

Resilient Leaders and Institutional Reform: Theory and Evidence*

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Abstract

Strengthening executive constraints is one of the key means of improving political governance. This paper examines how such reforms are related to threats to the tenure of ruling political incumbents. We formalize this idea theoretically and test it empirically, using data on leaders since 1875. Specifically, we distinguish leaders with different degrees of resilience as leaders who die from natural causes in office. We present econometric evidence in line with the theoretical predictions: the exit of a resilient leader raises the annual probability of reform towards strong executive constraints by about 100%. Moreover, we show that this effect is specific to strengthening executive constraints and does not reflect generalized political reform.

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1 Introduction

Creating stable systems of government, where citizens enjoy political rights and rulers are constrained, has been a major achievement in human history. Figure 1 gives a birds' eye view of this achievement by plotting the world-wide prevalence of strong executive constraints, which circumscribe the power of leaders in office, using data from Polity IV.¹ The red line illustrates this evolution for the 50 countries for which we have uninterrupted data from 1875 to 2004. The main variations broadly follow Huntington's three waves of democratization (Huntington, 1991). They reflect reforms in Europe at the beginning of the past century, a setback in the interwar period, followed by a return of strong constraints after World War II, and then a surge of institutional reforms in Latin America and the former Communist block from the 1980s onward. The blue line shows the prevalence for *all* countries with available data.² Although the proportion of countries with strong executive constraints is considerably lower at the end of the sample in this larger group, the pattern looks broadly similar with the exception of an additional dip from 1960 to 1975 driven by a number of newly established countries (mainly former colonies).

The reasons for the adoption of such constraints are not well understood. However, leaders who are secure in their hold on power will typically have weak motives to pursue reforms that limit their discretionary authority. This pattern has indeed been common among monarchs and autocrats with few or no formal checks on their power. In one of the most famous historical examples, King John felt compelled to sign Magna Carta in 1215, but only when his power was threatened by the barons on whom he relied for support. This seems to suggest a more general and compelling argument: leaders with strong survival prospects are less likely to accept reforms which constrain executive authority. We refer to such leaders as *resilient*.

The present paper studies how resilient leaders may constitute a barrier to reform towards strong executive constraints theoretically and empirically. Our model predicts that *leader* resilience reduces the incentive to adopt strong executive constraints by reducing the prospect that a ruling *group* loses office.³ This component from the theory receives support from a first pass at the data. Leadership turnover is positively correlated with the adoption of stronger executive constraints. Conditional on country and year fixed effects, such reforms are about 9 percentage points more likely in the five years after a leadership transition than in the five years before the transition, a difference which is statistically significant. But more satisfactory evidence for our general idea requires a measure of leader resilience.

Our proxy for resilience comes from observing which leaders died in office from natural causes. We argue that leaders who hold on to power until they die are inherently more resilient in the sense of our model. Moreover, we show that the tenure of such leaders is much longer than for other leaders – in our full sample, they stay in office four years longer. Using this source of variation to study outcomes follows Jones and Olken (2005), but the interpretation is rather different; in this paper leaders who die in office are viewed as having a specific trait – resilience – consistent with their longer average tenure. It is not their death per se that matters, but the fact that the new leader (or the leader previous to the one dying in office) may not be equally resilient. Institutional reform when a resilient leader leaves office is then motivated by the difficulty that an incumbent elite group may have in finding an equally resilient successor to the deceased leader, which reduces its probability of remaining in power.

Broadly, our paper fits into the literature that examines links between development and democ-

¹The precise data and measure underlying the figure is discussed in Section 4.1.

²This lessens the possibility of “survivorship” bias, i.e. looking only at countries that have been around for long time.

³This argument applies specifically to this aspect of institutional reform rather than to the change in overall democracy score which typically includes openness of access to power.

racy. Early studies were influenced by the modernization hypothesis of Lipset (1959), with more recent incarnations being Przeworski et al (2000) and Bueno de Mesquita et al (2003). However, the hypothesis that income drives democracy receives weak empirical support with, at best, ambiguous evidence – see, for example, Barro (1999), Acemoglu et al (2008), and Bruckner and Ciccione (2011). This finding is consistent with our approach. The timing of political change is often idiosyncratic and linked to political circumstance rather than to slow moving variables like income or education, even though these variables may shape the wider context and citizens’ aspirations.

By focusing on characteristics of leaders, our approach is distinct from a strand of literature on how social and cultural factors may promote democracy. This includes the ideas that having a strong and effective middle class or plentiful social capital may be important, as hypothesized, for example, by Almond and Verba (1963), Moore (1966), and Putnam (1993). In this general vein, Persson and Tabellini (2009) introduce the concept of democratic capital and find empirically that this consolidates rather than promotes transitions into democracy.

The ambition of our paper is to study a specific dimension of political reform. Although we focus on strengthening executive constraints, it has most in common with the literature on franchise extension, particularly the work by Acemoglu and Robinson (2000, 2006), who offer insightful case-study evidence. They also emphasize the role of political instability, particularly due to the threat of a revolution. Franchise extension is used a commitment device by the elite to guarantee more favorable treatment of the masses. Aidt and Jensen (2010) find econometric evidence in support of this view. [Below, we show that having a leader who dies in office does not predict changes in the franchise nor other moves towards greater openness].

Our argument is also related to that in Lizzeri and Persico (2004), where a ruling group voluntarily extends the franchise in order to reorient spending from transfers targeted to small groups to general broad-based programs. It also resembles a classic argument first made by Rokkan (1970) and extended by Boix (1999). This holds that fears of electoral losses explain the move from plurality to proportional representation as a means of protecting the center-right from a labor electoral landslide in those countries in early 20th-century Europe where landed and industrial elites had not forged their interests.

In a different vein, Lagunoff (2001) develops a model with a dynamic game between two groups, in which greater political turnover leads to greater constitutional support for civil liberties. Congleton (2007) discusses forces that promote the introduction of parliamentary oversight on royal power, focusing on instability due to preference shocks to the monarch. Acemoglu, Robinson and Torvik (2011) develop a model of endogenous checks and balances, stressing the way that these change the ability of special interests to influence policy. Jones and Olken (2009) exploits the difference between successful and unsuccessful assassination attempts to show that random leadership change leads to democratic reform, as measured by a broad democracy index.

In summary, our approach is one where institutional reform is “defensive” and undertaken when a leader and/or his group anticipates losing political power. This is different from the Acemoglu-Robinson approach, where institutional reforms are also defensive, but the incumbent group gives up political power in order to secure economic power. Our approach also differs from those based on revolutionary change, where institutional change is “offensive” and an incumbent is removed from power as a means of securing change. Of course, all these approaches have their counterparts in the real world. Our aim is to explore the theoretical and empirical validity of one particular approach, rather than trying to provide a general account of all aspects of institutional change.

In the next section of the paper, we set the stage by providing a case-study account of Spain under Franco and the political reforms that followed after his death.

Section 3 develops a simple infinite-horizon model, where an incumbent group that faces high expected turnover may choose to reform by putting in place more binding executive constraints. Group leaders have different survival probabilities, such that the model makes specific empirical predictions regarding the effect of a switch between leaders with different degrees of resilience and hence with different rates of expected turnover between groups.

In Section 4, we discuss how the model can be taken to the data. The model suggests a reduced-form relation, where the probability of a transitions to/from weak executive constraints is a function of whether the leader is resilient, measured by whether the leader dies in office. Underlying this reduced form, is a more structural IV-approach in line with the model where, in the first stage, our measure of resilience is used to instrument for expected leader turnover, conditional on leader age and tenure. In the second stage, higher predicted turnover induces a greater probability of higher constraints on the executive.

Section 5 presents our empirical results. Our baseline estimates are consistent with the predictions of the model and suggest that the death of a resilient leader raises the probability of a transition from weak to strong executive constraints by about 1 percentage point per year. We show that these results are robust to a number of concerns about the exclusion restriction that underlies our IV-approach. Thus, the results hold up when we control for a number of personal characteristics of leaders, as well as the economic and political context at the time of leadership change.

Section 6 relates this paper to wider forms of institutional reform, specifically increases in openness – including a more extensive franchise – that create more contestable power structures. We show how the model can be extend to encompass this aspect of political reform. Leader resilience does not, however, seem to predict reforms towards greater openness. Thus, our results are specific to reforms of executive constraints and not driven by general democratizations.

Section 7 concludes the paper. Some details of the theory and the data are relegated to an Appendix.

2 Motivating Case Study: Francisco Franco⁴

Francisco Franco was an archetypal example of a resilient leader in terms of our theory. A victorious war hero, he ruled Spain under unchecked authoritarian rule after the end of the civil war. According to the Law of Succession from 1947, Spain would return to monarchy, but Franco would rule for life and himself appoint the next King. The unelected Spanish pseudo-parliament, the Cortes, was at best an advisory body with no right to initiate legislation or oppose the government. It was dominated by the so-called National Movement – the *Movimiento* – which constituted the political elite. The *Movimiento* comprised a collection of right-wing families and was the only recognized forum for political participation. No elections were held during the Franco period.

Some modest reforms in 1966 separated the functions of head of state and head of government, but the authoritarian character of the regime remained intact. The hard-line Admiral Luis Carrero Blanco was appointed the first prime minister and was also widely expected to become Franco's successor, even though Franco had already appointed Juan Carlos as the next head of state in 1969. Juan Carlos, the son of Spain's legitimate monarch Juan of Bourbon, was generally considered an insider of the ruling elite, by which he had been educated and groomed. As a *quid pro quo* for the appointment, Juan Carlos swore to be faithful to the National Movement. Thus, he publicly supported the regime and took part in ceremonial functions together with Franco.

⁴This subsection is based on Conversi (2002), Encyclopedia Britannica (2012), Fishman (1990), Linz (1990), Linz and Stepan (1996), Polity IV (2012), Rosenfeld (1997), Share (1987), and Solsten and Meditz (1988).

From the late 1960s, the regime saw increasing challenges from an emerging political opposition, including regional-autonomy movements in the Basque country, Catalonia, and (less so) Galicia. In particular, ETA – the Basque revolutionary liberation army – started to systematically implement the theory of action/terror/action to further its independence cause; most significantly, ETA assassinated Carrero Blanco in December 1973. The regime countered the opposition with higher levels of repression. Meanwhile, the ailing Franco replaced Carrero Blanco as Prime Minister with another hardliner, Arias Navarro. Despite the mounting opposition, there was little to suggest an end to the unchecked authoritarian regime. For the postwar period up until the year of 1974, Polity IV sets the executive constraints variable for Spain at the bottom score of 1 (on a scale from 1 to 7).

