

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 presidentialism implies greater rent extraction and lower provision of public goods than parliamentarism. Moreover, political leaders prefer presidentialism and they 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

Many areas of social science focus on understanding institutional variation. In comparative economic development, researchers have tried to understand differences in economic institutions such as property rights (Acemoglu, Johnson and Robinson, 2001), barriers to entry (Djankov, LaPorta, Lopez-de-Silanes, Shleifer, 2002), or corruption (Treisman, 2000). In political economy and comparative economics, a huge research effort has focused on the origins of political institutions. Political institutions matter for the different outcomes they generate in terms of the representation of different interests and the types of policies and collective choices they lead to. Most of this work, following Lipset (1959), has focused on the origin and incidence of democracy (see Acemoglu and Robinson, 2006).

Within studies of comparative political institutions, the form of the constitution has also attracted particular attention. Most importantly, the dichotomy between parliamentary and presidential regimes has been seen as fundamental in many respects. Starting with Linz (1978), scholars have argued that the form of the constitution is critical for the creation and consolidation of democracy. Linz himself proposed that presidential democracies tended to be less stable and more prone to coups and 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. Since then presidential systems have 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, Tabellini and Roland, 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. Implic-

itly, 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). Mainwaring and Shugart (1997) do propose that one should think of presidentialism as being endogenous to the circumstances of societies and use this to argue that the correlations found by others between parliamentarism and democratic consolidation are not causal due to the fact that Latin American and African countries have both presidents and characteristics that make democracy difficult. Indeed, though they do not explain why Latin American constitutions are presidential, they use the instances of failed attempts to move away from presidentialism in the 1993 Brazilian plebiscite and in Argentina in the 1990s, as evidence that presidentialism is not an inefficient system for Latin America (since otherwise voters would have rejected it). Persson and Tabellini (2003) also recognize that the cross-national incidence of presidentialism is endogenous and run regressions of whether or not a country is presidential on variables such as 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. However, they do not have any theory which can account for the correlations they find.

That these perspectives are quite problematic can be illustrated by examining the constitutional experience of Sub-Saharan African countries since independence. As Table 1 shows, at the time of independence, parliamentary constitutions outnumbered presidential constitutions 4 to 1 in Africa.¹ Yet in country after country there was a switch towards presidentialism. This happens both in Francophone and Anglophone countries. Any relationship between having been a British colony and parliamentarism turns out to be

¹Around the same time as African states wrote presidential constitutions, many also introduced one party 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).

driven by Caribbean islands. Even in the wave of democracy which has swept over Africa since the 1990s, no country has yet made a transition from presidentialism back to parliamentarism, even though the switch to presidentialism is clearly associated with a transition to a less democratic style of politics in Africa. Also worthy of note is that only three countries which started with parliamentary institutions have not changed them, and two of these - Botswana and Mauritius - the only two countries which have been economically successful in Sub-Saharan Africa since independence.

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.

We consider a polity formed of two groups, one of which is in a majority and which differ in their preferences with respect to government policy, specifically public goods provision. In each group there are three sorts of indi-

viduals, 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 then proposes a policy vector of public goods and rents for politicians to the legislature which is implemented if it is supported by a majority. If the vector does not gain a majority of votes a status quo policy is implemented. 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 be an agenda setter to nominate a legislator to be prime minister. The nominated prime minister proposes a government coalition. If the coalition he proposes receives majority support then the prime minister proposes a vector of public goods. If this proposal receives a majority then another agenda setter is chosen at random from the government coalition to determine a division of rents which is then voted on. 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. 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 prime minister by the Conservative Party as she was in November 1990. In the model, this feature is captured by the assumption that a president has agenda setter power with respect to the entire policy vector, whereas a prime minister only controls part of the vector.

An important consequence of these assumptions is that politicians in general and particularly political leaders, capture more rents and provide fewer public goods under a presidential system compared to a parliamentary one. This is because when prime ministers are not the residual claimants on rents they allocate more of the government budget to public goods. Another consequence is that while political leaders prefer to be presidents than prime ministers, conditional on being in the winning coalition, other politicians prefer to be members of parliament than members of the legislature of a presidential system.

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, when ideological differences are more extreme, and when the society is poor in the sense that the government budget is low.

The comparative statics of the model may therefore help to explain why African countries so quickly switched to presidential constitutions after in-

dependence 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 political 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 a small elite from the North of the country (Seekers of Truth and Justice, 2000, Johnson, 2003, Cobham, 2005) who share few common interests with those in Darfur of 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. In countries which have sustained parliamentary institutions one has very different types of groups and parties with much less polarization of preferences over public goods. African countries are also much poorer than others which have sustained parliamentary regimes.

Our model also supports the claims of Linz about presidentialism. A natural way to think about the stability of democracy is to ask whether those who lose out under democracy would be better off trying to overthrow the system (Pzeworski, 1991, Chacon, Robinson and Torvik, 2006). Whether or not this is so depends on the relative payoffs. In our model the minority does better with a parliamentary constitution and therefore has less incentive to overthrow democracy. This follows because even ex post, if the majority hold power, public good provision is greater with a parliamentary system and this is better for the minority than the presidential system with lower public good provision and greater rent extraction.

Our model builds on two strands of earlier literature. First, we 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. Although in our model their result that politicians inside a ruling coalition receive more rents under parliamentarism with a vote of confidence is reversed, still in our model politicians inside the ruling coalition get a higher utility with a parliamentary than a presidential constitution, a result clearly in the spirit of these papers. Another difference from these papers is that we endogenize elections, as in Austen-Smith and Banks (1988).

The other main strand of the literature we borrow from is the approach developed by Persson, Roland and Tabellini (1997, 2000). Central to the modelling approach of these papers is the close association between presidentialism, separation of powers and checks and balances. It is this which drives the results about the extraction of political rents, for example. 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. In particular, contrary to their model, we assume that the president chooses the entire policy vector. Our reason for doing this is that the wider evidence on presidentialism does not support the idea that presidentialism has greater checks and balances than parliamentarism. Indeed, leaving aside the case of the United States, it is rather hard to associate presidentialism with checks and balances in Latin America, Africa or the former Soviet Union. In fact in many presidential systems the president has extensive legislative powers, particularly with respect to the budget. Even in the US, the inspiration for existing models of presidentialism, the president has a huge impact on the agenda. Lowi, Ginsberg and Shepsle (2008, pp. 246-247) note that

“Delivering a “State of the Union” address might not appear to be of any great import. It is a mere obligation on the part of the president to make recommendations for Congress’s consideration. But ... each president, especially since Franklin Roosevelt, has relied on this provision to become the primary initiator of proposals for legislative action in Congress.”

This agenda setting role extends to the budget in the US where the submission of a budget request by the president to the Congress and Senate at

the start of this year represents the start of the budget process.

Elsewhere in the world, the agenda setting powers of presidents are much greater. 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). 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).

Returning to Table 1, it is hardly plausible and certainly not consistent with the case study literature to argue that the desire of Joseph Mobutu to make himself president in 1967, rather than remain prime minister of Zaire, represented an increase 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, Omar Bongo in Gabon in 1961, or Kwame Nkrumah in Ghana in 1960.

As a final observation, we do believe it is not a coincidence that most presidents face term limits while to our knowledge there is no instance of a term limit on a prime minister (Helpman and Robinson, 2008). This is because prime ministers are naturally checked by the nature of their interactions with their coalition and the legislature.

This motivates our fundamental difference from the work of Persson, Tabellini and Roland and drives some of the main results, such as the fact

that in our model politicians extract more rents under presidentialism. Unlike their paper we also explicitly model the choice over institutions and have a separate election for the president. Furthermore, politician care about public goods and ideological matters and not just rents, and voters are forward looking rather than retrospective.

The paper is also related to a number of other lines of work. In addition to the work discussed above, there are a few more works on the origins of presidentialism, particularly 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 informal, 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. Indeed, Easter’s argument, quoted above, is clearly related to our analysis. 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 system a president insured policy stability which risk averse legislators desired.

The paper proceeds as follows. In Section 2 we set out our model of presidentialism, discuss the timing of events, and our assumptions. In section 3 we define the equilibrium of the model. We study two different versions of voting. We allow citizens to vote sincerely in the sense that citizens vote for the group of politicians that have preferences most closely aligned with themselves. We also allow citizens to vote strategically. In our model sincere and strategic voting may coincide, but need not do so. We then in Section 3.1 investigate policy under presidentialism, and in Section 3.2 under parliamentarism, before we compare the two and discuss why some of our results differ from those previous in the literature. Section 3.3 then derives the equilibrium under the two different assumptions regarding voting, and discuss why different equilibrium constitutions may emerge. In section 4 we discuss the extension of the model to consider the implications of the different constitutional arrangements for the stability of democracy. Section 5 discusses some alternative assumptions and mechanisms, before Section 6 concludes.

