Democratic Values and Institutions*

Timothy Besley
LSE and CIFAR

Torsten Persson
IIES and CIFAR

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Abstract

This paper attempts to bridge two literatures: one in political science/ sociology and one in economics; the first that sees democratic values as a crucial pre-requisite for democratic institutions; the second sees equilibrium institutions as the product of strategic decisions by elites and/or other groups in a society. We propose a framework for analyzing the two-way interplay between democratic values and institutions. A group of citizens hold values that make them willing to protest in order to preserve either strong executive constraints or open executive recruitment, and the share of such citizens evolves over time. Our model suggests a natural, but important, complementarity between values and institutions so that the dynamics of values tend to reinforce institutional choices. The model can help to explain variation in democratic values and the history of political institutions across countries and over time, giving insight into country-level heterogeneity. The model can also be used to consider how foreign intervention may influence values and institutions.

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"(I)f a political system is not characterized by a value system allowing the peaceful "play" of power ... there can be no stable democracy." Lipset (1959, p. 71)

"During the nineteenth century most Western societies extended voting rights, ... these political reforms can be viewed as strategic decisions by the political elite to prevent widespread social unrest and revolution." Acemoglu and Robinson (2000, p. 1167).

1 Introduction

A body of research by economists and economic historians gives a central role to political institutions in explaining the heterogeneity in economic growth and development.[1] Apart from being intrinsically interesting, understanding the origins and prospects for reform of institutions is therefore instrumentally important. Although many economists have been reluctant to appeal to evolving democratic values when studying political change, we will do so in this paper.

Any of the standard data sets on the history of political institutions reveals distinct patterns. First, some countries have made long-standing commitments to open elections and constraints on executive authority – the hallmarks of democratic institutions. These arrangements go largely unchallenged and the rulers and policies chosen through these institutions are accepted with little or no protest. Second, in some countries at the other end of the spectrum, elections are at best a fig leaf to give dictators and single-party regimes a veneer of legitimacy, and the powers of incumbents remain unchecked by legal and parliamentary institutions. Third, some countries occupy a middle ground where progress towards democracy or autocracy is punctuated by protests and institutional reversals – we see periodic struggles to embed institutional change, but occasionally a country breaks out onto a new path leading into one of the stable groupings.[2]

The drivers of democratic development remain the subject of debate. A long-standing tradition in sociology and political science sees the roots of democracy in the dynamics of culture, where democratic values underpin

[1] Interest in these issues goes back, at least, to the seminal work of North (1983).

[2] Fact 1 and 2 in Section 4 below gives a graphical interpretation of these patterns.

democratic forms of government. A more recent economics literature instead sees institutional change as reflecting strategic investments, including costly decisions to fight by those who would gain or lose from institutional reversals.[3]

The main objective of this paper is to enrich the analysis of political reform by building a bridge between the value-based and strategic approaches to democratic change, two literatures that hitherto have not spoken to each other.[4] Our combined approach is thus not mono-causal: neither institutions nor values have an upper hand in the process of democratic change – rather, the two evolve jointly and interdependently. Specifically, our model of cultural evolution drives the dynamics of democratic values, which figure prominently in strategic choices of democratic institutions, and these, in turn, feed back to changing democratic values. A second feature of our approach is its isolation of factors that shape the tension between different interest groups in society, in particular between elites and citizens. A third feature – which departs from most existing approaches – is that we do not allow current incumbents to commit future rulers to a certain institution, not even for a single period. A fourth feature is that we consider separately two key aspects of democratic institutions, namely openness in the recruitment of political leaders (the franchise), as well as restrictions on the power of these leaders once they hold office (executive constraints). A fifth feature is that we distinguish factors – various shocks to the environment – which have a short-run impact on institutions, from those which have a long-run impact. The long-run factors are the values, although their trends also relate back to fundamentals, including structures that make polities susceptible to particular shocks.

The model we propose allows us to interpret broad patterns in the data within a common framework, which is consistent with a number of seemingly separate ideas and findings in the existing literature. For example, it suggests a mechanism behind a long-lived effect of historical institutions, like the colonial-origins hypothesis of Acemoglu, Johnson, and Robinson (2001). It also suggests why cumulated values, like social or democratic capital, may underpin consolidated change, as in Putnam (1993) and Persson and Tabellini (2009). It provides a new perspective on the resource curse as a source of political violence (Mehlum, Moene, and Torvik 2006). It gives a theoretical

[3]Section 2 below reviews some of the key ideas in these existing literatures.

[4]One important exception to this is a recent paper by Ticchi, Verdier and Vindigni (2013) – we return to this paper in Section 2.

underpinning to the notion of critical junctures in history and subsequent institutional paths, as emphasized by Acemoglu and Robinson (2012). The theory also allows for different types of reforms of political institutions. Our dynamic equilibria thus entail "defensive" reforms – a ruling elite voluntarily relinquishing political control given the expected costs of trying to hold on to it (Acemoglu and Robinson 2000, 2006) – as well as classic "offensive" reforms, when citizens oust incumbent elites from power to bring about institutional change (Marx and Engels 1848, Kuran 1995).