In November of 1975, Franco died in office of heart disease. At this time, no similarly resilient leader was waiting to take over. Although the Cortes proclaimed Juan Carlos King of Spain, it reaffirmed Navarro as prime minister. The latter made vague proposals of limited reforms. When these were met with public demonstrations, strikes and increased regional terrorist acts, the regime responded with increased repression. Following discontent with Navarro’s handling of the situation, the King asked for him to step down in the summer of 1976. He replaced Navarro with another leading figure from the Movimiento, its general secretary and former Franco minister, Adolfo Suarez Gonzales.

Despite expectations to the contrary, Suarez – with outright support of the King – saw the need for more far-reaching reforms, to avoid descent into a spiral of repression and violence. He soon announced plans for a comprehensive package of political reform, which would put in place a constitutional monarchy based on parliamentary democracy with a bicameral legislature. In the fall of 1976, he managed to convince the Movimiento members of the Cortes that the only way forward was to accept this reform package, which effectively would dismantle the institution itself. Later in that fall, the Spanish people approved the plans with a majority of 88% in a national referendum. New laws permitting political parties, including the Communist Party, were passed by the Cortes in the spring of 1977, and general elections to a new legislature were held in the summer of the same year, using proportional representation.

In these elections, Suarez ran as the party leader of the newly founded UCD at the conservative-center of politics, which emerged as the largest party followed by the PSOE (the Socialist Party). The most polarized parties, the Alianza Popular (on the far right, picking up the heritage from the dissolved Movimiento) and the Communist Party, each polled at about 10%. The new parliament elected a seven-member constitutional committee representing all major parties to draft Spain’s new constitution. The committee’s proposal was amended and eventually passed by parliament in October 1978, and approved in a general referendum in December of the same year. After this, Suarez dissolved the parliament and called for new elections under the new constitution.

A mere three years after Franco’s death, Suarez and Juan Carlos, two members of the former ruling elite, had thus led the country through a remarkably peaceful democratic transition. In this process, Spain adopted a constitution with a number of horizontal checks and balances, as well as provisions for regional autonomy. The new political regime has endured since those days – its resilience was tested most dramatically in a failed coup attempt in February 1981 by Colonel Antonio Tejero, who together with 200 armed members of the paramilitary police (the Guardia Civil) stormed into the Chamber of Deputies to interrupt its election of the new prime minister. From the year of 1978, Polity IV codes Spain’s executive constraints with the top score of 7 (on the 1 to 7 scale).

The example of Spain illustrates two key points relevant to the paper. First, Franco faced no effective opposition while alive – the fact that he died in office is indicative of his resilience as a leader. Second, following his departure, no comparable resilient leader was waiting in the wings

to take over. The fact that subsequent leaders of the ruling group were likely to face a more contestable position led to a move towards cohesive institutions.

3 Model

Our model is a threefold extension of the two-period, two-group, one-actor model sketched in Besley and Persson (2011a, Ch. 7) to an infinite-horizon, multiple-group setting, which explicitly distinguishes groups and their leaders. The incumbent government in power decides how to deploy a fixed tax revenue between transfers and public goods, being more or less constrained by current political institutions. In view of their prospect of surviving in office, incumbent groups choose the cohesiveness of political institutions (executive constraints) for the next period.

Basics and groups There is an infinite horizon with time periods denoted by $t = 1, 2, \dots$. The population is normalized to unity and divided into $\frac{1}{e}$ equal-sized groups indexed by J . The incumbent government in period t belongs to one of these groups, which is denoted by I_t . The other groups are in opposition and are indexed by the list O_t^J . If the incumbent government is thrown out at the end of period t , one of the previous opposition groups is randomly chosen (with equal probability) to be in power in period $t + 1$. All decisions on behalf of the incumbent group are taken by a leader, with characteristics described below

Income, preferences, and private consumption All individuals have an equal, exogenous and constant (net of tax) income y . The utility function of a member of group J in period t is linear in private and public goods

$$u_t^J = \alpha g_t + x_t^J .$$

Variable g_t is the provision of public goods by the incumbent. The value of public goods is given by α , with $1 < \alpha < \frac{1}{e}$.

Variable x_t^J denotes private consumption, which depends on the status of a group. For all opposition groups, it is given by

$$x_t^J = y + r_t^J , \quad J \in O_t^J ,$$

where r_t^J is a *per-capita* transfer payment to all group J members. For simplicity, we work with the case $r_t^J = r_t$, so that all non-governing groups are treated in the same way. Any member of the incumbent group, including the leader, has private consumption

$$x_t^J = y + b_t , \quad J = I_t ,$$

where b_t are the *per-capita* rents, extracted by the period- t leader on behalf of his group – these rents could be generated endogenously through predatory activities, as in Besley and Persson (2011a, Ch. 3). Thus, all members of the incumbent group get the same share of rents.

Everybody discounts the future with discount factor $\delta \in (0, 1)$. There are no savings in the model.

Government budget constraint The incumbent leader has access to some exogenous revenue of size T . This income can be spent on three items: public goods g_t , transfers to members of all other groups r_t , and transfers to members of the incumbent group b_t .

The government budget constraint is therefore

$$T = g_t + r_t(1 - e) + eb_t .$$

Within-group leader turnover In each period t , the incumbent group I_t starts out with a specific leader in power. We use $\xi_{t-1} \in [\xi_L, \xi_H]$ to denote this leader's "resilience". Higher resilience positively affects two things: (i) the likelihood that the leader will remain as the leader of the incumbent group, and (ii) the incumbent group's probability of staying in power.

Let $s(\xi_{t-1}, \nu_t) \in \{0, 1\}$ denote the event that a leader with resilience ξ_{t-1} survives as leader of the incumbent group in period t , where ν is a random shock including death. We assume that $s(\xi_{t-1}, \nu_t)$ is increasing in ξ , i.e., more resilient leaders are less likely to lose the leadership of their group.

If a leader is replaced within the incumbent group, there is a random draw from the pool of potential leaders with mean resilience $\bar{\xi}$. Thus, the evolution of expected leader resilience conditional on ν is given by:

$$E(\xi_t) = \begin{cases} \xi_{t-1} & \text{if } s(\xi_{t-1}, \nu_t) = 1 \\ \bar{\xi} & \text{otherwise .} \end{cases}$$

We use $\bar{s}(\xi) = E_\nu \{s(\xi, \nu)\}$ to denote expected within-group turnover for a leader of resilience ξ .

Turnover between groups The probability that the incumbent group remains in power until the next period also depends on its current leader. Denoting this ex post (conditional) probability by q_t , we assume that it is simply equal to its leader's resilience:

$$q_t = \xi_t .$$

Before the realization of the random shock ν_t , the ex ante (unconditional) probability that the incumbent *group* survives in power when the resilience of the leader is ξ_{t-1} is given by

$$Q_t = Q(\xi_{t-1}) = \bar{s}(\xi_{t-1}) \xi_{t-1} + [1 - \bar{s}(\xi_{t-1})] \bar{\xi} , \quad (1)$$

which we assume is increasing in ξ .⁵

Once the random shock, ν_t , is realized and the resilience of the leader is determined, then the probability that the period- t incumbent group loses its power at the end of the period is thus $1 - q_t = 1 - \xi_t$. If the incumbent group loses power, each opposition group has an equal probability to take over, namely $\frac{e}{1-e}$. If a new group enters into power, the leader of that group (with resilience drawn at random) becomes the new leader of the country.

Political institutions Political institutions can be more or less cohesive and are modeled as a constraint on how badly an incumbent group can treat the other groups in the population. In terms of the model, this constrains the rents that an incumbent group can extract at the expense of others in society. Thus, we assume that the incumbent leader must give a fixed share, $0 \leq \theta_t \leq 1$, to every other citizen, for any unit of rents collected by members of its own group:

$$r_t \geq \theta_t b_t .$$

The parameter θ_t indexes cohesiveness with a higher value of θ representing tighter executive constraints on the incumbent government, i.e., a form of institutional commitment. Concretely, this

⁵A sufficient condition for this is that:

$$1 > \frac{E \{s_\xi(\xi, \nu)\} [\bar{\xi} - \xi]}{E \{s(\xi, \nu)\}}$$

for all $\xi \in [\xi_L, \bar{\xi}]$.

could represent stronger constitutional provisions limiting executive powers, which are enforced by a legislature and/or an independent judiciary.

To model the process of political reform, we follow the existing literature (e.g., Acemoglu and Robinson, 2006) in assuming limited commitment, with political institutions chosen at time t being binding on decisions at $t + 1$ (see further discussion below).

Timing To summarize the model laid out above, each period has the following timing:

1. The polity starts period t with an inherited incumbent group I_t , whose leader has resilience ξ_{t-1} , and inherited institutions θ_t , which bind for that period.
2. The incumbent leader chooses policy $\{g_t, r_t, b_t\}$ for the current period, and political institutions, θ_{t+1} , for the next period.
3. Nature determines the period- t political stability shock ν_t . If the incumbent-group leader survives, then his resilience stays constant. If not, then a fresh draw from a pool of leaders determines ξ_t .
4. Group I_t is replaced with probability $1 - \xi_t$. Each opposition group have an equal probability of taking over the executive, namely $\frac{(1-\xi_t)e}{1-e}$. If a new group takes power, the resilience of its leader is chosen at random.

The model is recursive, which allows us to first study period t , $\{g_t, r_t, b_t\}$, taking θ_t as given. We then study the choice of political regime θ_{t+1} , a more involved problem. We look for a Markov-perfect equilibrium where the state variables are $\{\xi_{t-1}, \theta_t\}$. Given our structure, we show that the decision over future institutions does not depend on θ_t .⁶

Policy Beginning with public spending, the leader of the incumbent group in period t sets policy to maximize the group's own utility

$$u_t^I = \alpha_t g_t + y + b_t, \quad (2)$$

subject to the constraints on rents and transfers, and the government budget constraint. Policies do not depend on ξ and hence we write them solely as a function of θ . This recursive separability is key to the identification strategy that we pursue below, i.e., it is key that leader characteristics associated with political survival are uncorrelated with policy preferences.

It is easy to see that the two constraints will all be satisfied with equality: in particular, transfers to opposition group citizens are set to a minimum $r_t = \theta_t b_t$. The remaining choice is how much to spend on public goods and how much to spend on rents. As utility is linear, the incumbent will always choose a “bang-bang” solution

$$\begin{aligned} \hat{g}(\theta) &= \begin{cases} T & \text{if } \alpha \geq \frac{1}{\theta + (1-\theta)e} \\ 0 & \text{otherwise,} \end{cases} \\ \hat{b}(\theta) &= \left[\frac{1}{\theta + (1-\theta)e} \right] (T - \hat{g}(\theta)), \text{ and} \\ \hat{r}(\theta) &= \left[\frac{\theta}{\theta + (1-\theta)e} \right] (T - \hat{g}(\theta)). \end{aligned}$$

⁶In effect, the problem will reduce to a static comparison of the effect of θ . The focus on Markov perfection rules out history-dependent strategies.