2 The Model

We consider an infinite horizon society with a set of citizens K . The set of citizens are divided among two population groups. One of the groups, which constitutes a fraction λ of the population and which we term group L , is in 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 $k \in K^j$ in group $j \in \{L, S\}$ is given by

$$\sum_{h=0}^{\infty} \beta^{t+h} Z_{t+h}^{k,j} = \sum_{h=0}^{\infty} \beta^{t+h} (F(G_{t+h}^j) + \gamma F(G_{t+h}^{-j}) + \delta^j) \quad (1)$$

at time t , where $\beta \in (0, 1)$ is the discount factor, $Z_{t+h}^{k,j}$ is the instantaneous utility at time $t+h$, G_{t+h}^j denotes the time $t+h$ provision of the type of public goods group j prefer the most, G_{t+h}^{-j} denotes the time $t+h$ provision of the type of public goods the group other than j prefer the most, and we assume that $F(0) = 0$, $F_G > 0$, $F_{GG} < 0$. In (1) the parameter $\gamma \in [0, 1]$ measures the similarity in preferences for public goods for voters in the two groups.

Thus 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 smaller is γ . For simplicity we assume that only one type of public goods can be provided in a given period. Finally, the parameter $\delta^j \geq 0$ is the ideological utility which accrues to individual k of group j if their group is in power. There may therefore be a conflict about ideology which we assume is symmetric, i.e. $\delta^L = \delta^S = \delta$. The higher is δ , the stronger is ideological polarization.

A subset of citizens from each group of voters decide exogenously to run for office. Among politicians from each group of voters an individual is initially picked at random to be the group leader, denoted p^j , $j \in \{L, S\}$. In a presidential regime this person runs for president, while in a parliamentary regime this person runs for the post of prime minister. Politicians are elected from the citizens and thus they have preferences for public goods and ideology that are aligned to those of a citizen in the group from which they originate. In addition, however, politicians value personal rents. Denote the set of elected politicians by P_{t+h} , and the set of politicians elected from group $j \in \{L, S\}$ by $P_{t+h}^j \subseteq P_{t+h}$. The preferences of a politician $i \in P_{t+h}^j$ is given by

$$\sum_{h=0}^{\infty} \beta^{t+h} U_{t+h}^{i,j} = \sum_{h=0}^{\infty} \beta^{t+h} (R_{t+h}^i + F(G_{t+h}^j) + \gamma F(G_{t+h}^{-j}) + \delta^j), \quad (2)$$

where $U_{t+h}^{i,j}$ is the instantaneous utility at time $t+h$ and R_{t+h}^i denotes rents to politician i at time $t+h$. 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 can not commit to policy.² Thus when in office they maximize their expected utility, subject to the public sector budget constraint

$$G_{t+h}^j + G_{t+h}^{-j} + \sum_{i \in P_{t+h}^j} R_{t+h}^i = B, \quad (3)$$

where B denotes per period public income which we treat as exogenous.

²As in the citizen candidate model of Osborne and Slivinski (1996) and Besley and Coate (1997).

At the start of a period elections are held according to an existing political constitution ξ_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 also differs under the two constitutions. Under presidentialism the president proposes policy, which is implemented if a majority of politicians agree. If not we assume that some status quo policy is implemented. Under parliamentarism the creation of the ruling coalition is determined by bargaining between politicians in the legislature. The creation of the ruling coalition is then subject to a vote in the legislature. If a ruling coalition is formed, then for each separate policy proposal the ruling coalition needs the support of a majority in the legislature. If the ruling coalition fails to receive a majority in its establishment or on a policy proposal, 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 if 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 ξ_t is either unchanged ($\xi_{t+1} = \xi_t$) or changed ($\xi_{t+1} \neq \xi_t$) according to the rules in the existing constitution $\xi_t \in \{pa, pr\}$.
5. A new period starts.

Before we proceed with the analysis we need to explain the constitutional rules in steps 1, 2 and 4 in more detail. Although we borrow heavily from

existing literature in the modelling of elections and legislative bargaining it is useful to discuss in more detail some of the effects of our assumptions and their motivation. Thus, introducing a bit more formalism that will be useful later on, the constitutional details in steps 1, 2 and 4 are as follows:

Step 1 (Elections): In the legislative election each voter $k \in K$ votes for a politician of type $j \in \{L, S\}$, and let $v_t^{k,j} = 1$ indicate that voter k votes for a politician of group j and $v_t^{k,j} = 0$ otherwise. In a presidential election similarly let $v_t^{k,p^j} = 1$ if citizen $k \in K$ votes for candidate p^j , $j \in \{L, S\}$, and $v_t^{k,p^j} = 0$ otherwise. If the constitution is presidential, voters elect one president and a legislature of politicians of mass M . 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, voters elect a legislature of politicians of mass $M + 1$, with a seat share in the legislature for each group $j \in \{L, S\}$ proportional to the vote share. A politician $i = pm \in P_t$ is then drawn at random from the legislature to decide which of the politicians p^j , $j \in \{L, S\}$, running for the prime minister post shall try to establish a ruling coalition. We denote this nomination decision $n_t^{pm,p^j} = 1$ if pm nominates p^j , and $n_t^{pm,p^j} = 0$ otherwise.

Step 2 (Legislative bargaining and policy): If the constitution is presidential, so that $\xi_t = pr$, the president proposes a policy vector of public goods and rents for politicians $\{G_t^j(pr), G_t^{-j}(pr), \{R_t^i(pr)\}_{i \in P_t}\}$. Each politician $i \in P_t$ decides to support the proposal ($s_t^i(pr) = 1$) of the president or not to support the proposal ($s_t^i(pr) = 0$). If at least $\frac{M}{2}$ politicians in the legislature vote in favor of the proposal the policy is implemented, and we term the set of politicians who supported the president his coalition; $C_t(pr)$. Otherwise a status quo policy where all politicians get the same personal rent $R_t^i = \frac{B}{M+1}$ is implemented.

If the constitution is parliamentary, so that $\xi_t = pa$, the nominated prime minister first proposes a coalition $C_t(pa) \subseteq P_t$ to form the government. Let $s_t^{i,C_t(pa)}(pa) = 1$ if politician $i \in P_t$ votes in favor of a coalition $C_t(pa)$, and let $s_t^{i,C_t(pa)}(pa) = 0$ if the politician votes against the coalition. If less than $\frac{M}{2} + 1$ of the politicians $i \in P_t$ vote in favor of the coalition, the government is not formed and the same status quo policy as under presidentialism $R_t^i = \frac{B}{M+1}$

is implemented. If at least $\frac{M}{2} + 1$ of the politicians vote in favor of the coalition $C_t(pa)$ the government is formed, and the prime minister proposes the type and quantity of public goods $G_t(pa) = \{G_t^j(pa), G_t^{-j}(pa)\}$. Let $s_t^{i, G_t(pa)}(pa) = 1$ if politician $i \in P_t$ votes in favor of the policy vector $G_t(pa)$, and let $s_t^{i, G_t(pa)}(pa) = 0$ if the politician votes against the proposal. If less than $\frac{M}{2} + 1$ of the politicians vote in favor of the policy the government is brought down and the status quo policy $R_t^i = \frac{B}{M+1}$ is implemented. If a majority supports the proposal the government survives and a new rent agenda setter termed $i = ra \in C_t(pa) - p^j$ is drawn at random to propose a vector of rents. (Note that the rent agenda setter ra is drawn *from within the ruling coalition*). Let this proposed rent division be denoted $\rho_t^{ra, C_t(pa)}$. Let $s_t^{i, ra}(pa) = 1$ if politician $i \in P_t$ votes in favor of the division of rents proposed by ra , and let $s_t^{i, ra}(pa) = 0$ otherwise. The proposal is implemented if it gets a majority among politicians $i \in P_t$. Otherwise the government is brought down and the status quo policy of sharing the remaining public funds equally between all politicians $R_t^i = \frac{B - G_t^j(pa) - G_t^{-j}(pa)}{M+1}$ is implemented.

Step 4 (Constitutional changes): Under a presidential regime the president decides whether to propose a switch to a parliamentary regime, i.e. $\xi_{t+1} = pa$ or not. Under a parliamentary regime the prime minister decides whether or not to propose a switch to a presidential regime, namely $\xi_{t+1} = pr$. Let $D(\xi_t) = 1$ denote a proposal to switch the constitution given the existing constitution $\xi_t \in \{pa, pr\}$, and let $D(\xi_t) = 0$ denote the case where there is no proposal to change the existing constitution. Each politician $i \in P_t$ decides to support an eventual proposal ($sc^i(\xi_t) = 1$) of changing the constitution or not to support such a proposal ($sc^i(\xi_t) = 0$). If a change in the constitution is proposed it is implemented if at least $\frac{M}{2} + 1$ of the politicians $i \in P_t$ approve. Otherwise the constitution is unchanged $\xi_{t+1} = \xi_t$.

