Executive constraint, political stability and economic growth

by

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Abstract:

Previous studies have argued that democracy diminishes the extent to which contests over political leadership depress economic growth, by reducing the violence and uncertainty attendant on such contests. We reconsider the theoretical basis for this claim, highlighting the separate roles of executive constraint and electoral accountability. Exploiting panel data from 1850-2005, we show that the executive’s horizontal accountability to the legislature significantly moderates the economic downturns associated with leadership turnover, while its vertical accountability to the electorate does not. These results suggest that, in terms of moderating succession-related downturns and thereby promoting steadier economic growth, the health of legislatures is more important than the health of elections.
Executive constraint, political stability and economic growth

Many scholars have advanced one or both of the following claims: that economic growth improves political leaders’ chances of staying in office; and that stable leadership enhances investment and growth. The literature (reviewed below) has provided increasingly sophisticated means to measure these simultaneous effects. In this paper, we diverge from previous work in two main ways.

First, we argue that economic growth and political stability are both outcomes of a single coordination game whose participants are the incumbent political leader and an array of potential investors. The profitability of some economic investments, dubbed “politically sensitive,” depends on the incumbent ruler staying in power. But that leader’s chance of political survival depends on economic performance, hence on the overall level of investment. The interrelationship of investment profits and leadership survival mean that two coordination equilibria exist. In a “low” equilibrium, investors shun sensitive investments due to self-fulfilling fears that the ruler will not stay in power. Thus, expected economic growth and political stability are both low. In a “high” equilibrium, investors embrace sensitive investments due to self-fulfilling beliefs that the ruler will remain in power. Thus, expected economic growth and political stability are both high.

Second, we argue that the number of politically sensitive investments in an economy depends on the polity’s structural characteristics. Under dictatorship, many investments are politically sensitive. Thus, the economic and
political cost of being trapped in the “low” equilibrium can be substantial. As restraints on the chief executive’s scope for unilateral action increase, due either to “checks and balances” or electoral accountability, fewer investments are exposed to executive predation. Thus, the gap between the “low” and “high” equilibrium diminishes. These observations lead us to investigate how the effect of stability on growth varies, as a function of the executive’s horizontal and vertical accountability. This contrasts with the previous literature, which has focused on the dichotomy between democracies and autocracies.

Empirically, we use panel data from 1850-2005 to explore how executive constraints and electoral accountability mediate the effect of political turnover on economic growth. Given our long study period, we observe changes in executive constraints (as measured by the Polity IV project) in 62 countries; changes in electoral accountability (as measured by Boix, Miller and Rosato 2012) in 65 countries; and change in both kinds of accountability in 53 countries.

Our main findings, derived from a difference-in-differences estimation strategy, can be summarized as follows. Increased executive constraints significantly reduce the economic downturns associated with leadership turnover but improvements in electoral accountability do not. When it comes to reducing a country’s risk of getting stuck in an instability-poverty trap as identified by Londregan and Poole (1996) and Cox, North and Weingast (2015), it is more important to have a strong legislature constraining the executive than to subject the executive to free and fair elections.
This result has an important policy implication. In many states emerging from violence, the international community emphasizes the importance of instituting elections. Our results suggest that, with respect to the goal of fostering economic and political development, the democracy promotion community’s emphasis on electoral processes may be misplaced. Creating political stability and fostering the growth necessary to move a country beyond its past violence may be better served by devising institutions that constrain the executive’s scope for unilateral action.

**Political stability and economic growth**

Many scholars claim that economic growth enhances political stability, while others claim that political stability promotes economic growth. Let’s review each claim and then some models that incorporate both effects.

The literature on political agency (e.g., Barro 1973; Ferejohn 1986, 1999; Besley 2006) assumes, and the literature on economic voting (e.g., Kramer 1971; Duch and Stevenson 2008; Kayser and Peress 2012) provides evidence, that higher rates of economic growth promote political stability—in the specific sense that incumbent leaders are more likely to continue in office. Both literatures focus on democracies but similar claims have often been made about autocracies (e.g., Haggard and Kaufman 1996).

Meanwhile, the literature on political economy offers several reasons that political stability should promote economic growth. First, leaders whose days are numbered may be tempted to steal from state coffers, default on state contracts or repudiate debts on their way out (cf. Przeworski et al. 2000, 189). Thus,
instability may reduce trust that the state will honor its obligations, causing a contraction in economic transactions with the public sector. Call this the problem of last period predation.

Second, as argued by Bernanke (1993), Canes-Wrone and Park (2012) and others, some industries may hold back on making irreversible investments when leadership succession is likely, because the profit from those investments depends substantially on government policies—which may change under new leadership. Call this the problem of policy change.