The incumbent leader either spends all available funds on public goods, or on rents to his own group (and necessary transfers to opposition groups), depending on the executive constraints he faces. Since $1 < \alpha < \frac{1}{e}$, by assumption, all residual spending is on public goods (rents) when θ is above (below) $\frac{1-\alpha e}{\alpha(1-e)}$. Cohesive institutions, or high executive constraints – i.e., $\theta \in [\frac{1-\alpha e}{\alpha(1-e)}, 1]$ – induce equality in outcomes in each period by guaranteeing that all spending is on public goods rather than transfers.

Choice of institutions The choice of institutions depends on ex-ante political stability, which is fully captured by the resilience of the leader of the incumbent group, ξ . We can now state the following result, which is proved in the Appendix:

Proposition 1 *The choice of executive constraints depends on the probability that the incumbent group retains power as follows:*

$$\hat{\theta}(\xi) = \begin{cases} \frac{1-\alpha e}{\alpha(1-e)} & \text{if } Q(\xi) \leq \alpha e \\ 0 & \text{otherwise.} \end{cases}$$

Thus more resilient leaders are less likely to pick cohesive institutions.

The prediction in Proposition 1 is symmetric across the initial institutions in place at the beginning of the period. Thus, it predicts transitions into or out of cohesive institutions depending on the current value of leader resilience. This mirrors the reality in the data that constraints on the executive move in both directions.

Even though we have allowed for a continuous choice of θ , the incumbent always pushes the choice of institutions to one corner or another. The value $\frac{1-\alpha e}{\alpha(1-e)}$ represents the point at which it becomes optimal to spend on public goods, i.e., institutions are sufficiently cohesive. The executive constraints needed to achieve this are lower when public goods are more valuable (α is higher) or the incumbent group is larger (e is larger).

Although we have an infinite horizon, the trade-off comes down to comparing the effects of changing θ on the policy in the next period, factoring in the possibility of group turnover. A high probability of losing office leads incumbents to choose strong executive constraints. The choice is governed by a simple comparison of benefits and costs. The cost of strong constraints to the incumbent group are next period's rents when it remains in office. The benefit is an assurance that next period's spending will be on public goods if the incumbent group is ousted. Since expected group turnover $Q(\xi)$ in our model depends on the leader's individual resilience, this result ties the characteristics of leaders to the choice of political institutions; a more resilient leader is less likely to choose strong executive constraints.

Discussion of the model The model has several specific features to home in on how leader resilience affects the motive for political reform.

First, we have modeled political control as opportunities for grabbing a disproportionate share of government revenue. But the specific way of discriminating against the rest of society is not essential to the core argument. What we require is some policies on which there is a common agreement, while others have benefits which are particular to specific groups (as in Lizzeri and Persico, 2004). The latter could include non-economic policies, e.g., some kinds of regulations of rights (as in Lagunoff, 2001) or specific kinds of public spending over which preferences diverge. This would be particularly relevant if the model were extended to allow for group heterogeneity in preferences, creating a role for fractionalization and polarization.

Second, the turnover probability could be made endogenous by allowing the incumbent to choose whether to repress opposition groups.⁷ Shocks to repression costs would then provide another influence on political instability as in Acemoglu and Robinson (2006).

Third, the model does not allow for any means of disciplining incumbents beyond changing institutions. Thus, it rules out links between political turnover and incumbent policy choices. In a model with some form of accountability, incumbent groups could develop reputations which make policies more cohesive. Except in extreme cases, however, this would not fully replace the role of institutional constraints.

Fourth, a natural extension of the model would be to allow for costs of changing institutions. The “ink and paper” costs of changing a constitution are probably not significant. The appropriate foundations for costs beyond ink and paper are not self-evident. Perhaps constitutional reforms create stickiness by facilitating changes in informal institutions, changing inertial norms of behavior in the political system. Changes in norms might best be thought of as a further state variable, similar to what Persson and Tabellini (2009) call “democratic capital”. Institutional choices would then be conditioned on this state variable. More generally, sources of state dependence that imply costs of institutional change would make an incumbent group weigh these costs against the benefits of reform, which could create a status-quo bias. Practically, this would result in θ_{t+1} becoming a function of the institutions in place θ_t . Partly to reflect such concerns, we will allow for state dependence in our empirical approach below.

Fifth, and finally, as mentioned in the introduction, reforms are defensive and anticipate the possibility of a group losing power. However, they do not change the probability that a group remains in office. To introduce the latter is another natural extension of the approach and in Section 6 we take a step in this direction by modeling the openness of access to power such as a widening of the franchise. That section also presents empirical results, which suggest that – contrary to the reforms of executive constraints – this other aspect of political reform is not strongly correlated with our measure of leader resilience.

4 From Theory to Data

To bring the model to the data requires measurement of key variables and an econometric structure that reflects the predictions of the model.

4.1 Measurement

Political institutions Our core measure of cohesive political institutions is derived from the executive-constraints variable in the Polity IV data, “xconst”. It is available for a large number of countries over a long period of time, essentially since becoming an independent state (or from the start of the data, in 1800). This variable takes on integer values between 1 and 7. As our core measure, we use a binary indicator $\theta_{i,t}$ which is equal to one if country i has a score which is greater than or equal to 5 on this 7 point scale in year t .

We use this cutoff for two reasons. First, plotting the empirical distribution of scores over countries and years, has a distribution with a local minimum at 4. Second, according to the Polity IV codebook, a value of 5 is the lowest at which there are “substantial limitations of executive power”, where a “legislature or council often modifies or defeats executive proposals”, or “sometimes refused funds to the executive”, and “the accountability group makes important appointments to administrative posts” – see Marshall and Jaggers (2010, pp. 24-25). Using

⁷A previous version of the paper considered a two-period version with endogenous repression. Besley and Persson (2011a, Ch.7) includes a two-period model that also allows for the possibility of civil war.

this classification, we have 171 reforms in an unbalanced panel of 167 countries with annual observations since 1875. This is the measure that was used to construct Figure 1. The robustness analysis to follow shows that we get similar results when marginally altering the cutoff for the binary indicator upwards and downwards.

Leaders Since we do not observe turnover between groups in a large enough group of countries for a long enough time, we instead we focus on leader turnover, i.e., exits of leaders from office. We use several data sources for this purpose. The core data set is Archigos (Goemans, Gleditsch and Chiozza, 2009) that documents which leaders are in office at which dates. We highlight a particular subset of leadership transitions, following the death or serious illness of the incumbent leader. Here, we exploit data from Besley et al (2011), who extend the sample of Jones and Olken (2005) with years before the second world war. The main biographical sources are the *Encyclopedia of Heads of States and Governments* (Lentz, 1994, 1999) and the *Encyclopedia Britannica*.

To construct a measure of resilience, we use the fact that many leaders left office due to electoral defeat, death due to assassination, removal in a *coup d'etat*, or following a civil war. But, since 1875, 217 leaders – out of a total of 2095 – left office due to death or serious illness.⁸ Our measure of resilience is a binary variable in country i in year t , denoted by $\xi_{i,t}$ which is equal to one if the leader in place is classified as resilient – i.e., someone who will die in office – and zero otherwise. While we do have leader data until 2004, identifying leaders as resilient becomes problematic towards the end of our data because of a censoring problem: the closer we get to the end of the sample, the less we know about which leaders will eventually die in office and are thus resilient in our sense. For this reason, our core estimation sample uses the data only up to 1980.⁹ However, we also show the estimation results for the full sample.

We also measure a number of other personal characteristics of leaders, including their education, occupation, social class, and their mode of entry in power. Education and occupation come from Besley and Reynal-Querol (2011). The sources of the social class and mode of entry variables are given in the Appendix.

4.2 Econometric specification

We do not know how to measure αe from the theory. However, we can postulate that this multiplicative variable has some distribution, with c.d.f. F . The specific timing comes from the theory – institutional transitions ($\theta_{i,t+1}$) take place in period t in response to ex-ante expected (group and leader) turnover (Q_t) in that period, which in turn depends on the type of the leader inherited from the previous period ($\xi_{i,t-1}$).

Suppose then that country i has a leader with resilience $\xi_{i,t-1}$ entering period t . Then, the model predicts a reduced-form relation, where the conditional probability (likelihood) of observing strong executive constraints in that country in the next period is given by:

$$P_{i,t} = \text{Prob} \left[\theta = \frac{1 - \alpha e}{\alpha(1 - e)} : \xi_{i,t-1} \right] = 1 - F(Q(\xi_{i,t-1})) .$$

Observe that this is decreasing in ξ , i.e., a group with a leader of higher resilience has a lower probability of introducing strong executive constraints. This suggests running a regression:

$$\theta_{i,t+1} = \alpha_i^\theta + \gamma_t^\theta + \tau \xi_{i,t} + \omega^\theta A_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

⁸For a full description of these specific leadership transitions see Besley et al (2011).

⁹Appendix Figure A1 plots the worldwide share of leaders who will die in office against time for each year in our sample. This shows a marked decline in the proportion of resilient leaders after 1980.

where $\{\alpha_i^\theta, \gamma_t^\theta\}$ and country and year effects and the control vector $A_{i,t}$ contains other characteristics of the leader in office in country i at date t , or (time-varying) characteristics of country i . We expect $\tau < 0$, i.e. that there is a negative effect having a leader who is resilient.

This reduced form is made up from two “structural equations”:

$$P_{i,t} = 1 - F(Q_{i,t}) \text{ and } Q_{i,t} = Q(\xi_{i,t-1}) \text{ ,}$$

where $Q(\cdot)$ is given by (1). In words, the probability of a reform towards strong executive constraints, $P_{i,t}$, is a function of the probability that the incumbent group is replaced; this, in turn, depends on the leader’s resilience at $t-1$. Thus, we need a characteristic of the leader which measures resilience to estimate both equations, since resilience by itself has no direct effect on the choice of institutions.

Let $q_{i,t}$ be the probability that the leader in place l in country i at date t leaves office.¹⁰ We then have the two-equation model given by

$$q_{i,t} = \alpha_i^q + \gamma_t^q + \lambda \xi_{i,t-1} + \omega^q A_{i,t-1} + \eta_{i,t} \tag{4}$$

$$\theta_{i,t+1} = \alpha_i^\theta + \gamma_t^\theta + \chi q_{i,t} + \omega^\theta A_{i,t-1} + \varepsilon_{i,t} \tag{5}$$

where $\{\alpha_i^q, \gamma_t^q, \alpha_i^\theta, \gamma_t^\theta\}$ are country and year effects.¹¹ We will estimate this system to identify parameters λ and χ by instrumental variables with leader resilience as an instrument for turnover.¹² The exclusion restriction is thus that our proxy for resilience does not have any direct effect on institutional reform, an assumption that we will scrutinize in the next section.