2.1 Discussion of assumptions

A number of important assumptions in this election and government formation game should be noted. First, when a proposal does not achieve a majority the status quo policy implemented in both regimes is to share all remaining public funds between all elected politicians. Although alternative status quo policies could have been modelled, the crucial feature we want to

capture 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 in both sorts of constitutions.

Second, as government formation is determined by post election bargaining in a parliamentary system while the president himself decides on his government in a presidential regime, we assume that the minority in a parliamentary regime has more political power than in a presidential 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 decide who shall 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.³ The specific form of such an assumption is not crucial - however the content of the assumption is. If the minority has 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.

Third, with a parliamentary constitution the prime minister also 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 does not have agenda setting power in all policy dimensions, rather he has initial agenda setting power in the formation of the ruling coalition and in the first round of policy proposals. Thus, when forming a ruling coalition and making policy proposals he must take into account how his policy affects later policy proposals from members within his coalition.

Fourth, while there is no vote of confidence in the legislature under a

³This assumption is entirely consistent with the literature which assumes that the probability that a party leader will be recognized to form a coalition depends on the party’s vote share (for relevant empirical evidence see Diermeier and Merlo,). One difference here is that we have only two parties, while the literature focuses on government formation where no single party has an absolute majority. Nevertheless, in African or Latin American countries where parties are highly fragmented and party switching common after elections, the possibility of an opposition having a chance to take agenda setter power is real.

president elected directly by the citizens, under a parliamentary regime the ruling coalition is dependent on the continuous support in the legislature. In our model this is captured by the assumption that at each government formation or policy stage, the ruling coalition is brought down if it does not receive a majority. As a consequence, a vote on an issue is not only a vote on that issue viewed in isolation, but also a vote on the survival of the ruling coalition. Thus in a parliamentary regime with a vote of confidence, as is well known from the work of Huber (1996), Baron (1998) and Diermeier and Feddersen (1998), politicians in the ruling coalition get higher utility than they would otherwise do.

Fifth, note that the agenda setting power over constitutional changes can alternatively be interpreted as veto power: seen in this light our assumptions imply that under presidentialism the president has veto power over changes to the constitution, while under parliamentarism the prime minister has such veto power.

3 Analysis

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

Denote the strategy of a group leader p^j given that he is the national leader by

$$\psi^j = \{G^j(\xi), G^{-j}(\xi), I(\xi)\{R^i(\xi)\}_{i \in P}, C(\xi), D(\xi)\},$$

where $I(\xi)$ is an indicator function such that $I(\xi) = 1$ if $\xi = pr$ and $I(\xi) = 0$ otherwise. If the leader is not in power his set of strategies is the same as of other politicians. Denote also by ψ^{-j} the strategies of *all* other players (citizens and other politicians) than the leader p^j . Furthermore, denote the strategy of a politician i elected for the legislature (other than the national leader) by

$$\phi^i = \{I(\theta)s^i + (1 - I(\theta))\{I^n(i)n^{i,p^j}, s^{i,C(pa)}, s^{i,G(pa)}, I^\rho(i)\rho^{i,C(pa)}, s^{i,ra}\}, sc^i(\xi)\},$$

where the indicator functions are such that $I(\theta) = 1$ if $\theta = pr$ and $I(\theta) = 0$ otherwise, $I^n(i) = 1$ if $i = pm$, $I^n(i) = 0$ otherwise, and $I^p(i) = 1$ if $i = ra$, and $I^p(i) = 0$ otherwise. Similarly denote the strategies of *all* other players by ϕ^{-i} . Finally, denote the strategy of a citizen k by $\chi^k = \{v^{k,j}(\xi), v^{k,p^j}(pr)\}$, and let χ^{-k} be the strategies of *all* other citizens and politicians.

Since we model expected discounted utility the one stage deviation principle can be used even if we have an infinite horizon game.⁴ Thus let $V^{p^j}(\xi|\psi^{-j})$ denote the expected utility of group leader p^j , $j \in \{L, S\}$, of starting out with a constitution $\xi \in \{pa, pr\}$ given the strategies of all other players ψ^{-j} . Also let $\Pi^j(\xi, \psi^j|\psi^{-j})$ denote the probability that the group leader from group j becomes the national leader under constitution ξ , when his strategy is ψ^j , and given the strategies of all other players ψ^{-j} . Let similarly $\Omega(\xi, \psi^j|\psi^{-j})$ be the probability the constitution will not be changed at the end of the period under initial constitution $\xi \in \{pa, pr\}$, when his strategy is ψ^j , and given the strategies of all other players ψ^{-j} .

We can now write payoffs recursively, and we begin with those of a political leader p^j , $j \in \{L, S\}$.

$$\begin{aligned}
V^{p^j}(\xi|\psi^{-j}) &= \max_{\{\psi^j\}} \{ \Pi^j(\xi, \psi^j|\psi^{-j}) U^{p^j}(\xi, \psi^j|\psi^{-j}, p^j) \\
&\quad + (1 - \Pi^j(\xi, \psi^j|\psi^{-j})) U^{p^j}(\xi, \psi^j|\psi^{-j}, p^{-j}) \quad (4) \\
&\quad + \beta [\Omega(\xi, \psi^j|\psi^{-j}) V^{p^j}(\xi|\psi^{-j}) \\
&\quad + (1 - \Omega(\xi, \psi^j|\psi^{-j})) V^{p^j}(-\xi|\psi^{-j})] \}.
\end{aligned}$$

The two first lines in (4) consist of his current period expected utility. To clarify the intuition we explain the equation in some detail: with probability $\Pi^j(\xi, \psi^j|\psi^{-j})$ the political leader becomes the national leader (president or prime minister), in which case his instantaneous utility is $U^{p^j}(\xi, \psi^j|\psi^{-j}, p^j)$, i.e. the utility for group leader p^j when the constitution is ξ , his strategy is ψ^j , the strategies of the other players are given by ψ^{-j} , and it is given that p^j becomes the national leader. With the corresponding probability he does not become national leader, in which case his instantaneous utility is $U^{p^j}(\xi, \psi^j|\psi^{-j}, p^{-j})$. The last two lines in (4) state his discounted expected continuation value, where with the probability $\Omega(\xi, \psi^j|\psi^{-j})$ the constitution

⁴See 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.

is unchanged when it starts out as ξ , his strategy is ψ^j , and the strategies of the others are given by ψ^{-j} . The corresponding probability the constitution is changed is given by $1 - \Omega(\xi, \psi^j|\psi^{-j})$, in which case his continuation utility is $V^{p^j}(-\xi|\psi^{-j})$ (the payoff if the constitution is changed).

Next we find the value functions for politicians in the legislature. Let $W^{i,j}(\xi|\phi^{-i})$ denote the expected utility of a politician i from group j in the legislature starting out with a constitution $\xi \in \{pa, pr\}$ given the strategies of all other players ϕ^{-i} . Furthermore let the probability that politician i from group j is included in the coalition when his own group leader wins power be $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^j)$, while the probability he is included in the coalition if the group leader from the other group $-j$ wins is similarly given by $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^{-j})$.

