# Political Turnover and Institutional Reform: Theory and Evidence*

Timothy Besley
LSE

Torsten Persson
IIES, Stockholm University

Marta Reynal-Querol
Universitat Pompeu Fabra – ICREA

December 18, 2011

**Abstract**

Strengthening checks and balances (cohesive political institutions) is one of the key means of improving 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 and events that decrease the likelihood that a group will remain in office. The econometric results are well in line with the theoretical predictions.

*We thank participants in the CREI conference on Politics, Information and the Macroeconomy 2011, the PIER Political Economy Conference 2011, the EOPP-STICERD Conference on Economic Foundations of Public Policy 2011, a CIFAR IOG Program Meeting, and seminars at Yale and Columbia for their comments. Financial support from the European Research Council (ERC) and the Torsten and Ragnar Söderberg Foundations is gratefully ackowledged. Reynal-Querol is grateful for support from the ERC (grant 203576), the Spanish Ministerio de Educación (grant SEJ2007-64340), the Barcelona GSE Research Network, and the Government of Catalonia.

# 1 Introduction

Implementing stable systems of government where citizens enjoy political rights and rulers are held in check is one of mankind's crowning achievements. Yet, many citizens around the world continue to live in regimes that deny their citizens basic rights and under rulers who face few formal constraints on their power. The consequences are in many ways predictable – a detached elite, the use of repressive force and government priorities putting little weight on collective interests. Governments that do not face many checks and balances, characteristic of monarchies and dictatorships, have greater incentives to repress their citizens to stay in power. But when the costs of repression rise, they face the alternative of reform. This can lead to an institutional transition like the one witnessed in the move from Communism in the late 1980s and early 1990s, and which the Arab spring may yet deliver.

Figure 1 offers an overview of the world-wide evolution of cohesive political institutions, using a measure of checks and balances obtained from the Polity IV data on executive constraints and detailed in Section 3 below. The red curve shows the prevalence of strong checks and balances in the 50 countries for which we have uninterrupted data from 1875 to 2004, the sample period for our empirical study. The main variations roughly 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, a return of checks and balances after World War II, and a surge of institutional reforms in Latin America and the previous Communist block since the 1980s. To lessen survivorship bias, the blue curve shows the prevalence for all countries with available data. Though the proportion of countries with checks and balances is considerably lower at the end of the sample in this larger group, the pattern of prevalence looks broadly similar with the exception of an additional dip from 1960 to 1975 driven by noncohesive institutions in newly established countries (mainly former colonies).

Social scientists face the challenge to understand theoretically and empirically why and whether such reforms occur. Unsurprisingly, political scientists and economists have taken up this challenge. While the existing literature has generated insightful theory and creative evidence, progress which puts the two together remains relatively modest. In particular, few predictions from specific models regarding what might drive reforms of specific institutional features have been explicitly tested. Moreover, there has been a tendency to

bundle together all aspects of institutional change into a democracy score rather than unpacking the different aspects of changes in institutions that travel under that heading.

The aim of this paper is to build a bridge between theory and empirics to study one specific mechanism of institutional change – that linking political instability and the creation of checks and balances in the form of constraints on the executive.[1] This focus is motivated by Besley and Persson (2011), which gives a leading rule to this aspect of political institutions in fostering the creation of peaceful and effective states. The paper develops a simple model where an incumbent group makes a choice over future institutions. In this model, higher expected political turnover – the likelihood of survival by the ruling group – for given costs of repression might drive reforms towards institutional cohesiveness.

A motivating fact, which is consistent with this theoretical mechanism, is that leader turnover is positively correlated with the adoption of 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. However, leadership transitions may not be exogenous to reform, for example when desire for reform precipitates removal of a leader in an election, coup, or insurgency. As a source of exogenous variation, we therefore use random leader exits from office due to death or disease, to represent the driver of reform identified by the theory. We argue that such random exits from office can generate a power vacuum which spawns political instability and promotes reforms.

The paper fits into a large literature which examines links between development and democracy, beginning with Lipset (1959) and with modern incarnations like Przeworski et al (2000) and Bueno de Mesquita et al (2003). However, the hypothesis that income drives democracy receives weak empirical support and the evidence is ambiguous at best – see, for example, Barro (1999), Acemoglu et al (2008), and Bruckner and Ciccione (2011). This weak link between income and democracy is consistent with our approach which suggests a different reason why institutional change may occur other than as a by-product of economic growth or education. Our approach is also

[1] We share this emphasis on checks and balances with a recent paper by Acemoglu, Robinson and Torvik (2011), who focus on the way that checks and balances affect the ability of incumbents to extract rents to explain why checks and balances are sometimes abandoned.

distinct from the large literature which argues that social and cultural factors 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. Jones and Olken (2009) exploits the difference between successful and unsuccessful assassination attempts to show that random leadership change causes democratic reform (measured by a broad democracy index).

Most of this literature uses categories like democracy or autocracy as a catch-all for several aspects of political institutions. This study emphasizes a specific aspect of institutional change rather than broader measures of democracy. Such measures are arguably problematic for our purposes as they bundle together measures of executive constraints with the openness of electoral competition and executive recruitment. As we point out, the theory to explain such changes and, therefore, the predictions for the data are likely to be different. Indeed, we find no evidence that random leader exits lead to changes in dimensions of democracy other than executive constraints.

This notwithstanding, our paper still provides a complement to research focusing on the other large and systemic change in political institutions in the past two centuries, namely the introduction of universal suffrage. A recent example is the seminal work by Acemoglu and Robinson (2000, 2006), who argue that an extension of the franchise enables elites credibly to commit to better treatment of the masses.

A common theme in this paper and some preceding contributions is the fear of an incumbent group of losing power as the central lever of institutional change. This is indeed the essence of the theoretical mechanism posited in Acemoglu and Robinson (2000, 2006), where the focus is on the threat of revolution. These authors present case studies to support their hypothesis, which receives econometric support in Aidt and Jensen (2010). In an earlier genre, anticipated electoral losses for ruling parties fuelled a classical argument first made by Rokkan (1970), and extended by Boix (1999). This holds that such fears 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 theoretical model with a dynamic game between two groups, in

which greater political turnover leads to greater constitutional support of civil liberties.

In the next section of the paper, we develop a simple two-period model of the interactions between expected turnover, repression, and cohesive political institutions (checks and balances). The model allows us to derive a specific empirical prediction. In Section 3, we describe our data and lay out our event-study approach. This section also describes our empirical findings, which are well in line with the theoretical predictions. Random exits from political office not only produce more political turnover, but also trigger reforms in the direction of stronger checks and balances, which are statistically and economically significant. But random exits do not seem to induce reforms of electoral institutions. Section 4 concludes.

