

# Endogenous Presidentialism\*

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## Abstract

We develop a model to understand the incidence of presidential and parliamentary institutions. Our analysis is predicated on two ideas: first, that minorities are relatively powerful in a parliamentary system compared to a presidential system, and second, that presidents have more power with respect to their own coalition than prime ministers do. These assumptions imply that while presidentialism has separation of powers, it does not necessarily have more checks and balances than parliamentarism. We show that political leaders who prefer presidentialism may be supported by their own coalition if they fear losing agenda setting power to another group. We argue that the model is consistent with a great deal of qualitative information about presidentialism in Africa and Latin America.

**Keywords:** Constitutions, Legislative Bargaining, Political Economy.

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# 1 Introduction

Within studies of comparative political institutions, the form of the constitution and its consequences has attracted particular attention. This literature has particularly emphasized the importance of the dichotomy between parliamentary and presidential constitutions. For example, Linz (1978) proposed that presidential democracies tended to be less stable and more prone to coups.<sup>1</sup> Presidential systems have also been argued to have consequences for many other outcomes, such as the strength of parties (Linz, 1994), and fiscal policy outcomes such as the level of taxes and the provision of public goods (Persson, Roland and Tabellini, 2000).

The majority of the research, however, has focused on the *consequences* of presidentialism, not its' *origins* (see the essays in Lijphart, 1992b, Linz and Valenzuela, 1994, or Haggard and McCubbins, 2001). For instance, the large literature on presidentialism in Latin America pays hardly any attention to the question of why Latin American polities are presidential, something which might be thought quite puzzling given that the preponderance of this literature concludes that presidentialism has perverse consequences.<sup>2</sup> Mainwaring and Shugart (1997) and Cheibub (2007) both propose that one should think of presidentialism as being endogenous to the circumstances of societies though they do not really advance an explanation of why polities are presidential. Persson and Tabellini (2003) also recognize that the cross-national incidence of presidentialism is endogenous and propose a number of sources of variation in presidentialism (whether or not a country was colonized by the British, latitude and the fraction of the population which speaks a European language as a mother tongue).<sup>3</sup>

That there is a need for a more explicit theory of the origins of presidentialism can be illustrated by examining the constitutional experience of Sub-Saharan African countries since independence. Table 1 contains the Sub-Saharan African countries that had either a parliamentary or a presidential constitution at independence.

TABLE 1 ABOUT HERE

It shows remarkable patterns that call for an explanation. At the time of independence, parliamentary constitutions outnumbered presidential constitutions 4 to 1 in Africa. Yet in country after country there was a switch towards presidentialism.<sup>4</sup> At present 18 of the 21

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<sup>1</sup>His work has stimulated much other research, some like Stepan and Skatch (1994) and Przeworski, Alvarez, Cheibub and Limongi (2000), which supports his thesis, and other, for instance by Horowitz (1990), Carey and Shugart (1992), and Mainwaring and Shugart (1997), which contradicts it.

<sup>2</sup>Implicitly, scholars seem to believe that presidentialism has deep roots going back to ideological choices made at the time of independence 200 years ago and an earlier generation of social scientists, such as Lambert (1969), suggested that presidentialism was more effective in creating national identities or promoting development (see Mainwaring, 1990).

<sup>3</sup>Hayo and Voigt (2013) conduct a more comprehensive empirical study of the correlates of constitutional changes.

<sup>4</sup>Around the same time as African states wrote presidential constitutions, many also introduced one party

countries that started out with a parliamentary constitution have switched to a presidential constitution. None of the countries that started out with a presidential constitution have adopted a parliamentary constitution. Even in the wave of democracy which has swept over Africa since the 1990s, no country has yet made such a transition. Also worthy of note is that two of the three countries which started with parliamentary institutions and have not changed them - Botswana and Mauritius - are the only two countries which have been economically successful in Sub-Saharan Africa since independence. The pattern is present both in Francophone and Anglophone countries. Any relationship in cross-national data between having been a British colony and parliamentarism turns out to be driven by Caribbean islands. Moreover, including the countries that started out with what researchers often refer to as Afro-communist constitutions at independence (such as Angola and Mozambique) all countries that have switched away from these have adopted presidential institutions - not a single one of them have adopted parliamentary constitutions.

These remarkable facts have been little studied. In the 1960s presidentialism seems to have been seen as a natural reflection of 'big man' African political culture. De Luisgnan (1969, p. 79) argues "the concentration of all government responsibility in the hands of one man was in the spirit of African tribal tradition." Others argued that presidentialism was a response to problems of underdevelopment and lack of national identities and it has "largely been in response to the ruling elite's determination to utilize institutions as resources for coping with such problems as national integration and economic development" (Rothchild and Curry, 1978, p. 87). More recently scholars of African politics, such as Horowitz (1990) have engaged in the debate on the 'perils of presidentialism' but have argued that in Africa the 'winner take all' nature of parliamentary institutions creates instability while presidentialism with its checks and balances is a better system in an ethnically divided society. Indeed, Lewis (1965) argued that parliamentary institutions in West Africa played a role in the creation of authoritarianism.

In this paper we develop a model to try to help us understand constitutional variation between presidentialism and parliamentarism. We use it to ask some basic questions about why some countries have presidential constitutions while others do not. We particularly focus on how the model can help us understand the attractions of presidentialism in Africa since independence. We also investigate whether the model is consistent with claims made in the comparative politics literature that presidential democracies are less stable.

For simplicity we consider a polity formed of two groups, one of which is in a majority and

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states. Presidentialism was introduced before the one party state in Congo, Dahomey, Mauritania, the Central African Republic, Kenya, Sierra Leone, Senegal and Togo, but in the Côte d'Ivoire, Guinea, Burkina Faso, Niger and Chad the one-party state preceded the move to presidentialism. In Zambia both came together in 1973. In this paper however we shall only analyze the motives for moving towards presidentialism and treat them as conceptually distinct from that of creating a de jure one-party state (see Zolberg, 1966, and Collier, 1982, on the one-party systems). Also note that e.g. South Africa is regarded as parliamentary despite having a president, since the president is appointed by parliament.

which differ in their preferences with respect to government policy, specifically public goods provision. (We later in Appendix A.3 extend the model to more than two groups). In each group there are three sorts of individuals, citizens, politicians and political leaders. In the model citizens elect politicians to the legislature using a system of proportional representation. The political system determines the allocation of a fixed budget between the provision of public goods and rents to politicians.

We contrast two types of political institutions. Under presidentialism, there are two separate elections, one where the leaders of the two groups vie for the presidency, and one for the legislature. Once elections have been held, the president is granted the right to propose policy, which is implemented if he receives sufficient support in the legislature. If not a status quo policy is implemented.<sup>5</sup> When the constitution is parliamentary there is only one election which is for the legislature. After the election a legislator is chosen at random to try to form a ruling coalition. The proposed members of the coalition then bargain about policy, which is then voted on in the legislature. If at any stage a proposal either to form a government or for a specific proposal is defeated then a status quo policy is implemented.

The structure of the model is designed to embody two key features which we believe are realistic aspects of presidential and parliamentary constitutions. First, the minority party is more powerful in a parliamentary system than in a presidential system. This is true in our model because the presidency, and thus agenda setting power, will always be captured by the majority, while with some positive probability the prime minister can be from the minority group.<sup>6</sup> We believe that Carlson (1999, p. 12) grasps a fundamental truth when he argues that

“The threat of no-confidence votes means that MPs possess bargaining power and that those in the opposition can have hopes that they may be in the government in the relatively near future. In a presidential system ... an opposition legislator is generally condemned to remain in the opposition for the (often lengthy) duration of the president’s term(s) in office.”

Second, a president has more power than a prime minister relative to members of his own coalition. Intuitively this is because once elected a president cannot be removed short of impeachment, while a prime minister must always maintain the support of his or her colleagues. If Mrs Thatcher had been president of Britain, she could not have been removed from the office of

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<sup>5</sup>In particular, the president may bribe politicians with rents if they support him. Also, we will allow for the possibility that the president can base his power on a smaller set of politicians than a prime minister is able to. Thus, as we return to below, our presidential regime is meant to capture African and Latin American (and possibly e.g. Russian) presidential regimes, and not the United States type of presidentialism characterized by strong checks and balances.

<sup>6</sup>There are many examples where political parties that lack majority support hold the position of prime minister. In e.g. Mauritius the only prime ministers whose political party held a majority in parliament were Anerood Jugnauth (from the Militant Socialist Movement), formed in 1982, and prime minister Navim Ramgoolam (from the Mauritius Labour Party), formed in 1995.

prime minister by the Conservative Party as she was in November 1990 and Cheibub, Przeworski and Saiegh (2004, p. 567) report that in OECD countries 163 out of 291 prime ministers left office without elections between 1946 and 1995. In the model, this feature is captured by the assumption that a president can present a take it or leave it offer to legislators, whereas a prime minister engages in bargaining with his coalition.

An important consequence of these assumptions is that while political leaders prefer to be presidents rather than prime ministers, conditional on being in the winning coalition, other politicians prefer to be members of parliament rather than members of the legislature of a presidential system. A parliamentary system distributes power more evenly among those in the coalition than a presidential system does.

Bringing these ideas and findings together we can understand the politics of institutional choice. Political leaders prefer to be presidents. The institutional preferences of other politicians are more complex. Conditional on being in the winning coalition, those in the majority group prefer a parliamentary constitution because it increases their power relative to their leader. However, the drawback of such a constitution is that it also empowers the minority relative to a presidential system. In particular with some probability the majority can lose agenda setting power. Therefore, politicians from the majority group can be induced to support presidentialism if the probability that they will lose power is sufficiently large and if losing power is sufficiently bad. We show that losing power will be worse, and presidentialism more attractive, when the preferences of the two groups with respect to public goods are more polarized, and when the society is poor in the sense that the government budget is small.

The comparative statics of the model may therefore help to explain why African countries so quickly switched to presidential constitutions after independence and why Latin American politicians seem so content to remain with presidentialism. As compared to countries in Western Europe or islands in the Caribbean, which have sustained parliamentary constitutions, the preferences of different politically salient groups in Africa, for instance, are much more polarized. Political parties are often highly regional, for instance in Sierra Leone the Sierra Leone People's Party gets its support from the South and East and the Mende ethnic group. Its main opponents, the All People's Congress Party, gets its support from the North and West and the Temne ethnic group. This is a case where polarization is maximal (see Cartwright, 1970, on the emergence of these patterns). A similar case is the Sudan which has been ruled since independence by the North of the country (Seekers of Truth and Justice, 2000, Johnson, 2003, Cobham, 2005) who share few common interests with those in Darfur, Kordofan or the south of the country. This pattern is very common in Africa. It is this which raises the stakes from agenda setting and makes the majority prefer to have a president to make sure that they cannot lose agenda setting power to the minority. African countries are also much poorer than others which have sustained parliamentary regimes.

