devices as preempting civil wars is not clear because countries with high levels of democracy also experience civil war. Using data on civil wars from Doyle and Sambanis (2000), we find (Table 2) that countries with high levels of inclusiveness at the beginning of the period experience less civil war during the following period. For countries at level1 or level2 at the beginning of the period, around 30% experience a civil war. For countries at level3 or level4, the percentage is 16%. Finally, for countries with higher levels of inclusiveness, level5 or level6, only 5% experience civil war. Having more than level6 of inclusiveness seems to guarantee avoiding civil war. These results are qualitatively the same when we include only free countries, except for level3 and level4. The results show that 18% of the free countries with level4 experience a civil war. These numbers indicate that governments with multiparty decisionmakers have experienced fewer civil wars.

4.2. Data and specification

The basic specification follows Fearon and Laitin (2003), Doyle and Sambanis (2000), and Collier and Hoeffler (1998, 2002). For all the empirical exercises, we consider a sample of 138 countries and data from 1960 to 1995, organized in 5-year periods. The data on civil wars is from Doyle and Sambanis (2000; DS). Because of the nature of the data, the econometric specification should accommodate a discrete variable with the panel data structure. For this purpose, a reasonable choice is the logistic model.

Fearon and Laitin (2003) argue that per capita income is a proxy for the "state's overall financial, administrative, police and military capabilities". When a government is weak,

Table 2
Civil wars and CHECKS

All countries		Only free countries	
Level of CHECKS	Percentage of cases with civil war	Level of CHECKS	Percentage of cases with civil war
level1	27.8%	level1	33.33%
level2	33%	level2	33.33%
level3	16%	level3	5%
level4	15.8%	level4	18.6%
level5	5.1%	level5	3%
level6	5%	level6	5%
level7	0	level7	0
level8	0	level8	0
level9	0	level9	0

rebels can expect a higher probability of success. In addition, a low level of income per capita reduces the opportunity cost of engaging in a civil war. Population size is another factor in the explanation of civil wars. First, the definition of civil war as an armed conflict that generates at least 1000 deaths suggests that one should control by population as a scale factor. Second, Collier and Hoeffler (1998) consider population size as an additional proxy for the benefits of a rebellion because it measures potential labor income taxation. Finally, Fearon and Laitin (2003) argue that a large population implies difficulties controlling events at the local levels, which increases the number of potential rebels that can be recruited by the insurgents.

Mountains are another dimension of opportunity because this terrain could provide a safe haven for rebels. Large distances between areas of the country and the centers of states power also favor the incidence of civil wars, specially if there is a natural frontier between them, like the sea or other countries. Collier and Hoeffler (2002) point out that the existence of natural resources increases the payoff if victory is achieved. Most of the literature considers the effects of democracy. In principle, political rights and civil liberties should reduce the risk of armed conflict because they attenuate discrimination and repression. Finally, Montalvo and Reynal-Querol (2003) show that social polarization, measured by ethnic and religious polarization, is the appropriate measure to capture the potential social conflict from social cleavages, rather than the fractionalization measure.

The explanatory variables for the probability of civil wars thus include the log of the population at the beginning of the period (LPOP), the log of the real GDP per capita (LGDPC), primary exports (PEXP), mountains (MOUNTAIN), noncontiguous states (NONCON), the level of democracy (DEMP3), the index of ethnic or religious polarization (POLAR), and regional dummies.

4.3. Inclusiveness and the prevention of civil war

Most empirical studies show that the level of democracy alone does not explain the probability of civil war. Sambanis (2001), Hegre et al. (2001), Ellingsten (2000), and I (Reynal-Querol, 2002a,b) find that middle-level democracies are more prone to civil war than high-level democracies and high-level autocracies. Table 3 analyzes the effect of democracy using two different datasets, the Polity III index (columns 1 and 2) and Gastil's index (columns 3, 4, and 5). From Polity III, we use a dummy for their measure of democracy (DEMP3 is equal to 1 if the score of democracy is higher or equal to 4) and a dummy for their measure of autocracy (AUTOCP3 equal to 1 if the score of autocracy is higher or equal to 4). From Gastil's index, we use a dummy variable for the countries that are considered Free (Freedom) and a dummy for the partially free (PF). The results corroborate the idea that democracy is not enough to prevent civil wars, and that midlevel democracies (partially free systems) are the countries with the highest probability of conflict compared with pure democratic or pure autocratic states.