Third, in crony capitalist regimes, many firms rely on political connections to secure state favors and protect themselves from economic competition that erodes their rents. Such firms are likely to reduce their investments, when the probability of the incumbent continuing in office declines. Call this the problem of crony change.

Building on the insights reviewed above, some studies allow both directions of causality, with political stability and economic growth influencing each other. For example, Alesina et al. (1996), Feng (1997), and Jong-a-Pin (2009) have investigated systems of equations in which stability linearly improves growth and growth linearly improves stability. Under appropriate conditions, these models lead to a single stable equilibrium, given by the intersection of two lines, one showing how growth reacts to stability, and one showing how stability

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1 Many studies illustrate how the expected value of investments can hinge on government policies. For a recent example in the US context, which cites other studies, see Den Hartog and Monroe (2008).
2 Such a conclusion would follow from work that shows the sensitivity of share prices to political connections—e.g., Fisman (2001) and Faccio (2006).
reacts to growth. Identification proceeds by positing that certain variables shift one reaction function but not the other (exclusion restrictions).³

In this paper, we complement the structural equations approach just cited. We focus on how institutions of horizontal and vertical accountability mediate the relationship between stability and growth. The main threats to our analysis stem from the endogeneity of institutions—those constraining the executive or subjecting it to electoral discipline—rather than the endogeneity of leadership transitions (as in the studies above). Our strategy to deal with the endogeneity of institutions is to employ a difference-in-differences estimator using panel data.

A politico-economic model of stability and growth

Our theoretical model has two endogenous variables: P, the probability of leadership stability; and G, the economic growth rate. Following the literature on political agency (Barro 1973; Ferejohn 1986, 1999), we assume that leaders remain in office if economic performance is sufficiently good:

\[ P = Pr[G > T], \]  \hspace{1cm} (1)

where T is a performance threshold set by the ruler’s principals.⁴

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³ In practice, existing models distinguish two kinds of instability—regular or peaceful turnover and irregular or violent turnover—and thus examine three-equation models. But they assume linearity and stable equilibria, as noted in the text.

⁴ In autocracies, the principals may be members of a ‘selectorate’ (Bueno de Mesquita et al. 2003), ‘launching organization’ (Haber 2006), ‘dominant coalition’ (North Wallis, and Weingast 2009), or ‘ruling coalition’ (Svolik 2012). In democracies, the principals consist of the citizenry more broadly. For a review of work on democracies that takes a political agency perspective, see Besley (2006).
In standard models, growth depends both on the government’s “effort” in managing the economy and on stochastic shocks. Effort, which can be construed as “avoiding corrupt acts and rent extraction” or as “providing honest and effective public services,” is assumed to be costly. Scholars analyze when voters, who cannot observe governmental effort directly, can nonetheless induce such effort by imposing performance standards (T).

Here, we assume that growth depends not just on governmental effort but also on decisions made by an array of investors. These investors must decide whether to invest in politically sensitive projects or, alternatively, to put their money in the mattress (i.e., politically insensitive projects with low rates of return). Since politically sensitive projects pay off if and only if the incumbent remains in power, there are only two equilibria in the game, dubbed “low” and “high.” In the low equilibrium, the government exerts no effort, the investors do not invest, and the government is likely to fall. In the high equilibrium, the government exerts significant effort, the investors invest, and the government is likely to remain in office.

We call the model just sketched (and elaborated in the appendix A) our “micro” model, as it focuses on the behavior of an array of individual actors. This model entails a prediction about how the “macro” variables growth and stability relate to one another. In particular, the micro model predicts that growth is a step function of stability:

\[ G = X\zeta + \beta I[P \geq P_{\text{crit}}] + \epsilon. \] (2)
Here, $X\zeta$ represents the expected growth given economic conditions $X$ and "low" political stability. Low stability means that $P$ falls below a critical threshold, $P_{\text{crit}}$, such that investors no longer have sufficient confidence in the leader's continuation in office to invest in politically sensitive projects.\(^5\) The coefficient $\beta \geq 0$ reflects how much economic growth improves on average when political stability is above $P_{\text{crit}}$ and, consequently, politically sensitive investments are undertaken. Finally, $\varepsilon \sim N(0,\sigma)$ is an error term.