Our modelling approach builds on the seminal work of Persson, Roland and Tabellini (1997, 2000), whose formulation was heavily inspired by presidentialism in the United States. Nevertheless, the way presidentialism works in Africa or Latin America, is different in a number of ways. For one thing, presidents have far more formal powers. For instance in Argentina, Chile and Taiwan, only the president can introduce a budget and congress cannot increase expenditures (Haggard and Shugart, 2001, p. 79) and it is quite general for presidents to have the agenda setting powers with respect to budgets (Carey and Shugart, 1992, Table 8.2, p. 155). In Argentina, Brazil, Colombia and Russia presidents can decree new legislation without getting any authority from the legislature (see Carey, Neto and Shugart, 1997, for a comprehensive discussion of the powers of Latin American presidents).

In Africa the situation is even more extreme with scholars referring to the “imperial presidency” (Carlson, 1999, p. 39, Nwabueze, 1975). Indeed, scholars who have examined the transitions to presidentialism have seen it in terms of a strengthening of the powers of the executive and *reducing* checks and balances. For instance, Widner’s (1992) analysis of the 10th Amendment to the Kenyan constitution in 1968 which established a presidential system is that the amendment “eliminated Kenyatta’s dependence on a parliamentary majority” (p. 67) and this served to “insulate the presidency from the battles within KANU [the Kenyan African National Union - Kenyatta’s party] and to hamper efforts to challenge the allocation of resources favored by the Kenyatta government” (p. 68). Similarly, in Zimbabwe Laakso (1999, p. 134) argues that after the change to a presidential constitution “the executive presidency was a threat to the independence of the judiciary. Even Parliament, instead of reflecting the supremacy of the people, had become accountable to the president.”

According to Aghion, Alesina and Trebbi (2004) presidential regimes have more unchecked power than parliamentary ones, and according to Hayo and Voigt (2013, p. 50) “By definition, presidents are more insulated from parliament than are prime ministers.” Returning to Table 1, it is quite clear that the desire of Joseph Mobutu to make himself president in 1967, rather than remain prime minister of Congo, represented a reduction in checks and balances. The same can be said for Robert Mugabe in Zimbabwe in 1987, Siaka Stevens in Sierra Leone in 1978, Hastings Banda in Malawi in 1966, or Kwame Nkrumah in Ghana in 1960.<sup>7</sup>

In our model, though there is separation of powers under a presidential constitution in the sense that the president and legislature are separately elected, this does not lead to the type of checks and balances that Persson, Roland and Tabellini emphasize because we assume that the president proposes the entire policy vector. The main conceptual difference, however, is that our focus is on presidential systems where presidents have far more powers than in the

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<sup>7</sup>It is telling that most presidents face term limits while to our knowledge there is no instance of a term limit on a prime minister. This is because prime ministers are naturally checked by the nature of their interactions with their coalition and the legislature.

United States. As such our paper should be seen as a complement rather than a substitute for the approach of Persson, Roland and Tabellini. Unlike their paper we also explicitly model the choice over institutions and, like Buisseret (2013), have a separate election for the president. Furthermore, politicians care about public goods and not just rents.

We also extensively use insights from the models of parliamentary institutions by Huber (1996), Baron (1998) and Diermeier and Feddersen (1998). Our model of how a parliament works is very similar to the models of these papers, choosing the same status quo policy, though we also allow for the provision of public goods and endogenous elections, as in Austen-Smith and Banks (1988). Moreover, in our model the status quo constitution is the prevailing one, and thus the status quo (in this dimension) is endogenous over time as in Baron (1996), Diermeier and Fong (2011), and Bowen, Chen and Eraslan (2014).

The paper is also related to a number of other lines of work. The origins of presidentialism has also been studied in Eastern Europe and the former Soviet Union as scholars have tried to understand why, for example, Hungary, Czechoslovakia or the Baltic states chose parliamentary constitutions while other republics of the former Soviet Union and Russia chose presidential institutions. Easter (1997) argued that this variation stemmed from how powerful communist era elites were. When they were powerful they were able to impose presidentialism to best further their interests. By contrast (p. 189)

“parliamentarism was preferred in cases in which old regime elites had been dispersed ... Particular institutional features of parliamentarism - no confidence votes and legislative control of the executive - guarded against any one party or group making a proprietary claim on the state’s power resources.”

Lijphart (1992a) similarly argued that presidentialism arose in Poland and not Hungary and Czechoslovakia because in the former the Communist elites were much stronger and viewed this as the best way to perpetuate their power. Frye (1997) examined the varying strength of presidential powers and argued that stronger presidencies emerged when political elites were powerful during constitutional negotiations and there was little uncertainty about future election outcomes - hence they chose presidentialism to lock in their power. Though all of this work is motivated by different cases and methodologically distinct from ours, it does share with our analysis the spirit that what favors presidentialism is a strong elite wishing to isolate itself from the controls of a legislature. Most closely related is the thesis of Carlson (1999) who studied the same facts as we do in Africa. He argued that the appeal of presidentialism was that in highly fragmented legislatures with weak party systems a president insured policy stability which risk averse legislators desired.

Finally, Acemoglu and Robinson (2000), Lizzeri and Persico (2004), Barbera and Jackson (2004), Lagunoff (2009), Ticchi and Vindigni (2009), and Acemoglu, Robinson and Torvik (2013)

develop models of endogenous constitutions complimentary to ours. None of these papers focus on the choice between presidentialism and parliamentarism. Ticchi and Vindigni (2009) study the role of income distribution when voters choose between majoritarian and consensual democracy, but note that their (p. 2) “model of majoritarian democracy may also well describe presidential regimes where the president has relatively large legislative powers”. Their mechanisms are, however, very different from ours.<sup>8</sup>

The paper proceeds as follows. In Section 2 we set out our model. In Section 3 we define the equilibrium of the model, and in Section 4 we investigate policy under presidentialism and parliamentarism, before we discuss why different equilibrium constitutions may emerge. In Section 5 we discuss extensions of the model. Section 6 concludes.

## 2 The Model

### 2.1 Citizens

We consider an infinite horizon society with a set of citizens denoted by  $K$ . The set of citizens are divided into two groups. One of the groups, which constitutes a fraction  $\lambda$  of the population and which we term group  $L$ , is in a majority and thus  $\lambda \geq \frac{1}{2}$ . The set of citizens in group  $L$  is denoted  $K^L \subset K$ . The other group is termed group  $S$ . The preferences of a voter in group  $j \in \{L, S\}$  are given by

$$\sum_{t=0}^{\infty} \beta^t Z_t^j = \sum_{t=0}^{\infty} \beta^t \left( F(G_t^j) + (1 - \gamma)F(G_t^{-j}) \right), \quad (1)$$

where  $t$  denotes time,  $\beta \in (0, 1)$  is the discount factor,  $Z_t^j$  is the instantaneous utility at time  $t$ ,  $G_t^j$  denotes the time  $t$  provision of the type of public goods a member of group  $j$  prefers the most,  $G_t^{-j}$  denotes the time  $t$  provision of the type of public goods the group other than  $j$  prefer the most, and we assume that  $F(0) = 0$ ,  $F_G(0) > 1$ ,  $F_G > 0$ ,  $F_{GG} < 0$ . In (1) the parameter  $\gamma \in [0, 1]$  measures the dissimilarity in preferences for public goods for voters in the two groups, modelled along the lines of Alesina and Tabellini (1990). There is a conflict of interest between the two groups regarding which public goods should be provided, and this conflict of interest is stronger the higher is  $\gamma$ . For simplicity we assume that only one type of public goods can be provided in a given period.

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<sup>8</sup>Our paper is also related to Acemoglu, Egorov and Sonin (2012) in that at the center of our approach is the choice of a constitution when there is lack of commitment to future policy. In their model a constitution, or in their terminology a state, may be dynamically stable because the switch to another preferred state is not stable, i.e. a transition to such a state will lead to a further transition to a state the majority do not prefer. Since we have only two states, their mechanism does not come into play in our model.

## 2.2 Politicians

A subset of citizens from each group of voters decide exogenously to run for office. In a presidential regime an individual is initially picked at random to be the presidential candidate of group  $j$ , denoted  $p^j$ ,  $j \in \{L, S\}$ .<sup>9</sup> In a parliamentary regime the politician who tries to form a ruling coalition, who we term the prime minister (if he succeeds in forming a coalition), is picked at random from the legislature.<sup>10</sup> Politicians are elected from the citizens and thus they have preferences for public goods that are aligned with those of a citizen in the group from which they originate. In addition, however, politicians value personal rents. Denote the set of elected politicians at time  $t$  by  $P_t$ , and the set of politicians elected from group  $j \in \{L, S\}$  by  $P_t^j \subseteq P_t$ . The preferences of a politician  $i \in P_t^j$  is given by

$$\sum_{t=0}^{\infty} \beta^t U_t^{i,j} = \sum_{t=0}^{\infty} \beta^t \left( R_t^i + F(G_t^j) + (1 - \gamma)F(G_t^{-j}) \right),$$

where  $U_t^{i,j}$  is the instantaneous utility at time  $t$  and  $R_t^i$  denotes rents to politician  $i$  at time  $t$ . Thus the only difference between politicians and non-politicians from a particular group is that politicians also value the rents which can be extracted from office holding.

We assume that politicians cannot commit to policy.<sup>11</sup> Thus when in office they maximize their expected utility, subject to the public sector budget constraint

$$G_t^j + G_t^{-j} + \sum_{i \in P_t} R_t^i \leq B, \tag{2}$$

where  $B$  denotes per period public income which we treat as exogenous (and none of the variables in the budget constraint can be strictly negative which is presumed in the rest of the analysis without stating this explicitly).

## 2.3 Constitution and timing of events

At the start of a period elections where citizens vote are held according to an existing political constitution denoted  $\xi_t$ . We consider two different such political constitutions - presidentialism, indexed by  $pr$ , and parliamentarism, indexed by  $pa$ . Thus  $\xi_t \in \{pa, pr\}$ . Under presidentialism the president and the legislature are both elected directly by citizens. Under parliamentarism the legislature is elected directly by the citizens. The post election government formation and policy process differs under the two constitutions. Under presidentialism the president proposes

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<sup>9</sup>This is similar to Diermeier and Fong (2011), who model a presidential regime with a persistent agenda setter.