When estimating the standard errors $\{\varepsilon_{i,t}, \eta_{i,t}\}$, we exploit two approaches. One is to cluster at the country level, allowing for arbitrary correlations over time. Alternatively, we cluster at the regional level (10 regions), allowing for arbitrary correlations over time and within regions.

5 Results

We begin this section by a taking a look at the summary statistics. Then, we present our baseline regressions results and discuss their robustness.

5.1 Summary statistics

Table 1 presents some summary statistics for the period 1875 to 1980. Six columns compare mean outcomes (by country-year) in the strong and weak executive constraints samples, with and without resilient leaders in place.

Row (1) shows that among 9780 country-years for which we have leader data, around two thirds feature weak executive constraints. Row (2) shows that there are more resilient leaders in weak-executive constraints country-years. Moreover, as Row (3) shows, turnover is lower under weak executive constraints. As these differences indicate some unobserved characteristics across

¹⁰The sample of leaders comes from Besley and Reynal-Querol (2011). In years with multiple leaders in office, we focus on the leader who has been the longest in office. Thus, a leader who lasts only 2 or 3 months is not included.

¹¹To diminish the collinearity of age and tenure, we measure a leader’s age only at his entry to power. Based on the empirical distribution of turnover, tenure is measured non-parametrically by a set of dummies from 0 to 2 years, 2 to 5 years, 5 to 10 years, 10 to 15 years, and above 15 years of rule.

¹²While the IV-approach flows naturally from the theory, it is worth pointing out that it may not deliver unbiased results in the wake of heterogenous effects. The reason is analogous to the familiar LATE point, emphasized by Heckman (1990) and Angrist and Imbens (1994): the random exits from office used to identify our instrumental variables estimates below induce a specific subset of changes in political instability.

the two sub-samples, this is an additional reason (due to state dependence) why we split the empirical analysis to follow by initial executive constraints.

A striking fact in Row (4) is that countries with resilient leaders indeed have much longer tenure among their leaders, something which is particularly pronounced in weak-executive constraints countries (twelve years for resilient leaders compared to seven years for non-resilient leaders). Row (5) shows that there is no marked difference between strong and weak executive constraints or between resilient and non-resilient leaders in terms of the age at which leaders come to power. The longer tenure of resilient leaders means that they will on average be older in office so it is important to control for age and tenure when looking at whether institutional change is different with resilient leaders in power.

Rows (6) through (10) look at educational attainment. Although there is little difference between strong and weak executive constraints, it does look like resilient leaders are on the whole less educated. In fact, this is the case regardless of educational category. This makes it important below to control for this characteristic of leaders when we inspect our results.

Although leaders under weak executive constraints are more likely to have a military background, a systematic tendency in this direction for resilient versus non-resilient leaders is less clear (Row (11)). Rows (12) through (16) suggest little in the way of occupational differentiation between resilient and non-resilient leaders. As expected, Row (17) shows that resilient leaders are more likely to be monarchs and that monarchs are more common with weak executive constraints.

Our next measures look at indicators of social class, which – following a common approach in sociology – is measured by the occupation of the leader’s father. Specifically, we use a four-way classification to indicate the class of the leader, ranging from "underclass" to "upper class" in Rows (18) through (21). These too show little difference across institutions and resilience of leaders.

Next, we look at the mode of entry into office. As Row (22) shows, resilient leaders are less likely to have been elected than non-resilient ones. Row (23) shows that resilient leaders are more likely to be selected by hereditary succession. But there is no difference (Row (24)), in terms of whether they came into power in a (post)colonial transition. There also appears to be no difference in terms of their being selected through autocratic means, via some oligarchical group as a military junta (Row 25)).

Finally, inspecting the country characteristics in Rows (26)-(36), there is strong evidence that the history of executive constraints is correlated with contemporary constraints. However, this history does not have any marked correlation with the likelihood that the leader is resilient. As expected, strong executive constraint countries are richer (relative to the US) than their weak executive-constraint counterparts. But there is little difference in income depending on the resilience of the leader, at least under weak executive constraints. Finally, the distribution across geographic regions is reasonably similar in the treatment and control groups.

5.2 Baseline results

The baseline results are contained in Table 2. The first three columns concern country-years under strong executive constraints. Here, we only control for leader age at entry and tenure of the leader by five interval dummies. The reduced-form result in Column (1) shows no significant correlation between having a resilient leader and a transition from strong to weak executive constraints. Column (2) indicates a significant correlation, which is negative as expected, between resilient leader incumbency and the probability of turnover – this corresponds to parameter λ in the first-stage equation (4) in the instrumental variables approach. However, the estimate of parameter χ in the second-stage equation (5) in Column (3) shows no significant correlation between turnover and a transition from strong to weak executive constraints.

Columns (3) through (6) look at the same issues for transitions from weak to strong executive constraints. Here, the reduced form in Column (4), shows a quite precisely estimated negative correlation between incumbency of a resilient leader and introduction of strong executive constraints. With a resilient leader in place, the likelihood of such reform per year is 1 percentage point lower than with a non-resilient leader. This is effect is a large effect, given the reform activity which took place over the period of our data. To see this, observe that there were 45 reforms towards strong executive constraints in our 4642 country-year observations from 1875 to 1980 – i.e., the unconditional probability of reform is about 1%. Our estimated coefficient around 0.01 is thus on the same order of magnitude as this probability.

The IV-estimates in Columns (5) and (6) unpack this reduced-form effect. Exit of a resilient leader raises expected turnover by a little under 5 percentage points per year, or by 40% of its average value (0.1 as reported in Row (2) of Table 1). The F-statistic on the excluded instrument is close to 7. This increase in expected turnover significantly raises the probability of a reform that introduces strong executive constraints, in line with the theory.

Columns (7) through (9) repeat this exercise but with a more parsimonious specification, where the logarithm of tenure replaces the five tenure-interval dummies. As the results are essentially the same, we use this simpler specification in the following.

The significance levels reported by asterisks in the table refer to the standard errors clustered by country (in regular brackets). When different, the standard errors clustered by region (in square brackets) are always smaller. In the subsequent tables, we therefore report the standard errors clustered by country, since these appear to be more conservative.

Taken together, these results are consistent with a structural interpretation along the lines of the mechanism suggested by the theory, with a country ruled by a resilient leader being less likely to introduce strong executive constraints, an effect mediated through lower expected turnover.

5.3 Robustness

In this sub-section, we explore the robustness of the core findings in Table 2. We first look at the sensitivity to the estimation sample, specifically when we extend it to include all our data. Next, we vary the definition of the dependent variable, by varying the cutoff used to split the observations into strong vs. weak executive constraints. Both these results appear in Table 3.

The validity of the instrumental-variable estimates hinge on the exclusion restriction that having a resilient leader affects institutional reform *only* through expected turnover. This identifying assumption would be questionable if there were systematic changes in the characteristics of leaders selected following the death (or entry) of resilient leaders, if different leaders have different propensities to reform. Similarly, it would be problematic if switches between resilient and non-resilient leaders occur under different economic or political circumstances, which themselves may promote political reform. Tables 4 and 5 explore these questions. The main personal and contextual variables we have been able to collect for such a wide set of countries for such a long time period are those discussed in Table 1.

Varying the estimation period The first columns in Table 3 looks at the results when we use a longer sample period, which includes all leaders in office up to 2004. Some of these may turn out to be resilient in the sense of our theory but we cannot classify them this way based on our method. Using the full sample will thus increase measurement error, which might reduce the effect estimated by OLS. In Column (1), we use the same specification as in Column (7) of Table 2. We find that the negative relationship between having a resilient leader and transition to strong executive constraints remains, and the estimate is marginally smaller (in absolute value)

and noisier. Columns (2) and (3) show that the core results from Columns (8)-(9) in Table 2 also hold up in the first and second stages of our IV specification. Indeed, the empirical magnitudes are more or less identical – albeit with a less precise IV estimate.

Measuring executive constraints Columns (4) through (9) explore robustness to using alternative definitions of strong executive constraints, varying the cut off that we use in the core results upwards as well as downwards. The basic thrust of the results is robust to these definitions. However, the results are somewhat weaker for a more demanding cutoff (executive constraints greater or equal to 6 rather than 5): the effect is smaller and less precisely estimated. In the case of a less demanding cutoff (4 rather than 5), the IV coefficient in Column (9) is also less precisely estimated.

Personal leader characteristics Coming now to the questions about the exclusion restriction, Table 4 looks at personal leader characteristics: educational qualifications, occupational background, and social class. In each case, we add controls for the relevant personal characteristic to the reduced-form and IV specifications in Columns (7)-(9) in Table 2.

Adding the indicators for different categories of education in Columns (1)-(3), we find a slightly higher reduced-form point estimate, as well as slightly higher first-stage and second-stage point estimates, compared to the baseline results in Table 2. The IV-estimates are also a little more precise.

Including the categories for previous occupation of the leader in Columns (4)-(6) basically leave the estimates from Table 2 unaffected. When we add the social class indicators of the leader in Columns (7)-(9), we obtain slightly lower estimates across the board.¹³

Country-year context Table 5 includes three further sets of variables to check for additional threats to the exclusion restriction underlying the baseline IV-estimates. As in Table 4, these additional controls are always added to the specification in Columns (7)-(9) in Table 2.

In columns (1) through (3), we add categorical variables for the mode of entry of the current leader: if these are systematically different for resilient and non-resilient leaders, and different entry modes are associated with different likelihoods of reform, this would call the IV-estimates into question. The reduced-form estimate is higher than in Table 2 and still significant at the 5%-level. The second-stage estimate of expected turnover on reform is now significant only at the 10% level. The point estimate is actually larger but less precisely estimated.

Resilient and non-resilient leaders could conceivably enter at different points in a country's political history. Specifically, if resilient leaders are more likely to appear early on, when the country have no or little experience with strong executive constraints and if such experience promotes future reforms into this regime. This channel – in the spirit of Persson and Tabellini's (2009) analysis of democratic capital – could violate the exclusion restriction and bias the 2nd-stage IV-estimate upwards. However, entering the country's proportion of years with strong executive constraints in the past in Columns (4) to (6) suggests that this is not the case. The estimates are almost identical to the baseline estimates in Table 2.

A similar upward bias could arise if, say, resilient leaders were more likely to enter when countries are doing worse economically in a relative sense and economic malaise makes executive constraint less likely. Columns (7)-(9) check against this possibility by controlling for the country's GDP level relative to the US (from the Maddison data set). Here, if anything, the results are

¹³It is also worth noting that the sample size in this case is lower than in the baseline estimates due to data availability.

stronger than in the baseline with higher point estimates for all the coefficients.