If $\beta > 0$, the macro model (1)–(2) yields two equilibria—one with low growth and stability and one with high growth and stability—corresponding to those in the micro model. In the low equilibrium, expected growth is $G_{\text{lo}} = E[G|X,\text{lo}] = X\zeta$ and political stability is $P_{\text{lo}} = \Pr[G > T|X,\text{lo}] = 1 - \Phi[(T-\mu)/\sigma] = \Phi[(\mu-T)/\sigma] < P_{\text{crit}}$, where $\Phi$ represents the standard cumulative normal distribution; and $\mu = X\zeta$. In the high equilibrium, expected growth is $G_{\text{hi}} = E[G|X,\text{hi}] = X\zeta + \beta$ and political stability is $P_{\text{hi}} = \Pr[G > T|X,\text{hi}] = 1 - \Phi[(T-\mu-\beta)/\sigma] = \Phi[(\mu+\beta-T)/\sigma] \geq P_{\text{crit}}$. In words, when a political economy transitions from its low to its high equilibrium, the expected growth rate increases by an amount $\beta > 0$, and the probability of leadership stability increases by an amount $P_{\text{hi}} - P_{\text{lo}} > 0$.\(^6\)

Following our discussion in the previous section, we shall augment equations (1) and (2) with the following stipulation:

\(^5\) Assuming risk-neutral actors, $P_{\text{crit}} = R_0/R_1$, where $R_0$ is the rate of return on riskless (politically insensitive) projects and $R_1 > R_0$ is the rate of return on politically sensitive projects. $I[P \geq P_{\text{crit}}] = 1$ if $P \geq P_{\text{crit}}$, and 0 otherwise.

\(^6\) Note that $\beta > 0$ implies the following condition (A): $\Phi[(\mu-\beta)/\sigma] < P_{\text{crit}} \leq \Phi[(\mu+\beta-T)/\sigma]$. Condition (A) is equivalent to there being no difference in expected growth between the low and high equilibria ($G_{\text{lo}} = G_{\text{hi}}$), which in turn is equivalent to $P_{\text{lo}} = P_{\text{hi}}$, which in turn is equivalent to $\beta = 0$. Thus, $\beta > 0$ implies condition (A), which means that expected growth given low stability is poor enough that actors in fact expect low stability, while expected growth given high stability is good enough that actors in fact expect high stability.
Here, $\beta_0 > 0$ represents the damaging fears of last period predation, policy change, and crony change, when the polity lacks any accountability mechanisms. Improving horizontal accountability should reduce these three fears by reducing the chief executive’s scope for unilateral action. Thus, we expect $\beta_H < 0$. Improving vertical (electoral) accountability may reduce the risk of last-period predation, if the executive can be re-elected—in which case $\beta_V < 0$. (How improving vertical accountability affects the risk of policy and crony change by new leaders is unclear and seems to depend at least on the specifics of the electoral system and the polarization of the electorate.)

**Summary**

Our model, whether stated at the micro or macro level, entails the following predictions. First, when a country is trapped in its low equilibrium, it should experience both political instability and poor mean growth. Second, when a country enters its high equilibrium, it should experience both stable leadership and high mean growth. Third, the larger is the politically sensitive economy, the greater will be the difference in mean growth observed between years of political stability and instability.

These predictions gibe with one of the most striking empirical patterns observed in autocracies—viz., that new leaders’ risk of expulsion is by far the
greatest in their first year and declines steeply thereafter (Svolik 2008). In terms of our model, some new leaders may enter office facing a low-stability-low-growth equilibrium in their country. Such leaders struggle to convince other actors that their grip on power is firm. If they succeed, then actors credit state promises, and policy- and connection-dependent firms undertake investments. Such investment in turn boosts growth and helps entrench rulers in power. On the other hand, if rulers fail to convince investors that their grip on power is firm, then growth stalls and there is another reason to try someone new.

The problem facing new leaders in our model can be viewed as a species of demand failure in economies where inputs to production are complements (Bryant 1983). In this view, production by politically dependent firms requires two complementary types of input: government policies and favors; and standard economic inputs, such as capital and labor. When these producers are uncertain about crucial government policies and favors, their demand for complementary economic inputs declines. The observable collapse in demand reveals that economic actors are not confident the leader will survive, which increases the risk that he will in fact fall.

Another feature of our model worth pointing out is that it implies that the worse the low equilibrium in a given polity is, the greater are economic actors’ incentives to support the incumbent. One way to put this is that incumbents in some states enjoy support from “economic Hobbesians,” meaning those who support the incumbent, even if tyrannical, because they believe that deposing

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7 Svolik does not examine growth rates in years of political instability; but that growth is poorer in such conditions is widely noted in the literature.
him will lead to an unacceptably high probability of being stuck in the low
equilibrium.