The value function can now be written recursively in the following equation (5).

$$\begin{aligned}
W^{i,j}(\xi|\phi^{-i}) &= \max_{\{\phi^i\}} \{ \Pi^j(\xi, \phi^i|\phi^{-i}) [\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^j) U^{i,j}(\xi, \phi^i|\phi^{-i}, p^j, i \in C) \\
&\quad + (1 - \Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^j)) U^{i,j}(\xi, \phi^i|\phi^{-i}, p^j, i \notin C)] \\
&\quad + (1 - \Pi^j(\xi, \phi^i|\phi^{-i})) [\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^{-j}) U^{i,j}(\xi, \phi^i|\phi^{-i}, p^{-j}, i \in C) \\
&\quad + (1 - \Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^{-j})) U^{i,j}(\xi, \phi^i|\phi^{-i}, p^{-j}, i \notin C)] \quad (5) \\
&\quad + \beta [\Omega(\xi, \phi^i|\phi^{-i}) W^{i,j}(\xi|\phi^{-i}) \\
&\quad + (1 - \Omega(\xi, \phi^i|\phi^{-i})) W^{i,j}(-\xi|\phi^{-i})].
\end{aligned}$$

With a probability $\Pi^j(\xi, \phi^i|\phi^{-i})$ the group j leader becomes national leader when the constitution is ξ , the strategy of politician i is ϕ^i , and the strategies of all other players are ϕ^{-i} . In that case there is a probability $\Phi^{i,j}(\xi, \phi^i|\phi^{-i}, p^j)$ politician i is included in the coalition, in which case he gets instantaneous utility $U^{i,j}(\xi, \phi^i|\phi^{-i}, p^j, i \in C)$, while under the corresponding probability his instantaneous utility is $U^{i,j}(\xi, \phi^i|\phi^{-i}, p^j, i \notin C)$. With probability $1 - \Pi^j(\xi, \phi^i|\phi^{-i})$ his group leader does not win power, in which case he gets the expected current payoff under a national leader from the other group, which is a symmetric expression to what he gets under a national leader from own group. Finally, the last two lines in (5) shows the discounted expected continuation value.⁵

⁵Strictly speaking we have made a shortcut here, as these payoffs also depend on the

Finally let $X^{k,j}(\xi|\chi^{-k})$ denote the expected utility of a voter k from group j when the constitution is $\xi \in \{pa, pr\}$. Then

$$\begin{aligned}
X^{k,j}(\xi|\chi^{-k}) &= \max_{\{\chi^k\}} \{ \Pi^j(\xi, \chi^k|\chi^{-k}) Z^{k,j}(\xi, \chi^k|\chi^{-k}, p^j) \\
&\quad + (1 - \Pi^j(\xi, \chi^k|\chi^{-k})) Z^{k,j}(\xi, \chi^k|\chi^{-k}, p^{-j}) \quad (6) \\
&\quad + \beta [\Omega(\xi, \chi^k|\chi^{-k}) X^{k,j}(\xi|\chi^{-k}) \\
&\quad + (1 - \Omega(\xi, \chi^k|\chi^{-k})) X^{k,j}(-\xi|\chi^{-k})] \}.
\end{aligned}$$

where the interpretation follows immediately from those we gave for the two previous Bellman equations.

We study the pure strategy MPE of this model under two alternative assumptions about the voting strategies of citizens. We term these two different cases sincere voting and strategic voting. We define them as follows:

Definition 1: A *sincere* pure strategy MPE consists of voting decisions $v^{k,j}(\xi) = v^{k,p^j}(pr) = 1, \forall k \in K^j, j \in \{L, S\}, \xi \in (pa, pr)$ by the citizens, and a vector of strategies $\{\{\psi^j\}_{j \in \{L, S\}}, \{\phi^i\}_{i \in P}\}$ for group leaders and politicians that simultaneously solve (4) and (5).

Definition 2: A *strategic* pure strategy MPE consists of a vector of strategies $\{\{\psi^j\}_{j \in \{L, S\}}, \{\phi^i\}_{i \in P}, \{\chi^k\}_{k \in K}\}$ that simultaneously solve (4), (5), and (6).

Thus under sincere voting citizens vote for politicians that have preferences most closely aligned with themselves, while all group leaders and politicians play best response to the strategies of all other players for all states. Under strategic voting all strategies by all players are best responses to the other strategies for all states. (Obviously sincere voting and strategic voting may produce the same equilibria, but as we will see they need not do so).

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

probability the politician that is elected in the present period is not elected in the future. However, this probability will turn out to be zero, and thus we simplify the expressions at this stage by incorporating that.

is not incorporated. In the strategic voting case, by contrast, voters can have more power over policy decisions in the legislature because in their strategies they incorporate the full set of strategies by all the other players, with the possibility that they can elect representatives that have preferences less aligned with themselves if this produces a higher expected discounted payoff. Thus this case most closely resembles the case of Austen-Smith and Banks (1988)

To find the MPE we first find the current period equilibrium for given constitutions and a given composition of the legislature. We then find the MPE under the two alternative voting assumptions by the Bellman equations (4), (5), and (6).

3.1 Presidentialism

Consider a president elected from group $j \in \{L, S\}$. The president must find the policy vector $\{G^j(pr), G^{-j}(pr), \{R^i(pr)\}_{i \in P}\}$ that maximizes (2) subject to (3) and the presidential constitutional rules.

In the case where group j has half or more of the politicians in the legislature, the president has sufficient support in the legislature to form a winning coalition of politicians from own group should he wish to do so. The analysis in this case can be simplified by observing (i) that the utility for the president is higher when he forms a coalition only with members of his own group rather than forming a coalition which includes politicians from the legislative minority, (ii) only public goods of the type G^j and not G^{-j} will be offered, (iii) the president picks a *minimum winning coalition* and thus the mass of politicians he includes in addition to himself is $\frac{M}{2}$, and (iv) that he will never offer more rents to politicians that is necessary to induce them to vote in favor of his policy proposal, which (v) implies that all politicians in the minimum winning coalition other than the president receive the same rent. Recall that the personal rents to the president is denoted by $R^{p^j}(pr)$. With these observations the remaining problem for the president can be formulated as the following programming problem

$$\max_{\{G^j, R^{p^j}, R^i\}} [R^{p^j} + F(G^j)], \quad (7)$$

subject to:

$$G^j + R^{p^j} + \frac{M}{2}R^i = B, \quad (8)$$

$$R^i + F(G^j) = \frac{B}{M+1}, \quad (9)$$

where R^i is the rent to each politician in the coalition (other than the president) and where we for simplicity have skipped the reference to the constitution $\xi = pr$ on the variables. Inserting from (9) for R^i in (8), and then inserting from (8) for R^{p^j} in (7), this simplifies to

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

with the corresponding first order condition

$$F_G(G^j) = \frac{2}{2+M}.$$

The expression for rents to the politicians in the coalition other than the president then follows from (9), and in turn the rents for the president is residually determined in (8).

In the case where group j has less than half of the politicians in the legislature, the president cannot form a minimum winning coalition consisting of politicians from his own group only. Thus he must decide whether to form a minimum winning coalition that includes all politicians $i \in P^j$ and some politicians $i \in P^{-j}$, or to form a minimum winning coalition that in addition to himself includes only politicians $i \in P^{-j}$. It can easily be verified that forming a coalition including only part of the politicians from his own group is always inferior to including them all. Thus these are the only two options we need to consider.

Consider first the case where the president decides to include the politicians from his own group in the coalition. This can only be the case when he decides to offer public goods of type G^j , since otherwise politicians from the legislative majority group will be cheaper to buy. Thus he offers all politicians from his own group the same rents $\frac{B}{M+1} - F(G^j)$, while he has to offer higher rents, $\frac{B}{M+1} - \gamma F(G^j)$, to the members of the minimum winning coalition from outside his own group. Denote the share of politicians in the

legislature from group $-j$ by μ . The remaining maximization problem for the president in this case is then

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

with the corresponding first order condition

$$F_G(G^j) = \frac{1}{(1-\mu)M + 1 + \left(\mu - \frac{1}{2}\right)\gamma M}.$$

The expression for rents to the politicians inside the minimum winning coalition then follows from their participation constraints being fulfilled with equality, and in turn rents for the president follows from the budget constraint.

Alternatively the president may choose to include only politicians $i \in P^{-j}$. This can only be so if he decides to provide public goods of type G^{-j} . After inserting from the participation constraints and budget constraint in a similar manner as above, this maximization problem simplifies to

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

with the corresponding first order condition

$$F_G(G^{-j}) = \frac{2}{2\gamma + M}.$$

Again the rents to the politicians follows from their participation constraints, and the rents for the president from the budget constraint.

The president must now choose between these two alternatives to ensure that he picks the one which gives him the highest utility. Observe that the utility in the case where in addition to himself he only include politicians $i \in P^{-j}$ is independent of μ , while the utility in the case where he includes the politicians $i \in P^j$ is decreasing in μ . Observe further that with μ sufficiently close to 1 his utility is always highest when he forms a coalition with politicians $i \in P^{-j}$ only, while with $\mu > \frac{1}{2}$ sufficiently close to $\frac{1}{2}$ his utility is always highest when he also includes politicians $i \in P^j$. It follows that there exists an unique $\mu = \mu^* \in [\frac{1}{2}, 1]$ where μ^* is implicitly defined by the μ that satisfies

$$\begin{aligned} & \left((1-\mu)M + 1 + \left(\mu - \frac{1}{2}\right)\gamma M \right) F(G^j(pr)) - G^j(pr) \\ = & \left(\frac{M}{2} + \gamma \right) F(G^{-j}(pr)) - G^{-j}(pr), \end{aligned}$$

where if $\mu \leq \mu^*$ the president forms a minimum winning coalition including the politicians from his own group, while if $\mu > \mu^*$ he forms a minimum winning coalition with politicians from the legislative majority group only.