Table 4 analyzes empirically the effect of the level of inclusiveness on civil war using the dummy variables constructed from the variable CHECKS. From columns 1 to 4 we consider a sample of 138 countries. The results show that countries with level1, level2, level3 or level4 of inclusiveness have a higher probability of civil war than countries with

Table 3
Democracy and civil wars

	(1)	(2)	(3)	(4)	(5)
C	0.37 (0.21)	1.37 (0.76)	−0.71 (−0.40)	0.023 (0.01)	0.09 (0.05)
LGDPC	−0.87 (−4.99)	−0.95 (−5.52)	−0.77 (−4.58)	−0.87 (−5.17)	−0.88 (−5.00)
LPOP	0.35 (3.98)	0.36 (4.07)	0.40 (4.34)	0.38 (4.15)	0.38 (4.14)
PEXP	0.29 (0.28)	0.30 (0.28)	0.42 (0.40)	0.10 (0.10)	0.10 (0.10)
Mountain	0.00 (1.19)	0.00 (1.13)	0.00 (0.98)	0.00 (0.99)	0.00 (0.99)
NONCON	−0.08 (−0.25)	−0.17 (−0.51)	0.12 (0.35)	0.17 (0.51)	0.15 (0.44)
POLAR	1.62 (2.61)	1.62 (2.58)	1.67 (2.60)	1.62 (2.48)	1.62 (2.48)
DEMP3	0.03 (1.00)				
AUTOCP3		−0.09 (−2.58)			
Freedom			−0.29 (−1.04)		0.07 (0.25)
PF				0.73 (2.92)	0.77 (2.69)
No. of observations	741	741	704	704	704
R^2	0.1500	0.1591	0.1614	0.1728	0.1729

Absolute z-statistics in parenthesis.

level7, level8, or level9 of inclusiveness. However, countries with level5 or level6 of inclusiveness have the same probability of civil war as countries having level7, level8 or level9. In addition, these results do not depend on the variables included in the specification. The same regression considering only the non-OECD countries in column 5 shows qualitatively the same results as using the entire sample. This indicates that the

Table 4
Checks and balances and civil wars

	All countries				Without OECD countries
	(1)	(2)	(3)	(4)	(5)
C	4.29 (4.21)	0.20 (0.17)	0.39 (0.31)	1.32 (0.70)	−1.12 (−0.56)
LGDPC	−0.89 (−6.09)	−0.91 (−6.12)	−0.92 (−6.14)	−1.08 (−5.54)	−0.71 (−3.24)
LPOP		0.44 (5.81)	0.43 (5.18)	0.33 (3.60)	0.33 (3.64)
PEXP			0.03 (0.03)	−0.33 (−0.30)	−1.29 (−1.11)
Mountain				0.00 (1.08)	0.00 (0.82)
NONCON				0.10 (0.30)	0.51 (1.36)
POLAR				1.81 (2.72)	1.64 (2.21)
DEMP3	0.02 (0.63)	0.03 (0.97)	0.03 (0.98)	0.04 (1.10)	0.064 (1.52)
Level 1	0.83 (3.15)	1.01 (3.67)	0.99 (3.56)	1.16 (3.94)	1.04 (3.59)
Level 2	2.13 (5.20)	2.03 (4.83)	2.02 (4.80)	2.18 (4.98)	1.79 (3.82)
Level 3	1.13 (2.36)	1.56 (3.18)	1.53 (3.12)	1.53 (3.06)	1.27 (2.49)
Level 4	1.30 (2.67)	0.99 (1.90)	0.99 (1.90)	1.17 (2.17)	0.966 (1.68)
Level 5	0.48 (0.61)	0.17 (0.22)	0.18 (0.23)	0.32 (0.39)	−0.48 (−0.44)
Level 6	0.47 (0.43)	−0.13 (−0.11)	−0.12 (−0.11)	0.00 (0.00)	−0.02 (−0.02)
No. of observations	753	753	741	734	574
R^2	0.1216	0.1772	0.1771	0.2056	0.1522