**How constitutional structure mediates the effect of leadership
turnover on growth**

In this section, we develop an estimation strategy to assess whether, as
our model predicts, \( \beta_H < 0 \). Our dependent variable is the logarithmic growth rate
\( \left( G_{jt} \right) \) of annual real per capita GDP in country \( j \), year \( t \). Our estimating equation is:

\[
G_{jt} = \alpha_j + \theta_t + X_{jt} \zeta + \delta_1 Vertical_{jt-1} + \delta_2 Horizontal_{jt-1} + \delta_3 Exit_{jt} + \\
\delta_4 Vertical_{jt-1} \times Exit_{jt} + \delta_5 Horizontal_{jt-1} \times Exit_{jt} + \epsilon_{jt}
\]

Here, \( \alpha_j \) is a country-specific fixed effect; \( \theta_t \) is a year-specific fixed effect; and \( X_{jt} \)
is a matrix of economic control variables (viz., the first two lags of growth and the
third lag of GDP per capita, the last to test for the presence of “convergence”).

\( Vertical_{jt-1} \) equals 1 if Boix, Miller and Rosato (2012) classified country \( j \) as
an electoral democracy in year \( t-1 \); and \( Horizontal_{jt-1} \) equals 1 if Marshall and
Jaggers (2002) classified country \( j \) as imposing “substantial limitations” on its
chief executive in year \( t-1 \). While these variables were fairly highly correlated
(Spearman’s rho = .80) over the study period (1850-2005), there were 490
country-years in which executive constraints existed, yet the polity was not an
electoral democracy (e.g., the United Kingdom in 1875); and 234 country-years
in which an electoral democracy lacked executive constraints (e.g., Cuba in
1910).

The variable \( Exit_{jt} \) equals 1 when at least one chief executive in country-
year \( jt \) exits office, and 0 otherwise. Our interest centers on whether exits affect
growth differently, as a function of the horizontal and vertical accountability of the chief executive. Thus, we also include the interaction variables $Vertical_{t-1} \times Exit_{t}$ and $Horizontal_{t-1} \times Exit_{t}$.  

We expect that exits will be associated with the largest downturns in growth when both horizontal and vertical accountability are absent. As executive constraints are put in place, $\beta$ should decline (per equation 3) and succession-related growth slumps should become milder. In terms of our model, the coefficient on $Horizontal_{t-1} \times Exit_{t}$, $\delta_5$, provides an estimate of $\beta_H$ (how much implementing executive constraints reduces the effect of leadership turnover on economic growth). In appendix B, we state conditions under which one can interpret $|\delta_5|$ as providing a lower bound on $|\beta_H|$.

As Papaioannou and Siourounis (2008) point out, the estimation model in equation (4) avoids several limitations of standard cross-country growth regressions. Most importantly, it controls for time-invariant country characteristics and accounts for global influences on growth, such as those produced by the two oil shocks in the 1970s. The standard errors are clustered by country.

**Results**

Our results—see Table 1, Model 1—can be read as follows. Lagged growth is a strong predictor of current growth and lagged GDP correlates negatively with growth, consistent with the well-known convergence hypothesis.
The main effects of horizontal and vertical accountability—about which we offered no predictions—are substantively small and statistically insignificant.

Table 1 about here.

Leadership turnover in polities lacking both vertical and horizontal constraints on their chief executive is associated with a 4.22 percentage point decline in the economic growth rate (significant at the .001 level). Adding horizontal constraints has a substantively and statistically significant effect, reducing the growth-depressing effect of turnover by about 2.84 percentage points. Given our previous discussion, the estimate of 2.84 percentage points provides a lower bound on $\beta$ in non-democratic regimes with unconstrained executives (i.e., $\beta_0$ in equation 3). Adding vertical constraints has a statistically insignificant but substantively non-trivial effect, reducing the growth-depressing effect of leadership turnover by about .75 percentage points. Polities with both horizontal and vertical constraints suffer a statistically insignificant mean downturn of $4.22 - 2.84 - .75 = .63$ percentage points, when their leaders exit power.

In Model 2, we drop the variable $Horizontal_{t-1}$ (plus its interactions) and replace it with two indicator variables that tap the ability of the legislature to check the executive: $Purse_{t-1}$ and $No\_decree_{t-1}$. The first variable equals 1 when the executive cannot continue spending money (in the new fiscal year) without the explicit prior approval of the legislature; and the second equals 1 when the executive cannot legislate without the explicit prior approval of the
We also add two interaction variables, $Purse_{jt-1}^\times Exit_{jt}$ and $No\_decree_{jt-1}^\times Exit_{jt}$, to the specification.