The paper is organized as follows. The next section gives a short selective overview of the cultural and strategic approaches to political institutions. Section 3 outlines our basic theoretical argument in a bare-bones model. Section 4 provides three background facts about the dispersion of democratic institutions and values over countries and time. Section 5 applies the theoretical arguments of Section 3 to shed light on the empirical patterns described in Section 4. We start by separately at the institutions of executive constraints and executive recruitment, one by one. Then, we extend the model to sequential choices of both these institutions, before returning to the data. Section 6 sketches how the theory may help us understand the effects of active or passive influence by foreign powers on the paths of values and institutions, and provides some supporting correlations. Section 7 concludes. Two Appendixes collect some proofs and additional material.

2 Background

The idea of a cultural basis for democracy goes back, at least, to Aristotle. But the *locus classicus* is Montesquieu (1748), which spells out how factors like geography and climate interact with different cultures to produce "spirits" that shape the working of alternative political institutions, including the separation of powers. In modern political science, Almond and Verba (1963) stand out in their study how political culture is vital for democracy. One strand of this literature focuses on the importance of education in supporting civic values. These ideas have been taken up, with a global focus on measurable attitudes, in the work of Inglehart (1997) and Inglehart and Welzel (2005). The latter argues that pro-democratic attitudes can serve to measure the demand for democratic change.

In line with our model mechanism, Welzel (2007) argues that emancipating mass attitudes measured in the World Values Survey demonstrate

citizens' willingness to struggle for democracy.[5] We use such values to enumerate the facts in Section 4 and then use our modelling to illuminate them in Section 5. Also related is Gorodnichenko and Roland (2015), which takes cultures in its theoretical and empirical analysis of why individualistic rather than collectivistic cultures are more likely to underpin democratizations.

Although suspicious of cultural explanations as potentially circular, Moore (1966) recognizes that if culture matters it does so in a dynamic fashion. He notes that "to take values as the starting point of sociological explanation makes it very difficult to understand the obvious fact that values change in response to circumstance" (p. 487). In the same vein, our approach focuses on changing values.

Almond and Verba (1963, p. 367) discuss the importance of the socialization process that shapes civic culture, which "includes training in many social institutions – family, peer group, school, work place, as well as in the political system itself". Crucial in our approach is a model of cultural evolution, which is inspired by earlier research in anthropology beginning with Cavalli-Sforza and Feldman (1981) and Boyd and Richerson (1985).

In economics, research on culture and individual behavior has spread in the last ten to fifteen years, a body of work surveyed and discussed in Bisin and Verdier (2011). We model cultural change through the dynamics of preferences or values (rather than dynamics of behavior or beliefs) of a specific group. In that sense, we follow the lead of Güth and Yaari (1992). Unlike the earlier economics literature, we focus on the preferences that govern political, rather than economic or social, behavior.

Our modelling partly parallels the theory of franchise extension, particularly that in Acemoglu and Robinson (2000, 2006), who also offer insightful case-study evidence. These authors emphasize the quest for political instability, due to the threat of a revolution. The franchise is used as a commitment device by the elite to guarantee the masses more favorable treatment. Aidt and Jensen (2014) find some econometric evidence supporting this view.

Our modelling is also related to that in Lizzeri and Persico (2004), where a ruling group voluntarily extends the franchise to shift spending from targeted transfers to broad-based programs. This resembles a classic argument – first made by Rokkan (1970), then extended by Boix (1999) – that fears of electoral losses explain the move from plurality to proportional representation to protect the center-right from a labor electoral landslide in some

[5] See also Welzel, Inglehart and Kruse (2015).

countries in early 20th-century Europe where landed and industrial elites had not forged their interests.

In a different vein, Lagunoff (2001) develops a dynamic game between two groups, in which greater political turnover leads to greater constitutional support for civil liberties. Congleton (2007) discusses forces that promoted parliamentary oversight on royal power, focusing on instability due to shocks to the monarch's preferences.

By emphasizing constraints on the executive (on top of the franchise), our research relates to that in Acemoglu, Robinson and Torvik (2011), who propose a model of endogenous checks and balances stressing how these change the ability of special interests to influence policy. Building on the ideas in Besley and Persson (2011), Besley, Persson, and Reynal-Querol (2016) analyze theoretically and empirically how the resilience of incumbent leaders may rub off on their motives to introduce stronger executive constraints. One key idea in these papers is the need to contrast the motives to create open elections with the motives to constrain incumbents. This is also at the heart of Mukand and Rodrik (2015), who draw a distinction between electoral and liberal democracy.