Absolute z-statistics in parenthesis.

relationship between the level of inclusiveness and civil war is not because OECD countries have high levels of inclusiveness and no civil wars. The analysis using only the non-OECD countries reinforces the results. Countries with multiparty decisionmakers in the government have a lower probability of civil war than countries with less consensual governments. These results are in line with my previous study (Reynal-Querol, 2002b), where I found, using a different specification for civil wars, and using data on political systems from Colomer (2001) instead of checks and balances, that proportional representation systems have a lower probability of civil war than majoritarian or presidential systems. Table 1 shows that proportional systems are more associated with high inclusiveness (the highest levels of checks and balances) than majoritarian and presidential systems.

4.4. The role of inclusiveness in preventing civil wars in democracies

The analysis of Table 4 considers all the countries independently of their democratic status. Therefore, one could think that the results are driven by autocratic or partially free systems with low levels of inclusiveness and many cases of civil wars. In order to address this issue, we run the regressions considering only democratic countries, the ones considered as Free by the Freedom House dataset. We consider first all democratic countries, and then, as before, we drop the OECD countries to show again that the effect of the level of inclusiveness does not depend on the inclusion of OECD countries. The results are presented in Table 5.

Table 5
ONLY FREE COUNTRIES: Checks and balances and civil wars

	All FREE countries				Free countries without OECD
	(1)	(2)	(3)	(4)	(5)
C	10.05 (4.54)	7.01 (2.67)	8.02 (2.64)	9.26 (2.38)	4.37 (1.01)
LGDPC	−1.64 (−5.07)	−1.56 (−4.92)	−1.60 (−4.94)	−1.82 (−4.52)	−1.11 (−2.29)
LPOP		0.26 (1.91)	0.21 (1.38)	0.13 (0.77)	0.16 (0.94)
PEXP			−1.82 (−0.65)	−2.33 (−0.77)	−3.12 (−1.05)
Mountain				0.01 (1.56)	0.018 (1.43)
NONCON				0.29 (0.51)	0.53 (0.87)
POLAR				0.98 (0.91)	0.25 (0.20)
DEMP3	−0.05 (−0.77)	−0.05 (−0.65)	−0.05 (−0.65)	−0.03 (−0.47)	−0.00 (−0.10)
Level 1	1.73 (2.47)	1.65 (2.35)	1.68 (2.40)	2.25 (3.09)	2.03 (2.87)
Level 2	3.01 (4.37)	2.95 (4.36)	2.99 (4.37)	3.00 (4.12)	2.50 (3.35)
Level 3	−0.37 (−0.33)	0.02 (0.03)	0.05 (0.05)	0.60 (0.51)	0.27 (0.23)
Level 4	2.53 (3.88)	2.29 (3.35)	2.34 (3.39)	2.49 (3.45)	1.96 (2.70)
Level 5	1.23 (1.06)	1.02 (0.87)	1.04 (0.89)	1.32 (1.07)	**
Level 6	1.56 (1.29)	1.03 (0.79)	1.04 (0.80)	1.00 (0.77)	4.37 (1.01)
No. of observations	333	333	333	332	170
R^2	0.3206	0.3373	0.3393	0.3813	0.2548

Absolute z-statistics in parenthesis. **None of the democratic non−OECD countries with level 5 experiences civil war.

The results of Table 5 show that, among democratic countries, those that have level1, level2, or level4 inclusiveness have a higher probability of civil war than countries that have level7, level8, or level9. However, having level3, level5, and level6 inclusiveness implies the same probability of civil war as having level7, level8 or level9. I perform the same analysis considering only the non-OECD countries. The results are presented in column 5 and show that countries with level1, level2, and level4 inclusiveness have a higher probability of civil war than countries with higher levels of inclusiveness. This is important because level5, level6, level7, level8, and level9 are associated with proportional representation systems, whereas level4 is associated with majoritarian systems (as we observed in Table 1, most of the majoritarian systems have level4 inclusiveness).