The results for Model 2 are similar to those for Model 1. The main effects of $Purse_{jt-1}$ and $No\_decree_{jt-1}$ are insignificant. Turning to the interactive effects, the estimations imply that leadership turnover when the legislature lacks both the power of the purse and a monopoly on legislation are associated with a 3.38 percentage point decline in the economic growth rate. Changing from a fiscally weak to a fiscally strong legislature reduces the effect of turnover by 2.22 percentage points, leaving a 1.16 percentage point downturn that is not statistically discernible from zero. The effect of vertical accountability roughly doubles in size but remains statistically insignificant.

All told, the evidence is consistent with our central claims. First, when leadership turnover looms, economic agents in regimes with less constrained leaders face significantly more acute uncertainty about last-period predation and about how policies and cronies might change under a new leader than do their counterparts in regimes with more constrained leaders. Thus, growth is more strongly (negatively) correlated with the exit of unconstrained rulers than it is with the exit of constrained rulers. Second, the conditioning effects of horizontal accountability are both substantively larger and statistically more consistent than those of vertical accountability.

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9 The data come from Cox (2013).
Robustness Checks

We checked the robustness of our findings in three different ways: (1) We altered the starting year, SY, of the analysis. In particular, we examined the period [SY,2005], for SY = 1850, 1875, 1900, 1925, 1950. (2) We altered the ending year, EY, of the analysis. In particular, we examined the period [1850,EY], for EY = 1950, 1975, 2005. (3) Holding fixed the time period, 1850-2005, we excluded each region of the world from the analysis, one at a time. For example, we excluded all of Eastern Europe and the former Soviet Union, and re-ran the analysis. Then we excluded all of Latin America; and so forth.

None of the three changes just sketched materially affected our main results. Horizontal accountability significantly moderates the effect of leadership succession on economic growth, while vertical accountability’s moderating effect is considerably smaller and statistically insignificant.

Extension: Controlling for votes of confidence

The results presented above are consistent with the hypothesis that, in equation (3), β_H < 0. Yet, there are other moving parts in the system of equations (1, 2 and 3) that possibly confound our conclusions. In this section, we focus in particular on the role of the threshold, T.

Suppose β_0 = β_H = β_V = 0 in equation (3), so that β = 0 in equation (2). Imposing this restriction, could our results be explained by variations in T? Some of the specific reforms captured by the indicators Horizontal and Vertical can plausibly be interpreted as directly affecting T. For example, when a country implements an effective vote of confidence, legislators’ disgruntlement over the
economy can translate smoothly into votes on confidence motions, which in turn translate predictably into expulsions of the incumbent from office. Effective confidence procedures should mean that the threshold, \( T \), increases, relative to a situation in which the ruler cannot be removed by the legislature. If the threshold under non-parliamentary regimes is low (\( T << \mu \)) and the parliamentary threshold is not too high (\( T \approx \mu \)), then \( \Delta G \) should become smaller when parliamentarism is introduced. So, if we imagine that all the changes in our variable *Horizontal* correspond to introductions or repeals of confidence procedures, then our findings might arise due to “\( T \) effects” rather than our preferred interpretation of “\( \beta \) effects”.

We explore this alternative interpretation by including a separate variable, *Confidence*, that equals 1 when the legislature can remove the chief executive by a simple or absolute majority, 0 otherwise. When we add this variable, along with its interaction with *Exit*, to the model, the results are similar to those in Model 1 of Table 1. In polities lacking both vertical and horizontal accountability, leadership turnover is associated with a 3.97 percentage point decline in the economic growth rate (versus 4.22 in Table 1). Adding horizontal constraints reduces the growth-depressing effect of turnover by 3.32 percentage points (versus 2.84 in Table 1). Adding vertical accountability reduces the effect of turnover by 1.87 percentage points (versus 1.68 in Table 1). Meanwhile, neither the main effect of *Confidence* nor its interaction with *Exit* are statistically discernible from zero. These results show that reforms imposing checks and

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10 The moderating effect of vertical accountability is statistically significant at the .10 level in the model with *Confidence* included.
balances on the executive drive our results in Table 1, rather than reforms allowing the legislature to remove the executive.

**Discussion**

We have focused on three structural features: horizontal accountability due to checks and balances; horizontal accountability due to the ability of legislators to remove the executive from office (i.e., the vote of no confidence); and vertical accountability due to the ability of voters to remove the executive from office. We argue that such features determine the extent of complementarities between political and economic inputs—which in turn determines the nature of the politico-economic equilibria in a polity.