We may summarize the political equilibrium under presidentialism as:

Proposition 1 *With a presidential constitution the president forms a minimum winning coalition of mass $\frac{M}{2}$. Those outside the minimum winning coalition receive zero personal rents.*

If the majority of the legislature and the president are from the same group $j \in \{L, S\}$, then $C(pr) \subseteq P^j$, $G^j(pr) = F_G^{-1}(\frac{2}{2+M})$, $G^{-j}(pr) = 0$, $R^i(pr) = \frac{B}{M+1} - F(G^j(pr))$, $\forall i \in C(pr)$, $R^{p^j}(pr) = \frac{M+2}{2(M+1)}B + \frac{M}{2}F(G^j(pr)) - G^j(pr)$.

If the minority of the legislature and the president are from the same group $j \in \{L, S\}$, then if $\mu \leq \mu^$, $P^j \subset C(pr)$, $C(pr) \subset P^{-j}$, $G^j(pr) = F_G^{-1}(((1 - \mu)M + 1 + (\mu - \frac{1}{2})\gamma M)^{-1})$, $G^{-j}(pr) = 0$, $R^i(pr) = \frac{B}{M+1} - F(G^j(pr))$, $\forall i \in C(pr)$, $R^i = \frac{B}{M+1} - \gamma F(G^j(pr))$, $\forall i \in C(pr) \neq P^j$, $R^{p^j}(pr) = \frac{M+2}{2(M+1)}B + ((1 - \mu)M + (\mu - \frac{1}{2})\gamma M) F(G^j(pr)) - G^j(pr)$. If $\mu > \mu^*$, $C(pr) \subset P^{-j}$, $G^j(pr) = 0$, $G^{-j}(pr) = F_G^{-1}(\frac{2}{2\gamma+M})$, $R^i = \frac{B}{M+1} - F(G^{-j}(pr))$, $\forall i \in C(pr)$, $R^{p^j}(pr) = \frac{M+2}{2(M+1)}B + \frac{M}{2}F(G^{-j}(pr)) - G^{-j}(pr)$.*

3.2 Parliamentarism

Consider a prime minister from group $j \in \{L, S\}$. Under parliamentarism the prime minister knows that if the coalition survives, the best response for the agenda setter who proposes the division of the rents is to propose rents to the members of the ruling coalition so that their participation constraints are fulfilled with equality. Thus, conditional on survival of the coalition, we have the rents to those in the coalition who are not agenda setters for rents given by $\frac{B - G^j(pa) - G^{-j}(pa)}{1+M}$, while the rents of the agenda setter is then given by $\frac{M+2}{2(M+1)}(B - G^j(pa) - G^{-j}(pa))$.

Consider first the case where group j has a legislative majority. Then the prime minister will form a coalition $C(pa)$ with politicians $i \in P^j$ only, and he will offer public goods of type G^j . In addition to himself the prime minister picks a minimum winning coalition and thus the number of politicians he includes in addition to himself is $\frac{M}{2}$. Recalling that the personal rents of the prime minister is denoted $R^{p^j}(pa)$, and denoting the rents of the agenda

setter $R^{ra}(pa)$, then conditional on survival of the coalition the maximization problem of the prime minister is

$$\max_{\{R^{pj}, G^j\}} [R^{pj} + F(G^j)], \quad (10)$$

s.t.

$$R^{pj} + R^{ra} + \left(\frac{M}{2} - 1\right)R^i + G^j = B, \quad (11)$$

$$R^i = \frac{B - G^j}{M + 1}, \quad (12)$$

$$R^{pj} = R^i \quad (13)$$

where R^i is the rent to each politician in the coalition, and that the prime minister realizes he will receive the same rents as the other members of his coalition in the last round (except the rent agenda setter). Again for simplicity we have not indexed the variables by the constitution $\xi = pa$. The solution for the amount of public goods is given by

$$F_G(G^j) = \frac{1}{1 + M}, \quad (14)$$

and R^i and $R^{ra} = \frac{M+2}{2(M+1)}(B - G^j)$ follow from (11) and (12).

The prime minister must now decide if he prefers this solution to proposing something that will lead the status quo policy to be implemented, as well as investigate if his coalition partners will accept the proposal. The proposal is preferable to the status quo for the prime minister if

$$\frac{B - G^j}{M + 1} + F(G^j) \geq \frac{B}{M + 1}, \quad (15)$$

while the proposal is accepted by his coalition members if

$$\left(\frac{M-2}{M}\right) \left(\frac{B - G^j}{M + 1}\right) + \left(\frac{2}{M}\right) \left(\frac{M+2}{2}\right) \left(\frac{B - G^j}{M + 1}\right) + F(G^j) \geq \frac{B}{M + 1}, \quad (16)$$

where $\left(\frac{M-2}{M}\right)$ is the probability of not becoming the rent agenda setter and $\left(\frac{2}{M}\right)$ is the probability of becoming the rent agenda setter.

It is easily verified that if the coalition solution is preferable to the prime minister it will also be so for his coalition members (as they have a possibility of becoming rent agenda setter while the prime minister has not). Thus if

the prime minister's utility of the coalition solution is higher than the status quo alternative, he will propose the coalition solution and the members of the coalition will vote in favor of that. The condition for the coalition solution can then be reformulated as

$$F(G^j) - \frac{G^j}{M+1} \geq 0. \quad (17)$$

Inserting from the first order condition this yields

$$F(G^j) - G^j F_G(G^j) \geq 0, \quad (18)$$

which is always fulfilled as $F_{GG}(G^j) < 0$.

Thus if a prime minister from group j is asked to form a coalition, and if group j has a legislative majority, those asked to join the coalition will be happy to do so, and a coalition will always form.

Next we turn to the case where group $-j$ has a majority in the legislature. In the same way as for a president from the legislative minority, a prime minister from the legislative minority must decide if he should include the politicians from his own group j in the coalition, or if he should only include politicians from the other group $-j$.

Consider first the case where he decides to include politicians from his own group. Then the type of public good offered is G^j , and the maximization problem of the prime minister is exactly the same as in the case where he has a legislative majority. Thus the solution for public goods and rents are the same and the participation constraints for the prime minister and for the politicians from his own group are fulfilled. The participation constraint for the politicians included from the other group is given by

$$\begin{aligned} & \left(\frac{M-2}{M}\right) \left(\frac{B-G^j}{M+1}\right) + \left(\frac{2}{M}\right) \left(\frac{M+2}{2}\right) \left(\frac{B-G^j}{M+1}\right) + \gamma F(G^j) \\ &= 2 \left(\frac{B-G^j}{M+1}\right) + \gamma F(G^j) \geq \frac{B}{M+1}, \end{aligned} \quad (19)$$

which can be reformulated to

$$F_G(G^j) (B - 2G^j) + \gamma F(G^j) \geq 0. \quad (20)$$

In the continuation we assume that this condition is fulfilled, in which case the prime minister is able to form a coalition with his own group politicians

included. We delegate the case where (20) is not fulfilled, so that the prime minister will not be able to form a coalition including own politicians, to the Appendix. All our qualitative results to follow are valid also in this case.

Finally, note that for the politician drawn at random from the legislature to decide which of the politicians running for the prime minister post shall try to establish a ruling coalition it will always be best response to point to a prime minister from his own group.

We may summarize the political equilibrium under a parliamentary regime as

Proposition 2 *With a parliamentary constitution a minimum winning coalition $C(pa)$ containing the prime minister and in addition a mass $\frac{M}{2}$ of politicians will always form, and the coalition will have the continuous support of the legislature. Those outside the minimum winning coalition receive zero personal rents.*

If the majority of the legislature and the prime minister is from the same group $j \in \{L, S\}$, then $C(pa) \subseteq P^j(pa)$, $G^j(pa) = F_G^{-1}(\frac{1}{1+M})$, $G^{-j}(pa) = 0$, $R^{p^j}(pa) = R^i(pa) = \frac{B-G^j(pa)}{M+1}$, $\forall i \neq ra \in C(pa)$, $R^{ra}(pa) = \frac{M+2}{2(M+1)}(B - G^j(pa))$.

If the minority of the legislature and the prime minister is from the same group $j \in \{L, S\}$, then $P^j(pa) \subset C(pa)$, $C(pa) \subset P^{-j}(pa)$, $G^j(pa) = F_G^{-1}(\frac{1}{1+M})$, $G^{-j}(pa) = 0$, $R^{p^j}(pa) = R^i(pa) = \frac{B-G^j(pa)}{M+1}$, $\forall i \neq ra \in C(pa)$, $R^{ra}(pa) = \frac{M+2}{2(M+1)}(B - G^j(pa))$.

