Endogenous Political Institutions

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Abstract

A n important aspect of institutional design is how much society chooses to delegate unchecked power to its leaders. If, once elected, a politician cannot be restrained, society runs the risk of a tyranny of the majority, if not the tyranny of a dictator. If a leader faces too many ex post checks and balances, he has too few incentives to act and produce legislation. In this paper we explore the analogy between this trade-off and the Schumpeterian costs and benefits of enhancing the monopoly power of new innovators on the product market, to derive implications for constitutional design. We consider three alternative insulation devices, namely ex post controls (such as veto power and no confidence motions), the design of electoral systems, and the choice of term duration, and we analyze how various characteristics of a society, in particular the relative extent of idiosyncratic and aggregate uncertainty of preferences of the electorate, its degree of polarization of preferences, the costs and benefits of reforms and their distribution will affect the optimal choice of leaders' insulation.

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1 Introduction

In Democracy In America, Alexis de Tocqueville stressed that "Our contemporaries are incessantly racked by two inimical passions; they feel the need to be led and the wish to remain free." ¹

This fundamental dilemma is the crucial issue of constitutional design as the Founding Fathers well recognized. For instance in the Federalist paper no. 70 Hamilton writes that "Taking for granted ..that all men of sense will agree in the necessity of an energetic executive, it will only remain to inquire what are the ingredients which constitute this energy? How far can they be combined with those other ingredients which constitute safety in the Republican sense?" The theory of checks and balances, embodied in the work by Montesquieu (1748) provided the answer adopted by the framers of the American Constitution.

Today, different political systems differ in how to solve Tocqueville's dilemma, which applies not only to his contemporaries but to all democracies and the differences relate not only to the degree of autonomy granted to leaders but also to the means of achieving it, and different institutional design may lead to different outcomes. In fact, a lively literature has argued that various "ingredients" as Hamilton put it, such as electoral laws and the nature of the executive legislative interaction, the presence of term limits etc. systematically influence policy choices, therefore different institutional arrangements are correlated with differences in economic performance. However, political institutions are themselves endogenous, since they can be chosen (and changed) either by constitutional reforms in democracies, or by insurrections and other means in dictatorships and less developed political systems.

The point of this paper is to model Constitutional choice concerning the amount of " insulation", or unchecked power that citizens would grant to their leaders and the way of achieving it. On one end of the spectrum we have systems where a leader (once appointed) has full and complete control over policy making. At the other end we have systems where leaders always need unanimity to govern. Most real world institutions can be classified somewhere in between these two extremes. In fact, much of the discussion on institutional design can be translated into a choice of degree of insulation of leaders, and the optimal degree of checks and balances.²

We first model insulation in a reduced form way abstracting, on purpose, from institutional details to make a general point. We define insulation as the share of voters that can block a leader ex post, once he is in office and can choose policy. We reach two sets of results. First we analyze the case of " perfect democracy" in which all citizens are truly behind a veil of ignorance at the time of the

¹ Volume 2 part 4 Chapter 6 page 664 from the translation by Mans"eld and Winthrop (2000).
² For a recent and somewhat related discussion of accountability of the governments to the electorate opinion see Maskin and Tirole (2001).
constitutional design and all have a voice. In this context we show how various features of the politico economic environment affect this choice, including: the distribution of voter preferences; the feasibility and costs of compensating the losers from policy reforms; the possibility for leaders to expropriate citizens; the nature of uncertainty and the amount of risk aversion; the average benefits and costs of potential policy reforms. We show that the optimal amount of insulation is intermediate and one can derive a well shaped inverted U curve linking the amount of insulation to ex ante welfare. On the one hand an insulated leader may be able to act promptly, react swiftly to emergencies, and take decisions that require "hard choices" in the allocation of costs and benefits between groups. On the other hand, he may turn into a "quasi-dictator" that favors a small portion of the population, including himself, expropriates the minority, and eliminates political competition, whereas a very controlled (non insulated) leader will always need to build large majorities to pass legislation. This will keep him in check, but may interfere with his effectiveness as a policymaker.

There is an analogy, between political insulation and the Schumpeterian analysis of the costs and benefits of patent protection. The latter encourages new innovations by enhancing the monopoly rents accruing to successful innovators, but at the cost of both, destroying the rents generated by previous innovations and reducing the scope for competition and knowledge diffusion: like patent protection, political insulation creates incentives to reform although at the cost of damaging the vested interests of large parts of the electorate or of delaying entry by new political reformers. We explore this analogy to analyze three alternative insulation mechanisms, namely ex post controls (such as veto power and no confidence motions), the design of electoral systems, and the choice of term duration.

Most closely related to our work is a recent literature on "choosing how to choose", i.e. voting on voting rules. Aghion and Bolton (1997) use an incomplete contract methodology to analyze the endogenous choice of majority rule and status-quos point, and how this choice depends upon the economic and institutional environment and some characteristics of reforms. Barbera and Jackson (2001) also investigate the endogenous choice of a majority voting rule, advancing the concept and investigate conditions of existence of a self-stable voting rule. Koray (2000) explores instead social choice functions and whether such functions are self-selecting. In an overlapping generations setting Polborn and Messner (2002) identify a trade-off arising in the selection of voting mechanisms over a reform when only part of the population (the old) incurs the cost of the reform, but not the subsequent benefits.³

Although the present paper is theoretical, in ongoing research we use the model in this paper to explain empirically how constitutional design evolves over time. How much do institutions really change? Some cases are rather striking.

³For a different application of Schumpeterian ideas to the political economy of development see Acemoglu and Robinson (2002)
For instance the history of Constitutional design in France is characterized by major switches between systems with very different degrees of insulation, to use our terminology. More generally, various kinds of institutional reforms occur frequently as we document in Table 1. The data and sources underlying this table are described in the Appendix. This table focuses on four types of changes. The first is the mean district magnitude, which is related with the degree of proportionality measured as the share of the popular votes necessary to get a parliamentary seat. The second captures changes from Parliamentary to Presidential systems. The third one is changes in the degree of proportionality of the electoral system other than mean size of district. The fourth one concerns term limits. The last one captures movement towards more or less freedom and democracy. The total number of changes in a 20-year period for our average sample of about 177 countries is of 294 significant institutional changes, almost two per country.4 This average does not result from a small group of countries experiencing many changes with a majority of them being stable. In our sample more than 100 countries experience at least one change. The number of changes is very large in Africa, a region with a high degree of politico-institutional instability. However, changes are not confined to that region. Even in OECD countries significant reforms have occurred, like in Italy with an important switch from a proportional to more majoritarian electoral system or New Zealand with a move in the opposite direction form a plurality system to a mixed system. It is worth stressing that this Table includes only major institutional reforms, so if any it biases downward the number of significant changes. The bottom line is that it does not look like political institutions are cast in stone. In addition, this table underscores several interesting and more specific observations.

One can also consider the form of government at the local level, for instance in the U.S. There are two principal forms of government in US cities with population above 2500. The single most popular is called Council-Manager (in 2001, adopted by 48.3% of the total US cities, according to the 2001 Municipal Year Book by ICMA); the second is called Mayor-Council (in 2001, 43.8% of the total according to the 2001 Municipal Year Book by ICMA). In the latter the mayor is elected directly by the community and cannot be dismissed by the council. Furthermore, she often has veto power over expense and other budgetary issues. The mayor, indeed, enjoys a high degree of insulation. On the other hand, the Council-Manager system is characterized by an elected council that hires a manager for the city administration. Notably, the manager can be fired at any time. The number of US city council adoptions for the council-manager form of government has been increasing constantly since 1981 (on average 60 per year in the last 17 years according to data provided by the International City/County Management Association). Council-manager form of local government passed

4Note that because of data availability we can measure changes from more to less proportional system for a sample of countries which is smaller that the one available for the other measures, therefore Table 1 may underestimate the number of this type of institutional change versus the others.
from 34.7% of the total number of cities above 2500 population in 1984 to 48.3% in 2001. The Mayor-Council form of government decreased from 55.8% to 43.8% over the same period (2001 Municipal Year Book.) There are also interesting cross-sectional correlations. In 2001 53% of US cities with populations of 5000 or more employ the council-manager form, but 63% of those with population of 25000 or more. The framework provided by the present paper can, hopefully, shed light on how to explain these changes both within countries and across countries.

The paper is organized as follows. In section 2 we describe the model and its interpretation. Section 3 solves the model and derives basic comparative statics results. Section 4 discusses immediate extensions of the basic model. Section 5 discusses the political economy of constitutional choice in the “imperfectly democratic” case. Section 6 studies a simple model of representative democracy. Section 7 analyzes the optimal choice of terms length, another insulation instrument. The last section concludes.

2 The model of political insulation

2.1 The formal structure

The generic individual has ex ante mean-variance preferences of the form:

$$U(\varphi) = E(\varphi) - \text{var}(\varphi);$$

where $\varphi$ denotes the income of the representative individual. A sequence of "policy reforms" is available, and individuals are subject to both an idiosyncratic and an aggregate shock on their ex post benefit of reform; thus:

$$\varphi_i = \begin{cases} \frac{1}{2} e^{\epsilon_{i} v} & \text{if innovation occurs} \\ \varphi_{i-1} + a & \text{otherwise} \end{cases}$$

with $v > 0$, $1$

where:

$$e_{i} = \varphi_{i-1} + a$$

and $a$ denotes the aggregate shock and is uniformly distributed on the interval $[\epsilon; A; A]$ with $A > 0$; and where the idiosyncratic component, $\epsilon$, is also uniformly distributed on $[\epsilon; \epsilon]$ with $0 < \epsilon$.

In words: each individual receives the same utility if no reform occurs, an assumption which we revisit below; if a reform occurs, individuals differ about how much they benefit or suffer from it. In addition, there is ex post uncertainty about the distribution of benefits from innovation, captured by the shock $a$ so that the preferences of the ex post median voter are not known ex-ante. With this shock we capture the idea that the preferences for reform may evolve and

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5The following specification builds upon Krusell and Rios-Rull (1996) and Aghion and Howitt (1998, Ch.9) on the political economy of vested interests.
change in the population this is more likely to occur when the costs and benefits of the reform have uncertain nature difficult to allocate ex ante.

Reforms can be "good" or "bad" both in an ex ante and in an ex post sense\(^6\). Ex ante, before the realization of \(\alpha\) and \(\omega\); a reform can be welfare reducing for the average person if \(\alpha_{m} < 1\) where \(\alpha_{m}\) represents the parameter in the utility function of the average (and median) voter. A reform is ex ante beneficial if the opposite inequality holds. Obviously, the welfare comparisons ex post depend on the realization of the preference shocks. As we will see below, the interesting case in a fully democratic case occurs when \(\alpha_{m} > 1\); while in an "imperfect" democracy the other case can be insightful as well. Importantly, the model encompasses all cases.