<sup>10</sup>Thus the identity of the future presidential candidate from each group is known in advance, while the prime minister is picked at random. As we show in our previous working paper version, having also the future prime minister candidate from each group known in advance has no fundamental bearing on the results. Thus we stick to the present case since this economizes on notation in that under parliamentarism politicians from the same group all have the same expected future utility.

<sup>11</sup>As in the citizen candidate model of Osborne and Slivinski (1996) and Besley and Coate (1997).

a policy which is implemented if it receives support from a sufficient number politicians in the legislature. If not we assume that some status quo policy is implemented. Under parliamentarism the creation of the ruling coalition and policy is determined by bargaining between politicians in the legislature. If a coalition fails to be established or fails to reach an agreement on policy, then the government is brought down and the status quo policy is implemented.

Finally, at the end of the period the prime minister or the president decides whether or not to propose a change in the constitution. If no change is proposed then the constitution is unchanged, while if a change in the constitution is proposed, and approved by a majority of politicians, the change is implemented and the next period starts with a new constitution.

More specifically, the sequence of events at each date  $t$  is as follows.

1. Elections take place according to the rules in the existing constitution  $\xi_t \in \{pa, pr\}$ .
2. Government formation, legislative bargaining and policy is determined according to the rules in the existing constitution  $\xi_t \in \{pa, pr\}$ .
3. Agents receive their payoffs.
4. The constitution  $\xi_t$  is either unchanged ( $\xi_{t+1} = \xi_t$ ) or changed ( $\xi_{t+1} \neq \xi_t$ ).
5. A new period starts.

Before we proceed with the analysis we need to clarify the constitutional rules in steps 1, 2 and 4. Although we borrow heavily from existing literature in the modelling of elections and legislative bargaining, we thereafter discuss in some detail our assumptions and their motivation. The constitutional details in steps 1, 2 and 4 are as follows:

**Step 1 (Elections):** If the constitution is presidential,  $\xi_t = pr$ , voters elect one of the two presidential candidates for president, and elect a legislature of politicians of mass  $M - 1 > 2$ .<sup>12</sup> The president elected is the one with the most votes, and the seat share in the legislature for each group  $j \in \{L, S\}$  is proportional to the vote share. If the constitution is parliamentary,  $\xi_t = pa$ , voters elect a legislature of politicians of mass  $M$ , with a seat share in the legislature for each group  $j \in \{L, S\}$  proportional to the vote share.

**Step 2 (Legislative bargaining and policy):** If the constitution is presidential, the president cannot be removed by the legislature. The president proposes a policy vector which is implemented if at least  $Q/2$  of the politicians agree.<sup>13</sup> We term the set of politicians who

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<sup>12</sup>Below we shall also simplify by letting a share of the votes for politicians from one group map into the same share of legislators from that group, i.e. we will for simplicity treat  $M$  as a continuous variable. Thus we assume that  $M$  is sufficiently large that such an approximation is valid (despite  $M$  being discrete). Also, we make the natural assumption that  $(1 - \lambda)M > 1$ , so that a minority group will never be so small relative to the size of parliament that it does not get any political representatives.

<sup>13</sup>We assume that  $Q \leq M$  to allow for the possibility that a presidential regime may need a smaller legislative coalition than half of the politicians, so that such a regime can base its power on a smaller set of politicians. As will be seen, all of our comparative statics are valid also in the case where  $Q = M$ .

supported the president his coalition;  $C_t(pr)$ . If the president does not get support for his policy proposal, a status quo policy where all politicians get the same personal rent  $R_t^i = B/M$  is implemented.

If the constitution is parliamentary, a politician is drawn at random from the legislature to try to establish a ruling coalition. The candidate for prime minister then invites a coalition of  $M/2$  politicians to bargain about forming a government and decide on a policy vector. If the invited coalition  $C_t(pa) \subseteq P_t$  does not agree on a policy proposal the government is not formed, and the same status quo policy as under presidentialism is implemented. Thus all members of the coalition including the prime minister face the same consequence if a coalition does not agree, and we naturally focus on symmetric Nash-bargaining. If the coalition agrees on a policy proposal, it is implemented if it receives a majority in the legislature. If not the government is brought down, and the status quo policy is implemented. Thus the payoff is the same if the government falls as it is if the government is not established in the first place.

**Step 4 (Constitutional changes):** Under a presidential regime the president decides whether or not to propose a switch to a parliamentary regime, i.e.  $\xi_{t+1} = pa$ . Under a parliamentary regime the prime minister decides whether or not to propose a switch to a presidential regime, namely  $\xi_{t+1} = pr$ . If a change in the constitution is proposed it is implemented if at least  $M/2$  of the politicians  $i \in P_t$  approve. Otherwise the constitution is unchanged,  $\xi_{t+1} = \xi_t$ .

## 2.4 Discussion

Some of the simplifying assumptions above should be particularly noted. First, when a proposal does not achieve the required political support, the status quo policy implemented in both regimes is to share all public funds between elected politicians. Although alternative status quo policies could have been modelled, the crucial feature we want to ensure with this simple formulation is that the status quo ‘rule’ is the same in both regimes. We do not want some exogenously imposed differences in status quo policy between the regimes to define their characteristics. Thus we have settled for a very simple status quo policy, which is the same as in Baron (1998) and Diermeier and Feddersen (1998), and which is the same under both types of constitutions.

Second, as government formation is determined by post election bargaining in a parliamentary regime, while a president himself decides on his government, we assume that a political minority has more power in the former than in the latter regime. We have settled for the simplest possible version of such an assumption, where in a presidential regime the president himself proposes the ruling coalition, while in a parliamentary regime a politician is drawn at random from the legislature to try to form a ruling coalition. In this way, the political agenda setting power of the minority is less than that of the majority, but it is not zero.<sup>14</sup> If the minority has

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<sup>14</sup>This assumption is consistent with the literature which assumes that the probability that a party leader will be

no political power in a parliamentary regime, then as will be easily understood from the analysis below, a switch to presidentialism is never possible in our model. We extend the model to more than two groups, so that no single group has a majority in the legislature, in Appendix A.3. Thus, in such a case, who constitutes the ‘minority’ and ‘majority’ becomes endogenous. We show that our comparative static results from the basic model with only two groups remain in this case.

Third, with a parliamentary constitution the prime minister has less political power within the ruling coalition than a president has. This is captured in our model by the assumption that the prime minister is brought down with his coalition if the coalition falls, while a president in our model cannot be removed by the legislature. We therefore allow the president to present a take it or leave it proposal to his coalition members, while a prime minister engages in Nash bargaining.

Fourth, while there is no vote of confidence in the legislature under a president elected directly by the citizens, under a parliamentary regime the ruling coalition is dependent on the continuous support in the legislature. As a consequence, an agreement within the ruling coalition is not only an agreement on a particular issue viewed in isolation, but also an agreement on the survival of the ruling coalition. Thus a vote of confidence, as is well known from the work of Huber (1996), Baron (1998) and Diermeier and Feddersen (1998), increases the utility of politicians included in the ruling coalition. In our model this holds as under a parliamentary constitution there is bargaining, which means that all the politicians included in a coalition obtain a strictly higher utility than their reservation utility. Under a presidential regime, in contrast, those included in the coalition (with the exception of the president) obtain their reservation utility.

### 3 Definition of Equilibrium

Above we have assumed that voters from a group have preferences that is more aligned with politicians from their own group, than with politicians from the other group. As is intuitive, and as will be clear below, this implies that for a given constitution utility is always higher if politicians from one’s own group have political power. We thus start out in this section and the next by assuming that voters vote sincerely, that is, for politicians with preferences most closely aligned with themselves. In addition to that, for politicians we focus below on pure strategy Markov Perfect Equilibria (MPE), in which strategies depend only on the payoff-relevant state of the world and not on the entire history of play (other than the effect of this history on the

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recognized to form a coalition depends on the party’s vote share (for relevant empirical evidence see Diermeier and Merlo, 2004). One difference here is that in the basic model we for simplicity have only two parties. Although this is consistent with many African countries, where despite the “stylized fact” that countries are very heterogeneous, there are often only two dominant groups (for instance in Rwanda and Burundi Tutsi and Hutu, in Zimbabwe Shona and Ndebele, in Sierra Leone Mende and Temne, and in Kenya Kikuyu and Luo), the mechanism we model holds also in a model with many groups as we show in Appendix A.3.

current state). The payoff-relevant state here only includes  $\xi \in \{pa, pr\}$ , and since we formulate the model recursively we drop time subscripts.

A potential drawback with assuming sincere voting is that voters, by assumption, cannot use voting to punish politicians. In an extension in Appendix A.2 we therefore allow voters to deviate from sincere voting (and MPE). In particular, we there focus on the case where voters may vote for politicians from the other group to punish politicians that change the constitution in a direction that voters do not prefer. We investigate when such a punishment strategy constitutes a subgame perfect equilibrium, and when it does not.

Another way to think about the difference between these two types of equilibria is that the sincere voting case can be seen as an equilibrium where voters are ‘passive’ and the real policy choices are made in the legislature with little voter control. Thus this case most closely resembles the cases of Baron (1998) and Diermeier and Feddersen (1998) where voting by citizens is not incorporated. In the case where we allow voters to depart from sincere voting and use punishment strategies, voters can have more power. This case most closely resembles the case of Austen-Smith and Banks (1988).

### 3.1 Strategies

Denote the strategy of a politician  $i$  by  $\phi^i$ . When politician  $i$  is a national leader this strategy is a vector (conditional on the existing constitution) describing the set of proposed members of a coalition, rents to politicians, the type and quantity of public goods, and the decision to propose a switch in the constitution or not. If politician  $i$  is not a national leader this strategy is a vector (again conditional on the existing constitution) describing all the voting decisions of the politician on all policy proposals. Denote also by  $\phi^{-i}$  the strategies of *all* other players (citizens and other politicians) than the politician  $i$ .

### 3.2 Equilibrium concept

Since we model expected discounted utility the one stage deviation principle can be used even if we have an infinite horizon game.<sup>15</sup> Thus let  $W^{i,j}(\xi|\phi^{-i})$  denote the expected utility of a politician  $i$  from group  $j$  starting out with a constitution  $\xi \in \{pa, pr\}$  given the strategies of all other players  $\phi^{-i}$ . Also let  $\Pi^j(\xi, \phi^i|\phi^{-i})$  denote the probability that the leader from group  $j$  becomes the national leader under constitution  $\xi$ , when the strategy of politician  $i$  is  $\phi^i$ , and given the strategies of all other players  $\phi^{-i}$ . Furthermore let the probability that politician  $i$  from group  $j$  is included in the coalition when his own group leader wins power be  $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, j)$ , while the probability he is included in the coalition if the group leader from the other group

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<sup>15</sup>See e.g. Theorem 4.2 in Fudenberg and Tirole (1991), which applies here as in our game the overall payoffs are a discounted sum of per period payoffs that are bounded.