These results show the need to control not only for the level of democracy but also for the inclusiveness dimension of the political system. Not all political institutions function in the same way, and, from the analysis mentioned above, the level of inclusiveness of political systems is a key element in reducing the likelihood of civil war. Freedom is needed, but it seems to be less important if the political system is not appropriate.

The conclusion is that political systems with high levels of inclusiveness seem to reduce the likelihood of civil war. This inclusiveness can be achieved applying more consensual democracies rather than majoritarian systems. The results are driven neither by OECD countries (high level of inclusiveness but not civil wars) nor by autocratic or partially free systems having low levels of inclusiveness and suffering many civil wars.

This suggests that the level of inclusiveness of the political system is an important factor in the search for policies that reduce the probability of civil war. This is particularly relevant in heterogeneous societies with ethnic differentiation, where the distances among social groups can be large.[16]

4.5. Addressing endogeneity

The estimation in the previous section may suffer from potential omitted variables bias, that is, an omitted characteristic that is important in the explanation of civil wars and, at the same time, is correlated with the level of inclusiveness. In such a case, the influence of the level of inclusiveness in the explanation of civil wars would be overstated.

Testing for this type of bias is a complex matter in the context of the specification because we have nine dummy variables to reflect the level of inclusiveness. I follow three alternative approaches to check the robustness of the results to the possible correlation of the omitted variables with checks and balances. In all the procedures, we need to find some instruments to deal with this issue. As always, the choice of instruments is a complicated matter. We have to find variables correlated with checks and balances and uncorrelated with the residual of the probit regression for civil wars. For this purpose, we use the legal origin of the country and the level of ethnic fractionalization. The assumption is that the effect of the legal origin on civil wars is channelled totally through its influence on checks

[16] These results are robust to the inclusion of many other variables that maybe related to institutions and violence like having been a colony, religion, government crises, and antigovernment demonstrations, growth rate, inflation, and number of assassinations.

and balances. In addition, I also use the index of ethnic fractionalization as an instrument. In this case, it seems reasonable to assume that the level of social fractionalization may have an influence on the number of parties that have to participate to take a governmental decision, which is the definition of checks and balances. Moreover, as I previously argued, the level of social fractionalization is not significant in the explanation of civil wars because the relevant concept is the degree of polarization. The legal origin variable identifies the legal origin of each country. There are five possible origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; and (5) Socialist/Communist laws. The Source is La Porta et al. (1999). The ethnic fractionalization variable measures the probability that two randomly selected individuals of a country will not belong to the same ethnolinguistic group. The source is Montalvo and Reynal-Querol (2003).

In the first robustness check, we run a two-step procedure. In the first step, we regress the level of checks and balances (scale variable) on the legal origin and the degree of fractionalization. In the second step, we take the residuals of that regression and run a logit model for the probability of civil wars as a function of the same variables used in previous sections plus the residual from the first stage. If the z-value on the coefficient of this variable indicates that it is not significantly different from zero, then there are no clear signs of endogeneity. In our estimation, the instruments have a high explanatory power on checks and balances, but the residual of this first stage regression is not significant in the logit specification for civil wars (z=0.99, P-value=0.32).

One problem with this approach is the fact that the scale for checks and balances is simply a ranking. This means that level4 inclusiveness is not twice as inclusive as level2. For this reason, in the previous regression, we dichotomized the variable checks and balances. However, in the two-step procedure, we cannot deal with all the dummies at the same time because we do not have enough instrumental variables. Therefore, we perform several estimations using alternative breaking points for the checks and balance variable. For instance, the dummy variable levels12 takes value 1 if the level of checks and balances is smaller than 3 while the variable levels12345 is 1 if the level of checks and balances is smaller than 6.

One of the basic characteristic of any instrument is being correlated with the corresponding explanatory variable. The results of the first-stage regression show that the dummy variables for legal origin and the degree of fractionalization have an important joint effect on the alternative checks and balances dummies. However, if we run a logit model for the probability of civil war as a function of the residual of the first-stage regression and the rest of the variables, we find that the coefficient for the first-stage residuals is never significant for any of the dummy variables (from levels12 to levels12345). This evidence is not compatible with the existence of endogeneity in the original logit estimations.