# 2 A Two-Period Model

The model is an extension of the one sketched in Besley and Persson (2011, ch. 7). It has an incumbent government in power which decides how to deploy a fixed tax revenue between transfers, public goods and repression in order to maintain power. The effectiveness of repression is stochastic. Incumbents also choose the cohesiveness of political institutions for the next period.

**Basics, groups, and turnover** We focus on a two-period case with time indexed by $t = 1, 2$. The population is normalized to unity and divided into $\mathcal{J} + 1$ equally large groups indexed by $J$. The incumbent government in period $s$ belongs to one of these groups, which is denoted by $I_t$. The other groups are in opposition and are indexed by $O^J, J = 1, ..., \mathcal{J}$.[2]

Each period has a government leader, who is taken from an "elite" within group $I_t$. This elite is a small share of the population, which is denoted by $e < \frac{1}{2}$. For simplicity, we suppose that the elites governing each group are of equal size.

When the incumbent government is thrown out, in between period 1 and 2, one of the previous opposition groups is randomly chosen with equal probability to appoint the new leader. This event occurs with probability

$$\text{Prob}\left[I_2 \neq I_1\right] = \gamma \ ,$$

[2]The many-groups assumption will have little traction in the two-period model, but would play a role in an extension to an infinite horizon.

The turnover rate has an immediate interpretation as political instability from the viewpoint of the ruling elite. We discuss how $\gamma$ is determined below. Given the symmetry assumption, the probability of acquiring power for each opposition elite is $\frac{\gamma}{\mathcal{J}}$.

**Income, preferences, and private consumption** All individuals have equal and exogenous income $y$. The utility function of a member of group $J$ in period $t$ is linear in private and public goods

$$u_t^J = \alpha g_t + x_t^J, \quad J \in \{1, ..., \mathcal{J}+1\} \ .$$

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

Variable $x_t^J$ denotes private consumption, the determination of which depends on the status of an individual. For "rank and file" members of all groups $J$ as well as the elites of the opposition groups, it is given by

$$x_t^J = y + r_t^J \ ,$$

where $r_t$ is a *per-capita* transfer payment to all group $J$ rank-and-file members and non-governing elites, and where $y$ is net of tax earnings. We assume that each citizen supplies one unit of labor and earns a wage $\omega$ so that $y = (1-\tau)\,\omega$ with $\tau \in [0,1]$ being the tax rate, which we treat as fixed. For simplicity, we work with the case $r_t^J = r_t$, so that all rank-and-file citizens and non-governing elites are treated in the same way. Any elite member of the incumbent group, including the leader, has private consumption

$$x_t^I = y + b_t \ ,$$

where $b_t$ are the *per-capita* rents, extracted by the period-$t$ leader on behalf of the elite – these rents could be generated endogenously through predatory activity of the elite, as in Besley and Persson (2011, ch. 3). Thus, all members of the elite gets the same share of rents. The incumbent elite in period 1 discounts the future with discount factor $\delta \in (0,1)$.

**Government budget constraint** The incumbent leader has access to some exogenous revenue of given size, $T$. Revenue includes the income taxes, but may also entail resource income or cash aid $R$. Total revenue is

$$T = R + \tau\omega \ .$$

This income is spent on four items: public goods $g_t$, transfers to every citizen outside the governing elite $r_t$, rents to the every member of the incumbent elite group $b_t$, and prospective costs for investing in repression (in period 1) $L_1$.

The government budget constraint is therefore

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

We are assuming here that the cost of raising labor resources for repressive purposes is $\omega$.

**Repression and political instability** In period 1, the probability of remaining in power can be affected by costly repression and the realization of a stochastic variable. We describe this by a function:

$$\gamma (L_1, \xi)$$

where $L_1 \in \{0, L\}$ is the (binary) choice of repression and $\xi \in \{0, 1\}$ is the (binary) state of the world.

We assume that $\gamma (0, \xi) = \gamma_H$ for all $\xi \in \{0, 1\}$, that $\gamma (L, 0) = 0$ and $\gamma (L, 1) = \gamma_L < \gamma_H$. We will therefore refer to state 0 as the stable state and state 1 as the unstable state. Empirically, we will associate the unstable state, with the power vacuum created by a leadership succession battle created by the unexpected death of a leader. This creates uncertainty about whether the ruling group will stay in power even if it uses the force of repression.

**Political institutions** Political institutions are more or less cohesive. We model this as a simple form of checks and balances: a constraint on the amount of rents that can be extracted by the incumbent elite at the expense of other agents in society. Thus, we assume that the ruling elite must give a fixed share, $0 \leq \theta_t \leq 1$, to every rank and file citizen for any unit of rents collected by members of its own elite group:

$$r_t \geq \theta_t b_t \ .$$

The parameter $\theta_t$ represents more or less cohesive institutions. We interpret a tighter constraint, a higher value of $\theta$, as stronger checks and balances, i.e., as a form of institutional commitment (perhaps stronger constitutional provisions enforced by an independent judiciary).

To model the process of discrete political reform, we will assume that political institutions are also binary, and that $\theta_2 \in \{0,1\}$ is chosen by the period-1 incumbent elite.

**Timing** The model has the following timing

1. The polity starts with institutions $\theta_1$ which bind for period 1.
2. Nature determines the identity of the elite group $I_1$, as well as the period-1 state of the world $\xi \in \{0,1\}$.
3. The incumbent elite chooses period-1 policy $\{g_1, r_1, b_1\}$, repression $L_1$, and period-2 political institutions $\theta_2$ (which bind for period 2).
4. The elite from group $I_1$ is replaced with probability $\gamma(L_1, \xi)$. The elites of each opposition group have an equal probability of taking over in period 2, namely $\gamma(L_1, \xi)/\mathcal{J}$.
5. The new incumbent elite $I_2$ chooses period-2 policy $\{g_2, r_2, b_2\}$.

We will solve for a subgame-perfect equilibrium where the outcome is described by the following functions:

$$\left\{\hat{g}\left(\xi,\theta\right), \hat{r}\left(\xi,\theta\right), \hat{b}\left(\xi,\theta\right), \widehat{L}\left(\xi,\theta\right), \hat{\theta}\left(\xi,\theta\right)\right\} \ .$$

Due to the linearity of the model, policy, on the one hand, and whether to reform political institutions and whether to invest in repression, on the other hand, can be studied as separate choices in recursive fashion. We thus solve for the equilibrium in two parts. First, we study current policy in period $t$, $\{g_t, r_t, b_t\}$, taking $L_t$ and $\theta_t$ as given, a straightforward solution of a static problem. We then study the choice of repression level $L_1$ and political regime $\theta_2$, a more involved problem involving dynamic considerations.