We assume, for the moment, that the politician is democratically elected and his preferences are known and fixed ex ante. From now on we use the terms government, politician and leader interchangeably. Introducing a reform requires some effort on the part of the leader. With no effort there is no reform; and by incurring the following non-monetary effort cost

\[
g(e) = \frac{\alpha_{i} - 1}{2}e^{2};
\]

the leader makes the reform possible with probability \(e\). Even if the politician generates a policy reform, he can be blocked by a (super) majority \(M\) of individuals, once the aggregate shock on preferences \(\alpha\) is realized. We can think of this \(M\) as a "degree of insulation". If \(M\) is high, only a large majority of voters can block the reform. Thus, if \(M\) is high, once in office the politician can pursue the desired policies without having to worry about blocking coalitions. On the contrary a low \(M\) means that even when in office the leader has to please a large fraction of the electorate. The size of \(M\) is chosen ex ante at the constitutional stage. We think of \(M = 2\) in the sense that a minority cannot block the desire of the majority however most of our results apply to the case in which \(M < 1=2\) as well. For the moment we assume that the \(i\) are not observed by the politician and that the politician cannot compensate the losers.

In summary, the timing of "events" is as follows:

i) \(M\) is chosen at the constitutional stage;
ii) \(\alpha\) is realized;
iii) election occurs;
iv) the elected politician chooses her effort investment \(e\);
v) the shock \(\alpha\) is realized;

\(^6\)It is worth emphasizing that, while ex ante one can compute whether a reform increases or reduces average welfare, ex post a welfare improving reform may be welfare reducing for the average voter, and the other way around.
vi) blocking occurs or does not;

vii) an innovation generated by the politician is actually implemented if and only if it is not blocked by the voters, otherwise there is no innovation.

The motivation of this choice over timing needs discussion. Stage i) represents the \"constitutional level\" in which decisions are made behind a veil of ignorance. Stages ii) and iii) embody a fairly standard electoral process. The next three steps capture the post electoral \"dynamics\" between leader and voters. What we want to emphasize here is the fact that after shock \( a^* \) is realized, the voters still retain a choice to block ex-post undesirable reforms. If the threshold for blocking \( M \) is set very low, then the voters ensure themselves that they will have a \"voice\" ex post. Note that, while we model \( a^* \) entirely as an aggregate shock to preferences over a reform, in a more general model the uncertainty about voters' tastes could derive from learning about features of the economy.\(^7\)

If the politicians could choose effort after the shock is realized, the model would not deliver any interesting trade-off. With the assumed timing instead, the leader faces an interesting choice. With a low \( M \), there is a high chance that her effort may be wasted, and the reform blocked; in this case simply enjoying the \"ego-rent\" of being in office without doing anything would be a very attractive choice. If \( M \) is high, the politicians knows that a reform is likely to pass, and therefore it is less likely that the reforming effort will be wasted. In turn, this trade-off faced by the politician is internalized at the constitutional stage.

2.2 Interpretation and discussion

Four are the critical elements in our model that need discussion. The first one is our notion of \"reform.\" With the case of ex ante \"welfare improving reforms\" i.e. when \( m^* > 1 \) we intend to capture policies that embody an element of \"efficiency,\" but also involve winners and losers. Examples include trade liberalization reforms, competition or entry-enhancing policies, deregulation, labor market reforms, reforms of the social security system or fiscal adjustment packages to eliminate deficits. One can think of these as reforms that ex ante favor a majority but create net costs for a minority. Ex post as a result of aggregate uncertainty the distribution of costs and benefits may differ from the ex ante one, and, as a result, the distribution of those in favor and against the reforms may change over time. In particular, someone ex ante in favor of the reform may turn against it ex post, or vice versa. The reforms for which \( m^* < 1 \) are obviously policies that favor a minority but are on average harmful.

The second is the effort variable \( e \). Leaders may choose either to try their best to facilitate the reform or simply remain in office, capturing various benefits.

\(^7\)See for example Alesina and Cukierman (1990) for a model with this feature.
of office holdings, without doing anything useful. Below we also allow leaders to have the option of actually doing something harmful, i.e. expropriate the public. The model could also be interpreted so as to address the question of the "quality of politicians". That is, an equilibrium with low effort can be reinterpreted as one in which "bad quality" individuals run for office, i.e. only those who plan to enjoy the benefits of office holding and do not have a comparative advantage at implementing innovative reforms. The cost of effort can be related to other institutional features. For instance, a corrupt and/or inefficient bureaucracy can make it very difficult for even a well intentioned leader to engage in policy reforms. Also in a more fragmented society (racially, religiously etc.) the costs of building coalitions in favor of common policies may be higher.

The third element is the structure of uncertainty about the realization of voter preferences. The constitutional decision is taken behind a veil of ignorance, before the realization of the parameter \( \sigma \). We elaborate on this below when we discuss the case of "imperfect democracy" which begins to address the question of the political economy of Constitutional writing, in a world in which not everybody is behind the same veil of ignorance. The realization of the shock a has to be interpreted as a change of the distribution of preferences occurring after the leader has taken office and while he is implementing his policy. This is meant to capture the idea that as a reform materializes through the effort of a leader the voters "mature" definitive preferences about it for instance as they learn more precisely who will be a winner or loser form the reform. What we mean to capture here is something like this. Suppose that the reform in question is deregulation of the labor market and that the median voter is ex ante in favor of it. However, as the policy process leading to the actual implementation of the reform unravels and the details of the reform materialize, the voters may reach a "final view" about it that may be different from their ex ante view. In reality, lots of bargaining, trading favors, logrolling etc. occur in passing policy reforms. Obviously, we do not have all this institutional details modelled explicitly. Our simple structure is meant to emphasize that when a politician embarks on a policy reform process it does not know for sure whether he will be successful in pushing it through.

The fourth important element is the degree of insulation, captured by the parameter \( M \). As we discussed above this can be seen as a generic summary statistic for a wide variety of institutions that limit the power of appointed leaders, even though we propose a more detailed modeling of alternative insulation mechanisms such as electoral rules or term duration in sections 6 and 7 below. In the case of Presidential regimes like the US, one can view the

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9 See Eastrely and Levine (1997) and Alesina, Baqir and Easterly(1999) for a discussion of how racial fragmentation creates obstacles to efficient policymaking in a sample of countries and of localities in the US respectively.
Presidential-Congressional relationship as a key element of the system of checks and balances\textsuperscript{10}. In parliamentary democracies the question of "insulation" refers to the control over the power of the Prime minister and the relationship between majority and minority in parliament. For given size of the parliamentary majority the power of the executive, the agenda setter, is also determined by the voting rules within the parliament, an issue that has received much discussion in the literature\textsuperscript{11}. That is, various voting rules governing procedures within legislatures can be interpreted as giving more or less insulation to the executive, i.e. in most cases the "leader" who holds a majority\textsuperscript{12}. An important distinction is one between "open rules" and "closed rules" in parliamentary voting. With open rules the legislature has a vast latitude in amending policy proposals of the agenda setter (the government); with closed rules the government can prevent amendments to its proposals and, as a result, it has a larger strategic power. One may a priori associate open rules with low insulation (low $M$) and close rules with high insulation (high $M$), since they imply different degree of strategic power for the executive.

A vast literature on "fiscal institutions," emphasizes the different effects on fiscal policy of "hierarchical" versus "horizontal" systems. Key elements defining the former are rules that make it easier for the executive to overcome Parliamentary opposition in passing the budget. On the contrary "horizontal" institutions are those for which at every stage of the process large consensus is required to pass fiscal policy decisions. The evidence shows that "hierarchical" institutions are associated with faster and more efficient fiscal reforms and "fiscal adjustments when needed\textsuperscript{13}. Similar arguments apply to "fast track" legislation in trade. This type of procedure in the US is viewed as critical for the implementation of free trade agreements, which otherwise might be blocked by various special interests.\textsuperscript{14}

Another important element of insulation refers to the role of the judiciary. A well functioning and truly independent judiciary system can "block" reforms when they depart from proper constitutional grounds. In fact as discussed by La Porta et al. (2001) different judicial systems can vastly affect the "guarantees of freedom" and prevent excessive insulation of leaders, using our terminology. Following Hayek (1960), these authors distinguish between an British style and American style guarantee of freedom. The former restrict the power of the ruler

\textsuperscript{10}See Alesina and Rosenthal (1995) for an extensive discussion of this issue.

\textsuperscript{11}See for instance Baron and Ferejohn (1989) and Baron (1991).

\textsuperscript{12}In some cases we can have minority governments, in which the executive does not command a simple majority in the legislature. For an extended discussion of executive legislative interaction, see Persson and Tabellini (2000)

\textsuperscript{13}See the volume edited by Poterba and Von Hagen (1999) for an extensive discussion of these issues. The choice of status-quo point in case the parliamentary negotiation process fails, for example when discussing the budget, also affect the extent to which the political system insulates agenda-setters (see Aghion and Bolton (2001) for a detailed discussion on this point, with reference to the constitutional change in France in 1958).

\textsuperscript{14}See Grossman and Helpman (2001).
to interfere with the administration of justice, the latter gives more power to the judiciary by allowing it to interfere more in the legislative power of the ruler by checking his adherence to the will of the people sanctioned by the constitution. Our paper suggest that the choice of a Constitution is not exogenous.

The role of the Courts in American history has been extensive. In a famous case, in 1893 the Supreme Court blocked the introduction of a federal income tax. It took the Sixteenth amendment of the Constitution, almost 20 years later to overcome this block. Skocpol (1992) discusses how the role of the Courts in US history influenced and shaped the evolution of its welfare state through a series of "blocks" of welfare policies in defense of property.

One could also use M to compare dictatorship versus democracy. In a sense, one can think of a dictatorship as a system in which a ruler, when in office (no matter how he gets there) is uncontrolled, while an essential element of democracy is some sort of checks and balances on the politicians, above and beyond the fact that the latter are elected.

An even broader interpretation of M would include a comparison of different electoral rules. In fact we push this interpretation forward in section 6 where we provide a simple model of representative democracy. Proportional rules tend to produce political systems in which governing by coalition is the norm, rather than the exception. In majoritarian systems, the majority party can govern with fewer constraints. As Schumpeter (1942) noted, excessively proportional systems seem inadequate to produce good governance especially in time of crisis, stress or in any situation where swift legislative action is needed. He writes that "Proportional representation may prevent democracy from producing efficient government and thus prove a danger in time of stress... all sort of idiosyncrasies may assert themselves. ...(there is) a rationale for suspending democratic competition in difficult times and replacing it with monopolistic leadership". The best evidence in support of this claim comes from studies of the political economy of fiscal policy, that have found that proportional electoral system that tend to produce coalition government and fragmented legislatures are associated with fiscal deficits and delayed fiscal adjustments. Finally, another dimension of insulation is how long a leader can stay in office without facing elections. We model term duration and term limits in section 7.