Under parliamentarism politicians from both groups provide more public goods than under presidentialism. The reason for this is that parliamentarism involves sharing of agenda setting power within the ruling coalition. As a result the prime minister is not the residual claimant on rents. The sharing of agenda setting power within the 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.

For the same reason total personal rents to politicians in the coalition is higher under presidentialism than under parliamentarism. This is the opposite result from Persson, Roland and Tabellini (2000), which predict that

rents are the highest under parliamentarism. The difference from the Person, Roland and Tabellini (2000) result is due to their association of presidentialism with checks and balances, 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 strategy of providing politicians sufficiently more rents today that they prefer not to steal the whole public sector budget, but instead be reelected so that they can get a new round of rents tomorrow. In this way a parliamentary constitution generates more rents to politicians than a presidential one, since the latter involves checks and balances.

The comparison of our results to those of Diermeier and Feddersen (1998) may seem more interesting, since we have modelled the same effects which lead to high rents to coalition members in their case - but still get the opposite result. The reason for that is although we have basically used their framework, 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 also have 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 - although this involves lower not higher rents. When preferences are (more or less) aligned along one dimension, then under parliamentarism politicians choose to capture high utility in that direction and scale down the components of utility where they have a direct conflict. Thus since we have extended the Diermeier and Feddersen logic to include public goods and an endogenous amount of total rents, we get that a parliamentary regime with a vote of confidence procedure produces a lower amount of total rents.

In our model a politician has a higher utility of being a president than being a prime minister. For all the other politicians, however, as we explained above, 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. Policy is to a larger degree decided by all the coalition members under par-

liamentarism. A vote for the public goods proposal under parliamentarism is not just a vote for that proposal - but also a vote for the survival of the coalition. Conditional on the survival of the coalition, not only the prime minister has agenda setting power. In turn, this makes the prime minister weaker, but the other members of the coalition stronger. By voting in favor of the proposal of the prime minister politicians ensure that (i) they continue to be members of the ruling coalition and (ii) in addition have a chance of gaining future agenda setting power. By voting together the coalition ensures that they get the future coalition benefits at the same time as ensuring that the agenda setting power of a prime minister is weaker than that of a president.

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.

3.3 Voting and equilibrium

We now investigate the equilibrium in the case of sincere voting and in the case of strategic voting, starting out with the former. In line with our motivation we assume that the initial constitution is parliamentary.

3.3.1 Sincere voting

Under sincere voting all voters vote for politicians from their own group, thus $v^{k,j}(\xi) = v^{k,p^j}(pr) = 1, \forall k \in K^j, j \in \{L, S\}, \xi \in \{pa, pr\}$. In this case the share of group L politicians in the legislature will equal the share of group L in the population λ , and the share of group S politicians in the legislature will equal $1 - \lambda$. Under presidentialism the president elected will be the leader of group L . 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 elected president will be the group L leader, thus $\Pi^L(pr) = 1$. Politicians from group L will form a majority in the legislature, and thus the president suggests a minimum winning coalition $C(pr) \subseteq P^L$, $G^L(pr) = F_G^{-1}(\frac{2}{2+M})$, $G^S(pr) = 0$, $R^i(pr) = \frac{B}{M+1} - F(G^L(pr))$, $\forall i \in C(pr)$, $R^{p^L}(pr) = \frac{M+2}{2(M+1)}B + \frac{M}{2}F(G^L(pr)) - G^L(pr)$. This proposal receives a majority and is implemented. The president must then decide if he shall propose a change in the constitution. If the constitution becomes parliamentary then $\Pi^L(pa) = \lambda < \Pi^L(pr) = 1$. Furthermore independently of if he wins power or not under parliamentarism, the one period payoff is lower than under presidentialism. Thus since presidentialism involves a higher probability of winning a bigger payoff compared to parliamentarism, he does not propose a change in the constitution, and $\Omega(pr) = 1$. ■

The intuition for this result is immediate. Under presidentialism, by not changing the constitution the presidential candidate from the biggest group will be able to lock out the presidential candidate from the minority with probability one. In addition it is better to be a president than a prime minister, and thus the constitution will be stable given that it becomes presidential.

The remaining question, then, is what happens when the constitution starts out as parliamentary.

Proposition 4 *With a parliamentary constitution, then under sincere voting*

(i) *When*

$$\begin{aligned} & \frac{1}{2\lambda} \left(\frac{B}{M+1} + (2\lambda - 1)F(G^L(pr)) \right) + (1 - \lambda)\delta \leq \\ & \frac{B - G^L(pa)}{M+1} \left(1 + \frac{(1 - \lambda)(2\lambda - 1)}{\lambda} \right) + (\lambda + (1 - \lambda)\gamma)F(G^L(pa)) \end{aligned} \quad (21)$$

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

(ii) *When (21) does not hold then parliamentarism is not a stable constitution. The probability the constitution is switched into a presidential one in a given period is $\lambda > \frac{1}{2}$. (From then on, presidentialism is the absorbing state).*

Proof. We start out with a parliamentary constitution. From Propositions 1 and 2 it follows 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. From the same argument it follows that a prime minister from the minority will never propose a shift away from parliamentarism. This will just give him a zero probability of winning power and personal rents, and may distort the type of public goods he prefers as well as their quantity.

The remaining question is now if a majority of the politicians in the legislature will support a proposal from the majority group leader to change the constitution.

It is immediately clear that the minority politicians in the legislature will never support such a proposal. A switch to presidentialism leaves them with a zero probability of becoming part of future ruling coalitions, as well as always having public goods of the type they do not prefer, and in addition having less public goods than under a parliamentary constitution. Thus a shift to presidentialism can only be undertaken if it gets the support of politicians from the majority group.

To investigate this 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 $\Phi^{i,L}(pr) = \frac{\frac{M}{2}}{\lambda M} = \frac{1}{2\lambda}$ a politician $i \in P^L$ is included in the minimum winning coalition. Inserting this and presidential policy outcomes from Proposition 1 in (5), solving for the expected payoff from presidentialism we get

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

If the majority politicians in the legislature does not support a shift to presidentialism, then there is a probability $\Pi^L(pa) = \lambda$ the majority politician is elected prime minister, in which case there is a probability $\Phi^{i,L}(pa) = \frac{1}{2\lambda}$ a politician from the majority group is included in the minimum winning coalition. With probability $1-\lambda$ the group S leader becomes prime minister, in which case there is a probability $\Phi^{i,S}(pa) = \frac{\frac{M}{2} - (1-\lambda)M}{\lambda M} = \frac{2\lambda-1}{2\lambda}$ 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 $\Omega(pa) = 1$. Inserting in (5) and solving for the expected payoff from parliamentarism we

get

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

Inequality (21) implies that $W^{i,L}(pa) \geq W^{i,L}(pr)$ 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 see no reason to propose such a shift. Part (ii) of the proposition follows since when (21) does not hold $W^{i,L}(pr) > W^{i,L}(pa)$, then majority politicians support a shift in the constitution, and 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 $\lambda > \frac{1}{2}$. ■

Note, by the fact that $\frac{dW^{i,L}(pr)}{d\gamma} = 0$ and $\frac{dW^{i,L}(pa)}{d\gamma} = \frac{(1-\lambda)F(G^L(pa))}{(1-\beta)} > 0$, presidentialism is more likely to be installed the lower is γ , that is the stronger is the conflict over which public goods should be provided. When this conflict 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 of public goods, becomes valuable for politicians.

Also $\frac{dW^{i,L}(pr)}{d\delta} = \frac{1}{1-\beta} > \frac{dW^{i,L}(pa)}{d\delta} = \frac{\lambda}{1-\beta}$, implying that presidentialism is more likely to be installed the higher is ideological polarization δ . With a strong ideological conflict it becomes attractive for majority politicians to install presidentialism, because compared to a parliamentary constitution this increases the future probability that someone of their ideological type will be the agenda setter. Furthermore, for a sufficiently high δ it can easily be seen that (21) is never satisfied, so that a parliamentary constitution will never be stable.

Finally, note that $\frac{dW^{i,L}(pr)}{dB} = \frac{1}{(1-\beta)2\lambda(M+1)}$, while $\frac{dW^{i,L}(pa)}{dB} = \frac{1 + \frac{(1-\lambda)(2\lambda-1)}{\lambda}}{(1-\beta)(M+1)}$. A condition for $\frac{dW^{i,L}(pa)}{dB} > \frac{dW^{i,L}(pr)}{dB}$ thus reduces to $\frac{1}{2} < \lambda + (1-\lambda)(2\lambda-1)$, which is always fulfilled. Therefore presidentialism is more likely to be installed the lower is the public budget B . The intuition for this is that politicians (other than group leader) have more political power with a parliamentary constitution. The marginal effect of an increase in the budget on personal rents is therefore higher under parliamentarism, and thus the utility of

parliamentarism increases relatively faster with the budget than the utility of presidentialism, explaining why a high public budget makes parliamentarism more likely and 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’.