**Current policy** Beginning with public spending, the incumbent elite in period $t$ sets policy to maximize her own utility given by

$$u_t^J = \alpha_t g_t + y + b_t \ , \tag{1}$$

subject to the constraints on rents and transfers, and the government budget constraint. It is easy to see that these three constraints will all be satisfied

with equality: in particular, transfers to 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. Because of the linear utility function, the incumbent will always choose a bang-bang solution

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

Having decided how much to invest in violence, the incumbent spends any remaining funds alternatively on public goods (defense) or on rents to the elite (and necessary transfers to citizens), depending on whether institutions are cohesive or not. Given that $\alpha$ satisfies $\frac{1}{e} > \alpha > 1$, by assumption, all residual spending is on public goods when $\theta = 1$ and all is on rents to the elite when $\theta = 0$.

**Indirect utility** It is useful now to define the indirect utility from public and private goods for the incumbent elite and other groups:

$$v^J(L_t;\theta) = \alpha G(L;\theta)+\omega[1-\tau]+\beta^J(\theta)(T-\omega L_t-G(L;\theta)) \text{ for } J \in \left\{I, O^J\right\} .$$

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

Observe for future reference that the utility of the incumbent and opposition without cohesive institutions is:

$$v^I(L_t,0) = \frac{T-\omega L_t}{e} + \omega[1-\tau] \text{ and } v^O(L_t,0) = \omega[1-\tau] , \tag{2}$$

while, with cohesive institutions, it becomes:

$$v^I(L_t,1) = v^O(L_t,1) = \alpha(T-\omega L_t) + \omega[1-\tau] . \tag{3}$$

Thus, cohesive institutions induce equality in outcomes in each period by guaranteeing that all spending is on public goods rather than transfers.

**Equilibrium repression** Before proceeding further, observe that a general condition for the choice of repression is given by:

$$\hat{L}(\xi,\theta)=\begin{cases} L & \text{if } \delta\left[\gamma_H-\gamma(L,\xi)\right]\left[v^I(0,\hat{\theta}(\xi,\theta))-v^O(0,\hat{\theta}(\xi,\theta))\right]-\beta^I(\theta)\frac{\omega L}{e}\geq 0 \\ 0 & \text{otherwise .}\end{cases} \tag{4}$$

Clearly, if $\hat{\theta}(\xi,\theta)=1$, then $v^I=v^O$, so $\hat{L}(\xi,\theta)=0$. That is, repression is never worthwhile if cohesive institutions are chosen. Dependence on current institutions is mediated entirely through $\beta^I(\theta)$.

To cut down on the number of possible outcomes, we make the following assumption on parameters:

**Assumption 1:** $[\gamma_H-\gamma_L]\,\delta T>\omega L$.

This says that the repression technology is sufficiently efficient, discounted revenue sufficiently high, or the costs of repression sufficiently low to make it worthwhile to repress whenever future institutions are noncohesive.

Now define

$$V^I(z,\xi,\theta)=[1-\gamma(\hat{L}(\theta,\xi),\xi)]v^I(0;z)+\gamma(\hat{L}(\theta,\xi),\xi)v^O(0;z)$$

as the expected period-2 payoff from an institutional choice of $z\in\{0,1\}$.

**Choice of institutions** We now give the model's predictions for when institutions are cohesive (checks and balances introduced). Observe that:

$$\hat{\theta}(\xi,\theta)=\arg\max_{z\in\{0,1\}}\left\{V^I(z,\xi,\theta)\right\}\ .$$

Using this expression, together with (2) and (3), we can fully characterize the choice of political institutions with a set of inequalities:

**Proposition 1** *When Assumption 1 holds, there are three parameter ranges:*

a. *If* $\delta\alpha T\geq\delta T/e-\omega L$, *cohesive institutions are always chosen, i.e.,* $\hat{\theta}(\xi,\theta)=1$ *for all* $\xi,\theta$.

b. *If* $\delta\alpha T\in[\delta(1-\gamma_L)T/e-\omega L,\delta T/e-\omega L]$, *cohesive institutions are chosen only in the unstable state, i.e.* $\hat{\theta}(1,\theta)=1$ *and* $\hat{\theta}(0,\theta)=0$.

c. *If* $\delta\alpha T \leq \delta(1-\gamma_L)T/e - \omega L$, *then cohesive institutions are never chosen, i.e.* $\hat{\theta}(\xi,\theta) = 0$ *for all* $\xi, \theta$.

These three cases make intuitive sense. If institutions are cohesive, the incumbent will have a regime-specific payoff of $\delta\alpha T$ in period 2. She compares that payoff to the regime-specific payoffs from having noncohesive institutions in period 2 and repressing in period 1, namely $\delta T/e - \omega L$ in the stable state and $\delta(1-\gamma_L)T/e - \omega L$ in the unstable state. If common interests are high enough to outweigh the payoffs of elite rents even in the stable state, cohesive institutions are chosen for sure – that is, we have case a. In the unstable state, the payoff from repressing and maintaining non-cohesive institutions is lower, since the elite has a lower hold on power (turnover is $\gamma_L$ rather than 0). In case b, this motivates the incumbent group to choose cohesive institutions in the unstable state, when they face an increased threat to holding power. However, this is not guaranteed: if repression is still quite effective in this state and common interests are weak, then it will be worthwhile always to choose repression and noncohesive institutions – this is case c.

A similar result is obtained in an extension of the model to an infinite horizon. Thus, we can derive a Markov-perfect equilibrium, where the choices in each time period is solely determined by the two state variables, $\xi$ and $\theta$. This model has three steady states corresponding to the three outcomes in Proposition 1: one with persistent cohesive institutions, one with persistent noncohesive institutions, and one where the country switches between the two depending on the realization of state variable $\xi$. An additional insight is that a larger number of groups $\mathcal{J}$ makes cohesive institutions more likely, because it works like a lower discount factor thus raising the relative importance of repression costs in the incumbent's choice.

**Empirical prediction** The model predicts heterogeneity in countries' choices of political institutions. To express these predictions in terms of the likelihood of observing reforms, we assume that the country-specific value of $L$ (the amount of repression necessary to bring turnover to zero in the stable state) is stochastic but unobserved by us as researchers. Let the distribution of $L$ have c.d.f. denoted by $F$. Using the inequalities in Proposition 1, we can then write the probability (likelihood) of observing cohesive institutions in any state of the world as

$$1 - F(L_b) \quad \text{with} \quad L_b = \frac{\delta T}{\omega}\left(\frac{1}{e} - \alpha\right) , \tag{5}$$

while the probability of observing such institutions in the unstable state are

$$1 - F(L_u) \quad \text{with} \quad L_u = \frac{\delta T}{\omega}\left(\frac{1-\gamma_L}{e} - \alpha\right) . \tag{6}$$

These two expressions entail a number of predictions about how the probability of reform varies with the parameters of the model. However, let us focus on a testable prediction, where we have a plausible exogenous source of variation to exploit. Noting that $L_b > L_u$, (5) and (6) say that $1 - F(L_u) > 1 - F(L_b)$. Thus,

**Prediction** *We are more likely to observe cohesive institutions under realizations of the unstable state,* $\xi = 1$.