La Porta et al. (2001) classify 71 constitution along the "British- American" dimension and nd that the American system is a better predictor of political freedom, while the British system is a better predictor of economic freedom.

For example, Persson and Tabellini (2001), Milesi-Ferretti, Perotti and Rostagno (2002) present empirical evidence on comparing proportional versus majoritarian systems and their influence on fiscal policy outcomes. See Persson and Tabellini (2000) for a review of the literature that models more carefully the details of different electoral systems and their effects on policy choices.

3 Solution of the model

First of all, note that, for the moment, there is no dynamic link between periods, so every period looks identical to all others, so we can think of this as a one period model. Dynamic considerations will appear later. We proceed by backward induction. In stage vi) those voters with low willingness to reform $e \leq \theta$ will oppose the innovation, while voters with high $e \geq \theta$ will vote in favor of it. A cut off divides these two sets of voters, and it is characterized by the indifference condition:

$$b^o_v = \frac{1}{2^o} \quad b^o = \frac{1}{2^o}$$

(3)

Implementation probability: In stage v) the realization of $a$ determines for a given $M$ whether the innovation is going to go through or not. Indeed, the probability that this will happen is the probability that the number of individuals with $e = e^o + a$ is less than the number of individuals required to block the innovation $M$, or:

$$\hat{A}(M) = \Pr \frac{b_i - i - a}{\frac{1}{2^o} + \frac{1}{2^o} - i} \cdot M$$

$$= A \frac{b_i - i - (\frac{1}{2^o} - i)M}{2A}$$

where we used the assumption of uniform distribution for $a^{18}$. Now, let us use (3) and $l \leq \theta, i \leq$ to rewrite this as:

$$\hat{A}(M) = \frac{1}{2} + \frac{1}{2A} \frac{\mu}{M} i \frac{1}{o} +$$

(4)

Note that for the implementation probability $\hat{A}$ is a decreasing function of the degree of aggregate uncertainty of the reform outcome as measured by $A$: This can be naturally interpreted as capturing a status-quo bias effect of uncertainty. In order to gain intuition, consider first the special case where $l = \theta = 1$ and $M = 1 = 1\geq 2$; in this case, no matter $A$, the reform will be not blocked whenever $a > 0$; that is with probability $1\geq 2$ regardless of the value of $A$: Next, suppose that $M = 1\geq 2 > \frac{1}{2}$; then, the reform will pass for all $a$'s such that $a + 1\geq 2 > \frac{1}{2}$; that is for all positive realizations of $a$ and also for a $2 (\frac{1}{2}, 1\geq 2; 0)$; the higher $A$ the smaller the set $(\frac{1}{2}, 1\geq 2; A)$ relative to the overall support $[i; A; A]$; in other words, higher aggregate uncertainty will increase the relative weight of blocking losers among the whole set of voters; similarly, when $M > 1\geq 2 > \frac{1}{2}$; then the reform will pass for all $a$'s such that $a + M > \frac{1}{2}$; that is for all positive

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By definition $0 \cdot A(M) \cdot 1$; for certain parameter values this probability can become zero or one. To avoid the uninteresting case for which $A(M) = 1$ for some $M$, let us assume that $A + \frac{1}{2} > \frac{1}{2}$.
realizations of a and also for a 2 ( 1 \frac{1}{2} M; 0); once again, the higher A; the smaller the set ( 1 \frac{1}{2} M; A) relative to the overall support [1 A; A]; So to the extent that with no aggregate uncertainty (A = 0) and for given M the reform would not be blocked, then more uncertainty increases the probability of the reform not passing, that is it increases a status quo bias19.

Effort choice: In stage iv) the politician chooses effort e = e(M) in order to maximize her expected total benefits from the reform minus her effort cost. These total benefits in turn reflect the politician's willingness to reform as a citizen plus any private benefit (e.g. in terms of reputation or career concerns) she may draw from successful reform implementation. Define B the benefits for the leader if the reform occurs and B the benefits if the reforms does not occur. Then:

\[ e(M) = \arg \max_{e} e \cdot v f eA(M) \cdot B + (1 - eA(M)) \cdot B \cdot g(e) \]  

(5)

We can obviously drop the multiplicative term \( e \cdot v f \) a normalization that we use throughout the paper. Whenever the solution is interior to the interval [0;1], and define B = B n + B; then this optimal effort is simply determined by the first order condition20:

\[ e(M) = \min \frac{1}{2} B A(M); 1 \]  

(6)

This implies a positive effort if the elected politician perceives the effect of a reform being positive, or null effort if she thinks reform is not beneficial. The effort is maximum (e = 1) if the net benefit from the reform for the politician big enough or, otherwise, if M is greater than a cut-off M defined by B A(M) = c; that is, using (5):

\[ M = \frac{1}{2} A c + \frac{1}{2} B ] A \]  

(7)

Elections: Our model of selection of politicians is rudimentary. A particular case which we discuss below is when the elected politician draws no private benefit from the reform. In that case his benefits of the reform may coincide with those of the ex ante median voter21:

\[ \alpha m = \frac{1 + \alpha}{2} \]  

(8)

19 For a different and insightful model of status quo bias in policy reforms see Fernandez and Rodrik (1990).
20 Obviously e > 0 if and only if B > 0.
21 Note that we are assuming that the elected politicians is risk neutral and the voters are risk averse. His difference may lead a solution which is different from the standard median voter result. In particular the median voter, because of risk aversion, may choose a politician less favorable to reform than himself. For discussion of models where the median voters chooses representative different from himself see the review by Persson and Tabellini (2000).
Thus, if the leader adopts the preferences of the median voter and has no private benefits from office holding then $B = (m_0, 1)$: Note that this is a special case and it turns out that the exact nature of the electoral process—in particular whether or not the candidate converge to the median preference of the electorate—is not critical for the model and it will not affect the qualitative nature of our results. The critical assumption is that, once in office, the leader chooses policy by maximizing his total net benefits of office holding $B$; net of effort costs.

Constitutional design: Finally we arrive at stage i) of our model. The ex ante choice of $M$ is done behind a veil of ignorance on the stochastic shocks to maximize their (mean-variance) ex ante utility. We use (1) the fact that:

\[
E(\bar{\epsilon}) = \frac{1}{2},
\]

\[
\text{Var}(\bar{\epsilon}) = \text{Var}(\epsilon) + \text{Var}(a) = \frac{l^2}{12} + \frac{A^2}{3};
\]

and: (2) that, if $\bar{\epsilon}$ is a lottery which yields a random outcome $\epsilon$ with some probability $p$; and deterministic outcome $x$ with probability $(1 - p)$; then:

\[
E(\bar{\epsilon}) = pE(\epsilon) + (1 - p)x;
\]

\[
\text{Var}(\bar{\epsilon}) = p^2\text{Var}(\epsilon);
\]

So, if we consider $p = \epsilon(M)\hat{A}(M)$ and $\bar{\epsilon} = \epsilon^o$, we can express the ex ante utility of a representative individual under the veil of ignorance, as $^o\bar{\epsilon}$ times:

\[
U(M) = \epsilon(M)\hat{A}(M)_i\bar{\epsilon} - (\frac{l^2 + 4A^2}{12})(\epsilon(M)\hat{A}(M))^{2o};
\]

Now, if we restrict the analysis to parameter values such that the optimal effort lies strictly between 0 and 1, that is $\epsilon(M) = \frac{B}{C}\hat{A}(M)$ with $M < \bar{M}$, the optimal degree of insulation $M^*$ will solve:

\[
\max_{M} U(M)
\]

\[
st : \epsilon(M) = \frac{1}{C}B\hat{A}(M);
\]

Whenever the solution $M^*$ to this maximization problem is interior to the interval $(0; 1)$; it must satisfy the $^*$rst order condition:

\[
\frac{B}{C} - (\frac{l^2 + 4A^2}{12})(\hat{A}(M)^{*})^{2o} = 0;
\]

If the optimal solution $M^*$ is interior to the interval of $M$'s such that: $\epsilon(M) = 1$; then it solves:

\[
\max_{M} \hat{A}(M)_i\bar{\epsilon} - (\frac{l^2 + 4A^2}{12})(\hat{A}(M))^{2o}g;
\]
thereby leading to the first-order condition:

$$i = -\left(\frac{l^2 + 4A^2}{6}\right)^{\frac{\mu}{2}} + \frac{1}{2A} \left(\frac{l}{\mu} + \frac{1}{\mu}\right)^{\frac{\mu}{2}};$$

(10)

so that the optimal $M^*$ in this case is simply the minimum of $M$ and the solution to this first-order condition.

### 3.1 Comparative statics

The first thing to notice from above is that if $\mu^0 \leq 1$ we have a corner solution and $M$ is set at its minimum. The intuition is clear: if reforms are ex ante welfare reducing for the voters, they will choose no insulation for the leader. The implication is obvious but important: if behind a veil of ignorance the voters believe that policymaking produces only welfare reducing policies, clearly no delegation of power is ex ante optimal. In other words, the fact that even in democracies we observe some form of insulation suggests that behind a veil of ignorance voters perceive the possibility of something "good" coming out of policymaking. Alternatively, as we will discuss below, insulation may be the result of non democratic choice of constitutions.

**Proposition 1** For $\mu^0 > 1$ the optimal degree of insulation $M^*$ satisfies:

$$\frac{dM^*}{dc} > 0; \frac{dM^*}{dB} > 0; \frac{dM^*}{d\mu} < 0; \frac{dM^*}{dl} < 0; \frac{dM^*}{d\theta} < 0; \frac{dM^*}{dA} < 0 \text{ for } A \text{ large enough;}$$

$$\frac{dM^*}{dA} > 0 \text{ for } A \text{ small enough.}$$

**Proof.** See the Appendix.

Several observations and comments are in order.

1) Insulation is increasing in the effort costs $c$, because the latter reduce incentives to put in effort, so one needs more insulation to counterbalance this effect and make the leader more "productive". In fact a higher $M$ implies that the costly effort will not be wasted because the probability of a blocked reform is lower.

2) Insulation is inversely related to the degree of risk-aversion $\theta$: The more risk averse the electorate is, the more it values the ex post ability to control the leaders.