$-j$  wins is similarly given by  $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, -j)$ . Finally, let  $\Omega(\xi, \phi^i|\phi^{-i})$  be the probability the constitution will not be changed at the end of the period under initial constitution  $\xi \in \{pa, pr\}$ .

We can now write the payoff of a politician  $i$  from group  $j$  recursively:

$$\begin{aligned}
W^{i,j}(\xi|\phi^{-i}) &= \max_{\{\phi^i\}} \{ \Pi^j(\xi, \phi^i|\phi^{-i}) [\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, j) U^{i,j}(\xi, \phi^i|\phi^{-i}, j, i \in C) \\
&\quad + (1 - \Phi^{i,j}(\xi, \phi^i|\phi^{-i}, j)) U^{i,j}(\xi, \phi^i|\phi^{-i}, j, i \notin C)] \\
&\quad + (1 - \Pi^j(\xi, \phi^i|\phi^{-i})) [\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, -j) U^{i,j}(\xi, \phi^i|\phi^{-i}, -j, i \in C) \\
&\quad + (1 - \Phi^{i,j}(\xi, \phi^i|\phi^{-i}, -j)) U^{i,j}(\xi, \phi^i|\phi^{-i}, -j, i \notin C)] \\
&\quad + \beta [\Omega(\xi, \phi^i|\phi^{-i}) W^{i,j}(\xi|\phi^{-i}) \\
&\quad + (1 - \Omega(\xi, \phi^i|\phi^{-i})) W^{i,j}(-\xi|\phi^{-i})] \}. \tag{3}
\end{aligned}$$

To clarify the intuition we explain the equation in some detail. The four first lines in (3) consist of the current period expected utility of politician  $i$ . The first line in (3) states that with probability  $\Pi^j(\xi, \phi^i|\phi^{-i})$  the political leader (president or prime minister) is from group  $j$ , i.e. the group of politician  $i$ . In that case there is a probability  $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, j)$  politician  $i$  is included in the coalition, in which case he gets the instantaneous utility  $U^{i,j}(\xi, \phi^i|\phi^{-i}, j, i \in C)$ , i.e. the utility when the constitution is  $\xi$ , his strategy is  $\phi^i$ , the strategies of the other players are given by  $\phi^{-i}$ , it is given that the national leader is from group  $j$ , and politician  $i$  is part of his coalition  $C$ .

The second line states that with probability  $(1 - \Phi^{i,j}(\xi, \phi^i|\phi^{-i}, j))$  he does not become part of a ruling coalition established by the leader from his own group, in which case his instantaneous utility is  $U^{i,j}(\xi, \phi^i|\phi^{-i}, j, i \notin C)$ . The third line states that with probability  $1 - \Pi^j(\xi, \phi^i|\phi^{-i})$  the leader from his group does not win power, in which case with probability  $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, -j)$  he becomes part of the coalition of the leader from the other group, and gets utility  $U^{i,j}(\xi, \phi^i|\phi^{-i}, -j, i \in C)$ . The fourth line states the probability he does not become part of the coalition of the leader from the other group, and his utility in that case.

The last two lines in (3) state his discounted expected continuation value, where with the probability  $\Omega(\xi, \phi^i|\phi^{-i})$  the constitution is unchanged when it starts out as  $\xi$ . The corresponding probability the constitution is changed is given by  $1 - \Omega(\xi, \phi^i|\phi^{-i})$ , in which case his continuation utility is  $W^{i,j}(-\xi|\phi^{-i})$  (i.e. the payoff if the constitution is changed).<sup>16</sup>

We define a sincere pure strategy MPE to consist of voting decisions where all citizens vote for politicians from their own group in all elections, and a vector of strategies  $\{\phi^i\}_{i \in P}$  that simultaneously solve (3) for all politicians  $i \in P$ .

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<sup>16</sup>Strictly speaking we have made a shortcut here, as these payoffs also depend on the probability the politician that is elected in the present period is not elected in the future. However, here this probability will turn out to be zero, and we simplify the expressions at this stage by incorporating that.

## 4 Analysis

We first find the current period equilibrium for a given constitution and composition of the legislature. We then find the MPE from the Bellman equations (3).

### 4.1 Presidentialism

We focus in this section on a president elected from group  $L$ , as this will always be the outcome under sincere voting. The president chooses the policy vector  $\{G^L(pr), G^S(pr), \{R^i(pr)\}_{i \in P}\}$  that maximizes his utility subject to the budget constraint and the presidential constitutional rules. As only one type of public good is provided in each period, under presidentialism (and sincere voting) this will be the public good of type  $G^L$ . The reason for this is that this public good gives the president the highest utility, and he can always find a sufficient number of politicians in the legislature that share this priority. Moreover, the president will never find it optimal to give rents to more politicians than necessary for his policy vector to receive sufficient support. Thus, the president will exclusively offer rents to a minimum winning coalition (including himself) of size  $Q/2$ .

Given the above, a president elected from group  $L$  provides public goods of type  $G^L$ , rents to himself  $R^{p^L}(pr)$ , and rents  $R^i(pr)$ ,  $i \in C(pr)$ , in a quantity determined by the solution to following programming problem:

$$\max_{\{G^L(pr), R^{p^L}(pr), R^i(pr)\}} [R^{p^j}(pr) + F(G^L(pr))], \quad (4)$$

subject to the budget constraint

$$G^L(pr) + R^{p^L}(pr) + \sum_{i \in C(pr)} R^i(pr) \leq B, \quad (5)$$

and to the participation constraint of the politicians in his coalition

$$R^i(pr) + F(G^L(pr)) \geq \frac{B}{M}. \quad (6)$$

The unique solution to this problem is that both constraints are fulfilled with equality, and taking into account that the size of the minimum coalition is  $Q/2$ , that the president will spend all available funds on public goods up until to the point where

$$F_G(G^L(pr)) = \frac{1}{\frac{Q}{2}}, \quad (7)$$

and that eventual remaining funds will be allocated to rents so that the participation constraints of the politicians in the president's coalition are fulfilled.<sup>17</sup> This determines the necessary amount

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<sup>17</sup>Below we will assume that the budget  $B$  is sufficiently high that the solution is always interior under parliamentarism, which will be seen to imply that under presidentialism the provision of public goods is given by (7) and that there will always be strictly positive rents in equilibrium.

the president has to give in rents or bribes to each member in his coalition to gain support as

$$R^i(pr) = \frac{B}{M} - F(G^L(pr)). \quad (8)$$

It follows from (5) and (8) that the rents to the president are given by

$$R^{p^L}(pr) = \frac{2M - Q + 2}{2M}B - G^L(pr) + \frac{Q - 2}{2}F(G^L(pr)). \quad (9)$$

Note that the rents to the president is decreasing in  $Q$ , as

$$\frac{dR^{p^L}(pr)}{dQ} = -\frac{B}{2M} - \frac{dG^L(pr)}{dQ} + \frac{1}{2}F(G^L(pr)) + \frac{Q}{2}F_G(G^L(pr)),$$

which inserting for  $F_G(G^L(pr))$  from (7) reduces to

$$\frac{dR^{p^L}(pr)}{dQ} = -\frac{1}{2} \left( \frac{B}{M} - F(G^L(pr)) \right) = -\frac{1}{2}R^i(pr), \quad i \in C(pr).$$

Thus  $dR^{p^L}(pr)/dQ < 0$ , and from the point of view of the president, presidentialism is more attractive the smaller the necessary ruling coalition.

We may summarize the political equilibrium under presidentialism as:

**Proposition 1** *With a presidential constitution the president forms a minimum winning coalition of mass  $Q/2$ . Those outside the minimum winning coalition receive zero personal rents. The provision of public goods is given by (7), the rents to each coalition member by (8), and the rents to the president by (9).*

## 4.2 Parliamentarism

Consider a prime minister from group  $j \in \{L, S\}$  that has successfully established a coalition  $C(pa)$  consisting of  $M/2 - N_j$  members from group  $j$  and  $N_j$  members from group  $-j$ . Should the policy negotiations not succeed all members of the coalition including the (potential) prime minister would receive the same utility  $B/M$ . We focus in the main text on the case where a coalition headed by a prime minister from group  $j$  provides goods of type  $G^j$ . We relegate the case where such a coalition provides public goods of type  $G^{-j}$  to the Appendix A.1. All our qualitative results to follow in the rest of the paper are valid also in this case.

The outcome of the negotiations follows from the maximization of the symmetric Nash product:

$$\max_{\{G^j(pa), R^j(pa), R^{-j}(pa)\}} \left[ R^j(pa) + F(G^j(pa)) - \frac{B}{M} \right]^{\frac{M}{2} - N_j} \left[ R^{-j}(pa) + (1 - \gamma)F(G^j(pa)) - \frac{B}{M} \right]^{N_j},$$

subject to the budget constraint

$$G^j(pa) + \left( \frac{M}{2} - N_j \right) R^j(pa) + N_j R^{-j}(pa) \leq B.$$

The unique solution to this problem is that the budget constraint is fulfilled with equality, and that available revenues will be spend on public goods up until the point where

$$F_G(G^j(pa)) = \frac{1}{\frac{M}{2} - \gamma N_j}. \quad (10)$$

Additional revenues will be allocated to rents, and the rents to a coalition member from group  $j \in \{L, S\}$  are given by

$$R^j(pa) = \frac{2}{M} (B - G^j(pa) - N_j \gamma F(G^j(pa))), \quad (11)$$

while the rents to a coalition member from the other group are given by<sup>18</sup>

$$R^{-j}(pa) = \frac{2}{M} (B - G^j(pa)) + \frac{M - 2N_j}{M} \gamma F(G^j(pa)). \quad (12)$$

Turning now to the establishment of the coalition, it is straightforward to verify that the (potential) prime minister prefers to have members of his own group in the coalition, and also that all those included in the coalition will strictly prefer to be a member of the coalition. To see this note that the coalition is strictly preferable to the status quo for the prime minister (as well as those from his own group included in the coalition) if

$$R^j(pa) + F(G^j(pa)) > \frac{B}{M},$$

which by inserting from (11) is equivalent to

$$\frac{B}{2} + \left( \frac{M}{2} - \gamma N_j \right) F(G^j(pa)) - G^j(pa) > 0.$$

Substituting from the first order condition (10) this yields

$$\frac{B}{2} + \frac{F(G^j(pa))}{F_G(G^j(pa))} - G^j(pa) > 0, \quad (13)$$

which is always fulfilled with a strict inequality, since  $F_{GG}(G^j(pa)) < 0$  implies that  $F(G^j(pa))/F_G(G^j(pa)) - G^j(pa) > 0$ . Moreover, note that the left hand side of (13) is increasing in  $G^j$ , and in turn that from (10)  $G^j(pa)$  is decreasing in  $N_j$ , implying that the utility of the prime minister is decreasing in the number of coalition members from group  $-j$ . Also, note that as the utility of all coalition members will be the same, members from group  $-j$  will also be happy to be included in the coalition. Thus all politicians in the coalition will vote in favor of the policy proposal by the coalition.