Unfortunately, the previous procedure is not valid when the two endogenous variables are dummy variables. Another way of looking at the same endogeneity problem is to run an instrumental variables estimation for civil wars disregarding the fact that this is a 0–1 variable. Angrist (1991) shows, using a Monte Carlo experiment, that, if we ignore the fact that the dependent variable is dichotomous and use the instrumental variables approach, the estimates are very close to the average treatment effect obtained using a bivariate

Table 6
Correlation estimates

	levels12	levels123	levels1234	levels12345
ρ	−0.15	0.03	0.42	0.25
LR test	0.15	0.00	0.14	0.38
Pr(χ^2(1))	0.69	0.94	0.69	0.53

probit model. Therefore, this approach has sound theoretical support. We run a linear regression of the endogenous variable (civil wars) on the basic set of explanatory variables and use as an instrument for checks and balances the dummy variables for the legal origin and fractionalization. Because there are not enough instruments to deal with all the levels of checks and balances in their dummy version, we follow the same strategy used in the two step procedure described above. We check the robustness of the results by running the regression with alternative dummies, which group several levels of checks and balance (from levels12 to levels12345). The results of this instrumental variables estimation are consistent with the findings presented in the previous section. The coefficient on checks and balances is statistically significant using the alternative definitions of inclusiveness, which implies that a low level of checks and balance increases the likelihood of civil war.

I also estimate the model as a bivariate probit model. The basic structure of the bi-probit is the following:

$$CW = 1[X_1\beta_1 + \delta CB + u_i > 0]$$

$$CB = 1[Z\beta_2 + u_2 > 0]$$

where 1[.] is an indicator function, the probability of a civil war is a function of the explanatory variables X_1 and the level of checks and balances specified as a dummy variable that separates in two groups the levels of checks and balances as before. The set of instrumental variables, Z, contains the legal origins and the degree of fractionalization and is independent of the disturbances. ρ is the correlation between the disturbances of both equations ρ=corr(u_1, u_2). If $\rho \neq 0$, then u_1 and CB are correlated and the estimation of the probit of civil wars on checks and balances leads to inconsistent estimates of β_1 and δ. As our previous results are based on the estimation of only the first equation, any correlation of this type would compromise our estimation results. Table 6 shows the ML estimates of the correlation for all the dummy variables that reflect the alternative definitions of checks and balances. It also shows the likelihood ratio test and the probability associated in the corresponding χ^2 distribution. The results confirm previous findings using other procedures: no matter where we set the level of checks and balances that breaks the countries in two groups, the correlation is not significantly different from 0.

5. Conclusion

This paper has provided a theoretical model and an empirical test of the role of inclusiveness of political systems in preventing civil wars.

Inclusiveness is defined as the characteristics of a system such that political exclusion is avoided. As such, democracy is just one of the multiple dimensions of this concept. Democratic governments with multiparty decisionmakers have lower political exclusiveness, and therefore, are more inclusive than democratic governments with just one decisionmaker. Using a very simple theoretical model, we develop the concept of inclusiveness and we capture the basic relationship between the level of inclusiveness and the stability of the political system. According to the model, more inclusive systems are more stable than less-inclusive systems.

In the empirical analysis, I show how the level of inclusiveness of the political system is an important factor in reducing the probability of civil war even for democratic countries. To capture the notion of inclusiveness, I have used data on Checks and Balances (CHECKS) from the DPI database constructed by Keefer et al. (2001). Using this dataset, I find that the more inclusive system has a lower probability of civil war. Moreover, I find that proportional representation systems are associated with high levels of inclusiveness and majoritarian and presidential systems to low levels of inclusiveness. These results are robust to the sample coverage (all countries, non-OECD countries, democratic countries, and democratic non-OECD countries).