3) An increase in aggregate uncertainty of the outcome, measured by the size of $A$, has two counteracting effects on the desired insulation: on the one hand, it increases the risk of innovation, thereby discouraging insulation. That is, with more uncertainty the voters ex ante in favor of the reform are afraid of being against ex post. On the other hand, it makes it more difficult for an innovation to be implemented (the status-quo bias effect pointed out above), which in turn may induce voters to encourage innovations by increasing insulation. The
former effect dominates when $A$ is sufficiently high relative to $l$ and the second effect dominates when $A/l$ is sufficiently small (remember that the variance of utility is proportional to $(l^2 + 4A^2)$; and therefore when $l$ is large relative to $A$ an increase in $A$ has a negligible effect on the variance). This comparative statics result with respect to aggregate uncertainty would imply that insulation should be lower in policy areas where aggregate uncertainty is high. An example comes to mind. Changes in fundamental (constitutional) laws in many countries require qualified majorities to pass, namely can be blocked even by minorities. One interpretation of this is that one does not want the rule of the game to be changed by simple majority, the other one, consistent with our result, is that this type of change brings about much uncertainty in the distribution of winner and losers. Similar considerations apply to decisions within the European Union, where routine legislation requires a qualified majority vote within the European Council while more important pieces of legislation require unanimity.

4) The effect of an increase of the value of innovation ($\delta$) is also ambiguous because two forces act in opposite directions. On the one hand, as the value of reforms increases ceteris paribus the voters would like to increase insulation. On the other hand, an increase in $\delta$ makes reforms more valuable for the voters so for given insulation the probability of blocking is lower. This in turn implies that the same level of effort can be induced with lower insulation. In the special case in which the leader adopts exactly the preferences of the median voter, that is $B = (m, \delta - 1)$; then the effect of an increase in $\delta$ on $M$ is unambiguously negative. In fact in this case the politician herself internalizes the increased benefit of the reforms and she will consequently increase effort even without an increase in insulation.

5) Consider a simple infinite horizon extension of our model in which the economy is populated by a continuum of non-overlapping dynasties of one-period lived individuals. Each individual maximizes his current utility, and the game analyzed above is played repeatedly over time; in particular elections are held every period and there is a countably infinite set of reforms of vintage $v, v+1, v+2, \ldots$ that can be implemented sequentially. Since in each period all players face the same choices and the same objective functions, except for a multiplicative constant, the optimal choice of $M$ in this dynamic environment will be the same $M^n$ as above in each period, as long as it is taken before the realization of the shock. The average growth rate of our infinite horizon economy is then simply equal to the size of innovations ($\delta$; 1) times the average frequency of innovations $e(M^n)\hat{A}(M^n)$; that is:

$$g = (\delta; 1)\frac{1}{c}B[\hat{A}(M^n)]^2$$

Note first that growth is an unambiguously increasing function of the degree of insulation $M$; which in turn parallels the prediction of most endogenous growth models that property right protection is good for growth.

Whenever $M^n$ is such that the equilibrium effort $e(M^n)$ is interior to the
interval (0; 1); equation (6) implies:
\[ g = \frac{(\theta \cdot \lambda_{1})\Theta_{i}-\lambda}{(\lambda^{2} + 4\lambda^{2})^{0.5}}. \]

The relationship between the rate of growth and the size parameter \( \theta \) is generally ambiguous since an increase in \( \theta \) increases the probability of passing the reform, but may also reduce the optimal degree of insulation, as previously shown. If \( \theta \) is large enough, anyway, the former effect dominates, replicating the results of the existing endogenous growth literature. More interestingly, our model introduces a relationship between growth and both, aggregate uncertainty as measured by \( A \) and idiosyncratic uncertainty as measured by \( I \): One could speculate that more idiosyncratic uncertainty, i.e. more different preferences on the reform outcome can be related to income inequality of racial fragmentation, more generally with more heterogeneity in society. Empirically, Easterly and Levine (1997) present evidence relating (inversely) racial fragmentation and growth and a vast literature, (see Benabou (1996) for a survey) show an inverse relationship between income inequality and growth.

6) An inverse relationship between polarization and reform emerges also by removing the assumption of uniformity of the distribution of the \( \lambda \). The more bipolar the distribution becomes, with a mass of individuals with low and high \( \lambda \), but holding the median constant, the lower the probability of reform for given \( M \); therefore, the higher is the level of insulation chosen behind a veil of ignorance, to partially compensate. This is because, by risk aversion, many voters will be concerned that ex post they will be in the mass of individuals with very low \( \lambda \);

4 Extensions

4.1 Compensations

In general, those who are net losers from a policy reform can be compensated by transfers, even though the latter will generally induce welfare costs, such as the costs of distortionary taxation. Suppose that after \( M \) is chosen, a fixed total amount of wealth \( w \) can be raised from all individuals through taxes. For simplicity we normalize \( \lambda_{1} = 1 = 1 \). Assume that the amount available to compensate losers is \( w \) and taxation takes place ex ante (i.e. before the idiosyncratic and aggregate shocks on preferences are realized). We assume that the only purpose of taxation is to compensate losers for the reform, which

\[ ^{22} \text{With an effort cost function which is more convex than the quadratic specification used in this model, the growth rate } g \text{ would also decrease with the effort cost } c. \]

\[ ^{23} \text{A formal discussion of this extension is available from the authors.} \]

\[ ^{24} \text{Note that this implicitly assumes that any increase in income obtained by the reform cannot be used to compensate since the compensation amount available is } w. \]
means that if the available resources for compensation exceed the needs they are returned lump sum at no cost and the leader does not retain any revenue for private benefits. Taxation involves a positive deadweight cost \( k \) per unit of taxed funds, and the net tax revenues are used by the politician to compensate the required number of potential losers in order to avoid blocking. Ex post, for given realization of the aggregate shock \( \alpha \), either more than \((1 - M)\) individuals are willing to support the reform even without any compensation (this will be the case whenever \( b_i - a_i < M \)); or passing the reform requires compensations (this will be the case when \( b_i - a_i > M \)). In this case the politician needs to compensate \( b_i - a_i \) \( M \) individuals. All individuals with willingness to reform \( b_i + a_i + M + a; b \) need to be fully compensated for the reform to go through. In this case, the required compensation can be expressed as:

\[
\begin{align*}
    c(a) &= \frac{Z_{b_i} \cdot a^3}{a^2} \\
         &= \frac{1}{2} \cdot \frac{b_i - a_i}{a_i} \cdot M + a^2.
\end{align*}
\]

It is now possible to express the probability of passing the reform as:

\[
\hat{A}_{\text{comp}}(M) = Pr_{\beta \in (1 + k)} \left( 1 - \frac{b_i - a_i}{2a} \cdot M + a^2 \right) \cdot wA.
\]

Moving backwards one step, as in the basic model, the politician will choose her effort to:

\[
\max_{e} \hat{A}_{\text{comp}}(M) B \cdot \frac{1}{2} ce^2 g,
\]

hence:

\[
e = \frac{B}{c} \hat{A}_{\text{comp}}(M).
\]

Moving backwards one step further, and assuming that it is optimal to allow the politician to tax \( w \) away from all individuals (otherwise we are back to the
situation analyzed in the previous section), a representative voter will choose the optimal degree of insulation \( M^* \) to solve:

\[
M^* = \arg \max_M \left\{ \kappa \sum_{i \in \mathcal{M}} c(a) \mathbb{1}_{\mathcal{A}_i} \Big( \mathbb{E}(Y_{i+1} | a) \Big) \right\} \\
\text{s.t.: } e(M) = \frac{1}{C} \mathbb{E} \mathbb{A}_{\text{comp}}(M);
\]

where the first term on the argument is the expected deadweight loss of compensation; the second term is the expected net income from reform; and the third term is the variance of income conditional upon reform, where:

\[
e(Y, a, M) = \begin{cases} 
\mathbb{E}(Y) + a M & \text{if } \mathbb{E}(Y) + a < M + \mathbb{E}(Y) + a \\
\mathbb{E}(Y) + a M & \text{if } \mathbb{E}(Y) + a > M + \mathbb{E}(Y) + a \\
\mathbb{E}(Y) + a & \text{if } \mathbb{E}(Y) + a = M + \mathbb{E}(Y) + a
\end{cases}
\]

One can then establish:

Proposition 2: (i) When the compensation scheme is always affordable because \( w \) is sufficiently high relative to \( A \) (case (1)), the optimal degree of insulation \( M^* \) increases with the taxation cost \( k \); (ii) When compensation is not always affordable (in case (2)), \( M^* \) still increases with \( k \) if risk aversion is sufficiently high; (iii) When aggregate uncertainty and the costs of compensation are sufficiently large it is optimal for the voters to avoid tax and transfers.

Proof. See the Appendix.

The first part of the proposition captures what one may call the "normal" case, that is the case of reforms for which it is feasible to compensate the losers. In this case a higher cost of compensation will induce voters to choose more insulation, so that ex post fewer compensation will have to be paid. One may think that tax/transfer schemes are less well functioning in developing countries where the fiscal system is more rudimentary and more distortionary form of taxation have to be used. Also, even though we do not have borrowing in the model, one may speculate that a country that has accumulated large debts and cannot borrow anymore will have larger cross in smoothing out the costs of reforms and making transfers to losers. This in turn suggests that more insulation may be recommended for developing countries, and those that have a particularly hard time raising revenues.

The second part of the proposition captures a case where the results are ambiguous and depend on the degree of risk aversion. With low risk aversion the incentive effect prevail: a higher deadweight cost of compensation reduces the incentive effect of increasing insulation and therefore calls for a lower degree of insulation. With high risk aversion more costly compensations call for more insulation in order to reduce the variance of ex post income. The third part captures the case of "radical" reforms for which uncertainty of preferences is very large, so that the costs of compensating the losers are very high. In this case no compensation are paid.
4.2 Expropriation

Suppose now that in addition to implementing the reform, politicians can also expropriate the citizens up to an exogenously given fraction \( \frac{3}{4} \) of their resources. Suppose that expropriation can also be blocked with a majority \( M \). This means that the leader has to "buy off" a fraction \( \left( 1 - \frac{M}{1} \right) \) of the population in order not to be blocked. Thus the leader's expected revenue from expropriation is \( M \cdot \frac{3}{4} \). In other words the leader cannot expropriate more than the fraction of the population that can block him. Obviously, his revenues are increasing with \( M \) and \( \frac{3}{4} \). This situation identifies a trade-off at the constitutional stage: a more insulated leader invests more in policy reform but he is also free to expropriate a larger fraction of the population. Thus, a higher degree of insulation may favor the reform but it also increases the scope for expropriation. Let us now consider how the possibility of expropriation influences the constitutional choice.