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<sup>18</sup>We assume that the budget is sufficient to have a positive amount of rents. In case this is not fulfilled, so that politicians do not receive any rents, then as will easily be understood below presidentialism is the unique equilibrium in the model. The intuition for this is that when there are no political rents, the only remaining question is which constitution that most often provide the type of goods majority politicians prefer.

Let the share of elected politicians from group  $j$  be  $\eta_j$ . Then for a prime minister from group  $j$  to form a majority he must ensure that  $\eta_j M + N_j \geq \frac{1}{2}M$ . The number of coalition members from group  $-j$  he needs to include is therefore given by  $N_j = \max\{(\frac{1}{2} - \eta_j)M, 0\}$ . Thus in the case of sincere voting we are focusing on in the main text  $N_L = 0$  and  $N_S = (\lambda - \frac{1}{2})M$ .

We may summarize the political equilibrium in a parliamentary regime by:

**Proposition 2** *With a parliamentary constitution a minimum winning coalition containing a mass  $M/2$  of politicians will always form, and the coalition will have the support of the legislature. Those outside the minimum winning coalition receive zero personal rents. A prime minister from group  $j \in \{L, S\}$  includes  $N_j = \max\{(\frac{1}{2} - \eta_j)M, 0\}$  members of group  $-j$  in his coalition. The provision of public goods is given by (10), the rents to the prime minister and each coalition member from group  $j$  by (11), and the rents to each coalition member from group  $-j$  by (12).*

The provision of public goods under parliamentarism may be higher or lower than under presidentialism. If  $Q < M$ , then under parliamentarism majority politicians provide more public goods than under presidentialism. The reason for this is that in such a case parliamentarism involves less concentration of political power. As a result the bargaining within the parliamentary ruling coalition implies that, compared to presidentialism, politicians offer more in directions where their preferences are (more or less) aligned such as for public goods, and less in directions where there is a direct conflict in preferences such as for the distribution of rents.<sup>19</sup> However, we may also have the opposite result, since the higher the number of politicians from the other group than the group of the prime minister that has to be included in the coalition, the lower is the provision of public goods. The intuition for this is that in such a case preferences for public goods are more divided, resulting in less provision of public goods and more political rents. Thus, in such a case the provision of public goods may be lower under parliamentarism than under presidentialism.

Total personal rents to politicians in the coalition may be higher under presidentialism than under parliamentarism. This is in some contrast to the result from Persson, Roland and Tabellini (2000), which predict that rents are always the highest under parliamentarism. The difference from the Persson, Roland and Tabellini (2000) result is due to their association of presidentialism with checks and balances as in the US presidential system, while under parliamentarism in their model there are no such checks and balances. Then under parliamentarism the politicians can appropriate all public resources for personal rent, which in their model is the only thing politicians care about. To prevent this voters implement a coordinated strategy of providing politicians sufficient rents today that they prefer not to steal the whole public sector budget,

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<sup>19</sup> Andersen and Aslaksen (2008) empirically investigate the growth effects of higher public budgets, and find that they are more favorable for parliamentary regimes than for presidential regimes. They argue that a likely reason is that parliamentary regimes have higher provision of public goods, and lower rents, than presidential regimes.

but instead be reelected so that they can get a new round of rents tomorrow. In this way a parliamentary constitution always generates more rents to politicians than a presidential one.

Compared to Persson, Roland and Tabellini (2000), who focus on a United States type of presidential regime with strong checks and balances, our paper develops a complimentary approach to study presidentialism in developing countries. Blume, Muller, Voigt and Wolf (2009) extend the analysis of Persson and Tabellini (2003) to include more developing, and in particular African, countries. They find that the result of Persson and Tabellini (2003) of presidential regimes having lower political rents disappears, indicating exactly that the effect of a presidential regime on political rents may be the opposite in developed and developing countries. Gerring and Thacker (2004) find that parliamentary forms of governments have lower corruption than presidential ones, and Kunicova and Rose-Ackerman (2005) find that presidentialism (in particular when the electoral system is proportional representation) increases corruption.

It is also interesting to compare our results to those of Diermeier and Feddersen (1998), since we have modelled similar effects which lead to high rents to coalition members in their case - but still may get the opposite result. The reason is that we have extended the dimensions of policy. In their setting a given amount of rents is divided between politicians, and the parliamentary regime allows politicians within the coalition to capture a higher fraction of these rents than otherwise. In our setting we include public goods and an endogenous amount of total rents. Then, as in their model, the utility of politicians within the coalition is higher with parliamentarism - but now this may be in the form of more public goods and less rents.

Leaving aside presidents or prime ministers, it is more favorable to be in the winning coalition under a parliamentary than under a presidential constitution. Under a parliamentary constitution coalition members have more power than under a presidential regime, because policy is decided by bargaining and all coalition members have the same to lose should they not agree. In turn, this makes the prime minister weaker, but the other members of the coalition stronger compared to a presidential regime where the president cannot be removed by his coalition members.

This raises the question why members of a parliamentary coalition would vote for presidentialism? Such a regime involves lower utility of being a part of the coalition than under parliamentarism. The point, however, is that although this intuition is correct it is not the complete intuition. The reason is that the probability of being included in future coalitions may depend on if there is a presidential or parliamentary regime.

### **4.3 Equilibrium constitution**

When voters vote for politicians from their own group, the share of group  $L$  politicians in the legislature will equal the share of group  $L$  in the population  $\lambda$ , and the share of group  $S$  politicians in the legislature will equal  $1 - \lambda$ . Since under presidentialism the president elected will be the

leader of group  $L$ , it is obvious that all minority politicians prefer parliamentarism. Presidentialism means a type of public good the minority does not prefer, and minority politicians will never receive rents because only majority politicians will be included in the minimum winning coalition.

The situation is more involved for majority politicians, and let us start out by discussing the constitution preferred by the majority group leader. Consider first a (stable) presidential regime. Under presidentialism the elected president will be the group  $L$  leader, thus  $\Pi^L(pr) = 1$ . Inserting this as well as  $\Omega(pr) = 1$  and the policy under presidentialism into (3) we obtain the utility of the majority president  $p^L$  as

$$W^{p^L,L}(pr) = \frac{1}{1-\beta} \left( \frac{2M-Q+2}{2M} B + \frac{Q}{2} F(G^L(pr)) - G^L(pr) \right). \quad (14)$$

Consider next a (stable) parliamentary regime. In this case the expected utility of all politicians in the majority group is the same. There is a probability  $\Pi^L(pa) = \lambda$  the prime minister is from the majority, in which case the minimum winning coalition consists of majority politicians only. In that case there is a probability  $\Phi^{i,L}(pa) = 1/2\lambda$  a politician from the majority group is included in the minimum winning coalition. With probability  $1 - \lambda$  the prime minister is from group  $S$ , in which case there is a probability  $\Phi^{i,S}(pa) = (2\lambda - 1)/2\lambda$  a majority politician becomes part of the winning coalition. Also, if a shift to presidentialism is not preferred today neither will it be tomorrow, thus  $\Omega(pa) = 1$ . Thus the expected payoff from parliamentarism for a politician  $i$  from group  $j = L$  is given by

$$W^{i,L}(pa) = \frac{1}{(1-\beta)} \left( \frac{\lambda (F(G^L(pa)) + \frac{1}{2\lambda} R^j(pa)) + (1-\lambda) ((1-\gamma)F(G^S(pa)) + \frac{2\lambda-1}{2\lambda} R^{-j}(pa))}{(1-\lambda) ((1-\gamma)F(G^S(pa)) + \frac{2\lambda-1}{2\lambda} R^{-j}(pa))} \right), \forall i \in P^L, \quad (15)$$

and with  $R^j(pa)$  and  $R^{-j}(pa)$  given by (11) and (12), respectively.

From this an obvious but important result follows:

**Proposition 3** *Under sincere voting presidentialism is an absorbing state, i.e.  $\Omega(pr) = 1$ .*

**Proof.** Under presidentialism the presidential candidate from the majority group will be elected. He will not propose to switch the constitution if his payoff  $W^{p^L,L}(pr)$  from (14) exceeds the expected payoff of a majority prime minister  $W^{i,L}(pa)$  from (15). Thus if  $W^{p^L,L}(pr) > W^{i,L}(pa)$  presidentialism is an absorbing state.

The simplest way to see that  $W^{p^L,L}(pr)$  always exceeds  $W^{i,L}(pa)$  is first to note that if this holds for  $Q = M$  it also holds for all  $Q < M$ , since we have established that  $W^{p^L,L}(pr)$  is decreasing in  $Q$  while  $W^{i,L}(pa)$  is independent of  $Q$ . Moreover, note that the expected utility of a politician from group  $L$  is always higher when a politician from his own group becomes prime minister. Thus, from these observations it follows from (14) and (15) that a weaker condition

than  $W^{p^L,L}(pr) > W^{i,L}(pa)$  is that

$$\frac{M+2}{2M}B + \frac{M}{2}F(G^L(pr)) - G^L(pr) > F(G^L(pa)) + \frac{1}{2\lambda}R^j(pa).$$

A weaker condition than this (since  $1/2\lambda < 1$ ) is that

$$\frac{M+2}{2M}B + \frac{M}{2}F(G^L(pr)) - G^L(pr) > F(G^L(pa)) + R^j(pa).$$

Using that when  $Q = M$  then  $G^L(pr) = G^L(pa)$ , and inserting from (11) this is equivalent to

$$\frac{M+2}{2M}B + \frac{M}{2}F(G^L(pa)) - G^L(pa) > F(G^L(pa)) + \frac{2}{M}(B - G^L(pa)).$$

Rearranging, this can be rewritten as

$$\left(\frac{M}{2} - 1\right) \left(\frac{B}{M} + F(G^L(pa)) - \frac{2}{M}G^L(pa)\right) > 0,$$

which using (10) implies

$$\left(\frac{M}{2} - 1\right) \left(\frac{B}{M} + F(G^L(pa)) - F_G(G^L(pa))G^L(pa)\right) > 0.$$

Since  $M - 1 > 2$  and  $F(G^L(pa)) - F_G(G^L(pa))G^L(pa) > 0$ , this is always satisfied. It then follows that presidentialism is an absorbing state. ■

The majority group leader prefers to be president rather than prime minister for the simple reason that this gives him more power, mapping into higher expected utility. For this reason presidentialism will always be an absorbing state.<sup>20</sup>

Thus in line with our motivation the relevant case to study is when the initial constitution is parliamentary.