Overall, the findings in Tables 3 through 5 suggest that the baseline results in Table 2 are robust – and in line with the theory’s prediction of a negative effect of leader resilience, via expected turnover, on the probability of transition to strong executive constraints. The robustness to a range of country and leader controls makes it more compelling to interpret the empirical results through the lens of our theoretical model. The effect is not only statistically robust, but quantitatively significant: when a resilient leader is not replaced after having died in office, the annual probability of reform towards strong executive constraints doubles.

6 Leader Resilience and Openness

Our modeling approach is specific to executive constraints and we have therefore maintained a focus on this institution in the data. A good deal of the political-economics literature on reform to date, in particular Acemoglu and Robinson (2000, 2006), has focused on determinants of franchise extension.¹⁴ In our framework, we can think about such an extension as a reform that makes access to power more open and contestable. In this section, we show that leader resilience does not have a clear-cut theoretical prediction for the reforms towards greater openness. Moreover, there is no distinct pattern in the data.

Modeling openness We extend the previous model, allowing incumbents to choose the degree of openness for recruitment to office next period. This affects political stability as it decreases the chance that any particular group will hold onto power. We also add a cost of holding on to power when institutions are not fully open.

Specifically, suppose $\rho \in [0, 1]$ is a choice variable that affects openness, where $\rho = 1$ means complete openness (free and fair elections) and $\rho = 0$ complete closedness (e.g., leaders are only picked from a small, entrenched elite such as in monarchy). Let $\Gamma(\xi, \rho)$ denote the probability that a group whose leader has resilience ξ survives as the incumbent, and assume that Γ is increasing in ξ and that $\Gamma_\rho < 0$ and $\Gamma_{\rho\rho} < 0$, i.e. a more open system reduces the probability that a leader survives. Let $\bar{\Gamma}(\rho)$ be the expected survival value when a new leader is chosen at random. Keeping office recruitment closed, $\rho < 1$, has a cost – e.g., because it requires spending on security or repressing other groups to avoid the risk of a revolution or a coup. For simplicity, this cost is linear in ρ and given by $[1 - \rho]c$.

As before, a within-period political shock ν_t determines if the incumbent leader survives as the leader of his group. Before the realization of this shock, the ex ante (unconditional) probability that the incumbent *group* survives in power is given by

$$Q(\xi_{t-1}, \rho) = E \left\{ s(\xi_{t-1}, \nu_t) \Gamma(\xi_{t-1}, \rho) + [1 - s(\xi_{t-1}, \nu_t)] \bar{\Gamma}(\rho) \right\} .$$

The revised timing of the model is:

1. The polity starts period t with an incumbent group I_t and its leader with resilience ξ_{t-1} , and inherited institutions, $\{\theta_t, \rho_t\}$, where θ_t binds for that period.
2. The incumbent leader chooses policy $\{g_t, r_t, b_t\}$ for the current period, and political institutions, $\{\theta_{t+1}, \rho_{t+1}\}$.

¹⁴In their framework, the fear of losing power in a revolution leads an incumbent elite to extend the franchise even though this may mean that the elite loses political power.

3. Nature determines period- t political stability shock ν_t . If the leader survives, then his resilience remains the same. If not, a fresh draw determines ξ_t .
4. Group I_t is replaced in power with probability $1 - \Gamma(\xi_t, \rho_{t+1})$. Each opposition group has an equal probability of taking over the executive, namely $\frac{(1 - \Gamma(\xi_t, \rho_{t+1}))e}{1 - e}$. If a new group takes power, the resilience of its leader is chosen at random.

Choice of openness We begin by studying the case when θ is fixed but the incumbent can choose the level of openness ρ_{t+1} . In this situation, we can look at how the resilience of the incumbent group's leader affects the degree of openness in the next period. The optimal choice of ρ solves:

$$\rho(\xi) = \arg \max \{Q(\xi, \rho)V^I(\theta) + [1 - Q(\xi, \rho)]V^O(\theta) - c[1 - \rho]\}, \quad (6)$$

where $V^K(\theta)$ is the value of entering next period with group status $K = I, O$ and a given value of θ . There is a trade-off between staying in power in future against the costs of repression. The key observation is that $V^I(\theta) - V^O(\theta) > 0$ for all $\theta < \frac{1 - \alpha e}{\alpha(1 - e)}$, and that this gap is decreasing in θ . The first-order condition for openness, assuming an interior solution, is:

$$c = -Q_\rho(\xi, \rho) [V^I(\theta) - V^O(\theta)]. \quad (7)$$

How openness depends on shocks to the resilience of the incumbent group's leader is ambiguous and depends on how such shocks affect the *marginal* gain from greater openness. That is, it depends on the sign of $Q_{\rho\xi}$, which is *a priori* unclear. For example, if $Q_{\rho\xi} > 0$, then resilience and openness are complements, i.e. $d\rho/d\xi > 0$. So having a more resilient leader leaving office will tend to reduce openness. This makes sense since having a leader who is more likely to stay in power means that the incumbent group can reduce repression costs by making the political system more open.

This ambiguity in the effect of ξ on openness is consistent with existing theories of franchise extension which have tended to focus on shocks to repression costs $-c$ in our model – to motivate increased openness. This, for example, is the approach taken to modeling franchise extension in Acemoglu and Robinson (2006). In our model, an increase in c would tend to increase openness unambiguously. The key point to take away from our analysis is that there is no clear-cut theoretical link between the resilience of leaders, in the sense that we have specified, and the decision to increase openness.

Evidence In Table 6, we re-estimate the core specification from Table 2, but replace the indicator for strong executive constraint with three different indicators for open elections as the dependent variable. We have defined reforms of electoral institutions by drawing on a variety of data sets. From Polity IV, we use a number of measures. One is designed to capture the extent to which the chief executive is elected through competitive multi-party elections – the "Executive recruitment" variable. Another is designed to capture whether executive recruitment takes place in a setting where no significant group or groups are regularly excluded from the political process (the "Political Competition" variable). As an alternative variable to capture open contests for power, we use an indicator of the breadth of the franchise from Przeworski (2009), which provides data on suffrage rules for 187 countries between 1919 and 2000. More details on these variables, including precise definitions, can be found in the Appendix.

The nine columns of Table 6 show reduced form, plus first-stage and second-stage IV results for these three different measures. To test that our previous results do not capture simultaneous reforms of different dimensions of political institutions, we continue to condition on weak executive

constraints. Looking at Columns (1), (4) and (7), we find no-reduced form correlation between increases in openness and having a resilient leader in office. However, the first-stage prediction linking resilience and turnover continues to be strong with more resilient leaders being less likely to leave office. But when we use the predicted value in the second stage, we find no robust association between turnover and electoral openness using any of our three measures.

In addition to the specifications reported here, we have tried a large number of alternatives, using the subcomponents of the Polity IV measures, different cutoffs to define open elections, and alternative data sets such as the one by Cheibub et al (2010).¹⁵ In no case do we find a significant relation between resilient leaders or trade-offs and open elections.

These results suggest that our theoretical mechanism is indeed empirically associated with a specific aspect of political institutions, namely stronger executive constraints, rather than generalized political change. This confirms the importance of specificity in studying political change beyond aggregate democracy measures. It also gives credence to the notion that the mechanism behind political reform is the one suggested by our core theory.

7 Concluding Comments

Understanding the forces behind institutional change is a significant challenge in political economics. While the prevalence of strong executive constraints has increased over time, we are not aware of any previous research which develops and tests a specific hypothesis about the driver of this specific dimension of reform. From a theoretical perspective, leaders whose hold on power is strong have much weaker motives to reform. Motivated by the observation that they have longer tenure, we have measured leader resilience by whether a leader eventually died in office from natural causes. Empirically, we find that such resilient leaders are less likely to adopt strong executive constraints, a finding which is robust to a number of different specifications and inclusion of a variety of controls, such as other leader characteristics. As we have seen, this effect is quantitatively important.

Our paper exploits data on death of leaders from natural causes in a different way from previous studies such as Jones and Olken (2005). We exploit leader death as a source of leader heterogeneity rather than as a random “event”. Leaders who manage to hold on until the grim reaper forces them from power look different, in view of their much longer tenure. That does *not* imply that leader death does not create dislocation (for good or ill) as earlier researchers have argued. However, dying leaders may behave differently throughout their tenure, as a consequence of being more resilient. Whichever way one looks at it, leaders and their personal characteristics matter for political (and economic) outcomes.

We have independently studied reforms of executive constraints and electoral institutions, but only found an effect of leader resilience on the former. However, an intriguing idea for future work is to model explicitly the interplay between electoral openness and executive constraints. Our framework implies a complementarity between stronger executive constraints and greater openness, since openness increases the prospect of a leader leaving office, all else equal.¹⁶ This

¹⁵This variable is based on Przeworski et al (2000) and seeks to classify political regimes based on the notion that “for a regime to be democratic, both the executive office and the legislative body must be filled by elections”. It is available between 1946 and 2008 for 199 countries.

¹⁶In terms of our model, a general approach would allow both institutional dimensions θ and ρ to be chosen. There are good reasons to expect a complementarity between stronger executive constraints and greater openness. This can be seen clearly in equations (6) and (7). Stronger executive constraints narrow $V^I(\theta) - V^O(\theta)$, the gap between the values of incumbency and opposition, and hence encourage greater openness, all else equal (since $Q_{\rho\rho} < 0$). Intuitively, as the incumbency-opposition gap diminishes, it becomes less worthwhile to incur the costs of maintaining a closed system of executive recruitment. In the limiting case of full cohesiveness, it is never

logic suggests a possible sequencing of institutional reforms, where shocks to expected turnover may initially lead to stronger executive constraints and then to franchise extension. It is interesting that England, the showcase in Acemoglu and Robinson (2000), introduced constraints on executive (royal) power – through reforms such as Magna Carta and the Glorious Revolution – long before the universal franchise.

Our paper has homed in on a specific aspect of institutional change as the result of strategic and forward-looking behavior. We are certainly not claiming that a model as simple as ours can capture the complex narratives behind country experiences at times of reform, as should be clear from the case of Franco that we developed above. However, the theory suggests an empirical regularity that also appears in the data. This helps us link what would otherwise appear to be a range of isolated experiences. More generally, the paper emphasizes the need to look at different aspects of institutions rather than studying aggregate democracy scores. Much more needs to be done to explore the sequencing of reforms and complementarities between specific constellations of political institutions.

worthwhile to reduce openness.

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Appendix

A Proof of Proposition 1

As a provisional step, it is useful to define the indirect utility from public and private goods for the incumbent elite and other groups:

$$v^K(\theta) = \alpha \hat{g}(\theta) + y + \beta^K(\theta)(T - \hat{g}(\theta)) \text{ for } K \in \{I, O\} .$$

where $\beta^I(\theta) = \left[\frac{1}{\theta + (1-\theta)e} \right]$ and $\beta^O(\theta) = \left[\frac{\theta}{\theta + (1-\theta)e} \right]$.