Some authors maintain that human capital and education, rather than institutions, is the main driver of development – see, e.g., Glaeser et al (2004). They emphasize two related dimensions of education which are relevant to this paper. It is often the educated (like university students) who protest, and education can transform values. In our paper, concerned citizens are the conduit of democratic values and, although we emphasize parental transmission, the education system may also be important.

Closest to our approach is the important unpublished paper by Ticchi, Verdier and Vindigni (2013), who also model the interaction between value formation through socialization and reforms of political institutions, when democratic values shape citizens' willingness to defend democracy. As well as differences in the modelling, they consider only a single democratic dimension and place less emphasis of matching theory and facts. On the other hand, they do consider education explicitly.

Persson and Tabellini (2009) study interactions between political reforms and economic growth, when people are more prone to support democracy at higher levels of democratic capital, which is passively accumulated depending on the incidence of democracy in a country's past history or its nearby geography. Besley (2015) analyzes the dynamic interactions between income inequality, redistribution, and individual aspiration levels in a model where

young people obtain their aspirations from active socialization by their parents.

The mechanism we propose for sustaining institutional change builds on the idea that values create a credible threat to protest against institutions that produce unfair outcomes relative to a reference point. As such, it is related to Passarelli and Tabellini (2016) who consider how values underpin the willingness to protest in the wake of policies which citizens regard as unfair.

Finally, our paper relates to a few recent studies of the two-way interaction between belief (rather than value) formation and formal institutions. One example is Benabou (2008) who studies interactions between the size of government and people's beliefs (ideologies) about the relative efficiency of state vs. market solutions. Another is the recent paper by Levy and Razin (2016) who analyze interactions between segregation in private and public school choices and polarization of beliefs about the relative merits of these types of schools.

3 A Canonical Model

In this section, we spell out our basic dynamic framework. Underneath lies a conflict of interest between an incumbent group and some subordinated groups. In each period, an incumbent leader chooses which institution to impose without any commitments of future leader. Incumbents may choose an institution against their direct interests, if this cuts the need to spend resources on curtailing protests by "concerned" individuals. The only dynamic element in the model is the proportion of such individuals which evolves along the equilibrium path in response to the relative payoff of being concerned rather than passive, which in turn reflects the institution in place.

Groups and conflicts of interest The framework has $M+1$ groups of equal size, normalized to unity. These groups are labelled $m = i, 1, ..., M$, where group i denotes the incumbent elite. Institutions $D_t \in \{0, 1\}$ directly affect the payoffs to these groups, as does the realization of random variable $x_t \in [\underline{x}, \overline{x}]$ with distribution function is $H(\cdot)$. Group m's expected payoff can be written as

$$u^m(x, D),$$

which we assume is (weakly) increasing in x. The core conflict of interest is captured in the following two assumptions:

$$u^m(x,0) - u^m(x,1) > 0 \text{ and increasing in } x \text{ for all } x \in [\underline{x}, \overline{x}] \text{ and } m = i$$

and

$$u^m(x,0) - u^m(x,1) < 0 \text{ for all } x \in [\underline{x}, \overline{x}] \text{ and } m = 1, ...M.$$

Thus the elite and subordinated groups have different institutional preferences. The model is kept general and abstract to bring out the basic argument as simply as possible. However, at the end of the section we discuss two examples of specific political institutions, which give concrete interpretations of D_t, x_t and the conflict of interest.

Types, intrinsic motives, and losses from injustice Individuals are of two types. A fraction $1 - \mu_t$ encompasses standard economic agents: they are *passive,* never protest and their date-t utilty is simply $u^m(x_t, D_t)$. The remaining fraction is made up by the *concerned*, a prospective civil-society movement. These agents are assumed to be equally distributed across all groups in society.[6]

Concerned citizens care about social justice. Thus, in addition to utility $u^m(x_t, D_t)$, concerned citizens have an intrinsic preference for $D_t = 1$, which reflects the societal benefit from a particular institution relative to a reference point.[7] The *aggregate* gain from having institution D_t compared to $D_t = 0$, for all subordinated groups is:

$$\left[\sum_{m=1}^{M} \left[u^m(x_t, D_t) - u^m(x_t, 0)\right]\right]. \tag{1}$$

Symmetrically, the loss (sense of injustice) at D_t is the *aggregate* loss this imposes relative to $D_t = 1$:

$$\left[\sum_{m=1}^{M} \left[u^m(x_t, 1) - u^m(x_t, D_t)\right]\right]. \tag{2}$$

[6]For simplicity we assume that this applies also to the ruling group. This assumption also seem to have support in history where some elite members have frequently seen injustice in institutional arrangements even if those favor their own group.

[7]The key role of reference dependence in our framework is the implication that citizens are aggrieved when they lack constitutional rights. This emerges naturally when a reference point is used to value outcomes.