The results show that reducing civil wars is not just a matter of democracy. The political system is also important. Not all political institutions function the same way. Freedom is needed, but it is not a sufficient condition if the political system does not promote inclusiveness. The conclusion is that political systems with high levels of inclusiveness seem to protect societies from civil wars. This inclusiveness can be achieved applying more consensual democracies rather than majoritarian systems.

Acknowledgements

I thank Josep Maria Colomer, Joan M. Esteban, Jose Garcia-Montalvo and three annonymous referees for many valuable comments, and Timothy Harford for his English editing. The paper has also benefited from the comments of seminar participants at the UC Irvine-World Bank Workshop on Civil Wars and the 2001 General Conference of the European Consortium for Political Research (ECPR). Financial support is acknowledged from the Spanish Ministerio de Educacion y Cultura (grant SEC2003-04429).

Appendix A

Proof of Lemma 1. *necessity*: From Eq. (6), we obtain $\bar{\alpha}(f) = \frac{\frac{1}{2}-p_3}{p_2}$

(a) $\forall \alpha < \bar{\alpha}\ (f) = \frac{\frac{1}{2}-p_3}{p_2}$, the level of inclusiveness is $I(f) = 1 - \left[\max_i |f(\alpha) - \alpha_i|\right] = p_2\alpha + p_3 = f(\alpha)$.

(b) $\forall \alpha < \bar{\alpha}\ (f) = \frac{\frac{1}{2}-p_3}{p_2}$, the level of inclusiveness is $I(f) = 1 - \left[\max_i |f(\alpha) - \alpha_i|\right] = 1 - p_2\alpha - p_3 = 1 - f(\alpha)$.

If we compare the inclusiveness of two political systems f and g,

$$I(f(\alpha)) - I(g(\alpha)) = \left\{ \begin{array}{ll} \left(p_2^f - p_2^g\right)\alpha + \left(p_3^f - p_3^g\right) & \text{if } \alpha \leq \min(\bar{\alpha}(f), \bar{\alpha}(g)) \\ \left(p_2^g - p_2^f\right)\alpha + \left(p_3^g - p_3^f\right) & \text{if } \alpha > \min(\bar{\alpha}(f), \bar{\alpha}(g)) \end{array} \right\}.$$

Suppose $\bar{\alpha}(f) \neq \bar{\alpha}(g)$. Without loss of generality $\bar{\alpha}(f) > \bar{\alpha}(g)$. Then $I(f(\bar{\alpha}(f)))=1/2$, but $I(g(\bar{\alpha}(f)))<1/2$. Moreover, $I(g(\bar{\alpha}(g)))=1/2>(I(f(\bar{\alpha}(g))))$. Therefore, in order to compare the inclusiveness of a pair of systems f and g, it is necessary that $\bar{\alpha}(f)=\bar{\alpha}(g)$. This means that both systems must have the same 'bias'.

sufficiency: Suppose $B(f)=B(g)$. If $\bar{\alpha(f)}=\bar{\alpha(g)}$, then, $I(f(\alpha))-I(g(\alpha))=\{[(p_2^f-p_2^g)\alpha+(p_3^f-p_3^g)]\text{sign}(\bar{\alpha}-\alpha)$

Moreover,

$$\frac{\partial(I(f(\alpha))) - I(g(\alpha))}{\partial \alpha} = \left\{ \begin{array}{ll} p_2^f - p_2^g & \text{if } \alpha \leq \alpha \\ p_2^g - p_2^f & \text{if } \alpha > \bar{\alpha} \end{array} \right\}.$$

Therefore, when $p_2^f > p_2^g$, then $I(f(\alpha))<I(g(\alpha))\ \forall\alpha$, and when $p_2^g > p_2^f$, then $I(f(\alpha))>I(g(\alpha))\ \forall\alpha$. Therefore, f and g can always be ranked. □

Proof of Proposition 1. Proof: Group i will rebel if,

$$\pi\tilde{u}_i + (1-\pi)(u_i^{sq} - c) - F > u_i^{sq}.$$

The left-hand side of the inequality describes the expected utility of rebellion, and the right-hand side represents the utility that the rebel shave under the status quo.