Let $V^K(\theta, \xi)$ be the stationary value of arriving in any period when institutions are θ and the leader has resilience ξ where $K = I$ denotes being the incumbent and $K = O$ denotes opposition. Now define:

$$W^I(\theta, \xi) = \xi V^I(\theta, \xi) + (1 - \xi) E \{V^O(\theta, z)\}$$

and

$$W^O(\theta, \xi) = \xi V^O(\theta, \xi) + [1 - \xi] \left(\frac{e}{1-e} E \{V^I(\theta, z)\} + \frac{1-2e}{1-e} E \{V^O(\theta, z)\} \right) .$$

To prove Proposition 1, we want to solve:

$$\hat{\theta}(\xi) = \arg \max_{\theta \in [0,1]} \{ \bar{s}(\xi) W^I(\theta, \xi) + [1 - \bar{s}(\xi)] E \{W^I(\theta, z)\} \} .$$

Observe that:

$$V^I(\theta, \xi) = v^I(\theta) + \delta \left[\bar{s}(\xi) W^I(\hat{\theta}(\xi), \xi) + 1 - \bar{s}(\xi) E \left\{ \left(W^I(\hat{\theta}(\xi), z) \right) \right\} \right]$$

and

$$V^O(\theta, \xi) = v^O(\theta) + \delta \left[\bar{s}(\xi) W^O(\hat{\theta}(\xi), \xi) + 1 - \bar{s}(\xi) E \left\{ \left(W^O(\hat{\theta}(\xi), z) \right) \right\} \right] .$$

Using the envelope theorem:

$$\frac{\partial [\bar{s}(\xi) W^I(\theta, \xi) + [1 - \bar{s}(\xi)] E \{W^I(\theta, z)\}]}{\partial \theta} = \begin{cases} 0 & \text{for } \theta \geq \frac{1-\alpha e}{\alpha(1-e)} \\ Q(\xi) v_\theta^I(\theta) + [1 - Q(\xi)] v_\theta^O(\theta) & \text{otherwise .} \end{cases}$$

Moreover, $Q(\xi) v_\theta^I(\theta) + [1 - Q(\xi)] v_\theta^O(\theta) < 0$ and $Q(\xi) v_{\theta\theta}^I(\theta) + [1 - Q(\xi)] v_{\theta\theta}^O(\theta) > 0$ for $e \leq Q(\xi)$, so we only need to compare $\theta = 0$ and $\theta = \frac{1-\alpha e}{\alpha(1-e)}$ in this case. Moreover, given the recursive structure, we have

$$\bar{s}(\xi) W^I(0, \xi) + [1 - \bar{s}(\xi)] E \{W^O(0, z)\} \geq \bar{s}(\xi) W^I\left(\frac{1-\alpha e}{\alpha(1-e)}, \xi\right) + [1 - \bar{s}(\xi)] E \left\{ W^O\left(\frac{1-\alpha e}{\alpha(1-e)}, z\right) \right\}$$

as

$$\frac{TQ(\xi)}{e} \geq \alpha T .$$

Solving this condition, gives the inequality stated in Proposition 1. Suppose instead that $e > Q(\xi)$, then $Q(\xi) v_\theta^I(\theta) + [1 - Q(\xi)] v_\theta^O(\theta) > 0$. Moreover, this implies that $\alpha e > Q(\xi)$ so that

$$Q(\xi) v^I(\theta) + [1 - Q(\xi)] v^O(\theta) < \alpha T \text{ for all } \theta \in \left[0, \frac{1-\alpha e}{\alpha(1-e)} \right) .$$

Using the recursive structure, we get

$$\begin{aligned} & \bar{s}(\xi) W^I \left(\frac{1 - \alpha e}{\alpha(1 - e)}, \xi \right) + [1 - \bar{s}(\xi)] E \left\{ W^O \left(\frac{1 - \alpha e}{\alpha(1 - e)}, z \right) \right\} \\ & > \bar{s}(\xi) W^I(\theta, \xi) + [1 - \bar{s}(\xi)] E \{ W^O(\theta, z) \} \end{aligned}$$

for all $\theta \in \left[0, \frac{1 - \alpha e}{\alpha(1 - e)} \right)$. Thus, $\hat{\theta}(\xi) = \frac{1 - \alpha e}{\alpha(1 - e)}$, as required. ■

B Data sources and definitions

Leader Characteristics Education Graduate: A dummy that is equal to one if the leader has a graduate degree. Source: Besley and Reynal-Querol (2011)

Education College: A dummy that has value 1 if the leader has a college degree. Source: Besley and Reynal-Querol (2011)

Education High: A dummy that is equal to 1 if the leader has a high school level education (including a trade school or technical school). Source: Besley and Reynal-Querol (2011)

Education Elementary: A dummy that is equal to 1 if the leader left school after elementary school (or was privately tutored). Source: Besley and Reynal-Querol (2011)

Studied Abroad: A dummy variable that has value 1 if the leader studied abroad and zero otherwise. Source: Besley and Reynal-Querol (2011)

Social Class: A variable that has value a value between 1 and 4 based on the father's job. The description of the 4 levels classification for the social status comes from Ludwig (2002). A value of 1 corresponds to Under-stratum (e.g., unable to keep job, bankrupt, imprisoned, enslaved, disabled, unsteady or seasonal employment, financially dependent on others, etc.). A value of 2 is a Lower-stratum (i.e., work for others without possessing special skills or professional training [e.g., peasants, laborers, seamstresses, blue collar workers, minor civil servants, etc.; work for self without many resources or employees [e.g., small farmer, vendor, small businessman, etc.]); A value of 3 is Middle-stratum ([i.e., special education, training, abilities required] (a) professionals, such as doctors, lawyers, scientists, bankers, business persons, teachers, ministers, and minor politicians, (b) professional creative artists (painters, musicians, writers, actors) (c) business persons or landowners with employees; A value of 4 corresponds to Upper-stratum ([i.e., established wealth, power or social status [e.g., the movers and shakers of society; aristocracy; landed gentry; moguls, upper crust, leaders of nations, major tribes, or political parties, etc.]) We look for leader's father job using the following sources: Lentz. (1994, 1999); Britannica Online Encyclopedia, Academic Edition (<http://www.britannica.com/>); The Statesman's Yearbook Online (<http://www.statesmansyearbook.com/about.html>); Barcelona Center for International Affairs' Political Leaders Biographies (CIDOB) (<http://www.cidob.org/en/documentation/>); and other online sources, as well as individual biographies from Lexis-Nexis.

Occupational dummy variables are from Besley and Reynal-Querol (2011)

Military: A dummy that is equal to 1 if the leader was in the military, before holding office.

Lawyer: A dummy that is equal to 1 if the leader was a Lawyer, before holding office.

Civil Servant: A dummy that is equal to 1 if the leader was a Civil Servant, before holding office.

Professor or Scientist: A dummy that is equal to 1 if the leader was a Professor or Scientist, before holding office.

Unskilled Worker: A dummy that is equal to 1 if the leader was an Unskilled Worker, before holding office.

Business: A dummy that is equal to 1 if the leader was in business immediately before holding office.

Monarch: A dummy that is equal to 1 if the leader is or has been part of the monarchy.

Mode of entry:

Elected: A dummy that is equal to one if the leader was elected to office in the first instance.

Hereditary: A dummy that is equal to one if the leader was selected by hereditary succession

Colonial: A dummy that is equal to one if the leader was colonial/transition selected

Other autocratic modes of entry: A dummy that is equal to one if the leader was selected/appointed by an oligarchy/junta, selected by constitutional succession or by in a military coup.

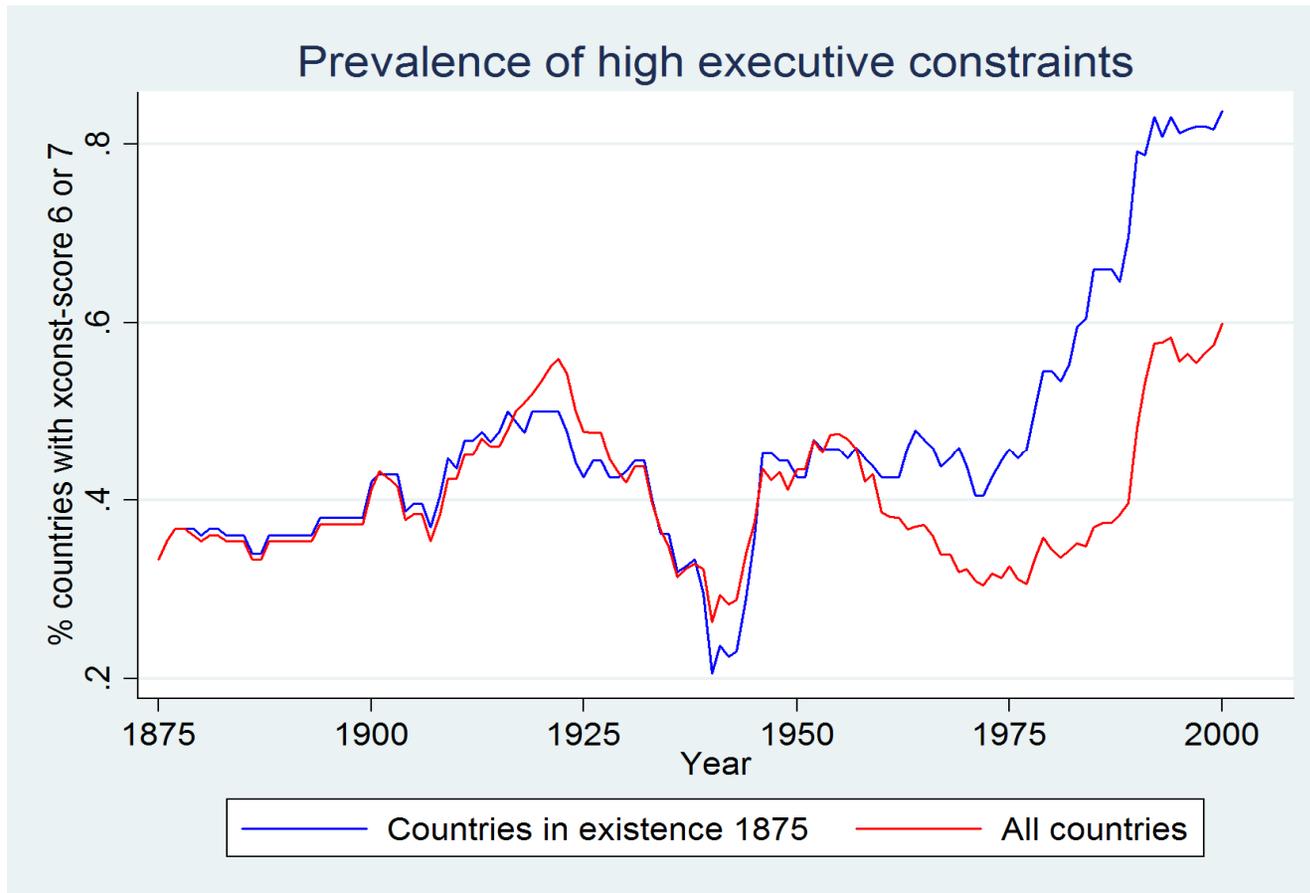
Sources: Lentz. (1994, 1999); Britannica Online Encyclopedia, Academic Edition (<http://www.britannica.com>); The Statesman's Yearbook Online (<http://www.statesmansyearbook.com/about.html>); Barcelona Center for International Affairs' Political Leaders Biographies (CIDOB) (<http://www.cidob.org/en/document>) and other online sources, as well as individual biographies from Lexis-Nexis.