This approach enables us to combine in a simple way that (i) the concerned experience a loss from not having the institution they prefer and (ii) the latter provides a reference point for the loss.[8] This way of capturing injustice is, of course, quite specific. But the idea of reference-dependent preferences is well established, following the seminal work of Kahneman and Tversky (1979) who relied on evidence from a range of psychological studies.[9]

Our formulation also makes values distinct from standard preferences.[10] The payoffs of concerned citizens depend on their sense of injustice based on *societal* losses. Values thus embody views about the kind of society that they wish to live in, rather than their own material payoffs.

Finally, we will assume that the concerned always join in any protest to protect their preferred institution, whenever they have the opportunity of doing so. Thus is discussed further below.

Fighting by the incumbent The incumbent can respond to anticipated protests by spending resources to fight them. (We do not allow the incumbent to buy off protesters, although this would lead to similar trade-offs.) Let f_t denote the forces recruited for fighting in period t, with wf_t being the cost of hiring this group. In each period, concerned citizens will have an opportunity to join protests against the incumbent with exogenous constant probability ρ. We denote a protest opportunity by $r = 1$ and no opportunity by $r = 0$. If a protest occurs in period t and a fraction ϕ_t of individuals participate, the probability of unseating the incumbent group is $p(\phi_t, f_t)$ .This probability is increasing in ϕ, decreasing and convex in f, and satisfies:

$$p_\phi - \frac{p_f p_{\phi f}}{p_{ff}} \geq 0 \text{ for all } \phi \in [0,1] \text{ and } f, \quad \text{and } \lim_{\phi \to 0} p(\phi, f) \to 0 \text{ for all } f \quad (3)$$

The first condition guarantees that $p(\cdot)$ increases in ϕ, even when the leadership optimally fights a protest. The second one implies that the incumbent

[8] Gains and losses here are necessarily equal and opposite given the discrete nature of the institutional choice. Below, we study the case of two dimensional institutional choice where some institutional configurations can lead to simultaneous gains and losses.

[9] There are many applications of reference-dependent preferences to concrete phenomena as discussed, for example, in Kahneman et al (1991). For a more recent theoretical treatment of reference-dependent preferences, see Koszegi and Rabin (2006).

[10] Here, we assume that gains and losses are valued symmetrically. However, there is ample evidence for loss aversion and our framework could introduce this straightforwardly by supposing that concerned citizens weigh losses more than gains. The core results below would still go through under that alternative assumption.

puts no resources into fighting if nobody is protesting.

Population structure and socialization We consider a successive-generations model where generations only overlap as parents endow their children with values, as in Besley (2015). Children have two parents and – to keep the population balanced – all pairs have two children. We also assume that all marriage matching is random.[11]

Children inherit their values. Two parents of the same type simply pass along the values associated with their common type. However, children whose parents have different types get their type depending on the expected utilities of being concerned and passive. Let $\Delta(\mu)$ be the expected utility difference between these types – their relative fitness – when the proportion concerned in the population is μ. Moreover, let $\eta \in (-\infty, \infty)$ be a couple-specific idiosyncratic negative shock to this utility difference. Then, a child with mixed parentage becomes concerned if and only if $\eta \leq \Delta$.

We assume that η has a symmetric single-peaked distribution with c.d.f. G and p.d.f. g. This implies that a mixed-marriage child becomes concerned with probability $G(\Delta(\mu))$ at utility difference $\Delta(\mu)$. By the law of large numbers, this is also the concerned proportion among those with mixed parentage. By definition, $G(\cdot)$ is monotonically increasing, and by symmetry $G(0) = 1/2$.

Cultural evolution Using the notation above, we can write the evolution of the concerned population share as:

$$\mu_{t+1} = \mu_t^2 + 2\mu_t(1-\mu_t)\,G(\Delta(\mu_t)).$$

A fraction μ_t^2 of matches occur between concerned citizens (whose children all become concerned), while $2\mu_t(1-\mu_t)$ is the fraction of mixed households (whose children become concerned with probability $G(\Delta(\mu_t))$. Manipulating this expression, we get the change in the concerned proportion:

$$\mu_{t+1} - \mu_t = 2\mu_t(1-\mu_t)\left[G(\Delta(\mu_t)) - \frac{1}{2}\right]. \tag{4}$$

Clearly, μ goes up (down) whenever relative fitness $\Delta(\mu)$ is positive (negative). This is the one and only dynamic equation in the model.

[11] For the results to go through, we only require that there is at least some element of random matching.

In this approach, the evolution of values is grounded in the payoffs different types receive. The link between $\Delta(\mu_t)$ and the dynamics of values drives the model over time and this in turn depends on the relative fitness of being concerned and passive. Put differently, the sign of $\Delta_\mu(\mu)$ is crucial to the equilibrium dynamics; we return to this below.[12]

Timing The timing within a generation has the following four steps:

1. A leader in generation t is selected at random from incumbent group i and x_t is realized.

2. This leader chooses D_t and f_t.

3. If $D_t = 1$, the payoffs are $u^m(x_t, 1)$.

3′. If $D_t = 0$, the concerned get an opportunity to protest with probability ρ. If the protest is unsuccessful, payoffs are $u^m(x_t, 0)$. If it is successful, the incumbent is unseated and $u^m(x_t, 1)$.