Therefore, there will be a rebellion whenever $-u_i^{sq}>\delta$, for some i, where $\delta=[F+c(1-\pi)]/\pi>0$. By differentiation, we obtain that $\partial\delta/\partial c>0$, $\partial\delta/\partial F>0$, $\partial\delta/\partial\pi<0$. That is, groups will rebel if,

$$-u_i^{sq} = |\alpha^{sq} - \alpha_i| = |f(\alpha) - \alpha_i| > \delta. \tag{8}$$

The inclusiveness of a political system f is defined as $I(f) = 1 - \left[\max_i |f(\alpha) - \alpha_i|\right]$. Therefore, if we take the group for which $|f(\alpha)-\alpha_i|$ is maximum, the condition of rebellion for that group can be written as,

$$1 - I(f) > \delta.$$

Then, we can say that the political system f is stable if and only if $1-I(f)<\delta$.Given two political systems f and g, such that $I(f)>I(g)$, then $1-I(f)<1-I(g)$. Therefore, whenever g satisfies $1-I(g)<\delta$ (g is stable), it will satisfy f, $1-I(f)<\delta$ (so it will be f), but not the other way around. □

Proof of Lemma 2. Necessity is immediate. For sufficiency, start by noting that the set of policies against which neither of the two extreme groups will rebel is given by $(\alpha_G-\delta)$, $(\alpha_1+\delta)$ which is nonempty.

The set of acceptable policies for group k, is $\alpha\in[\alpha_K-\delta,\ \alpha_K+\delta]$. So $[\alpha_G-\delta,\alpha_1+\delta]\in[\alpha_K-\delta,\alpha_K+\delta]\ \forall k$. Therefore, because this is acceptable for all groups, it is stable. □

Proof of Proposition 2. In view of Proposition 1, we only need to show that the proportional system is more inclusive than the majoritarian system.

Let us start by noticing that both systems have the same bias. Because $\bar{\alpha}(\text{prop})=\bar{\alpha}(\text{maj})=1/2$, both have the same bias. Now we have:

(a) $\forall\alpha<\frac{1}{2}$, the level of inclusiveness, $I(f)=1-\left[\max_i |f(\alpha)-\alpha_i|\right]$, is measured with respect to $\alpha_3=1$, and hence, $I(\text{prop})=1-|\frac{1}{3}\alpha+\frac{i1}{3}-1|=\frac{1}{3}\alpha+\frac{1}{3}\geq I(\text{maj})=1-|\alpha-1|=\alpha$.

(b) $\forall\alpha>1/2$, the level of inclusiveness, is measured with respect to $\alpha_1=0$, therefore, $I(\text{prop})=1-|\frac{1}{3}\alpha+\frac{1}{3}-0|=\frac{2}{3}-\frac{1}{3}\alpha\geq I(\text{maj})=1-|\alpha-0|=1-\alpha$.

And therefore, $I(\text{prop})\geq I(\text{maj})\ \forall\alpha$. □

Appendix B. Definition of other variables

LGDPC: Log of real GDP per capita of the initial period (1985 international prices) from the Penn World Table 5.6.

LNPOP: Log of the population at the beginning of the period from the Penn World Table 5.6.

PRIMEXP: Primary commodity exports as percent (%) GDP. Source: Collier and Hoeffler (2002).

MOUNTAINS: Percent Mountainous Terrain: This variable is based on work by geographer A.J. Gerard for the World Bank's "Economics of Civil war, Crime, and Violence" project.

NONCONT: Noncontiguous state: Countries with territory holding at least 10,000 people and separated from the land area containing the capital city either by land or by 100 km of water were coded as "noncontiguous." Source: Fearon and Laitin (2003).

POLAR: index of ethnolinguistic and religious polarization from Montalvo and Reynal-Querol (2003).

References

Alesina, A., Perotti, R., 1996. Political instability, income distribution and investment. European Economic Review 40, 1202–1229.

Alesina, A., Özler, S., Roubini, N., Swagel, O., 1996. Political instability and economic growth. Journal of Economic Growth 1, 189–211.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., Wacziarg, R., 2003. Fractionalization. Journal of Economic Growth 8, 155–194.