As mentioned above, we will consider random leader exits from office as indicative of the unstable state (we could also associate such exits with a higher $\gamma_L$, with similar predictions).

**Comparison with franchise extension** In our model, an incumbent will strategically introduce institutional checks and balances as insurance against being out of office when he fears that costly repression may not be sufficient to stay in power. This contrasts with Acemoglu and Robinson (2000, 2006), where fear of losing power in a couple leads to the elite proposing franchise reform in order to commit to policies that are favorable to the masses, by ensuring that they, rather than the elite, hold political power. From the viewpoint of an incumbent elite in our model, such an extension of the franchise would drastically increase the turnover parameter $\gamma$. In the model, however, a ruling group would never strictly prefer institutional measures that reduce their odds of staying in power.

That being said, once cohesive institutions (checks and balances) are established, it is not costly for a ruling elite to introduce institutional reform that increases $\gamma$ – in our simple model, $v^I$ and $v^O$ are equal when $\theta = 1$, i.e., the incumbent becomes literally indifferent between being in and out of power. In this sense, the model entails a prospective complementarity between strong executive constraints and an extended franchise. This 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 restraints on executive (royal)

power through reforms such as Magna Carta and the Glorious Revolution long before the universal franchise.

Owing to the complementarity, the same forces that shape a high $\theta$ may also predict a high $\gamma$. But the sequencing argument still suggests a primary role for executive constraints. Nevertheless, the next section empirically examines whether shocks to political stability also precipitate other forms of institutional change.

# 3 Data, Specification, and Results

The focus in this section is on testing the theoretical mechanism proposed by the model, linking unstable states with the adoption of cohesive institutions.

**Reforms of checks and balances** Our main measure of cohesive institutions comes from executive constraints as coded by the "xconst" variable in the Polity IV data. Among possible measures that are available for a large number of countries during a long time, this is the one that best fits the checks and balance parameter $\theta$ in the theory. The coded executive constraints score lies between 1 and 7. We define a binary variable whereby a country is regarded as having cohesive institutions ($\theta = 1$) if the score is greater than or equal to 5 and noncohesive otherwise. According to the Polity IV codebook, a value of 5 is the first level at which there are "substantial limitations of executive power" and the executive has to modify its proposals, is sometimes refused funds, needs approval for its appointments, and faces an independent judiciary – see Marshall and Jaggers (2010, pp. 24-25). Plotting the empirical distribution of scores over countries and years, one sees a two-peaked distribution with a local minimum at 4. Using this cutoff value, we obtain 171 reforms in an unbalanced panel with 167 countries and yearly observations since 1875.

**Reforms of electoral institutions** We also would like to check for any effects of expected turnover on electoral institutions, especially meaningful extensions and consolidations of the franchise. To get a comparable sample across countries and time, we continue to rely on Polity IV data. We start by using the two summary indexes for executive recruitment and political competition, called "exrec" 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 binary variable for enfranchised institutions, which is one if the "exrec" score is equal to 8 and zero otherwise. Using this cutoff value, our panel has 154 reforms since 1875.

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 a 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.

In addition, we try to identify the individual components of the combined "exrec" and "polcomp" indexes that best capture an extended franchise. Competitive Executive Recruitment ("xrcomp" in Polity IV) is coded between 1 and 3. A score of 3 captures that "Chief executives are typically chosen in or through competitive elections matching two or more major parties or candidates" – see Marshall and Jaggers (2010, pp. 22). In those cases, we set a binary variable for enfranchised institutions equal to one. This gives 157 reforms in our sample period. For Competitive Participation ("parcomp" in Polity IV), the coded score lies between 1 and 5. A score of 5 means that " relatively stable and enduring, secular political groups ... regularly compete for political influence at the national level ... competition among groups seldom involves coercion or disruption" – see Marshall and Jaggers (2010, pp. 27). For this score, we set a binary variable for enfranchised institutions equal to one, obtaining 56 reforms in our panel.

**Expected turnover** For shocks to expected turnover, we use several data sources. To approximate the unstable state ($\xi = 1$) in the model, we use a subset of leader exits, as in Besley et al (2011). They extend the leader post-war sample used in Jones and Olken (2005) using the Archigos data set (Goemans, Gledtisch and Chiozza, 2009) plus biographical sources, namely *Encyclopedia of Heads of States and Governments* (Lentz, 1994, 1999) and *Encyclopedia Britannica*. Since 1875, 217 leaders – out of a total of 2095

– left office due to death from natural causes, illness, or (true) accidents, rather than due to elections, assassinations, coups, or civil wars. For a full description of the random leader exits, see Besley et al (2011).

Table 1 gives an excerpt of these data for a few countries in the sample. Consider e.g., the case of Croatia. Franjo Tudjman, was the first president of Croatia and leader of ultra-nationalist Croatian Democratic Union (HDZ). Tudjman and his party had dominated Croatian politics since independence in 1990 with authoritarian rule and a repressive regime without strong checks and balances – Polity IV codes "xconst" at 3 for the 1990s . In December 1999, however, Tudjman died of heart disease.

We refer to such events as *random exits*, where random means that the timing is exogenous to the variable(s) of interests. Unlike the previous work using such data, however, we do not interpret these exits as shocks to leader quality. If such events indeed represent greater political instability, as we assume, we would expect political turnover to be higher after random exits. At least this should be the case in weakly institutionalized polities, where the person in power is bound to have a much greater significance than in strongly institutionalized polities. This a priori assumption is validated empirically below.

**Event-study econometric specification** To study econometrically the outcomes around a random exit from office, consider outcome $x$ (turnover or reform) around such events $z = 1, ..., Z$, occurring in country $i$, at year $t$, and define

$$\overline{PRE}_{z,i,t} = \sum_{1}^{T} x_{z,i,t-s}/T \text{ and } \overline{POST}_{z,i,t} = \sum_{1}^{T} x_{z,i,t+s}/T \ .$$

We estimate before and after effects of the event $z$ by the regression

$$x_{i,t} = \beta^{PRE} PRE_{i,t} + \beta^{POST} POST_{i,t} + \alpha_i + \delta_t + \varepsilon_{i,t}$$

where $\alpha_i$ and $\delta_t$ country and year fixed effects (estimated over the full sample), while $\varepsilon_{i,t}$ has a country-specific variance (we use robust standard errors clustered by country). The common dummies $PRE_{i,t}$ and $POST_{i,t}$ for the periods before and after the event do not include the event year. When we set the window $T = 5$, and eliminate overlapping events, we get $Z = 183$.