**Effort investment:** In stage iv) the politician chooses effort \( e \) so as to:

\[
\max_{e} f(e) = g(e) + M \cdot \frac{3}{4};
\]

Whenever it is interior to the interval \([0; 1]\), the corresponding optimal effort is simply determined by the first order condition:

\[
B \cdot (M) = g'(e);
\]

or equivalently:

\[
e(M) = \frac{B \cdot (M)}{c};
\]

We can express the ex ante utility of a representative individual under the veil of ignorance, as:

\[
U(M; \frac{3}{4}) = e(M) \cdot (M) \cdot i \cdot M \cdot \frac{3}{4} +
\]

\[
i - \left( \frac{1}{12} + 4A^2 \right) (e(M) \cdot (M))^2 + M \cdot (1 - \frac{M}{1} \cdot \frac{3}{4}^2);
\]

where the expression for \( U(M; \frac{3}{4}) \) results from the fact that individual are expropriated with probability \( M \), so that, on average, they lose \( M \cdot \frac{3}{4} \). Furthermore, since this is a binomial distribution with one trial (either you are compensated back or you are not), the variance of the expropriation is \( M \cdot (1 - \frac{M}{1} \cdot \frac{3}{4}^2) \): Note that this variance reaches a maximum for \( M = \frac{1}{2} \). Now, if we restrict the

---

25 Here, we abstract from the possibility that expropriation be also effort-intensive, in which case expropriation would have the other negative effect of diverting the politician's effort away from productivity-enhancing reform. Introducing this additional feature would obviously reinforce the negative impact of \( \frac{3}{4} \) on the optimal \( M \).
analysis to parameter values such that the optimal effort lies strictly between 0 and 1, the optimal degree of insulation $M^*$ will solve:

$$\max_{M} U(M; \beta)$$

$$\text{s.t. } \epsilon(M) = \frac{B \hat{A}(M)}{C};$$

Whenever the solution $M^*$ to this maximization problem is interior to the interval $(0; 1)$, it must satisfy the first order condition:

$$\frac{j B \epsilon (M)}{AC} - \frac{f (l^2 + 4A^2)(\hat{A}(M))^3}{A^2} g = - \frac{3\beta}{\hat{A}(M)} - \frac{\beta \hat{A}(M)}{\hat{A}(M)}.$$ 

The first-order condition (12) immediately implies:

Proposition 3. The optimal degree of insulation $M^*$ is always decreasing in $\beta$ for $\beta$ not too large; furthermore, $M^*$ satisfies the same comparative statics as in Proposition 1 for $\beta$ not too large.$^{26}$

Proof: By analogy to Proposition 1.

Thus, in situations where property rights are not well protected and the possibility of expropriation is large, then the optimal degree of insulation is low. This implies that low protection of property rights calls for non-insulated leaders who, as a result, have low incentives to put in reform effort. This result captures well the following situation. A country with a solid tradition of protection of property rights can "afford", perhaps in periods when it is especially needed, to insulate leaders. The same approach would be much less attractive in countries with poor protection of property rights. Obviously, politicians would try to "insulate" themselves more when the benefits of expropriation are high, that is "coup d'etat" are particularly profitable if expropriation possibilities are large, but in any case the effect of a higher $\beta$ on the probability of a productivity-enhancing reform should be negative. Introducing compensation costs in this subsection would generate, as in Aghion and Bolton (1997), a trade-off between the compensation cost of lowering insulation and the expropriation cost of increasing it.$^{27}$

Finally, if we also introduce the possibility of expropriation in the growth extension discussed above we can easily show that $\frac{\partial g}{\partial w} < 0$; the larger the possibility of expropriation the lower is growth. The intuition is obvious: the larger

$^{26}$In case of large $\beta$, the comparative statics for $l$ may change because the advantage of more reform milds the huge expropriation risk therefore more insulation is needed to increase the probability of reform.

$^{27}$For example, suppose that $a = 0$ and that $\beta = 1$. Then the politician needs to compensate $b_i$ individuals for potential loss of utility. This compensation is "nanced out of individual's wealth as modeled in the previous section, but now individuals in the minority are fully expropriated.

The ex ante compensation cost becomes:

$$C = k \sum_{i} b_i d_i.$$
the scope of expropriation the more difficult it is to create incentives for politicians to put effort into useful policy reforms rather than in stealing. Thus, we show a positive correlation between quality of institutions and legal systems that reduce the scope and possibility of expropriation and good policies and growth, a correlation which a vast literature has found in the data.

5 The political economy of constitutions

5.1 The veil of ignorance

Thus far we have examined the case of a "perfect veil ignorance", behind which everybody is identical. This, in a sense, is equivalent to a normative model of constitutional writing. In reality, Constitutions are not written by social planners, and veil of ignorance have holes in them. In fact, in virtually every instance of Constitutional reform, a large amount of bargaining and conflict occurs at the Constitutional table. The writing of the American Constitution is no exception.

One way of capturing the complexity of the political economy of writing Constitutions is to generalize our model by assuming that not everybody derives the same (known) utility from the status quo. More specifically, assume that there is a continuum of individuals ex ante with \( " = f(\,\cdot\, ; \,) \) and that these constants enter multiplicatively in the evaluation of the status quo:

\[
\text{M} = \arg \max \left( 1 - \text{M} \right) \left( \frac{3}{2} \, \text{i} \, - \text{M} \, \right) \left( 4 - \text{M} \right) .
\]

The first order condition can be expressed as:

\[
\frac{\partial}{\partial k} \left( \frac{3}{2} \, \text{i} \, - \text{M} \, \right) + \frac{3}{2} \, \text{i} \, - \text{M} - k(1 - \text{M}) = 0;
\]

This condition, which reflects the trade-off between compensation and expropriation costs, yields an interior solution \( \text{M} \) which, by the implicit function theorem, satisfies:

\[
\frac{d\text{M}}{dk} > 0; \quad \frac{d\text{M}}{d\text{M}} < 0.
\]

In other words, the higher the cost of public funds \( k \); the higher the optimal degree of political insulation in order to reduce the expected compensation cost. But the higher the scope for expropriation \( \text{M} \); the lower the optimal level of insulation in order to limit the expected expropriation cost.
these two sets of voters, and it is characterized by the indifference condition:

\[ b^v = a^v + 1 \quad b = \frac{a}{2} \]  

(13)

In stage v) the realization of a determines for a given M whether the innovation is going to go through or not. Indeed, the probability that this will happen is the probability that the number of individuals with \( i = + \), a less than \( b \) is lower than the number of individuals required to block the innovation M, or:

\[
\hat{A}(M) = \frac{1}{2} + \frac{1}{2A} \left[ i - \mu \right] M \left( \frac{a}{\sigma} \right) f \left( \frac{a}{\sigma} \right) d\left( \frac{a}{\sigma} \right) \\
= \frac{1}{2} + \frac{1}{2A} \left[ i - \mu \right] M \left( \frac{a}{\sigma} \right) f \left( \frac{a}{\sigma} \right) d\left( \frac{a}{\sigma} \right)
\]

Next, the effort chosen by the politician remains the same as in Section 3 equation (6), namely:

\[ e(M) = \hat{A}(M) \]

Going back one step, we consider the constitutional stage. A "i type individual would optimally choose M to

\[
\max U(M) = \max M \left( i \left( \frac{a}{\sigma} \right) - \frac{1}{4} \right) (\hat{A}(M))^2 = 0;
\]

where \( i \left( \frac{a}{\sigma} \right) = m^o \); and the relevant first order condition is

\[
i \left( \frac{a}{\sigma} \right) \frac{B}{6c} - \frac{1}{4} (\hat{A}(M))^2 = 0;
\]

(14)

Proposition 1 then immediately implies:

Proposition 4: The preferences of voters are single peaked on M and the desired degree of insulation of a voter with preference parameter " (M-) satisfies the following:

\[
\frac{dM^n}{dn} < 0;
\]

while the comparative statics of M^n with respect to c; A; and remain the same as in Proposition 1.

Proof: By analogy to Proposition 1.

Proposition 4 allows some interesting discussion concerning the political economy of Constitutional writing. Suppose, for instance, that the Constitution is decided by majority rule. In this case, the median voter, "m," would prevail and impose his most preferred level of insulation, i.e. M^n; Alternatively, if M had to be chosen by unanimity, any M^n > M^n(" would be vetoed. But those individual with low "; that is, those who are expected to bene t more from the
reform (since they benefit less from the status quo) may want to "pay off" the high "\( \tau \) type to avoid their vetoing levels of \( M^H > M^L \) (\( \tau \)). The result of this bargaining process at the Constitutional table would depend on the bargaining rules, the distribution of \( \tau \), and the voting rules on \( M^H \).

One could also think of a sort of "fixed point" argument in voting rules, that is, one may want to argue that a choice of \( M^H \) has to be approved itself with a blocking rule \( M^H \): That is, a Constitutional choice of \( M^H \) can be vetoed only by a \( M^H \) (super majority). This is exactly the approach taken in different models by Barbera and Jackson (2001) and Polborn and Messner (2002). While this solution is very elegant, its realism can be called into question, at least in our context. In fact, voting rules and procedures to pass, or change the Constitution are generally different from the rules regulating the passage of "normal" legislation. In general, the blocking coalitions needed to prevent changes in the Constitution are lower than those required to block "normal" legislation.

5.2 Who writes the Constitution?

So far we have assumed that the members of the constituency deciding the degree of insulation \( M \) are fully representative of the electorate. Suppose instead that those who have access at the Constitutional table are a minority who also knows that a member of this same minority will be the chosen leader. This is equivalent to saying that those at the Constitutional table are individuals with high \( \tau \), and they know that, so they are not behind a veil of ignorance. The difference between this case and the one of the previous section is that above the Constitution was chosen democratically, in some way, although not behind a veil of ignorance. Here we are discussing a case in which a minority chooses the Constitution. To put it differently, they know that the reform that will be proposed and passed are those that they like, since they will be in office. In this case one can easily show that the degree of insulation \( M^H \) chosen in this imperfectly democratic system would be higher than the one chosen under full democracy. Clearly, the minority in charge of the constitution wants to insulate itself against preference shocks and ex post block from the entire electorate.

Interestingly, in the case in which a minority of high \( \tau \) individual choose the Constitution, it is possible that even reforms which make the median voter worse \( \tilde{\tau} \) ex ante (i.e., \( \tilde{\tau} < 1 \)), going back to the case of \( \tau = 1 \) for everybody) will pass. Again, this is because by virtues of their monopoly in Constitutional writing a minority can write a constitutions that prevents blocking from the majority.\(^{28}\)

A particularly interesting application of these ideas, which also highlight the implication of "endogenous institutions" for empirical work, involves nations which are ethnically or religiously or linguistically fractionalized. In these situations it is often the case that if one group has the majority, or disproportional

\(^{28}\)A formal analysis of these results is available from the authors.
power in designing institutions, will choose "insulated" regimes if they can serve the purpose of enforcing a monopoly of power to this group. Thus, in a fractionalized society one may find more insulated regimes, like presidential system may be chosen, especially if one group is relatively dominant. Several empirical papers have documented the correlation between ethnic fractionalization and policy outcome one side and presidential regimes and policy outcomes on the other. Our paper suggests that these two left hand side variables are not independent, and in fact the latter (presidentialism) may be endogenous to the former, ethnic fragmentation.