4. Payoffs are realized, a new generation is born and socialized by their parents before they die. If the incumbent group is not unseated, it stays on until period $t+1$. If it is, a new incumbent is drawn at random.

Before studying socialization at step 4, we solve the rest of the generational equilibrium backwards.

Protests and payoffs – step 3 Concerned citizens are atomistic and do not internalize the fact that they change the probability of successful protest. As already mentioned, they always participate, given an opportunity to do so. Hence, the fraction of protesters ϕ_t is given by the fraction of concerned μ_t and the probability of unseating the incumbent becomes $p(\mu_t, f_t)$. In our

[12] Our emphasis on relative fitness contrasts with a model where pure numerical supremacy of types drives evolution. However, our general approach and our main results are consistent with alternative types of cultural evolution. In an earlier version of the paper, we explored three features which could alter the cultural dynamics. First, we considered cultural dynamics with a strategic element, as in Bisin and Verdier (2001). Second, we allowed for cultural dynamics through social learning as specified by Boyd and Richerson (1985). Finally, we discussed a richer approach to social influence within lifetimes through a broader range of "cultural parents".

framework, protest is thus not strategic even though the success of the group depends on it.[13]

Consider first what happens when $D_t = 0$. The expected payoff to the incumbent leader with his preferred institution is

$$\widetilde{V}(x_t, \mu_t, f_t) = [1 - rp(\mu_t, f_t)]\, u^i(x_t, 0) + rp(\mu_t, f_t) u^i(x_t, 1) - w f_t.$$

This takes into account whether or not a protest ensues, $r = 1$, or $r = 0$, as well as f, the intensity with which the leader fights at step 2.

When $D_t = 1$, we can write the leader's payoff as

$$\widetilde{U}(x_t, f_t) = u^i(x_t, 1) - w f_t.$$

This takes into account the fact that no protest occurs in this case.

Choice of f – step 2 It is immediate from the definition of $\widetilde{U}(x, f)$ that it does not pay for the leader to fight when he sets $D_t = 1$ as this has only costs and no benefits. Given this, we can write the equilibrium expected payoff to $D_t = 1$ as

$$U(x_t) = \text{Max}_f \widetilde{U}(x_t, f) = u^i(x_t, 1).$$

When $D_t = 0$, however, the leader faces a trade-off, as more fighting f decreases the probability of a successful protest, should it occur (with probability ρ). The equilibrium expected payoff to $D_t = 0$ is

$$V(x_t, \mu_t) = \text{Max}_f E_r\{\widetilde{V}(x_t, \mu_t, f_t)\}. \tag{5}$$

Let $f^*(x, \mu)$ be the optimal choice of f. The envelope theorem implies that $V(\cdot)$ increases in x and decreases in μ. We assume that for all $x \in [\underline{x}, \overline{x}]$

$$\lim_{\mu \to 1} \left[w f^*(x, \mu) - [1 - \rho p(\mu_t, f^*(x, \mu))] \times \left[u^i(x, 0) - u^i(x, 1) \right] \right] > 0\ . \tag{6}$$

By (6) and (3), $dp(\mu, f^*(\mu, x))/d\mu > 0$ – i.e., a larger share of concerned raises the probability of a successful protest even though the incumbent is fighting optimally.

[13] The model could be extended following the approach of Persson and Tabellini (2009) to model protests in global game, where the concerned receive a payoff from participating. Then, ϕ_t and μ_t may diverge. However, as long as there are strategic complementarities of the kind proposed by Persson and Tabellini, the equilibrium fraction of the concerned who protest will increase in μ. The qualitative properties of this extended model will be similar to what we have here, but the strategic choice of participation will tend to magnify the effects.

Choice of institutions – step 2 To choose D_t at step 2, the incumbent leader compares $V(x_t, \mu_t)$ with $U(x_t)$, given the realization of x_t, and the share of concerned μ_t. The equilibrium choice of D_t satisfies:

Proposition 1 *There exist* $\left\{\mu^L, \mu^H\right\}$ *with* $\mu^L < \mu^H$ *such that for*

1. $\mu \leq \mu^L$, $D(\mu, x) = 0$ *for all* $x \in [\underline{x}, \overline{x}]$;
2. $\mu \geq \mu^H$, $D(\mu, x) = 1$ *for all* $x \in [\underline{x}, \overline{x}]$ *and*
3. $\mu \in \left[\mu^L, \mu^H\right]$ *there exists* $\widehat{x}(\mu) \in [\underline{x}, \overline{x}]$ *such that* $D(\mu, x) = 0$ *if and only* $x \geq \widehat{x}(\mu)$.