When few checks and balances exist and leaders are difficult remove, complementarities are large, which means that (a) a substantial gap separates a political economy’s high-stability-high-growth equilibrium and its low stability-low growth equilibrium; (b) leaders are entrenched in power, not just directly (e.g., by provisions establishing “lifetime presidencies”) but also indirectly, because the wide gap between the “high” and “low” equilibria induces support from “economic Hobbesians”; (c) leadership succession, when it occurs, tends to be violent; and (d) both stability and growth tend to decline after successions. In contrast, as checks and balances improve, and regular means to remove leaders are introduced, the gap between the “high” and “low” equilibria shrinks, leaders derive less support from “economic Hobbesians,” leadership succession tends to be peaceful, and both stability and growth are less affected by successions.
Our results help explain why growth in autocracies is comparable in mean but more variable than in democracies—a pattern noted by Pritchett (2000), Mobarak (2005), and North, Wallis and Weingast (2009), among others. In a nutshell, the succession-driven economic cycles in democracies, regimes that typically institutionalize both horizontal and vertical accountability, are much milder than the succession-driven economic cycles in autocracies, which often lack both accountability mechanisms. Yet, investors in democracies *more often* face the milder uncertainties posed by electoral exits: the relative frequency of such an exit is about 0.2 in a randomly sampled democratic country-year. In contrast, investors in stable autocracies less often face the graver uncertainties posed by violent successions: the probability of such an event is about 0.05 in a randomly sampled autocratic country-year. Thus, to the extent that growth is driven by cycles in political uncertainty associated with leadership turnover, democracies and autocracies may have similar mean growth rates: the first suffering more frequent but less severe shocks, the latter less frequent but more severe shocks. Nonetheless, democracies should have a noticeable advantage in the variability of growth, because the variance in democratic uncertainty from non-election years to election years is smaller than the variance in autocratic uncertainty from iron-grip years to years of coup or revolt.

**Conclusion**

A substantial literature explores how regime type, dichotomized as democracy and autocracy, affects political stability and hence economic growth.
In these studies, stability and growth are both endogenous; and a single stable equilibrium exists in the system of linear equations that connect them.

In this paper, we replace the democracy-autocracy dichotomy with a four-way regime classification, depending on the presence or absence of both horizontal and vertical accountability. The motivation for adopting a four-way categorization of regimes is partly that horizontal and vertical accountability have often been introduced at different times in a given country’s history; and partly that such reforms should theoretically have different effects. Our data, which come from the period 1850-2005, allow us to observe many changes on both dimensions of accountability.

In our model, economic agents combine political and economic inputs to produce their goods and services. When they become uncertain about the supply of key political inputs, their demand for economic inputs declines. Thus, political economies are inherently prone to correlated downturns in stability and growth, corresponding to transitions from a high equilibrium, in which investors expect stability and accordingly invest, which in turn ensures stability; to a low equilibrium, in which investors expect instability and accordingly do not invest, which in turn ensures instability.

How much stability and growth vary between a polity’s two equilibria depends on its structural characteristics—here, the presence or absence of horizontal and vertical accountability mechanisms. Our main finding is that horizontal accountability reduces the growth gap between the high and low
equilibria substantially and consistently; while the effect of vertical accountability is substantively smaller and statistically insignificant.

Our results resonate with previous work emphasizing the importance of executive constraints, ranging from the classic observations of Enlightenment theorists (e.g., Montesquieu 1989[1748]) to more recent discussions of constitutional commitment (North and Weingast 1989), horizontal accountability (O'Donnell 1999), and the importance of political institutions in general (North, Wallis and Weingast 2009; Acemoglu and Robinson 2012; Cox, North and Weingast 2015), and legislatures in particular (Fish 2006; Cox 2015). Our results also suggest that democracy promotion may hinge more crucially on reforms that enhance legislative power vis-à-vis the executive than on reforms that ensure freer and fairer elections.
Appendix

A. Stability and growth as a coordination game

Consider a political economy with a ruler, denoted 0, and investors labeled from 1 to n. These actors play a three-stage game.

In the first stage, the investors choose a performance threshold, T, to demand of the ruler. A single investor is randomly recognized by Nature, whereupon s/he proposes a value of T. If the proposal is accepted unanimously, then it is implemented in the second stage. Otherwise, an exogenously stipulated default threshold, $T_0$, comes into force in the second stage.

In the second stage, the ruler exerts binary “effort,” $E \in \{0,1\}$, in managing the economy; and each investor $j$ invests an amount $y_j \in [0,1]$ in politically sensitive projects. All investors have the same budget to invest, which is normalized to unity.