6 Reform incentives in a representative democracy

Thus far we have assumed that the election takes place in a single district that appoints a single politician. Let us now consider a stylized district system in which the electoral space is divided into $N$ districts each of which appoints a representative. More precisely, suppose that at stage (iii) of our political process (i.e., the stage at which elections occur) $N > 1$ representatives are elected according to a subdivision in $N$ parts of the electorate of the $[\theta_i; \theta_i]$ interval, with politician $i$ being elected by voters in the interval $[\theta_{i-1}; \theta_i] = [\theta_i - \frac{1}{N}; \theta_i + \frac{1}{N}]$. So the bigger $N/l$, the more finely will the system represent voters' idiosyncratic preferences and the more "proportional" the system is in this sense. We maintain the assumption that ex ante the overall median voter prefers the reform to the status quo. The ratio $N/l$ can be interpreted literally in a geographical dimension as district size only in the special case of perfect correlation of geographic location and idiosyncratic preferences over the reform. However, broadly speaking, we can think of $N/l$ as an index of proportionality since the either this ratio is more representative with diverse views (including the more extreme) are appointed, which is exactly what more proportional system are meant to achieve.

For simplicity, we shall now restrict our attention to the case in which there is no asymmetry between the utility function of the politician and that of the regular voter, beyond the fact that the aggregate shock and variance are assumed to be zero for the politician in $\alpha(\omega)$ as in Section 3. Thus $B_i = i, \theta_{i-1} = m \theta_{i-1}$ where, by the median voter theorem applied on the interval $[\theta_{i-1}; \theta_i]$

$$m_{ij} = \frac{\theta_{i-1} + \theta_i}{2}.$$

---

30 Our preliminary investigation in fact suggests that presidentialism and ethnic fractionalization are highly positively correlated in across sample of countries.
In other words every "district" elect a representative at the median of the district.

The elected politicians who favor the reform will put in positive e®ort. Thus, the total e®ort for reform is the sum of the e®orts of the politicians favorable to the reform (i.e. who draw positive bene®ts from it). Suppose that each representative who opposes a reform can create obstacle to the implementation of the reform. As N increases, for given median of the population, and ignoring integer problems, the number of opponents to the reform grows proportionally to N. (In addition, the individual e®ort cost may also be increasing with the number of pro reform representatives if coordination costs are also proportional to the number of representatives). The bottom line is that as N increases we have more opponents of the reforms, which in turn increases the e®ort cost incurred by each representative in favor of the reform (think of this as a congestion e®ect of increased degree of representation). At the same time, when N increases so does the number of those in favor of the reform N_f, so that the overall e®ort of an increase of N on total e®ort will end up being ambiguous. More people put e®ort, but more people oppose it as N increases. We capture these assumptions with the following expressions for e®ort cost:

\[ g(e_i; N) = N ce_i^2 = \frac{N}{e_i} \]

and for total e®ort:

\[ e(N) = \sum_{i=1}^{N_f} e_i \]

where e_i is the e®ort exerted by politician i and the summation is taken over the number N_f of politicians who favor the reform over the status-quo. Finally we assume that there can be no further blocking once a new reform project has overcome the stage in which the various representatives confront their political e®orts for or against the project. Solving the model by backward induction as in the preceding case, stages (vii), (vi), and (v) will not change. The politician i will solve stage (iv) as:

\[ \max_{e_i} e_i(N) - g(e_i(N)) \]

By first order condition, we obtain:

\[ e_i(N) = \frac{Bi}{Nc} \text{ for a politician endorsing the reform.} \]

Now turning our attention to the optimal choice of N; at stage (i) the representative voter's objective function is given by:

\[ U(N) = e(N) - \left( \frac{N_f^2}{12}(e(N))^2 \right) \]
In particular, the comparative statics properties of the optimal $N^\ast$ will crucially depend upon whether total effort $e(N)$ is increasing or decreasing in $N$; in other words upon which of the initiative and congestion effects of increased degree of representation dominates. As stated by the following lemma, the congestion effect turns out to dominate when the number of representatives is high relative to idiosyncratic uncertainty as measured by $\ell$; whereas the initiative effect dominates when the ratio between the number of representatives and the degree of idiosyncratic uncertainty, is low.

**Lemma 1:**

\[
e^0(N) > 0 \text{ if } N/\ell \text{ small enough},
\]

\[
e^0(N) < 0 \text{ if } N/\ell \text{ large enough}.
\]

**Proof:** See Appendix.

It follows from the lemma that increasing the degree of proportionality is equivalent of a reduction in insulation when representativeness as measured by $N/\ell$ is already large so that increasing it further reduces the probability of reform, whereas it has similar effects to an increase in insulation when representativeness is initially low so that increasing it fosters reform initiative. This, together with the comparative static results in Proposition 1, yields:

**Proposition 5:** An optimal $N^\ast$ exist and is unique, for given $\ell$; this $N^\ast$, for given $\ell$; satisfies:

\[
\begin{align*}
\frac{dN^\ast}{dc} &> 0 & \frac{dN^\ast}{dc} &< 0 & \frac{dN^\ast}{d\ell} &> 0 & \frac{dN^\ast}{d\ell} &< 0 \text{ for } N/\ell \text{ small enough}, \\
\frac{dN^\ast}{dc} &< 0 & \frac{dN^\ast}{dc} &> 0 & \frac{dN^\ast}{d\ell} &< 0 & \frac{dN^\ast}{d\ell} &> 0 \text{ for } N/\ell \text{ large enough}.
\end{align*}
\]

**Proof:** See Appendix.

The intuition is suggestive. An intermediate level of proportionality maximizes the level of effort of politicians. With "too little" proportionality the effort that too few representatives favorable to the reform are appointed. Thus, in a system with a low degree of proportionality, increasing it allows new members favorable to reform, including the more extreme ones, to have a voice. However at higher level of proportionality we have results which capture exactly the message of the Schumpeterian quotes reported above. That is we have a tendency to maintain the status quo, becoming increasingly difficult to pass reforms because of the large number of opponents and congestion costs.

### 7 The duration of appointments

Constitutions can design "insulation" of leaders by means of the length of office. Once again, the Founding Fathers were well aware of the trade-off on this point. For instance, Hamilton in Federalist Paper n. 71 argues that "it may be asked whether a term of four years would answer the end proposed; and, if
it would not, whether a lesser period which would at least be recommended by greater security against ambitious design would be too short for the purpose of inspiring the desired fairness and independence of the magistrate. Hamilton clearly identifies a trade-off between monopoly of power ("ambitious design") and effectiveness and insulation of the President ("fairness and independence").

In this section we provide a very first attempt at addressing this issue, namely by studying the constitutional choice of whether to allow a two period or a one period length of office. We consider an infinite horizon extension of our basic model, in order to study the costs and benefits of longer terms. Throughout this section we shall take the representative individual to be risk-neutral ($\gamma = 0$) and we will denote by $\beta$ the discount factor. Suppose that a politician can only stay in office for one or two periods, but that he can implement only a reform during the first period, an assumption that captures the decaying over time of politicians' effectiveness. Let $Q_0$ denote an indicator variable which is equal to 1 if the leader is in office for two periods or 0 if he stays in office for only 1 period. For given $M$, ex ante expected utility for voter $i$ is given by:

$$u_i = \frac{1}{2} e^{(1+\beta U_{M;Q_0})} [Q_0(1 + \beta U_{M;Q_0}) + (1_i Q_0)U_{M;Q_0}]$$ if innovation occurs,\
$$= e^{(1+\beta U_{M;Q_0})} [Q_0(1 + \beta U_{M;Q_0}) + (1_i Q_0)U_{M;Q_0}]$$ otherwise,

(15)

where $U_{M;Q_0}$ denotes the net present utility from a new politician. The cut-off agent who divides voters against and in favor of the innovation is characterized by the indifference condition:

$$b = \frac{1}{\eta} [Q_0 + (1_i Q_0)\frac{1}{1 - \beta}]$$

(16)

The probability that an innovation is not blocked as a function of $M$ becomes, after rearrangements:

$$\hat{A}(M) = \hat{A}(M) + \frac{1}{2A} [Q_0 + (1_i Q_0)\frac{1}{1 - \beta}]$$

(16)

The generalized incentive problem of the politician becomes:

$$\max_e e^{(1+\beta U_{M;Q_0})} [B + (1_i Q_0)\frac{1}{1 - \beta}]$$

(17)

where as above $B$ represents the benefits for the politician when there is no current reform and we assume that those benefits can be enjoyed in the second (unproductive) term in office only if a previous reform occurred. This yields an interior solution:

$$e(M) = \frac{B(1 + \beta Q_0)}{c} \hat{A}(M);$$

(17)
where \( e = \frac{\theta}{B} \): Using the Bellman equation for \( U_{M; Q_0} \); together with the above equations (13) and (14), we obtain after some algebra that:

\[
U_{M; Q_0} = \frac{1 + \pm Q_0 + \frac{B(1 + \gamma)}{c} \bar{A}(M)^{\gamma} \left[ 1 + \pm Q_0 \left( 1 + \frac{B(1 + \gamma)}{c} \bar{A}(M) \right) \right]}{1 - \left( \pm Q_0 + 1 - \gamma \right) Q_0 \left[ 1 + \left( 1 - \gamma \right) \frac{B(1 + \gamma)}{c} \bar{A}(M) \right]}.
\]

(18)

Since we are assuming risk neutrality, the optimal choice of \( M \) is: \( M^* = 1 \). As for \( Q_0 \) there are two main counteracting effects of increasing the term limit \( Q_0 \):

(i) a delay effect, which we obtain here by construction: if \( Q_0 \) increases, then the next reform is delayed by one period and \( U_{M; Q_0} \) consequently decreases. This effect is captured by the term \( (\pm Q_0 + 1 - \gamma) Q_0 \); in fact, if \( Q_0 \) increases, \( (\pm Q_0 + 1 - \gamma) Q_0 \) decreases and so does the probability of passing the reform \( \bar{A}(1) \); for given \( U \) and so does the discounted utility \( U_{M; Q_0} \); for given \( \bar{A} \). Thus for given effort level \( e \) reducing political competition reduces voters' utility by slowing down reform. The (possibly) foregone gain from reform, \( \gamma \); will channel exactly this effect.

(ii) an incentive effect: if \( Q_0 \) increases, then the effort incentives of the current politician increases which in turn increases \( U_{M; Q_0} \). This effect is captured by the term \( \frac{B(1 + \gamma)}{c} \bar{A}(M)^{\gamma} \). Intuitively, relative benefits of longer office terms account for career incentives for the politician and represent a channel through which seniority may advantage society. This will be highlighted by the importance of the "ow of future office benefits for the politician.