3.3.2 Strategic voting

A switch to presidentialism provides less provision of public goods and more rents to politicians. This naturally raises the question of whether the voters should vote strategically to avoid a presidential constitution. Note that in our model sincere and strategic voting coincide for a given constitution, as for a given constitution it is always better for a voter to have the leader of his own group become the national leader and have as many as possible of politicians from his own group in the legislature. Thus the interesting case we need to consider is the case where a majority of group L politicians would switch the constitution from being parliamentary to presidential if given the opportunity to do so.

Note that it is always optimal response for the minority group to vote sincerely, as a prime minister from the minority group will deliver the type of public goods the minority prefer and in addition leave the constitution parliamentary. However, for the voters of the majority group sincere voting may not be optimal response. They have to trade off voting sincerely and (sooner or later) get a presidential constitution, with voting strategically so as to avoid a presidential constitution but (now and then) get a type of public goods and an ideology they do not prefer. This trade-off is captured in the following:

Proposition 5 *It is optimal to vote sincerely when*

$$\begin{aligned}
& \frac{(M + \gamma(M + 2)) F(G^L(pa))}{(2M + 2)} \\
< & \frac{(\lambda + (1 - \lambda)\gamma)(1 - \beta)F(G^L(pa)) + \lambda\beta F(G^L(pr))}{(1 - (1 - \lambda)\beta)} \quad (22) \\
& + \left(\frac{\lambda}{(1 - (1 - \lambda)\beta)} - \frac{M}{2M + 2} \right) \delta.
\end{aligned}$$

Proof. Consider first the case where voters from the majority group decide to vote so as to prevent politicians from switching the constitution. The best response given that they want to achieve this is to elect sufficiently many representatives from the minority that a switch to presidentialism is blocked, at the same time as they maximize the probability that a politician from their own group becomes prime minister. Thus the best response given that they will prevent a switch to presidentialism is to vote in such a way that the legislature consists of $\frac{M}{2} + 1$ politicians from the minority group S and $\frac{M}{2}$ politicians from the majority group L . Then $\Omega(pa) = 1$ and $\Pi^L(pa) = \frac{M}{2M+2}$. Inserting in (6) we then find the utility of a group L voter under best response preventive voting, $X^{k,L}(pa|pv)$, as

$$X^{k,L}(pa|pv) = \frac{(M + \gamma(M + 2)) F(G^L(pa)) + M\delta}{(1 - \beta)(2M + 2)}. \quad (23)$$

The alternative is to vote for politicians from own group, implying that at the first instance a politician from own group is elected prime minister, then the constitution switches to a presidential one (and stays so). Thus in this case $\Omega(pa) = 1 - \lambda$ and $\Pi^L(pa) = \lambda$. Inserting in (6) the expected utility of a group L voter under sincere voting, $X^{k,L}(pa|sn)$, is given by

$$\begin{aligned} X^{k,L}(pa|sn) &= \lambda(F(G^L(pa)) + \delta) + (1 - \lambda)\gamma F(G^L(pa)) \\ &\quad + \beta((1 - \lambda)X^{k,L}(pa|sn) + \lambda X^{k,L}(pr)). \end{aligned} \quad (24)$$

Furthermore, $\Omega(pr) = \Pi^L(pr) = 1$, which implies

$$X^{k,L}(pr) = \frac{F(G^L(pr)) + \delta}{1 - \beta}. \quad (25)$$

Inserting (25) in (24) and solving we get

$$\begin{aligned} X^{k,L}(pa|sn) &= \frac{(\lambda + (1 - \lambda)\gamma)}{(1 - (1 - \lambda)\beta)} F(G^L(pa)) \\ &\quad + \frac{\lambda\beta}{(1 - \beta)(1 - (1 - \lambda)\beta)} F(G^L(pr)) \\ &\quad + \frac{\lambda\delta}{(1 - \beta)(1 - (1 - \lambda)\beta)}. \end{aligned} \quad (26)$$

The proposition then follows by inserting from (26) and (23) in $X^{k,L}(pa|sn) > X^{k,L}(pa|pv)$. ■

Now note that as $\frac{dX^{k,L}(pa|pv)}{d\gamma} = \frac{(M+2)}{(1-\beta)(2M+2)}F(G^L(pa))$ while $\frac{dX^{k,L}(pa|sn)}{d\gamma} = \frac{(1-\lambda)}{(1-(1-\lambda)\beta)}F(G^L(pa))$, a condition for $\frac{dX^{k,L}(pa|pv)}{d\gamma} > \frac{dX^{k,L}(pa|sn)}{d\gamma}$ reduces to $\frac{M+2}{2M+2} > \frac{(1-\beta)(1-\lambda)}{(1-(1-\lambda)\beta)}$, equivalent to $M > 2M(1-\lambda)(1-\beta) - 2\lambda$, which is always fulfilled when $\lambda > \frac{1}{2}$. Thus sincere voting rather than strategic voting is more likely to be optimal response with a strong conflict over the type of public goods. The intuition is that in such a case it is costly to vote strategically, since the utility loss in those cases a minority politician becomes agenda setter is large.

Furthermore, we find $\frac{dX^{k,L}(pa|pv)}{d\delta} = \frac{M}{(1-\beta)(2M+2)}$ and $\frac{dX^{k,L}(pa|sn)}{d\delta} = \frac{\lambda}{(1-\beta)(1-(1-\lambda)\beta)}$, meaning that a condition for $\frac{dX^{k,L}(pa|pv)}{d\gamma} < \frac{dX^{k,L}(pa|sn)}{d\gamma}$ reduces to $\frac{M}{2M+2} < \frac{\lambda}{(1-(1-\lambda)\beta)}$, which is always fulfilled when $\lambda > \frac{1}{2}$. When ideological polarization is high voters are more likely to vote sincerely, as in such a case being able to switch to presidentialism, locking in own ideology (at some point in the future), is very valuable.

Thus sincere voting is more likely to be an optimal response when there is a strong conflict over the type of public goods and strong ideological polarization. For γ sufficiently close to zero and δ sufficiently high sincere voting will always be optimal response. Exactly the circumstances that make politicians want to introduce presidentialism give rise to a situation where it is not optimal for citizens to vote strategically to stop it. 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 ideology and provision of public goods. Then exactly when it is attractive for politicians to switch to presidentialism so as to lock in ideology and public goods provision in their preferred direction, it is also unattractive for citizens from the majority group to vote strategically.

When politicians and citizens of the majority group have exactly the same preferences for public goods and ideology, then how could optimal response imply ensuring that these same politicians do not have a majority in the legislature - wouldn't sincere voting always be an optimal response? The answer to this is no, and the reason is that the majority politicians may want a switch to presidentialism when the majority voters do not because presidentialism may imply higher personal rents. In particular presidentialism is relatively more attractive to politicians when budgets are small, while

for voters the size of the budget is irrelevant in the trade off between voting strategically or sincerely. For completeness we include a proof that sincere voting is not always optimal response in the Appendix.

4 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 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 both groups, it will tend to be the minority group which has the greater incentive to overthrow democracy. This is for the simple reason that under democracy it does not get the public good it prefers and its politicians gets zero rents. Note however, that under presidentialism the supply of public goods is even lower and hence the utility of the minority group is lower under a presidential constitution. This is true even if the minority are not in the government. 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 (2001), 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.

5 Discussion of alternative assumptions and additional mechanisms

Here we discuss our assumptions, as well as some additional mechanisms alternative assumptions may give rise to. First, consider our assumption that the minority has more political power under parliamentarism than under presidentialism. It should be apparent by now that as long as this is the case, irrespective of how this effect is modelled, the trade off we have identified for majority group politicians and majority group citizens is present. However it is also interesting to consider a case without this assumption. If the minority has no power under parliamentarism in the sense that their probability of being agenda setter is zero, then the majority will never support presidentialism which consequently can not be installed, as our trade-off is not present.

Second, consider the case where a politician can promise which of the politicians in his group should be part of future coalitions when he forms one. Note that such an alternative assumption does not rule out a switch to presidentialism since in this case the probability of being part of future presidential coalitions increases from $\frac{1}{2\lambda}$ to 1 for the included politicians from the majority group, while the probability for majority politicians of being part of future parliamentary coalitions is always less than one (since it is not credible for the minority group leader to promise that he will form a coalition without politicians from his own group).

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 presidential systems lead to greater extraction of rents by politicians and lower provision of public goods. Moreover, while political leaders always 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.