In the third stage, Nature adds a stochastic shock $\varepsilon \sim N(0,\sigma)$ to the economic growth rate. All actors then observe the overall growth rate, which is given by:

$$G = X\zeta + \lambda E + \theta \sum_j y_j + \varepsilon,$$

(A1)

Here, $X\zeta$ represents expected growth in the politically insensitive part of the economy, given economic conditions $X$. The ruler remains in power if and only if $G > T$. All actors’ payoffs (on which more below) are then realized.

The probability that the ruler remains in power, given $T$, $X$, $E$ and $y = (y_1,\ldots,y_n)$, is

$$P(T,X;E,y) = \Pr[G > T|X,E,y] = \Phi[(X\zeta + \lambda E + \theta \sum_j y_j - T)/\sigma]$$

(A2)

The ruler seeks to maximize the expected rents from rule:

$$\max_E P(T, X; E, y)B - cE$$

Here, $B$ represents the value of holding office and $c$ represents the cost of effort. The ruler’s optimal effort level $E^*$ is 0, if the cost of effort exceeds the expected benefit, and 1, otherwise:
\[ E^* = \begin{cases} 
0 & \text{if } P(T,X;1,y)B < c \\
1 & \text{otherwise}
\end{cases} \]

For convenience, we assume that an indifferent ruler exerts effort.

Investor \( j \) seeks to maximize expected returns:

\[
\max_{y_j} P(T,X;E,y_{-j},y_j)R_jy_j + R_0(1-y_j)
\]

Here, \( R_1 \) represents the rate of return on politically sensitive projects, \( R_0 < R_1 \) the rate of return on politically insensitive projects, and each investor has a unit of funds to invest. Investor \( j \)'s optimal investment is as follows:

\[
y_j^* = \begin{cases} 
0 & \text{if } P(T,X;E,y_{-j},1) < R_0 / R_1 \equiv P_{crit} \\
1 & \text{otherwise}
\end{cases}
\]

For convenience, we assume that indifferent investors invest.

Suppose the following conditions hold:

(C1) (a) The ruler’s best response, when all investors invest, is to exert effort. Formally, \([P(T,X;1,1,...,1) - P(T,X;0,1,...,1)]B \geq c\).

(b) The ruler’s best response, when no investor invests, is to exert no effort. Formally, \([P(T,X;1,0,...,0) - P(T,X;0,0,...,0)]B < c\).

(C2) (a) Each individual investor’s best response, when all others invest and the ruler exerts effort, is to invest. Formally, \(P(T,X;1,...,1,1) \geq R_0 / R_1\).

(b) Each individual investor’s best response, when no other investor invests and the ruler exerts no effort, is to withhold investment. Formally, \(P(T,X;0,...,0,1) < R_0 / R_1\).

Given these conditions, there are exactly two equilibria in the stage 2 subgame. In a low equilibrium, \( E^* = 0 \) and \( y_j^* = 0 \) for all \( j \). The ruler remains in office with a low probability, \( P_{lo} = \Phi((X_{\lambda} - T) / \sigma) \). In a high equilibrium, \( E^* = 1 \) and \( y_j^* = 1 \) for all \( j \). The ruler remains in office with a high probability, \( P_{hi} = \Phi((X_{\lambda} + \lambda + \theta_1 - T) / \sigma) \). These two equilibria then generate the step-function form of equation (2) in the text, with \( \beta = \lambda + n\theta \).

The next step is to show that, for certain parameter values, the investors will pick a performance target \( T \) in the first stage such that conditions (C1) and
(C2) are satisfied in the second stage. The intuition is that the investors wish to motivate effort on the ruler’s part. Thus, if they can avoid it, they will neither set the target so low that the ruler can stay in power regardless of effort, nor set it so high that the ruler will be expelled regardless of effort—which ensures satisfaction of (C1). Similarly, the investors wish to motivate each other to invest. Thus, if they can avoid it, they will neither set the target so low that the ruler can stay in power regardless of their investments, nor set it so high that the ruler will be expelled regardless of their investments—which ensures satisfaction of (C2). For some parameter values, it is possible to find Ts that satisfy both (C1) and (C2).

An example of a set of parameter values that ensure dual equilibria in the second stage subgame is $\lambda \geq 2\phi^{-1}\left(\frac{c+B}{2B}\right)$ and $\Phi\left(\frac{-(n-1)\theta - 0.5\lambda}{\sigma}\right) < \frac{R_0}{R_i} \leq \Phi\left(\frac{5\lambda}{\sigma}\right)$. Given these values, the investors can induce effort on the ruler’s part, and investment on each other’s part, by choosing $T = X_\zeta + \theta_1 + 0.5\lambda$.