Proposition 6: The choice of term duration satisfies:

\[
Q_0 = \begin{cases} 
1 & \text{if } \frac{\theta}{B} > 1 \text{ and } \gamma \text{ sufficiently small,} \\
0 & \text{if } \frac{\theta}{B} \text{ small or } \gamma \text{ sufficiently large.}
\end{cases}
\]

Proof: See Appendix.

The intuition is that if career concerns incorporated in the incentive effect are weak (i.e. the relative benefits per period in office, \( \frac{\theta}{B} \), for the professional politician are low) and the benefits of an active electoral competition (i.e. benefit of reform \( \gamma \)) are high, short periods of office are preferred. An interesting finding is that an increase in effort cost \( c \) appears to have an opposite effect on term limits compared to the effect on \( M \) pointed out in proposition 1. An increase in reform cost reduces the optimal length of office for given \( M \) whereas it had a positive effect on insulation as measured by \( M \). This in turn follows from the fact that in Proposition 1 a higher cost of reform would reduce the risk involved in increasing \( M \); whereas a higher cost of reform does not reduce the opportunity cost (in terms of delaying the next reform) of increasing term length.
The same apparatus and insight can be used to think about term limits. On the one hand, one may want to give the politician the possibility of reelection to create incentives to put effort. On the other hand, one may allow short terms in office, but require frequent electoral control on the operation of the politician. To see how the proceeding framework can be easily extended to including statutory limitations of terms in office, let $Q$ be the probability that the politician stays for two periods instead of one period and such that $Q = Q_0 P$; where $P$ is the probability of reelection: For given $M$, the ex ante expected utility for voter $i$ is identical as (15) where we replace $Q = Q_0 P$: Particularly, if we take probability of reelection as given and constant across states of the world, Proposition 6 still holds.

The discussion of term limits become richer if one allows for retrospective voting, which we do not have in our model. Under the maintained assumption that politicians are unable to reform in the second period, electors would always vote out the inefficient government if the delay effect dominates. This would make the term limits irrelevant in this case. On the other hand, term limits could also turn out to be welfare-reducing in the case of dominance of the incentive effect. A second case may be interesting too. If we assume some distortion in the voters' perception of the operate (or the type) of the politician such that the voting strategy becomes: "reappoint if reform is done in the 1st period or vote out if reform is not implemented in the 1st period", then term limits would actually help in reducing the inefficiency of reappointing an incumbent incapable of reform. Finally, one could also extend the framework by considering the possibility that the idiosyncratic and the aggregate shocks remain the same for two periods in a row, which in turn would introduce interesting interaction between ex post and ex ante voting strategies.

8 Conclusions

A recent literature shows how different institutional rules are correlated to different policy outcomes. But, one may argue, institutional rules are themselves endogenous. In this paper we show how to study the choice of several important institutional features. We identify a trade off between the benefits of ex post insulation of politicians - rst modeled in terms of an ex post veto power on reforms- and its costs. The benefits include the fact that insulated politicians have a higher incentive to engage in reform activities when the latter are necessary and they have better chances of passing them. Furthermore, an "insulated" regime may attract higher quality politicians since, if elected, they enjoy a higher degree of monopoly power over policy making. On the other hand, more insulated politicians do not allow much room for ex-post control. So the electorate is "stuck" with the elected leader even if his policies are ex post not 32

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desired by many. In addition, more insulated politicians may use their monopoly power to expropriate and also to restrict entry by potential opponents. We have characterized the choice over this trade-off as a function of several features of the politico-economic environment and of the distribution of preferences of the electorate. We have also studied how the choice of electoral rule in a representative democracy or the use of term length can also act as insulation variables, and the main trade-off that governs that choice.

This paper can open the way to several future projects. One is empirical. We have established several results that can be tested empirically, although the difficulty is how to link rather abstract variables like “costs of innovation”, risk aversion, distribution of preferences, polarization etc. to measurable politico-economic variables. The second direction is to model the degree of insulation more realistically and enrich the model with more institutional details. A third avenue is to push forward the political economy aspects of constitutional writing and discuss questions of positive models concerning the choice of how to choose.

9 Appendix

9.1 Proofs

Proof of Proposition 1. Consider the problem for $M < \bar{M}$: The first order condition can be solved for the maximum:

$$M^*_{e<1} = \frac{1}{1} \frac{2A}{o} \frac{6c}{1} \frac{1}{(l^2 + 4A^2)B} \frac{1}{\sigma} \frac{A}{i} \frac{1}{2} \frac{c}{\sigma}$$

which is smaller than $\bar{M}$ if and only if:

$$\frac{1}{1} \frac{2A}{o} \frac{6c}{1} \frac{1}{(l^2 + 4A^2)B} \frac{1}{\sigma} \frac{A}{i} \frac{1}{2} \frac{c}{\sigma} \frac{(l^2 + 4A^2)}{6i}$$

If this condition is not satisfied, the maximum is $\bar{M}$. Now, let us consider the problem for $M > \bar{M}$: The first order condition can be solved for the maximum:

$$M^*_{e=1} = \frac{1}{1} \frac{2A}{o} \frac{6i}{(l^2 + 4A^2)} + \frac{1}{\sigma} \frac{A}{i}$$

which is greater than $\bar{M}$ if and only if:

$$\frac{6i}{(l^2 + 4A^2)} > \frac{B}{c} \frac{(l^2 + 4A^2)}{6i}$$

If this condition is not satisfied, the maximum is $\bar{M}$: To find the global maximum to the general problem, notice that $U(M)$ is a continuous function also for $M = \bar{M}$ and the
previous results imply that it always appears as an inverted U-shaped curve with:

\[
M^u = \begin{cases} 
\frac{1}{2} \frac{\partial q}{\partial i} \frac{(6q)}{(1 + 4A^2)^2} + \frac{1}{2} \frac{\partial q}{\partial i} A i & \text{if } \frac{B}{c} > \hat{\lambda} \\
\frac{1}{2} \frac{\partial q}{\partial i} \frac{(6q)}{(1 + 4A^2)^2} + \frac{1}{2} \frac{\partial q}{\partial i} A i & \text{if } \frac{B}{c} < \hat{\lambda}
\end{cases}
\]

where:

\[
\hat{\lambda} = \frac{i^2 + 4A^2 c^2}{6i}
\]

The comparative statics is immediate. Notice that despite \(M^u\) is given by different functions over different intervals, it is still a continuous function which is decreasing in \(l\) and \(\lambda\), is weakly decreasing in \(B\) and is weakly increasing in \(C\). The effect of an increase of \(\omega\) is unambiguously negative in the regions with \(M^u \geq \hat{\lambda}\), but it is ambiguous for \(M^u < \hat{\lambda}\). The effect of a change in \(A\) is negative for \(A < \hat{\lambda}\) and is ambiguous for \(A > \hat{\lambda}\). At the opposite, for \(A\) large, we verify \(\frac{dM^u}{dA} < 0\): Q.E.D.

Proof of Proposition 2: Two cases must be considered:

1. \(b_i - i \ M^u + A < \mu \frac{w}{1 + k} \), which will be true whenever \(w\) is sufficiently large or \(A\) is sufficiently small; in this case reform will always take place (as it will be always affordable) and:

\[
M^u = \arg \max_M \left\{ \frac{k \left( b_i - i \ M + A \right)^2}{6} + \frac{B}{C} i - \left( \frac{B}{C} \right)^2 \var{g(\lambda, a; M)} \right\}
\]

In this case \(M^u\) satisfies the first order condition:

\[
f(M; k) = \frac{\partial f}{\partial M} = 0
\]

Note that \(
\frac{\partial f}{\partial k}\) has to be negative if we are at a maximum. Furthermore, the taxation cost \(k\) only enters through \(A(M)\) which it affects negatively. This in turn implies that \(\frac{\partial f}{\partial k} > 0\): Therefore \(M^u\) must be increasing in \(k\):

2. \(b_i - i \ M^u + A > \mu \frac{2w}{1 + k} \) in which case:

\[
M^u = \arg \max_M \left\{ \frac{k \left( 2w \right)^{\frac{1}{2}}}{6} + \frac{B}{C} A(M) i - \left( \frac{B}{C} \right)^2 \var{(g(\lambda, a; M))} \right\}
\]

The solution \(M^u\) satisfies the first order condition:

\[\frac{\partial f}{\partial M} = 0\]

The first term is the expected deadweight loss from compensation, calculated as:

\[
L = \frac{k}{2} \var{(b_i - i \ M + a)} \left( \frac{2w}{1 + k} \right)^{\frac{1}{2}} b_i - i \ M \ a^{\frac{3}{2}} da = \frac{k \left( 2w \right)^{\frac{1}{2}}}{6} \frac{1}{1 + k}
\]

while the second term is still equal to the expected net income from reform, and the third is the variance of that net income.
\( f(M;k) = \frac{\partial}{\partial M} \tilde{A}(M) \frac{2 - B^2}{AC} \tilde{A}^3(M) \text{Var}(\varphi(\cdot; a; M)) \frac{- B^2}{C^2} \bar{A}^4(M) \text{Var}(\varphi(\cdot; a; M)) \frac{\partial}{\partial M} \tilde{M} = 0 \) 

Again, \( \frac{\partial f}{\partial M} \) has to be negative if we are at a maximum. Furthermore, the taxation cost \( k \) enters through \( \bar{A}(M) \) which affects negatively. This in turn implies that \( \frac{\partial f}{\partial k} > 0 \) when individuals are sufficiently risk-averse (sufficiently large), but \( \frac{\partial f}{\partial k} \) may become negative when individuals are not very risk averse. In other words, higher deadweight costs of compensation call for higher insulation \( M \) when individuals are highly risk-averse, in order to reduce the uncertainty as to whether the reform passes or not. On the other hand, a higher deadweight cost of compensation reduces the incentive effect of increasing insulation and therefore calls for a lower degree of insulation if insurance motives are not so strong. Q.E.D.