**Proposition 4** *With a parliamentary constitution and sincere voting*

i) *When*

$$\begin{aligned} & -\frac{B}{\lambda M} \left( \frac{2\frac{M}{Q}\lambda - 1}{2\frac{M}{Q}} + (2\lambda - 1)(1 - \lambda) \right) + \frac{2\frac{M}{Q}\lambda - 1}{2\frac{M}{Q}\lambda} F(G^L(pr)) + \frac{G^L(pa)}{M} - \lambda F(G^L(pa)) \leq \\ & \frac{(1 - \lambda)(2\lambda - 1)}{\lambda} \left( -\frac{G^S(pa)}{M} + \left( (1 - \lambda)\gamma + \frac{\lambda(1 - \gamma)}{2\lambda - 1} \right) F(G^S(pa)) \right) \end{aligned} \quad (16)$$

*parliamentarism is an absorbing state, i.e.  $\Omega(pa) = 1$ .*

ii) *When (16) does not hold then parliamentarism is not an absorbing state. The probability the constitution is switched to a presidential one in a given period is  $\lambda > \frac{1}{2}$ . (From then on, presidentialism is the absorbing state).*

<sup>20</sup>Hayo and Voigt (2010) find that presidential regimes are more likely to survive than parliamentary ones.

**Proof.** Starting out with a parliamentary constitution it follows directly from Proposition 3 that if there is a prime minister from the majority, then he will propose a change in the constitution if he can mobilize sufficient support for such a regime change. The remaining question is now if majority politicians in the legislature will support a proposal from the majority prime minister to change the constitution into a presidential one. We first find the payoff of politicians if the constitution becomes presidential. Then we already know that  $\Omega(pr) = 1$  and  $\Pi^L(pr) = 1$ . There is a probability  $\Phi^{i,L}(pr) = 1/(2M\lambda/Q)$  a majority politician is included in the minimum winning coalition.<sup>21</sup> Inserting this and the presidential policy outcomes from Proposition 1 in (3), and solving for the expected payoff from presidentialism we get

$$W^{i,L}(pr) = \frac{1}{(1-\beta)2\frac{M}{Q}\lambda} \left( \frac{B}{M} + (2\frac{M}{Q}\lambda - 1)F(G^L(pr)) \right), \forall i \in P^L - p^L.$$

If the majority politicians in the legislature do not support a shift to presidentialism, then their expected payoff from parliamentarism is obtained by inserting from (11) and (12) in (15), which yields

$$W^{i,L}(pa) = \frac{1}{(1-\beta)} \left( \frac{B}{M} \left( 1 + \frac{(1-\lambda)(2\lambda-1)}{\lambda} \right) - \frac{G^L(pa)}{M} + \lambda F(G^L(pa)) \right. \\ \left. + \frac{(1-\lambda)(2\lambda-1)}{\lambda} \left( -\frac{G^S(pa)}{M} + \left( (1-\lambda)\gamma + \frac{\lambda(1-\gamma)}{(2\lambda-1)} \right) F(G^S(pa)) \right) \right), \forall i \in P^L. \quad (17)$$

$W^{i,L}(pa) \geq W^{i,L}(pr)$  implies inequality (16) which gives part (i) of the proposition, since then politicians from the majority will not support a change in the constitution, and therefore the majority prime minister finds no reason to propose such a shift. Part (ii) of the proposition follows since when (16) does not hold then  $W^{i,L}(pr) > W^{i,L}(pa)$ , and majority politicians support a shift in the constitution. Such a shift will be proposed by a prime minister from the majority group (but not from the minority group). The probability there is a prime minister from the majority group is  $\lambda > \frac{1}{2}$ . ■

The main comparative statics of our model are given by the following corollary to Proposition 4:

**Corollary 1** *A parliamentary constitution is less likely to be an absorbing state (in the sense that the set of parameters where the parliamentary constitution is an absorbing state is smaller):*

- i) The stronger is the conflict over public goods, that is the higher is  $\gamma$ .*
- ii) The smaller is the public budget, that is the smaller is  $B$ .*
- iii) The higher the minimum winning coalition under presidentialism, that is the higher is  $Q$ .*

---

<sup>21</sup>Note that since the president is certain to be in the coalition the probability that another politician from group  $L$  is included is given by  $(Q/2 - 1)/(\lambda M - 1)$ . To save unnecessary notation we assume that  $M$  and  $Q$  are sufficiently large that this can be approximated by  $1/(2M\lambda/Q)$ .

**Proof.** Part i) follows by noting that the left hand side of (16) is independent of  $\gamma$ , while the derivative of the right hand side of (16) is given by

$$\frac{(1-\lambda)(2\lambda-1)}{\lambda} \left( \begin{aligned} & \left( -(1-\lambda) + \frac{\lambda}{(2\lambda-1)} \right) F(G^S(pa)) \\ & + \left( -\frac{1}{M} + \left( (1-\lambda)\gamma + \frac{\lambda(1-\gamma)}{(2\lambda-1)} \right) F_G(G^S(pa)) \right) \frac{dG^S(pa)}{d\gamma} \end{aligned} \right).$$

Inserting for  $F_G(G^S(pa))$  from (10) and taking into account that  $N_S = (\lambda - \frac{1}{2})M$  this reduces to

$$\frac{1-\lambda}{\lambda} \left( (1-2\lambda(1-\lambda))F(G^S(pa)) + \frac{1-\gamma(2\lambda-1)}{M}(1-\gamma)\frac{dG^S(pa)}{d\gamma} \right),$$

which is negative as it can be verified from (10) that  $dG^S(pa)/d\gamma < 0$ . Then it follows that a higher  $\gamma$  makes it less likely that (16) holds.

Part ii) follows as the left hand side of (16) is decreasing in  $B$  while the right hand side is independent of  $B$ . Thus a smaller  $B$  makes it less likely that (16) holds.

Part iii) follows as the right hand side of (16) is independent of  $Q$ , while the derivative of the left hand side of (16) is given by

$$-\frac{1}{2M\lambda} \left( -\frac{B}{M} + F(G^L(pr)) \right) + \frac{2\frac{M}{Q}\lambda - 1}{2\frac{M}{Q}\lambda} F_G(G^L(pr)) \frac{dG^L(pr)}{dQ},$$

which inserting from (6) is equivalent to

$$\frac{1}{2M\lambda} R^i(pr) + \frac{2\frac{M}{Q}\lambda - 1}{2\frac{M}{Q}\lambda} F_G(G^L(pr)) \frac{dG^L(pr)}{dQ},$$

which is positive, as it can be verified from (7) that  $dG^L(pr)/dQ > 0$ . It then follows that a higher  $Q$  makes it less likely that (16) holds. ■

When the conflict over public goods is strong, the future utility of being included in minority coalitions under parliamentarism is low, making this regime relatively less attractive compared to presidentialism. Therefore, presidentialism, by ensuring that a politician from the majority group decides the type and quantity of public goods, becomes valuable for politicians. Thus an empirical prediction is that polarized countries should be more likely to have presidentialism, and moreover presidentialism of a type where leaders to a large degree are insulated from the legislature. Interestingly, in the empirical investigation of Aghion, Alesina and Trebbi (2004) this is exactly what they find.

Presidentialism is more likely to be installed the lower is the public budget  $B$ . The intuition for this is that politicians in the legislature have more political power with a parliamentary constitution. The marginal effect of an increase in the budget on utility is therefore higher under parliamentarism, and since the utility of parliamentarism increases relatively faster with the budget than the utility of presidentialism, this explains why a high public budget makes

parliamentarism more likely while a low public budget makes presidentialism more likely. Thus if budgets are smaller in poor than in rich countries, presidentialism is a ‘poor man’s disease’. Again, this is in accordance with the results in Aghion, Alesina and Trebbi (2004).

Moreover, the more politicians the president has to pay off, that is the higher is  $Q$ , the more likely presidentialism is installed. For majority politicians, a high  $Q$  makes their probability of being part of future coalitions higher.

In light of recent research by Diermeier and Fong (2011), and Bowen, Chen and Eraslan (2014), it is interesting to discuss how our results may be affected by the assumption that the status quo policy is exogenous. Diermeier and Fong (2011) study a presidential regime similar to ours, in that there is a persistent agenda setter. When the status quo policy is made equal to past policy, and thus endogenous, the formal power of the president increases as he not only affects the present policy, but also the future status quo of legislative members. One might think that such increased power of the president makes presidentialism in our model less likely, since a president that can weaken legislators by pushing their future status quo utility down makes the legislators less likely to agree to presidentialism. The Diermeier-Fong intuition, however, suggests that the effect is likely to be exactly the opposite. The intuition for this is that if the president pushes the utility of some legislators to zero, as he does in our model, then in the future when this becomes the status quo policy these legislators will be cheap to buy. But this means that legislators that are asked to support such a policy today will realize they will be left out of the coalition tomorrow, and thus they will need more rents today to support the president. As Diermeier and Fong (2011) show, the power of the president is thus weakened, and that of legislators strengthened, by an endogenous status quo policy. Therefore, incorporating such mechanisms may make presidentialism even more likely than our analysis suggests.

The results in Bowen, Chen and Eraslan (2014), on the other hand, may pull in the direction of making a parliamentary constitution more likely. They study a regime where the agenda setter is not persistent, and where power fluctuates between groups with different interests as regards public goods, in line with our parliamentary regime. They show that with an endogenous status quo policy more public goods will be provided. Thus, incorporating the mechanisms from Bowen, Chen and Eraslan (2014) may make a parliamentary regime more attractive than what our analysis suggests.

Finally, we have assumed that there is no asymmetric information. In contrast, Buisseret (2013) studies a case where there is incomplete information over the competence of politicians, and finds that in such a case voters may actually receive a higher utility by limiting themselves to a direct election of the legislature (parliamentarism) as this produces better political incentives than separate elections for the executive and the legislature (presidentialism). Our approach shares with Buisseret (2013) the result that policy efficiency may be higher under parliamentarism, although taking his arguments on board may result in parliamentarism being even more

favorable (and thus possibly more likely) than our model predicts.