The proof of Proposition 1 appears in Appendix A. The result makes intuitive sense. With very weak values (a small share of concerned citizens), protesters are unlikely to win and the incumbent leader can safely choose $D_t = 0$, exert moderate fighting, and face the consequences. When values are very strong, the leader will lose any protest with high enough probability and citizens get the institution that they prefer. Since resources put into fighting are essentially wasted, it is better to save them and set $D_t = 1$. At the top and bottom of values, these statements are true independently of x_t. But in an intermediate region, the institutional choice does depend on the realization of x_t: with high x, the leader sets $D_t = 0$, with low x he picks the institution favored by everybody else.

Evolution of values – step 5 The evolution of democratic values is governed by the relative fitness of being concerned rather than passive, which hinges on the expected utilities as perceived at date t. Passive individuals do not care at all about institutions and only get some material payoff. Concerned citizens get the same material payoff, but also care about intrinsic gains and losses from the choice of institutions. The gain from having $D_t = 1$ in state x is

$$G(x) = \sum_{m=1}^{M} \left[u^m(x, 1) - u^m(x, 0)\right].$$

With $D_t = 0$ the concerned suffer a loss given by the expression in (2). For given μ and x, this expected loss is:

$$L(x, \mu) = \left[1 - \rho p\left(\mu, f^*(\mu, x)\right)\right] G(x). \tag{7}$$

Following (2), this adds up the expected shortfall across all M non-incumbent groups. The aggregate intrinsic payoff of concerned citizens is therefore

$$D_t G(x) - [1 - D_t] L(x, \mu). \tag{8}$$

Cultural dynamics We know from (4) that $\mu_{t+1} - \mu_t$ is positive (negative) when $\Delta(\mu_t)$ is positive (negative). Using (8) and Proposition 1, and recalling that x has c.d.f. H, we can write the expression for $\Delta(\mu_t)$ as:

$$\Delta(\mu) = \begin{cases} \int_{\underline{x}}^{\overline{x}} G(x)\, dH(x) & \mu \geq \mu^H \\ \int_{\underline{x}}^{\widehat{x}(\mu)} G(x)\, dH(x) - \int_{\widehat{x}(\mu)}^{\overline{x}} L(x, \mu)\, dH(x) & \mu \in \left[\mu^L, \mu^H\right] \\ -\int_{\underline{x}}^{\overline{x}} L(x, \mu)\, dH(x) & \mu \leq \mu^L. \end{cases} \tag{9}$$

There are three cases in 9). In the top row, the share of concerned have evolved to a point where incumbents always choose $D_t = 1$ and there are no protests. The concerned have an intrinsic gain from this institution, so their share is growing over time.

In the bottom row, the incumbent group get its preferred institution $D_t = 0$ for any realization of x and the few concerned individuals feel a perpetual sense of injustice, which gives them an intrinsic loss. As a result, the share of concerned is shrinking.

In the middle row, the realization of x matters for the incumbent's institutional choice. As stated in Proposition 1, we get $D_t = 1$ only for $x \leq \widehat{x}(\mu)$. Otherwise, incumbent leaders choose $D_t = 0$ which is met by protest with probability ρ, and the protest succeeds to unseat the incumbent group with probability $p(\mu, f^*(\mu, x))$. The share of concerned is growing or shrinking depending on whether the realization of x falls short of threshold $\widehat{x}(\mu)$ or not.

The loss from being concerned is higher when x is high and the probability of unseating the incumbent in a protest is low. This is the case when μ is low, since then $p(\mu, f^*(\mu, y))$ is close to zero. At the other extreme, the loss is low when the incumbent is almost certain to lose a rebellion as $p(\mu, f^*(\mu, y))$ is close to one. This happens when μ is high. It is also straightforward to check that $\Delta_\mu(\mu) \geq 0$ for all $\mu \in [0, 1]$ after observing that

$$\frac{\partial \widehat{x}(\mu)}{\partial \mu} = \frac{f^*(\mu, \widehat{x}(\mu, q))}{\frac{\partial p(\mu, f^*(\mu, \widehat{x}(\mu, q)))}{\partial \mu} \widehat{x}(\mu, q)} > 0.$$

Thus the model suggests a natural complementarity between having more concerned citizens and the expected utility of being a concerned citizen, which shapes the cultural dynamics.

Steady states The possible steady states are described in the following result:

Proposition 2 *There exists a critical value* $\hat{\mu}$ *defined by*

$$\int_{\underline{x}}^{\widehat{x}(\hat{\mu})} G(x)\, dH(x) = \int_{\widehat{x}(\hat{\mu})}^{\overline{x}} L(x, \hat{\mu})\, dH(x).$$

Whenever $\mu_0 \geq \hat{\mu}$*, the polity converges to* $\mu = 1$*. However, for* $\mu < \hat{\mu}$*, the polity converges to* $\mu = 0$*.*

To see why this is true, note that $\Delta(0) < 0$ and $\Delta(1) > 0$. Because $\Delta(\mu)$ is (weakly) monotonically increasing, there must exist a unique value $\hat{\mu}$ such that $\Delta(\hat{\mu}) = 0$. Moreover, this interior point is unstable, meaning that the dynamics described in (4) will converge to either of two extremes.