Furthermore, we showed that such a constitutional change is more likely to happen when the conflict over public goods is high, when ideological polarization is strong, 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 and fit much better with the case study evidence and facts than existing models of the difference between presidential and parliamentary institutions.

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8 Appendix

(A1) *The case where coalition formation does not include own politicians from one's own group*

Here we first investigate the case where (20) is not fulfilled, so that under parliamentarism a prime minister from the minority group does not want to form a coalition including politicians from his own group. Thus consider now the case where he decides to include politicians from the majority group $-j$ only. Then the type of public good offered is G^{-j} , and the maximization problem of the prime minister is

$$\max_{\{R^{pj}, G^j\}} [R^{pj} + \gamma F(G^{-j})], \quad (27)$$

s.t.

$$R^{pj} + R^{ra} + \left(\frac{M}{2} - 1\right)R^i + G^{-j} = B, \quad (28)$$

$$R^i = \frac{B - G^{-j}}{M + 1}, \quad (29)$$

$$R^{pj} = R^i \quad (30)$$

with the solution for public goods given by

$$F_G(G^{-j}) = \frac{1}{\gamma(M + 1)}. \quad (31)$$

The proposal is preferable to the status quo for the prime minister if

$$\frac{B - G^{-j}}{M + 1} + \gamma F(G^{-j}) \geq \frac{B}{M + 1}, \quad (32)$$

which is always fulfilled. The utility of the politicians from the majority is higher than that of the minority prime minister, hence their participation constraints will always be fulfilled (as their utility of status quo is the same as for the prime minister). Thus to summarize this case: if $\frac{F_G(G^j(pa))}{2} (B - 2G^j(pa)) + \gamma F(G^j(pa)) < 0$, then $C(pa) \subset P^{-j}(pa)$, $G^j(pa) = 0$, $G^{-j}(pa) = F_G^{-1}\left(\frac{1}{\gamma(M+1)}\right)$, $R^{pj}(pa) = R^i(pa) = \frac{B - G^{-j}(pa)}{M+1}$, $\forall i \in C(pa) \neq ra$, $R^{ra}(pa) = \frac{M+2}{2(M+1)}(B - G^{-j}(pa))$.

In this case, therefore, politicians from the majority get their preferred public good even when the prime minister is from the minority group. However, they get less public goods than a prime minister from their own group

would deliver, and therefore also in this case the utility of the majority politicians and citizens is higher under a prime minister of their own group rather than a prime minister from the minority group. For this reason, the tradeoffs we investigate in Section 3.3 of the paper is still present, and the qualitative conclusions we reach in this case where (20) is not fulfilled are the same as the ones in the case we study in the main text where (20) is fulfilled.

(A2) *Proof that sincere voting is not always optimal*

Next we include a proof that sincere voting is not always best response for the voters in the model. To show this it is sufficient to show that there exists at least one equilibrium where strategic voting gives voters a higher expected utility than sincere voting. Thus assume that $\gamma = 1$, that $\beta \rightarrow 1$, and that $B = G^L(pa)$ so that we are confident that the public budget is sufficiently high that we have an interior solution for public goods, and that condition (20) is fulfilled. Then from (21) we know that majority politicians are indifferent between switching the constitution or not when

$$F(G^L(pr)) = \frac{2\lambda}{2\lambda - 1} F(G^L(pa)) - \frac{G^L(pa)}{(2\lambda - 1)(M + 1)} - \frac{2\lambda(1 - \lambda)}{2\lambda - 1} \delta. \quad (33)$$

Assume that this condition holds and that politicians of group L switch the constitution if they form a majority in the legislature. We now show that given this there exists an equilibrium where voters *strictly* prefer to vote strategically, which then contradicts a claim that sincere voting is always best response. From (22) we find that voters in this case strictly prefer to vote strategically if

$$F(G^L(pr)) < F(G^L(pa)) - \left(1 - \frac{M}{2M + 2}\right) \delta.$$

Inserting from (33), after some calculation the condition for strategic voting reduces to

$$-\left(1 + \frac{M(2\lambda - 1)}{2M + 2} - 2\lambda^2\right) \delta + F(G^L(pa)) - \frac{G^L(pa)}{M + 1} < 0. \quad (34)$$

For $\lambda > \frac{1}{2}$ sufficiently low and δ sufficiently large this condition always holds, and thus strategic voting is optimal response. It then only remains to check if this is consistent with an internal solution to the model, that is that (i) public goods provision under presidentialism is positive and that (ii) rents

to politicians under presidentialism are positive. From (33) we find that positive public goods provision implies an upper boundary of δ given by $\frac{F(G^L(pa))}{1-\lambda} - \frac{G^L(pa)}{2\lambda(1-\lambda)(M+1)}$. Thus we need to show that (34) can also be fulfilled when δ is not allowed to be greater than this upper boundary. Inserting this boundary for δ in (34) gives the condition for strategic voting after some calculation as

$$\begin{aligned} & -2\lambda \left(\lambda - 2\lambda^2 + \frac{M(2\lambda - 1)}{2M + 2} \right) F(G^L(pa)) \\ & + \left(1 - 2\lambda + \frac{M(2\lambda - 1)}{2M + 2} \right) \frac{G^L(pa)}{M + 1} < 0, \end{aligned}$$

which inserting from (14) is equivalent to

$$\begin{aligned} & -2\lambda \left(\lambda - 2\lambda^2 + \frac{M(2\lambda - 1)}{2M + 2} \right) F(G^L(pa)) \\ & + \left(1 - 2\lambda + \frac{M(2\lambda - 1)}{2M + 2} \right) F_G(G^L(pa))G^L(pa) < 0, \end{aligned} \quad (35)$$

As $F(G^L(pa)) > F_G(G^L(pa))G^L(pa)$ a sufficient condition for (35) to be fulfilled is that

$$2\lambda \left(\lambda - 2\lambda^2 + \frac{M(2\lambda - 1)}{2M + 2} \right) > \left(1 - 2\lambda + \frac{M(2\lambda - 1)}{2M + 2} \right),$$

which can be reformulated to

$$2\lambda - 1 + 2\lambda^2 - 4\lambda^3 + \frac{M(2\lambda - 1)^2}{2M + 2} > 0.$$

When $\lambda > \frac{1}{2}$ is not too large this condition is fulfilled, and thus there exists a strategic voting equilibrium with an interior solution for public goods. Furthermore, in this equilibrium rents to politicians are positive which can be verified since the rents are given by $\frac{B}{M+1} - F(G^L(pr)) = \frac{G^L(pa)}{M+1} - F(G^L(pr))$, which is positive when we insert for $F(G^L(pr))$ from (33) and for $\delta = \frac{F(G^L(pa))}{1-\lambda} - \frac{G^L(pa)}{2\lambda(1-\lambda)(M+1)}$. Thus as there exists an equilibrium where strategic voting is a best response, sincere voting is not always best response in the model, which completes the proof.

Country	Date of Independence	Constitution at Independence	Presidential Constitution	Parliamentary Constitution	Semi-Presidential Constitution
Botswana	1966	Parliamentary			
				1959	
Burkina Faso	1960	Presidential			1970 1977 1991
Burundi	1962	Parliamentary	1981 1992		
Cameroon	1960	Parliamentary	1961 1972		
				1959	
Central African Republic	1960	Presidential	1964 1981 1986		
				1959	
Chad	1960	Parliamentary	1962 1989		
Cote d'Ivoire	1960	Presidential		1959	
				1959	
Gabon	1960	Parliamentary	1961 1975		1991
Gambia	1965	Parliamentary	1982 (amendment)	1970	
			1960		
Ghana	1957	Parliamentary	1979 1992	1969	
Guinea	1958	Presidential	1982 1990		
Guinea-Bissau	1973	Parliamentary		1984 1991	

Country	Date of Independence	Constitution at Independence	Presidential Constitution	Parliamentary Constitution	Semi-Presidential Constitution
Kenya	1963	Parliamentary	1968 (amendment) 1969		
Malawi	1964	Parliamentary	1966 1994		
Mali	1960	Parliamentary	1974		1992
Mauritius	1968	Parliamentary		1959	
Niger	1960	Presidential	1989		1991
Nigeria	1960	Parliamentary	1979	1963	
Rwanda	1962	Presidential	1978		1991 (amendment)
Senegal	1960	Parliamentary	1983		1970 (amendment) 1991 (amendment)
Sierra Leone	1961	Parliamentary	1978 1991	1971	
South Africa	1910	Parliamentary		1909 1961 1983 1993	
Sudan	1956	Parliamentary			1973
Tanzania	1964	Parliamentary	1965 1977 1985		
Zaire	1960	Parliamentary	1967 1978 1990		
Zambia	1964	Parliamentary	1973 1991		
Zimbabwe	1980	Parliamentary	1987	1979	