## 5 Extensions

The model in the previous sections was restricted to the case where citizens vote sincerely. This rules out the case where citizens adopt punishment strategies if politicians change the constitution against their will. In Appendix A.2 we extend the model to study such a case. We show that exactly the circumstances where politicians from the majority group want to change the constitution to a presidential one, may also be the circumstances where a punishment strategy to prevent it may not constitute a subgame perfect equilibrium because it is too costly for voters to enact. In Appendix A.3 we investigate another extension, now departing from the assumption that there are only two groups of politicians and citizens. We extend the model to include more groups, where no group has a majority, and show that the main trade-off in the choice between presidentialism and parliamentarism is present also in such a setting.

We now discuss what our approach may suggest about claims that presidential regimes are less able to consolidate democracy.

### 5.1 Presidentialism and democratic consolidation

What does the model imply about the argument associated with Linz (1978) that presidential regimes are less able to consolidate democracy? Though Linz and other authors that have debated these ideas have many different mechanisms in mind which are beyond the scope of the model that we have developed, the model does generate an answer to this question. We here simply present an intuitive discussion without introducing a full model to incorporate democratic consolidation.

The model we have developed so far generates payoffs to different agents in democracy which depend on the nature of the constitution. Now extend the game so that in any period either group of agents could pay some cost and attempt to overthrow the regime. If they do so, imagine they can create a dictatorship of the group and allocate the government budget from then on to maximize the utility of the group. Assume that decisions to mount a coup are taken on the basis of whether or not it maximizes the sum of utilities of agents in the group (so we abstract from any issues of collective action or collective choice). If the cost of overthrowing democracy and the ability to do so is the same for all groups, it will tend to be minority groups which have the greater incentive to overthrow democracy. This is for the simple reason that under parliamentary democracy such groups rarely get the public good they prefer and its politicians get low rents. Note however, that under presidentialism the supply of minority public goods and rents are even lower and hence the utility of the minority group is lower under a presidential constitution. Since under a parliamentary constitution the minority has some probability of

forming the government it is true, as we have already shown, that the minority are better off under parliamentarism. Thus for a given cost of undertaking a coup, the incentive to do so is clearly higher for the minority under presidentialism. Hence there exists a part of the parameter space where the minority will not mount a coup when the constitution is parliamentary and will do so when it is presidential.

If one introduces uncertainty and a stochastic opportunity to mount a coup along the lines of Acemoglu and Robinson (2006), the model can easily be extended to show that even though switching to presidentialism can unconsolidate democracy in the sense that it can induce the threat of a coup where none previously existed, nevertheless it can still be optimal to introduce presidentialism if, for example, preferences for the public good are sufficiently polarized or the budget sufficiently low. Thus the model provides one clear mechanism which supports Linz's ideas.

## 6 Concluding remarks

In this paper we developed a positive model of the choice of constitutions. Our approach was based on two principles which we consider capture key differences between presidential and parliamentary institutions. First, that minority groups in a legislature are more powerful in a parliamentary system, and second, that a president is more powerful with respect to his own coalition than a prime minister is. We showed that these assumptions imply that while political leaders wish to be presidents, members of their coalition do not necessarily favor this since they have greater power vis a vis a prime minister. However, parliamentarians may allow a prime minister to become a president if they fear losing agenda setting power to another group.

We showed that such a constitutional change is more likely to happen when the conflict over public goods is high, and when public budgets are small. We argued that our conceptualization of the forces lying behind these two regimes seems to capture well the costs and benefits that politicians face in situations where presidents are relatively powerful, as they are in Africa and Latin America. Our model complements and extends existing work by Persson, Roland and Tabellini (2000) who focused on situations with less presidential dominance, such as in the United States.

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## A Appendix

In this Appendix we first in A.1 show the solution for a parliamentary coalition where the coalition offers the type of the public good that the prime minister of the coalition values the least. We then in A.2 depart from sincere voting (and MPE) and study voting with punishment strategies. In A.3 we extend the model to more than two groups.

### A.1 Alternative public goods provision

Consider now the case where the prime minister originating from group  $j$  provides public goods of type  $G^{-j}$ . We assume that the prime minister still includes the politicians from his own group in his coalition (because if not, the other members of the coalition would not want him to be the leader of their group). Again the solution follows from the maximization of the symmetric Nash product, but now with public goods of type  $G^{-j}$ . The unique solution to this problem is that public goods are determined according to

$$F_G(G^{-j}(pa)) = \frac{1}{(1-\gamma)\frac{M}{2} + \gamma N_j},$$

and that the rents to a coalition member from group  $-j$  are given by

$$R^{-j}(pa) = \frac{2}{M} \left( B - G^{-j}(pa) - \left( \frac{M}{2} - N_j \right) \gamma F(G^{-j}(pa)) \right)$$

and to a coalition member from group  $j$  by

$$R^j(pa) = \frac{2}{M} (B - G^{-j}(pa)) + \frac{2N_j}{M} \gamma F(G^{-j}(pa)).$$

Thus in this case rents to coalition members from own group is higher than those to members from the other group, as the former are compensated for their lower valuation of public goods. As in the case studied in the main text the provision of public goods is decreasing in the extent of disagreement in the valuation of public goods  $\gamma$ , and the utility of a coalition member under a parliamentary regime is higher than under a presidential regime.

### A.2 Voting and punishment strategies

With sincere voting politicians originating from the majority group of citizens also constitute a majority in the legislature. We have seen that these politicians may switch the constitution from being parliamentary to being presidential. Such a switch may imply less provision of public goods and more rents to politicians. We now allow majority voters to deviate from sincere voting, and study subgame perfect equilibria where majority voters can use history-dependent punishment strategies to prevent the constitution from becoming presidential. The interesting case we need to consider is the case where (under sincere voting) a legislative majority of group  $L$  politicians

would support a group  $L$  prime minister in switching the constitution to presidential one. We investigate if majority group voters can prevent such a switch by allocating majority power to minority group politicians. Note that the most profitable deviation from sincere voting to achieve this, is to let minority politicians have a *marginal* majority, so that the political influence of minority group politicians is minimized conditional on ensuring that majority politicians cannot install presidentialism. Giving minority politicians more power than a marginal majority will always be payoff dominated by giving them a marginal majority. In this construction, as is conventional, we therefore focus on the case where voters can coordinate their voting strategies and an equilibrium which is best from the point of view of the voters from the majority group.

In particular, consider the following trigger-strategy profile, which we denote by  $T$ :

(i) Group  $L$  voters vote for group  $L$  politicians as long as these politicians have never switched the constitution to a presidential one. If group  $L$  politicians have switched the constitution to a presidential one, while group  $S$  politicians (when able to do so) have always left office with a parliamentary constitution, then group  $L$  voters vote so as to give group  $S$  politicians (marginal) majority in all future periods. If group  $S$  politicians have ever left office with a presidential constitution (when able to do so), then group  $L$  voters vote for group  $L$  politicians in all future periods.

(ii) Group  $L$  politicians always leave office with a parliamentary constitution (when able to do so).

(iii) Group  $S$  politicians always leave office with a parliamentary constitution (when able to do so).

(iv) Group  $S$  voters vote for group  $S$  politicians in all elections.

We now investigate if this strategy profile constitutes a subgame perfect equilibrium. First, it is clear that group  $S$  voters have no profitable deviation, since they have no reason to vote for group  $L$  politicians. Second, it is also clear that group  $S$  politicians have no profitable deviation, since if they (have a majority and) deviate they will never be in the majority again. Third, it is clear that neither group  $L$  politicians have any profitable deviation (as long as majority voters stick to strategy profile  $T$ ), since if they switch the constitution they end up as a minority group. The remaining issue is thus if group  $L$  voters have a profitable deviation, i.e. if their punishment strategy is credible. To check this, note that with strategy profile  $T$ , then given that group  $L$  politicians have switched the constitution, one ends up with a one period president from group  $S$  followed by a parliamentary constitution with a (marginal) majority of group  $S$  politicians in all remaining periods. Taking into account that  $\Omega(pr) = \Pi^L(pr) = 0$ ,  $\Pi^L(pa) = \frac{1}{2}$ , and  $\Omega(pa) = 1$ , we then find the expected utility of a group  $L$  voter under strategy  $T$  in this case to be

$$(1 - \gamma)F(G^S(pr)) + \beta \frac{\frac{1}{2}F(G^L(pa)) + \frac{1}{2}(1 - \gamma)F(G^S(pa))}{1 - \beta}.$$

Moreover when the legislature consists of (approximately) equally many minority and majority

group politicians, then  $F(G^L(pa)) = F(G^S(pa))$ , and thus this can be rewritten as

$$(1 - \gamma)F(G^S(pr)) + \beta \frac{(1 - \frac{1}{2}\gamma)F(G^S(pa))}{1 - \beta}. \quad (18)$$

In contrast, if group  $L$  voters deviate the most profitable deviation is sincere voting. In that case politicians from the majority will also deviate from strategy profile  $T$ , and not leave office with a parliamentary constitution, i.e. leave office with a presidential constitution. Inserting for  $\Omega(pr) = \Pi^L(pr) = 1$  we find the utility of a group  $L$  voter in this case as

$$\frac{F(G^L(pr))}{1 - \beta}. \quad (19)$$

From (18) and (19) we find (taking into account that  $F(G^S(pr)) = F(G^L(pr))$  since a president has a majority of own group politicians in the legislature) that it is credible to play the punishment strategy in strategy profile  $T$  when

$$\beta(1 - \frac{1}{2}\gamma)F(G^S(pa)) - (\beta(1 - \gamma) + \gamma)F(G^S(pr)) > 0. \quad (20)$$

Thus we have seen that if one allows deviation from sincere voting, we have the following:

**Proposition 5** *Assume that majority politicians prefer a presidential constitution. Consider the game with the strategy profile  $T$ . When condition (20) holds there exists a subgame perfect equilibrium where the constitution remains parliamentary.*

A main implication of Proposition 5 is given in the following corollary:

**Corollary 2** *In the game with strategy profile  $T$ , a subgame perfect equilibrium where a parliamentary constitution is an absorbing state is more likely to exist:*

- i) The weaker is the conflict over public goods, that is the lower is  $\gamma$ .*
- ii) The higher is the valuation of the future, that is the higher is  $\beta$ .*

**Proof.** Part i) follows by noting that the left hand side of (20) is decreasing in  $\gamma$ .

Part ii) follows as the left hand side of (20) is increasing in  $\beta$ , since  $(1 - \frac{1}{2}\gamma)F(G^S(pa)) > (1 - \gamma)F(G^S(pr))$ . ■

Thus the subgame perfect equilibrium with a parliamentary constitution is less likely to be supported by the punishment strategy when there is a strong conflict over the type of public goods, and a low valuation of the future. It can easily be seen that the condition in (20) will not hold if either  $\gamma$  is sufficiently high, or if  $\beta$  is sufficiently low. In such cases, the cost of punishment is so high that it is optimal for voters to deviate from the punishment strategy. Exactly the circumstances that make politicians want to introduce presidentialism give rise to a situation where it is costly for citizens to punish such behavior. The intuition for this is that as long as

politicians are elected from the citizens, their preferences are aligned with citizens when it comes to the provision of public goods. Then exactly when it is attractive for politicians to switch to presidentialism so as to lock in the type of public goods they prefer, it is also unattractive for citizens from the majority group to punish their behavior.