Concrete examples The results in Propositions 1 and 2 reflect a basic logic. But we have not been specific about what institutional choice D, random variable x, and the conflicts of interests represent. We now give two examples closely related to our two subsequent applications to democratic institutions and values.

In the first, the conflict of interest concerns the relative decision-making powers of the incumbent and subordinated groups, in a policy decision of how to split a pie of size x among the groups. When $D = 1$ the incumbent has less power than when $D = 0$. In the intermediate range of values $\mu \in \left[\mu^L, \mu^H\right]$, the incumbent group chooses to maintain more decision-making power when the size of the pie is large enough. In the first application in Section 5, we will thus let $D = 1$ represent the strong constraints on executive powers.

In the second example, the conflict of interest concerns the appointment of the incumbent. Consider a procedure, where the incumbent has probability x of losing (and becoming a member of a subordinated group) and probability $1 - x$ of winning. Under $D = 1$, an open contest is allowed, while the incumbent remains in power for sure under $D = 0$. Then, we can write the expected payoff $u^i(x, 1) = u^i(1) + x(u^i(0) - u^i(1))$. In the intermediate

range of values $\mu \in \left[\mu^L, \mu^H\right]$, the incumbent group chooses to maintain a closed selection procedure when its probability of losing power is high enough. Otherwise, the institutional choice is determined by values alone. In the second application in Section 5, we will thus let $D = 1$ represent open recruitment (elections) of the executive.

In both cases, the discussion of cultural dynamics around Proposition 2 gives specific insights into how the evolution of democratic values shapes the consolidation of democratic institutions. Stochastic realizations of x_t can be important for certain ranges of μ as stated in Proposition 1.

4 Three Facts on Political Change and Values

The dual objective of the paper is to give new insights into how values may shape political institutions and how institutions may influence values. Obviously, our model will only be useful in this task if helps us think about the patterns observed in data. To check this, we need to get more concrete. Specifically, we focus on three key facts obtained from the Polity IV (PIV) and the World Values Survey (WWS) datasets. While we are not the first to acknowledge these, we present the facts in such a way that our theory may help us understand them. We thus think about institutions in terms of discrete binary choices, and about values in terms of the population share who holds a certain view.

The first (composite) fact is about the global pattern of institutional change:

Fact 1: *At a world scale, open executive recruitments and strong executive constraints have both become more widespread over the past two centuries, but with executive constraints lagging behind openness. Each decade of the last century has seen reforms in both directions: the 1920s, 30s, 60s and 70s display more transitions into weak executive constraints and closed recruitment, while other decades display more transitions into strong executive constraints and open recruitments. In a four-way typology of political regimes, the shares of each type have changed over time.*

Figures 1-4 provide an illustration. In Figure 1, we plot the time paths of the worldwide fractions of two dummy variables derived from the PIV data: strong executive constraints and open executive recruitment. PIV measures

the former on a seven-point scale and our binary measure of strong constraints gives a 1 to a country with the highest score. The latter is measured on a four-point scale, and our definition of open executive recruitment gives a 1 to a country with the highest score, which is reserved for regimes where the top executive is directly elected or appointed. The left-hand graph holds the sample constant at the 50 countries that all appear in the PIV data already in 1875. The right-hand graph instead displays all countries in the data for each given year. In particular, it includes countries that enter the data in the post-war period, during which many countries became independent of their previous colonial masters.

Figures 2 and 3 display reforms by decade from 1900 to 2011 using the same dummy variables as in Figure 1. An upward (downward) movement in executive constraints or openness is a move from 0 to 1 (from 1 to 0). The two panels in each figure shows the average number of upward and downward movements in each decade. Again, we do so for the 50 countries in the data from 1875 (left-hand panel), as well as for all countries in the data in a given decade (right-hand panel), with broadly similar patterns. While every decade has a mixture of upward and downward movements, these figures clearly recap a feature of both panels in Figure 1, namely a reversal for both aspects of democracy in the interwar period.

How about the relations between the two aspects of democracy? Our simple bivariate classifications of the two institutions permit four distinct regime types. In Figure 4, we use this four-way regime split for the PIV sample of 50 countries which existed in 1875 and track the distribution across the four types over decades from 1900 to 2011. The proportion of countries which are both open and strong has been increasing over time, while the fraction of open and weak countries has been fairly stable. The strong but closed regime type disappears from the sample early in the 20th century, and there has also been a decline of the closed and weak type. This figure underpins the need of a theory that considers separate dimensions of institutional change rather than a single dimension.