To estimate a causal effect on the outcome, we require that the timing of event be uncorrelated with $\varepsilon_{i,t}$. This is plausible when the event is a random

exit from office. The main question is whether these events matter. First, we would like to reject $\beta^{POST} - \beta^{PRE} = 0$ when $x$ measures turnover, so as to validate empirically our claim that random exits gives rise to higher rates of turnover (compared to the period before the exit). Second, we would like to reject the same null hypothesis when $x$ measures institutional reform, so that random exits indeed increases the likelihood of reform to cohesive institutions.

**Results on random exits and turnover** The first set of results are found in the two first columns of Table 2. In the full sample, random exits from office have an effect on turnover which is significantly different from zero effect on turnover of any form. Our estimate of $\beta^{POST} - \beta^{PRE}$ is positive; the probability of a new, regular or irregular, exit is 3 percentage points higher in the five years after a random exit than in the five years before. But the $p$-value (from an $F$-test) underneath the estimate suggests that the probability this result is driven by chance is as large as 11%.

In Column 2, we condition on the institutions in place at the event. The estimates are very suggestive. In countries without checks and balances (noncohesive institutions), the probability of turnover is 6 percentage points higher in the five years after a random exit compared to the five years before, with a $p$-value around 1%. In countries with good checks and balances, there is no significant effect and the point estimate is actually negative. These results lend credibility to our assumption that random exits indeed lead to higher expected turnover, at least when it comes to weakly institutionalized polities.

**Results on random exits and reform** The second set of results are found in Columns 3 and 4 of Table 2. Consistent with the results on turnover, random exits lead to a higher likelihood of cohesive political institutions, but – conditioning on initial institutions – this effect is significant only under noncohesive political institutions. Specifically, the probability of reform is more than 6 percentage points higher in the five years after a random exit from office compared to the five years before. Figure 2 illustrates the forces behind this result in a different way. While the estimates in Table 2 rely on outcomes averaged over windows of five years before and after the event, the figure shows the average of the strong executive constraints dummy in *each* of the *ten* years before and after random leader exits in countries with weak

executive constraints.

To breathe life into these results, we zoom in three particular cases. Consider first the earlier example of Croatia and Franjo Tudjman's death of heart disease in December 1999. After Tudjman's death, a transitional period followed, where the HDZ agreed to new parliamentary elections.[3] Through constitutional reforms in 2000 and 2001, the strong presidential powers were transferred to the parliament. And the new parliamentary system had much stronger checks and balances on the executive – Polity IV assigns an "xconst" value of 6 from 2000. In the wake of these events, the HDZ transformed itself to a more moderate reformist party.

Another example of a random leader exit followed by institutional reform is the death (due to a heart attack) in 1998 of Sani Abacha, President and military dictator of Nigeria. His successor, Chief of Staff Abdulsalami Abubakar, quickly embarked on a transition to democratic civilian rule, paving the way for the election of President Olusegun Obasanjo – Polity IV codes Nigeria's executive constraints from 1999 as 5, up from a previous value of 1.

Yet another example is the death (in a plane crash) in 1988 of General Zia Ul Hac, autocratic ruler of the 1980s repressive regime in Pakistan. This was followed by a transition to civilian rule, reinstitution of the parliamentary democracy prescribed by the 1973 constitution, and general elections that installed PPP party leader Benazir Bhutto as Pakistan's (and the Muslim world's) first female prime minister – Polity IV codes the country's executive constraints from 1988 as 7 (until 1999), up from a previous 1.

**Robustness checks** Table 3 includes a few checks that our main results are robust. Columns 1-4 repeat the same analysis as in Table 2, except that we use a ten-year, rather than a five-year, event window before and after each random exit from office. Eliminating overlaps between the windows gives us some 20 fewer events than with five-year event windows. However, the results are very similar to those in Table 2, except that the positive point estimates of $\beta^{POST} - \beta^{PRE}$ for turnover and reforms in the whole sample are now statistically significant.

One may argue that the death of a very old leader is perhaps less of an

[3]In line with the idea that this would create a power vacuum and political instability, it was rumoured that, in the first instance, the HDZ kept Tudjman's death secret from the citizens of Croatia. His last public appearance was on November 1st while his death was not officially announced until mid-December.

unanticipated event. While this would not necessarily invalidate our empirical strategy, it is still interesting to see if the age of the leader drives our results. Thus, the specification in Column 5 conditions the event study not only on the existing political regime, but also on the age of the exiting leader. More precisely, we use the median age at exit (of all leaders in each sub-sample) to define old and young leaders under cohesive and noncohesive institutions. As the results show, the point estimate on the propensity to reform towards cohesive institutions is in fact higher for young leaders. However, the $\beta^{POST} - \beta^{PRE}$ estimates for old and young leaders are not significantly different from each other (see the test statistics at the bottom of the table).

Column 6 performs an analogous exercise, but now for the tenure in office at the time of exit in each sub-sample. The results are similar with no significant difference in the reform propensity after the exit of leaders with long versus short tenure (again defined by the median tenure of the leaders in the random exit sample), although the point estimate for the exit of long-tenured leaders is greatest.

**Other aspects of institutional reform** Institutional reforms which strengthen executive constraints allow for the most plausible test of our theoretical approach. As discussed in Section 2, however, we may not be able to rule out that higher expected turnover also trigger contemporaneous complementary reforms to other features of political institutions, especially those that effectively extend or secure the franchise. To test for this possibility, we utilize the four measures in the Polity IV data discussed earlier in this section concerning: (i) executive recruitment, (ii) political competition, (iii) competitive executive recruitment, and (iv) competitive participation. These capture different aspects of institutions that could raise $\gamma$, the probability of exit, in the theory.

For each measure, we apply the same event-study method as in the examination of executive constraints to investigate whether other reforms also occur after random political transitions due to a leader's death in office. The results are reported in Table 4. Strikingly, we find no evidence of changes in these other political institutions occurring simultaneously with reforms towards more cohesion through stronger checks and balances. This suggests that our theoretical mechanism is indeed empirically associated with a specific aspect of political institutions, rather than with generalized political

change.