Electoral Institutions To obtain a comparable sample across countries and time to the core results, we first look at two summary indexes in the Polity IV data for executive recruitment and political competition, called "exec" and "polcomp". The Executive Recruitment index has scores between 1 and 8. According to the Polity IV codebook, it is only for a score of 8 that the "chief executive (de facto head of government) is chosen through competitive elections matching two or more candidates from at least two major parties ... the electoral process is transparent and its outcomes are institutionally uncertain" – see Marshall and Jaggers (2010, pp. 64). We therefore define a baseline binary variable for enfranchised institutions, which is one if the "exec" score is equal to 8 and zero otherwise. Using this baseline variable, our panel has 154 reforms since 1875. But we also try different, less demanding cutoff values.

The Political Competition score is coded between 1 and 10. By the codebook, only a score of 10 captures "Relatively stable and enduring political groups regularly compete for political influence with little use of coercion. No significant or substantial groups, issues, or types of conventional political action are regularly excluded from the political process." – see Marshall and Jaggers (2010, pp. 85). Following this coding, we define an alternative baseline binary variable for enfranchised institutions, which is equal to one if the "polcomp" score is equal to 10 and zero otherwise. This way, we obtain 50 reforms since 1875. Again, we try alternative cutoff scores.

Since these alternative Polity IV variables do not perfectly capture extensions of the franchise, we also exploit data from other sources. Przeworski (2009) provides data on suffrage rules for 187 countries from 1919 until 2000, which relies on detailed regional information. A necessary condition for a franchise extension is that elections are held at least once and Przeworski (2009) dates the changes of suffrage rules by the time of the first election under the new rules (not when electoral law was passed). He maps the suffrage (for males) onto a seven-category scale, where a level of 1 means that the franchise permits only estate representation, while a level of 7 means that it excludes only individuals below some minimum age, possibly combined with a residence requirement. Based on these data, we construct a binary indicator which is equal to one when a country has reached level 7 of franchise extension and zero otherwise.

Figure 1
Worldwide Prevalence of Strong Executive Constraints, 1874-2004



Notes: The figure shows how the shares of countries in our data that have high executive constraints, according to the binary measure we define in Section 3, develop over time. The blue curve shows the prevalence for the 50 countries for which we have data from start to end, while the red curve shows the prevalence for all countries for which we have data in a given year.

Table 1
Summary Statistics

		Strong executive Constraints	Weak executive constraints	Weak executive constraints	Weak executive constraints	Strong executive constraints	Strong executive constraints
				Resilient	Non-resilient	Resilient	Non-resilient
(1)	Strong executive constraints	1 (3277)	0 (6503)	0 (1397)	0 (3506)	1 (470)	1 (2299)
(2)	Resilient	0.17 (2769)	0.28 (4903)	1 (1397)	0 (3506)	1 (470)	0 (2299)
(3)	Turnover	0.22 (3277)	0.09 (6503)	0.06 (1397)	0.15 (3506)	0.13 (470)	0.29 (2299)
Tenure and Age							
(4)	Tenure	4.25 (2754)	8.25 (4831)	12.16 (1329)	6.77 (3502)	5.62 (457)	3.98 (2297)
(5)	Age at entry	53.07 (2750)	44.63 (4828)	41.94 (1329)	45.66 (3499)	53.61 (457)	52.96 (2293)
Education							
(6)	Graduate education	0.32 (2324)	0.13 (4325)	0.09 (1257)	0.14 (3068)	0.31 (426)	0.33 (1898)
(7)	College education	0.39 (2324)	0.31 (4325)	0.22 (1257)	0.34 (3068)	0.28 (426)	0.42 (1898)
(8)	High-school education	0.12 (2324)	0.18 (4325)	0.16 (1257)	0.19 (3068)	0.09 (426)	0.13 (1898)

(9)	Elementary-school education	0.10 (2324)	0.17 (4325)	0.30 (1257)	0.20 (3068)	0.21 (426)	0.10 (2299)
(10)	Illiterate	0.02 (2324)	0.12 (4325)	0.18 (1257)	0.10 (3068)	0.08 (426)	0.01 (1898)
Occupation							
(11)	Military background	0.08 (2465)	0.30 (4435)	0.24 (1261)	0.33 (3174)	0.09 (440)	0.08 (2025)
(12)	Lawyer	0.32 (2465)	0.13 (4435)	0.04 (1261)	0.17 (3174)	0.31 (440)	0.33 (2025)
(13)	Professor/ scientist	0.10 (2465)	0.09 (4435)	0.11 (1261)	0.08 (3174)	0.08 (440)	0.11 (2025)
(14)	Business background	0.06 (2465)	0.03 (4435)	0.00 (1261)	0.04 (3174)	0.05 (440)	0.06 (2025)
(15)	Civil servant	0.08 (2465)	0.04 (4435)	0.02 (1261)	0.05 (3174)	0.09 (440)	0.08 (2025)
(16)	Unskilled	0.03 (2465)	0.02 (4435)	0.01 (1261)	0.02 (3174)	0.06 (440)	0.02 (2025)
(17)	Monarch	0.08 (2465)	0.24 (4435)	0.41 (1261)	0.17 (3174)	0.11 (440)	0.07 (2025)
Social Class							
(18)	Underclass	0.03 (1974)	0.03 (3724)	0.02 (1303)	0.04 (2421)	0.04 (427)	0.03 (1547)

(19)	Lower class	0.16 (1974)	0.21 (3724)	0.23 (1303)	0.20 (2421)	0.14 (427)	0.16 (1547)
(20)	Middle	0.47 (1974)	0.26 (3724)	0.16 (1303)	0.31 (2421)	0.50 (427)	0.46 (1547)
(21)	Upper class	0.35 (1974)	0.50 (3724)	0.59 (1303)	0.46 (2421)	0.32 (427)	0.35 (1547)
Mode of Leader Entry							
(22)	Elected	0.81 (2374)	0.29 (3898)	0.15 (1148)	0.34 (2750)	0.73 (411)	0.83 (1963)
(23)	Hereditary	0.07 (2374)	0.14 (3898)	0.28 (1148)	0.08 (2750)	0.11 (411)	0.06 (1963)
(24)	Colonial transition	0.05 (2374)	0.08 (3898)	0.04 (1148)	0.10 (2750)	0.11 (411)	0.04 (1963)
(25)	Autocratic entry	0.11 (2374)	0.33 (3898)	0.28 (1148)	0.35 (2750)	0.16 (411)	0.10 (1963)
Country Characteristics							
(26)	Past share of years strong executive constraints	0.74 (3277)	0.08 (6503)	0.09 (1397)	0.11 (3506)	0.87 (470)	0.70 (2299)
(27)	Real PPP-adjusted GDP per capita relative to US	0.58 (2406)	0.26 (3089)	0.25 (864)	0.25 (2174)	0.58 (340)	0.56 (1962)
(28)	Sub Saharan Africa	0.10 (3277)	0.10 (6503)	0.10 (1397)	0.15 (3506)	0.20 (470)	0.08 (2299)
(29)	Middle East	0.02 (3277)	0.09 (6503)	0.12 (1397)	0.10 (3506)	0.02 (470)	0.02 (2299)

(30)	North Africa	0.01 (3277)	0.03 (6503)	0.04 (1397)	0.03 (3506)	0.01 (470)	0.01 (2299)
(31)	Europe	0.49 (3277)	0.24 (6503)	0.34 (1397)	0.16 (3506)	0.28 (470)	0.52 (2299)
(32)	Central Asia	0.00 (3277)	0.02 (7503)	0.02 (1397)	0.02 (3506)	0.00 (470)	0.00 (2299)
(33)	East Asia and Pacific	0.15 (3277)	0.10 (6503)	0.18 (1397)	0.07 (3506)	0.17 (470)	0.14 (2299)
(34)	South Asia	0.02 (3277)	0.06 (6503)	0.13 (1397)	0.04 (3506)	0.04 (470)	0.02 (2299)
(35)	Latin America and Caribbean	0.13 (3277)	0.37 (6503)	0.09 (1397)	0.45 (3506)	0.14 (470)	0.14 (2299)
(36)	North America	0.08 (3277)	0 (6503)	0 (1397)	0 (3506)	0.13 (470)	0.07 (2299)

Note: See the Data appendix for sources and definitions.

Table 2
Resilient Leaders, Turnover and Institutional Reform
Baseline Results

Sample Specification	(1) Strong Reduced Form	(2) Strong IV 1st Stage	(3) Strong IV 2nd Stage	(4) Weak Reduced Form	(5) Weak IV 1st Stage	(6) Weak IV 2nd Stage	(7) Weak Reduced Form	(8) Weak IV 1st Stage	(9) Weak IV 2nd Stage
Resilient Leader	0.006 (0.006) [0.005]	-0.051** (0.027) [0.027]		-0.011*** (0.004) [0.003]	-0.047*** (0.014) [0.014]		-0.011*** (0.004) [0.003]	-0.049*** (0.014) [0.014]	
Turnover			-0.114 (0.125) [0.076]			0.240** (0.115) [0.099]			0.216** (0.101) [0.087]
Control for tenure	Tenure dummies	Tenure dummies	Tenure dummies	Tenure dummies	Tenure dummies	Tenure dummies	Log tenure	Log tenure	Log tenure
F-test excluded instruments		5.69 <i>p</i> (0.019)			6.70 <i>p</i> (0.011)			7.37 <i>p</i> (0.008)	
Number leaders	753	753	753	602	602	602	602	602	602
Observations	2,668	2,668	2,668	4,652	4,652	4,652	4,652	4,652	4,652
R-squared	0.200	0.245		0.071	0.132		0.070	0.128	

Notes: The dependent variable is an indicator for strong executive constraints, defined in the text of Section 4 and the Data appendix. Standard errors clustered by country in parentheses, and clustered by region (10 regions) in square brackets. The asterisks refer to: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Tenure dummies are 5 categorical variables for different tenure brackets (0-2 years, 2-5 years, 5-10 years, 10-15 years, and more than 15 years) of the current leader. All regressions include the age of the leader at entry, as well as fixed country and fixed year effects. The sample is for the period 1875-1980.