### A.3 More than two groups

Assume now that there are more than two groups. To present the main intuition as simply as possible consider the case where we have five groups of citizens of equal size which are each represented by one politician from their group, and where under both regimes policy is implemented if 3 of the 5 politicians approve. The groups (and politicians) differ in their preferences over public goods. Each politician  $j \in \{1, \dots, 5\}$  is identified by his number  $j$ , and politicians are ordered such that the more distant their number the more distant their preferences. In particular assume that group and politician  $j$  receives utility  $F(G^j)$  from the provision of public good of type  $j$ ,  $(1 - \gamma)F(G^{j\pm 1})$  from the provision of public good of types  $j \pm 1$ ,  $(1 - 2\gamma)F(G^{j\pm 2})$  from the provision of public goods of type  $j \pm 2$ , and so on. A natural requirement is that utility of a public good cannot be negative for any group and thus  $\gamma < \frac{1}{4}$ . We now also allow ideological differences other than those stemming from public goods. Thus, assume that the ideological value of group  $j$  of having a president or prime minister from own group is  $3\delta$ , the ideological value of a president or prime minister from groups  $j \pm 1$  is  $2\delta$ , and so on.

Compared to the basic model no single group will ever have a majority in the presidential election. Under presidentialism it is reasonable to assume that the Condorcet winner is elected, and thus under presidentialism politician 3 will be the president and we assume that the legislature will consist of the other politicians. Since the politicians with preferences most closely aligned with the president will be the cheapest to buy, the coalition in addition to the president consists of politicians 2 and 4. The provision of public goods is given by  $F_G(G^3(pr)) = 1/(1 + 2(1 - \gamma))$ , and rents to politicians 2 and 4 by  $B/5 - (1 - \gamma)F(G^3(pr))$ . The president receives rents  $3B/5 + 2(1 - \gamma)F(G^3(pr))$ .

Under parliamentarism all groups are represented by one politician (and in contrast to in the basic model no single group can have a majority in the legislature). A politician is drawn at random to propose the ruling coalition, and again payoffs of those in the coalition are determined by symmetric Nash bargaining. All politicians in the coalition will receive the same utility which will be strictly higher than those not included in the coalition. Realizing this any politician asked to form a coalition will propose to be included in the coalition and moreover proposes a coalition consisting of politicians with minimal preference disagreement (as this maximizes the total pie to negotiate about). The coalition will agree to provide the public good of the median member of the coalition (again as this maximizes joint utility). Politicians 1 and 5 will be included in

the coalition with probability  $\frac{2}{5}$ , politicians 2 and 4 with probability  $\frac{3}{5}$ , and politician 3 with certainty. Public goods of types 1 and 5 will never be offered.<sup>22</sup>

Denote the median politician of a parliamentary coalition by  $m$ . The symmetric Nash bargaining solution yields the provision of public goods as

$$F_G(G^m(pa)) = \frac{1}{1 + 2(1 - \gamma)}, \quad (21)$$

the rents to the median politician  $m$  as

$$R^m(pa) = \frac{1}{3} (B - G^m(pa) - 2\gamma F(G^m(pa))),$$

and rents to politicians from groups  $m \pm 1$  as

$$R^{m\pm 1}(pa) = \frac{1}{3} (B - G^m(pa) + \gamma F(G^m(pa))).$$

Comparing the extended model to the basic model with only two group, it is worth noting that although all groups are of equal size and no single group has a majority, groups close to the median have a higher probability of being part of ruling coalitions in both regimes. The key insight, however, is that the groups close to the median have a *relatively* higher probability of being part of presidential compared to parliamentary coalitions, while groups that are minority groups under presidentialism have a positive probability of being part of parliamentary constitutions. The median politician is always included in both types of coalitions.

Politician 3 prefers presidentialism. For politicians 2 and 4 the trade-off between the two regimes is essentially the same as in the basic model: a parliamentary regime yields a higher utility than a presidential regime conditional on being part of the ruling coalition, but the probability of being part of a parliamentary coalition falls short of the probability of being part of a presidential coalition. Taking into account that all parliamentary coalitions will provide the same amount of public goods which we denote by  $G(pa)$ , this trade-off is captured in the following proposition:

**Proposition 6** *Assume we start out with a parliamentary constitution*

*i) When*

$$2\delta \leq -G(pa) + (5 - 6\gamma) F(G(pa)) \quad (22)$$

*parliamentarism is an absorbing state, i.e.  $\Omega(pa) = 1$ .*

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<sup>22</sup>Note that if there are more than five groups then for the politician drawn to propose a coalition there are in general many possible coalitions which are payoff equivalent. But in such a case with the additional assumption that between payoff equivalent alternatives a politician prefers the one that yields the highest utility for agents in his own group, coalition formation is unique also in this case. To see this assume that there are  $D$  politicians. Then all politicians with numbers between  $D/4$  and  $3D/4$  propose a coalition with themselves as the median member. Politicians with smaller numbers propose a coalition with  $D/4$  as the median politician, while politicians with higher numbers propose a coalition with  $3D/4$  as the median politician.

ii) When (22) does not hold then parliamentarism is not an absorbing state. The probability the constitution is switched to a presidential one in a given period is  $\frac{3}{5}$ . (From then on, presidentialism is the absorbing state).

**Proof.** Note first that the decisive politicians will be politicians 2 and 4. Politicians 1 and 5 will always oppose a presidential constitution as their expected per period payoff under a parliamentary constitution given by  $(1 - 2\gamma)F(G(pa)) + \delta + \frac{2}{5}R^{m\pm 1}(pa)$  will always exceed their expected per period payoff under a presidential constitution which is given by  $(1 - 2\gamma)F(G(pr)) + \delta$ .

Thus focusing on the voting of politicians 2 and 4 we find by inserting the policy outcomes from above, and the corresponding probabilities that politicians 2 and 4 are included in the ruling coalition, that politicians 2 and 4 do not support a shift in the constitution to a presidential one if (22) holds. This proves part i). In the converse case they do support such a shift, which will be proposed by a prime minister from the groups 2, 3, and 4 (but not from groups 1 and 5). This completes the proof of part ii). ■

A corollary to Proposition 6 is that:

**Corollary 3** *A parliamentary constitution is less likely to be an absorbing state when  $\gamma$  is higher, and when  $\delta$  is higher.*

**Proof.** The effect of  $\gamma$  follows by noting that the left hand side of (22) is independent of  $\gamma$ , while the derivative of the right hand side of (22) is given by

$$-6F(G(pa)) + ((5 - 6\gamma) F_G(G(pa)) - 1) \frac{dG(pa)}{d\gamma}$$

Inserting for  $F_G(G(pa))$  from (21) this reduces to

$$-6F(G(pa)) + \frac{2 - 4\gamma}{1 + 2(1 - \gamma)} \frac{dG(pa)}{d\gamma},$$

which is negative as  $\gamma < \frac{1}{4}$  and it can be verified from (21) that  $dG(pa)/d\gamma < 0$ .

The effect of  $\delta$  follows as the left hand side of (22) is increasing in  $\delta$  while the right hand side is independent of  $\delta$ . ■

Thus also in the case with more than two groups the main trade-off between political regimes is present for ‘majority’ politicians, although in this case who constitutes the ‘majority’ and who constitutes the ‘minority’ is endogenously determined.<sup>23</sup>

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<sup>23</sup>Moreover, note that the budget  $B$  has no effect on the trade-off because of the simple way we have extended the model here. This is because we have only 5 groups and because in our setup in a parliamentary regime the ‘extreme’ groups 1 and 5 have the same probability of being chosen as agenda setter as groups closer to the median. If there are more groups, or if the probability of being chosen as agenda setter is higher for groups close to the median, then also in the extended model a higher  $B$  makes a parliamentary constitution more likely.

Table 1: Constitutional change in Sub-Saharan Africa

Country	Year of Independence	Constitution at Independence	Present Constitution
Botswana	1966	Parliamentary	Parliamentary
Burkina Faso	1960	<b>Presidential</b>	<b>Presidential</b>
Burundi	1962	Parliamentary	<b>Presidential</b>
Cameroon	1960	Parliamentary	<b>Presidential</b>
Central African Republic	1960	<b>Presidential</b>	<b>Presidential</b>
Chad	1960	Parliamentary	<b>Presidential</b>
Congo (DR)	1960	Parliamentary	<b>Presidential</b>
Cote d'Ivoire	1960	<b>Presidential</b>	<b>Presidential</b>
Gabon	1960	Parliamentary	<b>Presidential</b>
Gambia	1965	Parliamentary	<b>Presidential</b>
Ghana	1957	Parliamentary	<b>Presidential</b>
Guinea	1958	<b>Presidential</b>	<b>Presidential</b>
Guinea-Bissau	1973	Parliamentary	<b>Presidential</b>
Kenya	1963	Parliamentary	<b>Presidential</b>
Malawi	1964	Parliamentary	<b>Presidential</b>
Mali	1960	Parliamentary	<b>Presidential</b>
Mauritius	1968	Parliamentary	Parliamentary
Niger	1960	<b>Presidential</b>	<b>Presidential</b>
Nigeria	1960	Parliamentary	<b>Presidential</b>
Rwanda	1962	<b>Presidential</b>	<b>Presidential</b>
Senegal	1960	Parliamentary	<b>Presidential</b>
Sierra Leone	1961	Parliamentary	<b>Presidential</b>
South Africa	1910	Parliamentary	Parliamentary
Sudan	1956	Parliamentary	<b>Presidential</b>
Tanzania	1961	Parliamentary	<b>Presidential</b>
Zambia	1964	Parliamentary	<b>Presidential</b>
Zimbabwe	1980	Parliamentary	<b>Presidential</b>