# 4 Concluding Comments

Understanding the forces that shape institutional change is one of the most significant remaining challenges in political economics. This paper has focused on one very specific aspect of this challenge, proposing a mechanism which links political instability to the adoption of stronger constraints on the executive. Our model illustrates the idea that events which shorten the expected tenure of a ruling group encourage that group to undertake reforms towards cohesive political institutions. The empirical results from our event-study approach do lend support to this simple idea. A natural empirical extension would be to look for other sources of exogenous variation in expected political turnover.

Future work could use an infinite-horizon extension of our simple two-period model to gain insight into which factors make institutional reforms permanent rather than temporary. Taking such a model seriously to the data would require a more ambitious empirical approach than the one pursued in this paper. A Markov equilibrium of the infinite-horizon model would invite an estimation of the full transition matrix between different institutional states, conditional on parameters suggested by the model.

As we have emphasized throughout, our results complement others in the literature, in particular those which present theory and evidence on franchise extensions. Using the same event-study approach, however, we do not find that random leader exits predict changes in electoral institutions. These findings underline the importance of narrowing the focus and moving away from broad-brush studies of democratization. Our theoretical parameters – $\theta$ and $\gamma$ – capture checks and balances and free and open elections, respectively, albeit in a simple and reduced-form way. In future work, it would be useful to pursue a more nuanced analysis of what triggers change in those institutions which shape transitions in power and those which shape how power is used once acquired. Specifically, it would be fruitful to address questions about the sequencing of political reforms and complementarities between different aspects of reform.

# References


[1] Acemoglu, Daron and James Robinson [2000], "Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective", *Quarterly Journal of Economics*, vol 115, 1167-1199.

[2] Acemoglu, Daron and James Robinson [2006], *Economic Origins of Dictatorship and Democracy*, Cambridge, MA, Cambridge University Press.

[3] Acemoglu, Daron, James Robinson, and Ragnar Torvik [2011], "Why Do Voters Dismantle Checks and Balances?", mimeo, MIT.

[4] Aidt, Toke and Peter Jensen [2010], "Workers of the World, Unite! Franchise Extensions and the Threat of Revolution in Europe, 1820-1938", mimeo, Cambridge University.

[5] Barro, Robert, [1999], "Determinants of Democracy," *Journal of Political Economy*, vol 107, S158-183.

[6] Besley, Timothy, José Montalvo, and Marta Reynal-Querol [2011], "Do Educated Leaders Matter?", *Economic Journal*, vol 121, F205–227.

[7] Besley, Timothy and Torsten Persson, [2011], *Pillars of Prosperity: The Political Economics of Development Clusters*, Princeton, NJ: Princeton University Press.

[8] Boix, Carles [1999], "Setting the Rules of the Game: The Choice of Electoral Systems in Advanced Democracies", *American Political Science Review*, vol 93, 609-624.

[9] *Britannica Online Encyclopedia*, Academic Edition (http://www.britannica.com/).

[10] Bruckner, Markus and Antonio Ciccone [2011], "Rain and the Democratic Window of Opportunity," *Econometrica*, vol 79, 923–947.

[11] Bueno de Mesquita, Bruce, Alisdair Smith, Randolph Siverson and James Morrow [2003], *The Logic of Political Survival*, Cambridge, MA: MIT Press.

[12] Goemans, H.E, Kristian Gledtisch, and Giacomo Chiozza [2009], "Introducing Archigos: A Data Set of Political Leaders," *Journal of Peace Research*, vol 46, 269-283.

[13] Huntington, Samuel, [1991], *Democratization in the Late Twentieth Century*, Norman, OK: University of Oklahoma Press.

[14] Jones, Bejamin and Benjamin A. Olken [2005], "Do Leaders Matter? National Leadership and Growth Since World War II", *Quarterly Journal of Economics*, vol 120, 835-864.

[15] Jones, Benjamin and Benjamin A. Olken [2009], "Hit or Miss? The Effect of Assassinations on Institutions and War", *American Economic Journal Macroeconomics*, vol 1, 55-87.

[16] Lagunoff, Roger, [2001], "A Theory of Constitutional Standards and Civil Liberty," *Review of Economic Studies*, vol 68, 109-132.

[17] Lentz, Harris M., [1994], *Heads of States and Governments: A Worldwide Encyclopedia of over 2,300 Leaders, 1945 through 1992*, Jefferson, NC: McFarland.

[18] Lentz, Harris M., [1999], *Encyclopedia of Heads of States and Governments: 1900 through 1945,* Jefferson, NC: McFarland.

[19] Marshall, Monty, Ted Gurr, and Keith Jaggers [2010], "Polity IV Project. Polity Regime Characteristics and Transitions, 1800-2009. User's Manual," Center for Systemic Peace (http://www.systemicpeace.org/inscr/p4manualv2009).

[20] Moore, Barrington, [1966], *Social Origins of Dictatorship and Democracy*, Boston: Beacon Press.

[21] Persson, Torsten and Guido Tabellini [2009], "Democratic Capital: The Nexus of Economic and Political Change", *American Economic Journal Macroeconomics*, vol 1, 88-126.

[22] Przeworski, Adam, Michael Alvarez, Jose Cheibub and Fernando Limongi [2000], *Democracy and Development: Political Institutions and Well-Being in the World 1950-1900*, Cambridge: Cambridge University Press.

[23] Putnam, Robert, [1993], *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton, NJ: Princeton University Press.

[24] Rokkan, Stein, [1970], *Citizens, Elections, Politics. Approaches to the Comparative Study of the Processes of Development*, New York, NY: MaKay.