Angrist, J., 1991. Instrumental variables estimation of average treatment effects in econometrics and epidemiology. NBER technical working paper 115 National Bureau of Economic Research MA.

Barro, R.J., 1997. Determinants of Economic Growth: A Cross-Country Empirical Study. MIT Press, Cambridge, MA.

Benabou, R, 1996. Inequality and growth. NBER Macroeconomics Annual 11, 11–74.

Collier, P., Hoeffler, A., 1998. On economic causes of civil wars. Oxford Economic Papers 50, 563–573.

Collier, P., Hoeffler, A., 2002. Greed and grievance in civil war. Working paper series, Centre for the Study of African Economies, University of Oxford, UK.
Colomer, J.M., 2001. Political Institutions: Democracy and Social Choice. Oxford Univ. Press, Oxford.
Davis, O.A., Hinich, M.J., Ordeshook, P.C., 1970. An expository development of a mathematical model of electoral process. American Political Science Review 64, 426–448.
Doyle, M.W., Sambanis, N., 2000. International peacebuilding: a theoretical and quantitative analysis. American Political Science Review 94, 779–801.
Easterly, W., Levine, R., 1997. Africa's growth tragedy: policies and ethnic divisions. Quarterly Journal of Economics 112, 1203–1250.
Ellingsten, T., 2000. Colorful community or ethnic witches brew? Journal of Conflict Resolution 44, 228–249.
Esteban, J.M., Ray, D., 2001. Social decision rules are not immune to conflict. Economics of Governance 2, 59–67.
Falkinger, J., 1999. Social instability and the distribution of income. European Journal of Political Economy 15, 35–51.
Fearon, J., Laitin, D., 2003. Ethnicity, insurgency, and civil war. American Political Science Review 97, 75–90.
Hegre, H., Ellingsen, T., Gates, S., Gledish, N.P., 2001. Towards a democratic civil peace? Democracy, political change, and civil war, 1816–1992. American Political Science Review 95, 33–48.
Huber, J.D., Bingham Powell Jr., G., 1994. Congruence between citizens and policymakers in two visions of liberal democracy. World Politics 46, 291–326.
Humphreys, M., 2001. To Bargain or to brawl? Politics ininstitutionally weak environments. Unpublished paper, Department of Political Science Harvard University.
Keefer, P., Beck, T., Clarke, G., Groff, A., Walsh, P., 2001. New Tools and New Tests In Comparative Political Economy: The Database of Political Institutions. The World Bank, Washington, DC.
La Porta, R., Lopez de Silanes, F., Shleifer, A., Vishny, R., 1999. The quality of government. Journal of Law, Economics, and Organization 15, 222–279.
Mauro, P., 1995. Corruption and growth. Quarterly Journal of Economics 110, 681–712.
Montalvo, J.G., Reynal-Querol, M., 2003. Ethnic polarization, potencial conflict, and civil wars, Working paper, Department of Economics, Universitat Pompeu Fabra, Barcelona.
Montalvo, J.G., Reynal-Querol, M., 2004. Fractionalization, polarization and economic development. Journal of Development Economics (in press).
Perotti, R., 1996. Growth, income distribution and democracy: what the data say. Journal of Economic Growth 1, 149–187.
Rawls, J., 1971. A Theory of Justice. The Belknap Press of Harvard Univ. Press, Cambridge, MA.
Reynal-Querol, M., 2002a. Ethnicity, political systems, and civil wars. Journal of Conflict Resolution 46, 29–54.
Reynal-Querol, M., 2002b. Political systems, stability and civil wars. Defense and Peace Economics 13, 465–483.
Rodrik, D., 1999. Where did all the growth go? External shocks, social conflict, and growth collapses. Journal of Economic Growth 4, 385–412.
Sambanis, N., 2001. Do ethnic and nonethnic civil wars have the same causes? A theoretical and empirical enquiry (part 1). Journal of Conflict Resolution 45, 259–282.
Svensson, J., 1998. Investment, property rights and political instability: theory and evidence. European Economic Review 42, 1317–1341.