**B. Measuring the effect of executive constraints**

Our estimating equation (4) is a single equation. One way to interpret our approach, then, is that we must assume exits are pre-determined or exogenous. In this appendix, we view exits as endogenous and use a potential-outcomes argument to sign the bias on the coefficient $\delta_5$.

Let $S_{jt} = 1$ if Exit$_{jt}$. Thus, $S_{jt} = 1$ when there is leadership stability, = 0 else. Let $H_{jt} = \text{Horizontal}_{jt}$. The expected difference in growth-given-stability and growth-given-instability can be written as

$$E[G_{jt}|S_{jt} = 1, H_{jt}] - E[G_{jt}|S_{jt} = 0, H_{jt}] = E[G_{1jt} - G_{0jt}|S_{jt} = 1, H_{jt}] + \Sigma(H_{jt}),$$

$$\Sigma(H_{jt}) = E[G_{0jt}|S_{jt} = 1, H_{jt}] - E[G_{0jt}|S_{jt} = 0, H_{jt}]$$

Here, $G_{1jt}$ denotes the potential outcome given leadership stability, $G_{0jt}$ the potential outcome given leadership instability, $E[G_{1jt} - G_{0jt}|S_{jt} = 1, H_{jt}]$ gives the causal effect of stability on growth, and $\Sigma$ is the usual “selection bias” term.

The coefficient $\delta_5$ equals the following difference in differences:

$$\{E[G_{jt}|S_{jt}=1, H_{jt}=1] - E[G_{jt}|S_{jt}=0, H_{jt}=1]\} - \{E[G_{jt}|S_{jt}=1, H_{jt}=0] - E[G_{jt}|S_{jt}=0, H_{jt}=0]\}$$

Using the formula above, this can be re-written as:

$$\delta_5 = \beta_H + \{\Sigma(1) - \Sigma(0)\}, \text{ where}$$

$$\beta_H = E[G_{1jt} - G_{0jt}|S_{jt}=1, H_{jt}=1] - E[G_{1jt} - G_{0jt}|S_{jt}=1, H_{jt}=0].$$
We shall assume that $\Sigma(1) \geq \Sigma(0) \geq 0$, so that $\delta_s > \beta_H$. This means that our estimator of $\beta_H < 0$ is shifted to the right by a non-negative amount. In other words, $\delta_s$ will, except in the case $\Sigma(1) = \Sigma(0)$, underestimate the moderating effect of horizontal accountability.

Intuitively, the assumption $\Sigma(1) \geq \Sigma(0) \geq 0$ can be justified as follows. Equation (2) effectively partitions growth into a component that is insensitive to whether leadership is stable or not; and a component that is sensitive. Expected growth in the low equilibrium is due to the politically insensitive economy alone, while growth in the high equilibrium adds activity in the politically sensitive economy:

$$E[G_{lo}] = X\zeta$$
$$E[G_{hi}] = X\zeta + \beta$$

Knowing that the leader stayed in office is a clue that politically insensitive growth, $X\zeta$, was higher; and a clue that the politically sensitive investors coordinated on investing. Knowing that the leader exited is a clue that politically insensitive growth was lower; and a clue that the politically sensitive investors did not invest. For both reasons, we expect $\Sigma(1) \geq 0$ and $\Sigma(0) \geq 0$. $\Sigma(1) \geq \Sigma(0)$ follows in our model because $\beta_0 > 0 > \beta_H$.

### C. Summary statistics for Model 1, Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
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</tbody>
</table>
References


Table 1: How constitutional structure mediates the economic costs of leadership turnover, 1850-2005

Dependent variable: Logarithmic growth rate

<table>
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<tr>
<th>Independent variable</th>
<th>Model 1</th>
<th>Model 2</th>
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<tbody>
<tr>
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<td>.10*** (.03)</td>
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<td>Growth at t-2</td>
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<tr>
<td>GDP per capita at t-3</td>
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<td>-.0002*** (.00003)</td>
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<tr>
<td>Purse at t-1</td>
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<td>.23 (.38)</td>
</tr>
<tr>
<td>No_decree at t-1</td>
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<td>.47 (.30)</td>
</tr>
<tr>
<td>Exit at t</td>
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<td>-3.38*** (1.93)</td>
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<tr>
<td>Exit*Vertical accountability</td>
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<td>Exit* Purse</td>
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<td>Exit*No_decree</td>
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<td>Yes</td>
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Within R² | Between R² | Overall R² |
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Notes: Standard errors clustered by country. The number of observations differs between the two models mainly because the variable Horizontal is coded by Polity IV as missing for years of transition.