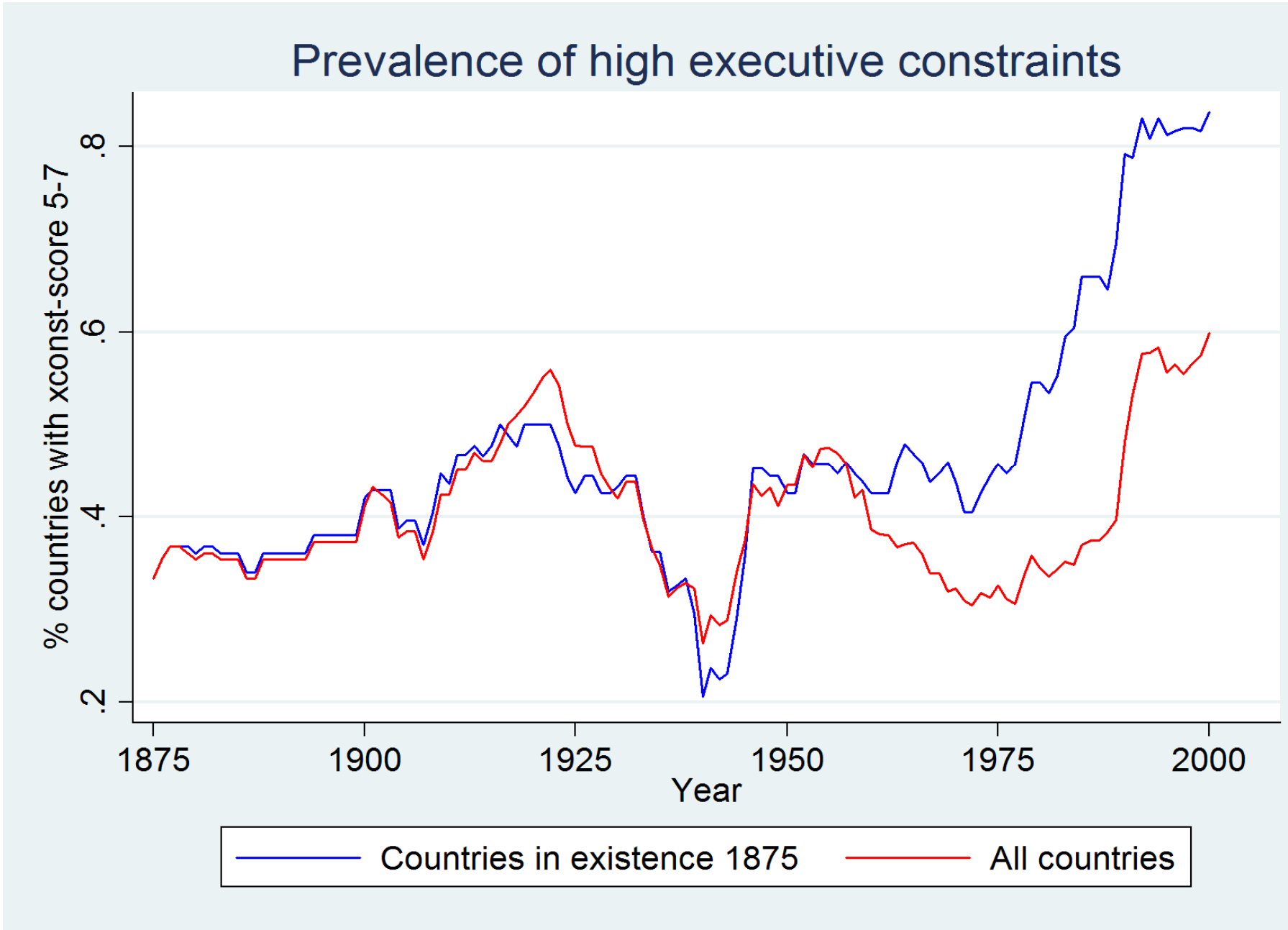
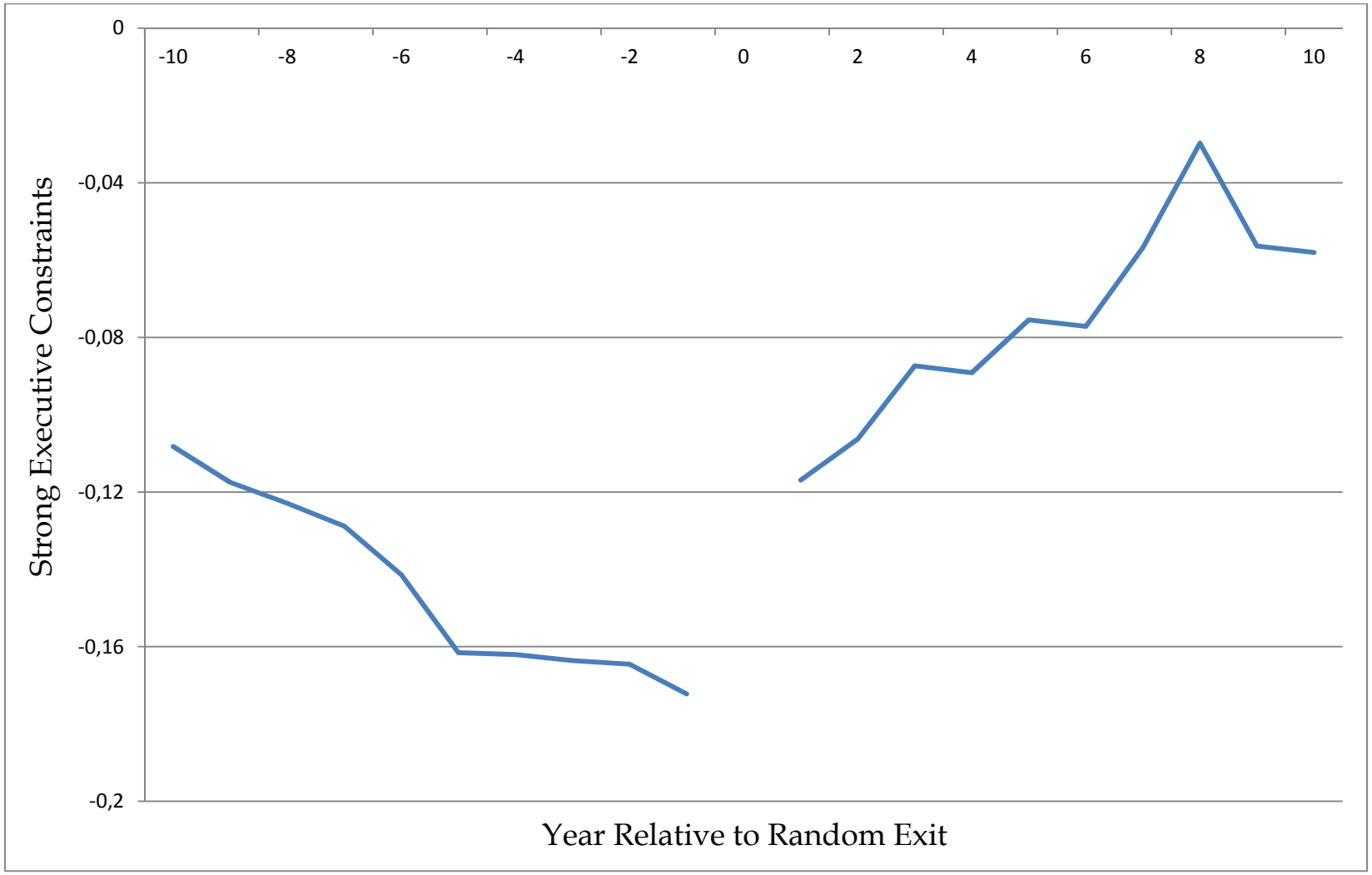



Figure 1 – Cohesive institutions worldwide, 1874-2004

# Figure 2: Executive Constraints before and after Random Leader Exits




**Note**: The figure shows the country-average of the strong executive constraints binary variable, conditional on country and year fixed effects, ten years before and ten years after random leader exits from office in countries with weak executive constraints.