Proof of Lemma 1: Total effort is given by:

\[
\eta(N) = \sum_{i=1}^{N} w_i \frac{\varphi(m; i) \cdot 1}{Nc}
\]

where:

\[
w_i = \begin{cases} 
\frac{1}{2} & \text{if } \varphi(i) > 0; \\
0 & \text{otherwise.}
\end{cases}
\]

Let us now define \( N_{fa} + N_{op} = N \) where \( N_{fa} \) and \( N_{op} \) denote respectively the number of voters favorable to reform (i.e. who exert positive effort) and opposite to reform (i.e. who exert zero effort). To compute the values of \( N_{op} \) and \( N_{fa} \) let us suppose that the system is optimally designed ex ante in such a way that anyone that happens to be in favor of the reform ends up in a group in favor, and vice versa for someone opposed to the reform. In that case \( N_{op} \) can be derived by considering the closest group \( i \) to accept the reform:

\[
N_{op} = 1 + 2 \left( \frac{1}{2} \right)^{\varphi(i) - 1} = \frac{N + 1}{2} \frac{1}{\varphi(i) - 1} + \frac{1}{\varphi(i) - 1} N_{fa}
\]

from which we obtain that:

\[
N_{op} = 1 + 2 \left( \frac{1}{2} \right)^{\varphi(i) - 1} = \frac{N + 1}{2} \frac{1}{\varphi(i) - 1} + \frac{1}{\varphi(i) - 1} N_{fa}
\]

Making use of:

\[
\varphi(i + 1) = \varphi(i) + \frac{\varphi(i) (i + 1)}{2} = \varphi(i) + \frac{\varphi(i) (i + 1)}{2} \left( \frac{1}{N} \right)
\]

and of the fact that:

\[
\sum_{i=1}^{N} w_i \frac{\varphi(m; i) \cdot 1}{N} = \sum_{i=1}^{N} w_i \frac{\mu}{N} \left( \varphi(i) + (i + 1) \frac{\varphi(i) (i + 1)}{2} \right) = \left( \frac{\mu}{N} \right) \sum_{i=1}^{N} w_i \frac{\varphi(i) \cdot 1}{N} + \frac{\mu}{N} \left( \frac{1}{N} \right)
\]

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we can then express \( e(N) \) as:

\[
e(N) = \frac{\mu}{c} N r_a (\frac{1}{c}) + \frac{N r_a (N r_a + 1) i}{2} \frac{1}{N} \frac{1}{N}
\]

\[
= \frac{\mu}{c} \left[ \frac{3(-i + \frac{1}{2})}{2N} + \frac{3(-i + \frac{1}{2})^2}{2} i \frac{1}{8N^2} \right]
\]

Hence:

\[
e(N) = \frac{\mu}{c} \left[ \frac{3(-i + \frac{1}{2})}{2} + \frac{1}{8N} \frac{1}{N^2} \right]
\]

for which it follows that

\[
e(0)(N) > 0 \text{ if } N = \text{small enough,}
\]

\[
e(0)(N) < 0 \text{ if } N = \text{large enough,}
\]

which in turn establishes the lemma. Q.E.D.

Proof of Proposition 5: Substituting for \( e(N) \) in the expression for ex ante utility \( U(N) \) when maximizing \( U(N) \) with respect to \( N \), we obtain the first order condition:

\[
e(N) = \frac{\mu}{c} \left[ \frac{3(-i + \frac{1}{2})}{2} + \frac{1}{8N} \frac{1}{N^2} \right]
\]

by the implicit function theorem it must be that, given the fact that the SOC are satisfied,

\[
\text{sign} \left( \frac{dFOC}{dc} \right) = \text{sign} \left( \frac{dN}{\frac{dc}{N}} \right).
\]

The same holding for \( \theta; \phi; \text{ and } A \): It is verified that

\[
\frac{dFOC}{dc} = \frac{de(N)}{dc} \left[ \frac{\mu}{c} \left[ \frac{3(-i + \frac{1}{2})}{2} + \frac{1}{8N} \frac{1}{N^2} \right] \right] + \frac{de(N)}{dc} \left[ \frac{\mu}{c} \left[ \frac{3(-i + \frac{1}{2})}{2} + \frac{1}{8N} \frac{1}{N^2} \right] \right] \frac{dk}{dc} \frac{e(N)}{dc}
\]

Applying Lemma 1 whenever \( e(N) \neq 0 \); we observe that the expression is positive if \( N \neq \text{small enough} \), negative if \( N \neq \text{large enough} \). The comparative statics regarding \( \theta; \phi; \text{ and } A \) are derived through the same approach, also taking into account the derivative of \( k = -\theta \left( i^2 + 4A^2 \right) \) with respect to the relevant parameter. Q.E.D.

Proof of Proposition 6: Let \( U_0 = U_M: Q_0 = 0 \) and \( U_1 = U_M: Q_0 = 1 \): Recall that \( 0 < \phi < 1 \); \( \theta = \pm \phi \frac{B}{B} \); and \( i = \pm m \). Then we make use of (11) in obtaining

\[
U_0 = \frac{1 + \frac{B}{c} A(M) + \frac{\phi}{2} \frac{1}{3} U_0^2}{1_i \left[ 1 + \left( \frac{\phi}{i} \right) \frac{B}{c} A(M) + \frac{\phi}{2} \frac{1}{3} U_0^2 \right]}
\]

(A2)
We then end up with the impossible identity:

\[
U_1 = \frac{1 + \frac{B(1+i\beta)}{c} \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} (1 + \beta U_1)^2 (i + \beta^0 i \cdot 1)}{1 + \frac{B(1+i\beta)}{c} \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} (1 + \beta U_1)^2}
\]  \tag{A3}

(a) Let \( \beta \) tend to 1 : then \( U_0 \) and \( U_1 \) become asymptotically equal to:

\[
U_0 = i \frac{\frac{B}{c}(i + \beta)}{\frac{\beta}{c} \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} U_0} = \frac{i}{\beta^0} U_0
\]

\[
U_1 = i \frac{\frac{B}{c}(i + \beta)(\frac{\beta}{c} \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} U_1)}{\frac{\beta}{c} \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} (1 + \beta U_1) U_2} = \frac{i}{\beta^0} U_2
\]

from which we obtain that \( U_0 > U_1 \): Given the continuity of \( U_0 \) and \( U_1 \) in \( \beta \); there exist \( \beta^0 \) such that \( U_0 > U_1 \) for \( \beta > \beta^0 \). The delay effect dominates in this case.

(b) Let \( \beta \) ! 1+: then, one can show, \( \beta^0 \) that \( U_0 \) and \( U_1 \) remain bounded from above\(^{34}\), and then that they converge respectively towards:

\[
U_0 = \frac{1 + \frac{B}{c}(i \cdot 1) (\hat{A}(M))^2}{1 + \frac{B}{c} (i \cdot 1) \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} U_0}
\]

\[
U_1 = \frac{1 + \frac{B}{c} i \cdot 1 (\hat{A}(M))^2}{1 + \frac{B}{c} i \cdot 1 (\hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} U_0^2)}
\]

It then follows that whenever \( \beta^0 > B \); we obtain that \( U_0 < U_1 \); The incentive effect dominates in this case. Q.E.D.

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\(^{34}\)To see this, suppose by contradiction that \( U_0 \) becomes infinite when \( \beta \) ! 1+: Then, dividing both sides of equation (A2) by \( U_0 \), and letting \( \beta \) ! 1+: we obtain the asymptotic relation:

\[
1 = \frac{1 + \frac{B}{c} (i \cdot 1) (\hat{A}(M))^2 U_0}{1 + \frac{B}{c} (i \cdot 1) \hat{A}(M) + \frac{3}{2A} \frac{\hat{A}}{\hat{A}} U_0^2}
\]

which implies that \( 1 + \frac{B}{c} (i \cdot 1) U_0 \) must converge to some \( u_0 > 0 \); when \( \beta \) ! 1+: This, in turn, implies that \( U_0 \) is asymptotically equal to:

\[
U_0 = \frac{u_0}{1 + \frac{B}{c} (i \cdot 1) U_0^2}
\]

But then the denominator in the RHS of the above equation must converge to \( (i \cdot 1) U_0^2 \); since:

\[
\frac{\mu (i \cdot 1) U_0}{1 + \frac{B}{c} (i \cdot 1) U_0^2} = \frac{\mu (U_0)^2}{1 + \frac{B}{c} (i \cdot 1) U_0^2}
\]

We then end up with the impossible identity:

\[
1 = 0
\]

which establishes our claim.
9.2 Data description and sources for Table 1

Political data are from Beck et al. (2001), World Bank, Database of Political Institutions, provided through DATAVINE by the Center for International Development at Harvard University. Particularly, changes in form of government are given by changes in the value of the variable SYSTEM, which in the original data set is oriented with higher values for parliamentary systems, assigning to Direct Presidential 0; to strong president elected by assembly 1; to Parliamentary 2. PLURALITY is a dummy variable assigning 1 if an electoral system features a plurality electoral rule in legislative elections for the lower House, 0 otherwise. Since PLURALITY presents a high number of missing observations in the original data set, we also employ as measure of changes in the electoral law the Mean District Magnitude (MDMH) in the House ["The rounded average number of representatives elected by each constituency, if available. If not, the rounded number of seats divided by the number of constituencies (if both are known) is used"]. Finally MULTPL ["If there are formal restraints on his term (NA if not), can he serve multiple terms?"] is chosen as indicator of term limits, Q0, for direct presidential systems (the only ones to which the concept of term limit applies in the strongest form). The variable takes value one if there is no formal restriction to multiple appointments and zero if strict term limits apply (Q0 = 0). For more detailed information about sources and definition we refer to the original data set's description of the variables available by the World Bank.

For data on democracy (political rights and civil liberties), we consider shifts from Non-Free classification of Freedom House (2001) to the "Partially Free" and "Free" classifications and vice versa.

References


[38] Poterba J. and Jurgen Von Hagen (eds.) Fiscal Institutions and Fiscal Performance Chicago: University of Chicago Press and NBER.


<table>
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<th>Region</th>
<th>Number of reductions in Mean District Magnitude</th>
<th>Number of increases in Mean District Magnitude</th>
<th>Number of changes towards more Presidential systems</th>
<th>Number of changes towards less Presidential systems</th>
<th>Number of changes towards a more Majoritarian system</th>
<th>Number of changes towards a more Proportional system</th>
<th>Number of changes towards stricter term limits</th>
<th>Number of changes towards less strict term limits</th>
<th>Number of changes from Free or Partly Free to Non-Free</th>
<th>Number of changes from Non-Free to Free or Partly Free</th>
<th>Total Changes</th>
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Note: Data reported are taken from the Database of Political Institutions, available from DATAVINE/Harvard CID and the World Bank (Beck et al., 2001) in period 1975-1995. For the Presidential/Non Presidential dichotomy we consider changes in the variable SYSTEM for the observed data. For district magnitude we consider Mean District Magnitude for the House (coded MDMH). Another measure for changes in the electoral law is obtained by considering changes in the PLURALITY variable, Plurality Law (1) or not (0). Data on term limits are from variable MULTPL taking value one if the chief executive is allowed multiple terms in office the possibility of classification under NA if no specific reference is made make our number of changes an underestimate of the real number of changes. Data regarding the average political rights and civil liberties are from Freedom House (2000) for the period 1972-2000. To identify a change from a democratic polity to a non democratic polity we consider the changes from Free or Partly Free to Non Free levels, defined as countries with combined averages of for political rights and civil liberties between 5.5 and 7.