Table 3
Resilient Leaders, Turnover and Institutional Reform under Weak Executive Constraints
Robustness to Sample and Dependent-variable Definition

Specification	(1) Reduced Form	(2) IV 1st Stage	(3) IV 2nd Stage	(4) Reduced Form	(5) IV 1st Stage	(6) IV 2nd Stage	(7) Reduced Form	(8) IV 1st Stage	(9) IV 2nd Stage
Resilient Leader	-0.010** (0.005)	-0.041*** (0.012)		-0.004** (0.002)	-0.053*** (0.014)		-0.009** (0.004)	-0.046*** (0.014)	
Turnover			0.246* (0.126)			0.085* (0.045)			0.192* (0.108)
Sample	1875-2004	1875-2004	1875-2004	1875-1980	1875-1980	1875-1980	1875-1980	1875-1980	1875-1980
Definition strong executive constraints	xconst \geq 5	xconst \geq 5	xconst \geq 5	xconst \geq 6	xconst \geq 6	xconst \geq 6	xconst \geq 4	xconst \geq 4	xconst \geq 4
F-test excluded instruments		6.47 <i>p</i> (0.019)			9.07 <i>p</i> (0.003)			6.47 <i>p</i> (0.012)	
Number of leaders	759	759	759	697	697	697	581	581	581
Observations	6,486	6,486	6,486	5,045	5,045	5,045	4,534	4,534	4,534
R-squared	0.069	0.172		0.053	0.129		0.069	0.130	

Notes: The dependent variable is an indicator for strong executive constraints, defined in the text of Section 4 and the Data appendix. Standard errors clustered by country in parentheses. The asterisks refer to: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions also include log tenure of the leader, age of the leader at entry, as well as fixed country and fixed year effects. Executive constraints are measured on a seven-point scale and $xconst \geq y$ denotes a cutoff score on this scale greater than or equal to y .

Table 4
Resilient Leaders, Turnover and Institutional Reform under Weak Executive Constraints
Robustness to Leader Characteristics

Specification	(1) Reduced Form	(2) IV 1st Stage	(3) IV 2nd Stage	(4) Reduced Form	(5) IV 1st Stage	(6) IV 2nd Stage	(7) Reduced Form	(8) IV 1st Stage	(9) IV 2nd Stage
Resilient Leader	-0.013*** (0.005)	-0.059*** (0.015)		-0.012** (0.005)	-0.056*** (0.016)		-0.007* (0.004)	-0.045*** (0.014)	
Turnover			0.216** (0.091)			0.218** (0.104)			0.166* (0.092)
Controls	Education	Education	Education	Occupation	Occupation	Occupation	Social Class	Social Class	Social Class
F-test excluded instruments		9.90 <i>p</i> (0.002)			7.36 <i>p</i> (0.008)			9.06 <i>p</i> (0.003)	
Number of leaders	489	489	489	539	539	539	316	316	316
Observations	4,084	4,084	4,084	4,188	4,188	4,188	3,527	3,527	3,527
R-squared	0.075	0.137		0.074	0.132		0.087	0.129	

Notes: The dependent variable is an indicator for strong executive constraints, defined in the text of Section 4 and the Data appendix. Standard errors clustered by country in parentheses. The asterisks refer to the former: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Education of the current leader in columns (1)-(3) is measured by five categories (post-graduate, college, high-school or corresponding, elementary school, no formal education), Occupation in columns (4)-(6) is measured in 8 categories (military, lawyer, professor-scientist, business, civil servant, unskilled, manual worker, other). Social class of the father in columns (7)-(9) is measured in 4 categories (upper/elite, middle, lower, under). All regressions also include log tenure of the leader, age of the leader at entry, as well as fixed country and fixed year effects. The sample is for the period 1875-1980.

Table 5
Resilient Leaders, Turnover and Institutional Reform under Weak Executive Constraints
Robustness to Political and Economic Context

Specification	(1) Reduced Form	(2) IV 1st Stage	(3) IV 2nd Stage	(4) Reduced Form	(5) IV 1st Stage	(6) IV 2nd Stage	(7) Reduced Form	(8) IV 1st Stage	(9) IV 2nd Stage
Resilient Leader	-0.016** (0.007)	-0.044*** (0.017)		-0.011*** (0.004)	-0.050*** (0.014)		-0.026*** (0.010)	-0.064*** (0.022)	
Turnover			0.364* (0.185)			0.223** (0.103)			0.408** (0.185)
Controls	Mode of Entry	Mode of Entry	Mode of Entry	Political History	Political History	Political History	Income	Income	Income
F-test excluded instruments		4.74 <i>p</i> (0.032)			7.48 <i>p</i> (0.007)			4.83 <i>p</i> (0.030)	
Number leaders	444	444	444	602	602	602	357	357	357
Observations	3,659	3,659	3,659	4,652	4,652	4,652	2,825	2,825	2,825
R-squared	0.081	0.141		0.074	0.128		0.100	0.154	

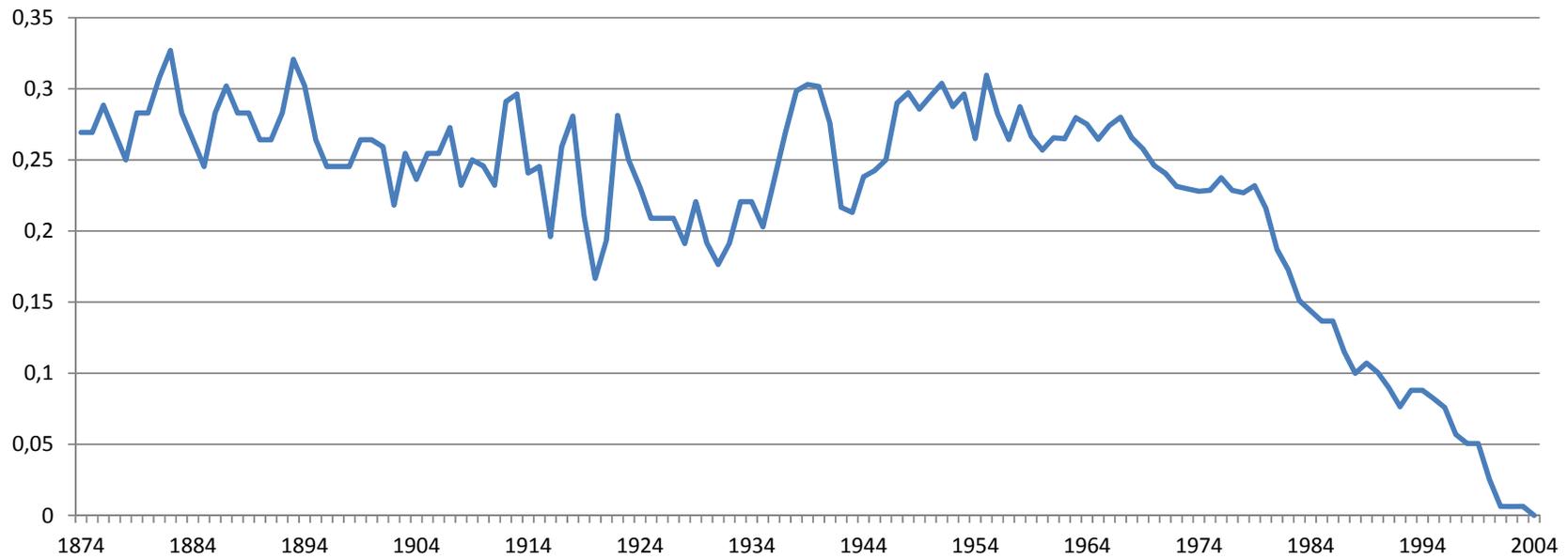
Notes: The dependent variable is an indicator for strong executive constraints, defined in the text of Section 4 and the Data appendix. Standard errors clustered by country in parentheses. The asterisks refer to: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Entry in columns (1)-(3) refers to the mode in which the current leader entered office measured by four categories (elected, inherited, colonial transition, other autocratic modes of entry). Political History in columns (4)-(6) is measured by the proportion of years in the past (since 1800 or independence), in which the country had Strong executive constraints. Income in columns (7)-(9) is measured by the country's PPP adjusted GDP per capita relative to the US in the current year. All regressions also include log tenure of the leader, age of the leader at entry, as well as fixed country and fixed year effects. The sample is for the period 1875-1980.

Table 6
Resilient Leaders, Turnover and Electoral Reform under Weak Executive Constraints

Specification	(1) Reduced Form	(2) IV 1st Stage	(3) IV 2nd Stage	(4) Reduced Form	(5) IV 1st Stage	(6) IV 2nd Stage	(7) Reduced Form	(8) IV 1st Stage	(9) IV 2nd Stage
Resilient Leader	0.007 (0.016)	-0.051*** (0.014)		0.008 (0.019)	-0.044*** (0.014)		0.003 (0.053)	-0.053*** (0.020)	
Turnover			-0.143 (0.316)			-0.169 (0.392)			-0.062 (1.001)
Dependent variable	Executive Recruitment (Polity IV)	Executive Recruitment (Polity IV)	Executive Recruitment (Polity IV)	Political Competition (Polity IV)	Political Competition (Polity IV)	Political Competition (Polity IV)	Electoral Democracy (Przeworski, 2010)	Electoral Democracy (Przeworski, 2010)	Electoral Democracy (Przeworski, 2010)
F-test excluded instruments		7.91 <i>p</i> (0.006)			7.37 <i>p</i> (0.008)			4.27 <i>p</i> (0.041)	
Number of leaders	577	577	577	602	602	602	583	583	583
Observations	4,591	4,591	4,591	4,652	4,652	4,652	3,861	3,861	3,861
R-squared	0.460	0.125	0.428	0.415	0.128	0.295	0.737	0.132	0.736

Notes: The dependent variables are alternative indicators for open elections, defined in the text of Section 6 and the Data appendix. Standard errors clustered by country in parentheses. The asterisks refer to: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions also include log tenure of the leader, age of the leader at entry, as well as fixed country and fixed year effects. The sample is for the period 1875-1980.

Figure A1
Worldwide Frequency of Resilient Leaders, 1874-2004



Notes: The figure shows the percentage of incumbent leaders in our data classified as resilient. As explained in the text, our proxy for resilience comes from observing whether the leader will eventually die in office from natural causes. The figure illustrates how the percentage of leaders fluctuates around a mean of 0.25 in the first 100 years or so of the data. However, the frequency of resilient leaders drops off quite rapidly after 1980. This reflects a censoring problem: the closer we get to the end of our leader data in 2004, the less we know about which leaders will eventually die in office. Therefore, we define our basic estimation sample to end in 1980.