# Table 1 – Examples of Random Exits Due to Leader Death or Illness in Office

| Country | Leader name | Year of exit from power | Reason for exit from power | Cause of death or illness | Overlap with sample in Jones-Olken (2005) |
|---|---|---|---|---|---|
| Cote d'Ivoire | Houphouet-Boigny | 1993 | death | cancer of prostate | YES |
| Croatia | Tudjman | 1999 | death | heart disease | NO |
| Cyprus | Makarios | 1977 | death | heart disease | NO |
| Czechoslovakia | Zapotocky | 1957 | death | heart disease | NO |
| Denmark | Stauning | 1942 | death | not specified | no |
| Denmark | Hansen | 1960 | death | cancer | YES |
| Dominica | Douglas Roosevelt | 2000 | death | heart disease | YES |
| Ecuador | Mosquera Narvaez | 1939 | death | renal failure | no |
| Ecuador | Roldos Aquilers | 1981 | death | killed in accident | YES |
| Egypt | Fuad I | 1936 | death | heart disease | no |
| Egypt | Nasser | 1970 | death | heart disease | YES |
| El Salvador | C. Melendez | 1918 | illness | cancer | no |
| Ethiopia | Menelek II | 1910 | death | syphilis | no |
| Ethiopia | Judith (Zanditu) | 1930 | death | pneumonia | no |
| Finland | Svinhufud | 1918 | illness | cancer | no |
| Finland | Kallio | 1940 | illness | heart disease | no |
| Finland | Paasikivi | 1956 | illness/death | not specified | NO |
| Finland | Kekkonen | 1981 | illness | circulatory problems | NO |
| France | Waldeck-Rousseau | 1901 | illness | complications during surgery | no |

**Notes:** In the last column, "NO" denote leaders that are not in the Jones-Olken sample despite sample overlap, while "no" denote leaders that are not in the Jones-Olken sample because of sample period differences.

Table 2 – Random Exits, Turnover, and Institutional Reform, 1875-2004: Basic Results

| | Turnover | Turnover | Executive Constraints | Executive Constraints |
|---|---|---|---|---|
| POST-PRE | 0.032 | | 0.031 | |
| Full sample | (0.113) | | (0.138) | |
| POST-PRE | | 0.061 | | 0.064 |
| Noncohesive institutions | | (0.012) | | (0.018) |
| POST-PRE | | – 0.063 | | – 0.040 |
| Cohesive institutions | | (0.100) | | (0.214) |
| Number of events | 183 | 104 | 164 | 104 |
| | | 60 | | 60 |

**Notes:** Dependent variable is based on binary indicator, measured by turnover or executive constraints, as indicated. Each cell shows the difference of regression coefficients on dummies for five years after and before each random exit. Test statistic is *p*-value of an *F*-test for the equality of the pre- and post-transition dummies in brackets. The underlying standard errors are robust and clustered at the country level.

# Table 3 – Random Exits, Turnover, and Institutional Reform, 1875-2004: Additional results

| | Turnover 10 years | Turnover 10 years | Executive Constraints 10 years | Executive Constraints 10 years | Executive Constraints $x$=1 old leader | Executive Constraints $x$=1 long tenure |
|---|---|---|---|---|---|---|
| POST-PRE | 0.041 | | 0.042 | | | |
| Full sample | (0.023) | | (0.085) | | | |
| POST-PRE | | 0.059 | | 0.071 | | |
| Noncohesive institutions | | (0.020) | | (0.026) | | |
| POST-PRE | | – 0.003 | | – 0.021 | | |
| Cohesive institutions | | (0.905) | | (0.573) | | |
| POST-PRE $x$=1 | | | | | 0.077 | 0.076 |
| Noncohesive institutions | | | | | (0.042) | (0.019) |
| POST-PRE $x$=0 | | | | | 0.054 | 0.034 |
| Noncohesive institutions | | | | | (0.118) | (0.319) |
| POST-PRE $x$=1 | | | | | – 0.023 | – 0.056 |
| Cohesive institutions | | | | | (0.613) | (0.182) |
| POST-PRE $x$=0 | | | | | – 0.059 | – 0.012 |
| Cohesive institutions | | | | | (0.217) | (0.822) |
| Test Statistics ($x$=1) – ($x$=0) = 0 | | | | | 0.493 | 0.315 |
| | | | | | 0.691 | 0.498 |
| Number of events | 165 | 95 | 145 | 95 | 49 55 | 76 39 |
| | | 50 | | 50 | 31 29 | 28 21 |

**Notes**: Dependent variable is based on binary variable, measured by turnover or executive constraints, as indicated. Each cell shows the difference of regression coefficients on dummies (for 10 if indicated, else 5) years after and before each random exit. Test statistic is *p*-value of an *F*-test for the equality of the pre- and post-transition dummies in brackets. Test Statistics ($x$=1) – ($x$=0) = 0 refer to *p*-value of the *F*-test that (POST-PRE | $x$=1) – (POST-PRE | $x$=0) = 0, for noncohesive and cohesive institutions, respectively, where meaning of $x$=1 is indicated at top of the column. The underlying standard errors are robust and clustered at the country level.

# Table 4 – Random Exits, Executive Recruitment and Political Competition, 1875-2004

| | Executive Recruitment | Executive Recruitment | Political Competition | Political Competition | Competitive Executive Recruitment | Competitive Executive Recruitment | Competitive Participation | Competitive Participation |
|---|---|---|---|---|---|---|---|---|
| POST-PRE | – 0.003 | | – 0.013 | | – 0.000 | | – 0.011 | |
| Full sample | (0.809) | | (0.298) | | (0.970) | | (0.371) | |
| POST-PRE | | 0.012 | | – 0.001 | | 0.020 | | 0.004 |
| Limited franchise institutions | | (0.395) | | (0.919) | | (0.250) | | (0.740) |
| POST-PRE | | – 0.056 | | – 0.065 | | – 0.054 | | – 0.065 |
| Extended franchise institutions | | (0.037) | | (0.173) | | (0.038) | | (0.174) |
| Number of events | 161 | 107 | 162 | 133 | 164 | 110 | 164 | 135 |
| | | 54 | | 29 | | 54 | | 29 |

**Notes:** Dependent variable is based on binary indicator, measured by indexes of executive recruitment, political competition, competitive executive recruitment, or competitivene participation, as indicated. Each cell shows the difference of regression coefficients on dummies for five years after and before each random exit. Test statistic is *p*-value of an *F*-test for the equality of the pre- and post-transition dummies in brackets. The underlying standard errors are robust and clustered at the country level.