Using the same data, we offer this fact on heterogenous political histories:

Fact 2: *Histories of reforms to executive constraints are heterogenous across countries and can be classified into three broad forms: permanent transitions into strong or weak executive constraints, or churning between the two, with the churning group being the most prevalent one. Most countries tend to introduce open executive recruitment before acquiring*

strong executive constraints.

Table 1 illustrates this fact for the 50 countries with PIV data from 1875. It classifies each country according to its history for executive constraints. The left-most column shows how long-standing transitions into permanent autocracy tend to be. Similarly, the top of the right-most column shows a striking longevity of democratic traditions in countries with democratic institutions from the outset (or from 1800). That said, transitions to democracy have taken place much more recently in countries at the bottom of the right-most column, with the exception of Costa Rica and Sweden. The middle column is the largest part of the sample, with transitions in both directions. For some countries, however, this was due to strong external influence – e.g., German occupation in World War II. We return to such episodes in Section 6.

Another pattern is the general tendency for individual countries to institute open elections ahead of strong executive constraints. Table 2 provides a window on this, for the sample in Table 1, spelling out the year when open recruitment and strong executive constraints is first introduced. As we know from Table 1, this is only a partial picture as many countries have reversed back and forth. Table 2 still illustrates the most common historical pattern: open executive recruitment preceding strong executive constraints. Interestingly, the exceptions to the general pattern – Belgium, Ethiopia, Japan, Netherlands, Norway, Portugal, Spain, and the UK – all started out with an entrenched aristocratic system and a strong monarch, whose powers were gradually curtailed by courts and legislatures. Our comprehensive model presented in Section 5 will try to offer some insights into how mixed regimes may arise.

The third fact is about the distribution of democratic values:

Fact 3: *Support for democracy varies across individuals, as well as countries, and is systematically correlated with political histories, with the strongest (weakest) support among those that have experienced long (short) histories of democracy.*

This relies on individual data from Waves 5 and 6 of the WVS. These micro data collect answers to a range of attitudinal questions. We focus on one asking people to rate the importance of democracy on a ten-point scale. In line with our theoretical approach, we adopt a bivariate measure where a

citizen has (strong) democratic values if she gives democracy a grade above 8. The global mean of this dummy variable is about 0.6. In Figure 5, the left-hand panel plots each country's average (deviation from the sample mean) against the fraction of years it has had high openness as well as strong executive constraints, showing a positive relation between the two. The right-hand panel shows a similar relation, when we use residual support for democracy, holding constant each individual's gender, education, age and income.[14]

Finally, Figure 6 shows a systematic relation between democratic values and political histories as stated in Fact 3. It relies on individual data in the three groups of countries defined in Table 1, given that they appear in waves 5 and 6 of the WVS. It shows that the average support for democracy is strongest among citizens in countries with long-standing democratic traditions, weakest among those with long-standing autocratic traditions, and in between among those with mixed histories. Together, Figures 5 and 6 illustrate Fact 3.

5 Political Institutions and Values

The model in Section 3 can be applied to study the two dimensions of democratic institutions and the democratic values discussed in Section 4. In this section, we begin by studying each institution in turn: executive constraints in Subsection 5.1 and executive recruitment in Subsection 5.2. In Subsection 5.3, both institutions are chosen endogenously and sequentially in every period. Subsection 5.4 shows how the models can refine our understanding of the the three core facts.

5.1 Executive Constraints

To examine executive constraints, we use $X_t \in \{0, 1\}$ to denote weak and strong executive constraints (in place of the generic case D_t above). The role of the political process is to distribute a revenue y_t in each period. Revenues come from (labor) taxation at rate τ and the value of natural resources n_t :

[14] We estimate a linear probability model at the individual level with the dummy for democratic support on the left-hand side and also including on the right-hand side controls for gender, ten dummies for income groups, three for education groups, and three age bands. To construct the figure, we average the residuals at the country level.

$$y_t = [\tau w + n_t],$$

where n_t is now the specific stochastic variable taking the place of x_t in the core model. Under weak executive constraints, $X_t = 0$, the incumbent leader just freely picks any allocation. But if executive constraints are strong, $X_t = 1$, the representatives of the citizens must approve the allocation.

Legislative bargaining To model strong constraints, we assume a simple two-stage legislative bargaining. At stage 1, the leader proposes a set of shares $S_t = \{s_{i,t}, .., s_{M,t}\}$. Then the legislature votes with majority rule. If a majority accepts the proposal, it is implemented. If not, another group is picked at random to make a stage-2 proposal.

It is natural to think about the vote on the stage-1 allocation as a "vote of confidence" on the incumbent's proposal. But who gets to make a new proposal at stage 2 if that vote fails? We assume that this part of the institution is parametrically given. Specifically, incumbent group i is picked again with probability $q < 1$, while every other group is picked with probability $(1-q)/M$. The new agenda setter proposes a new allocation. If this is not accepted, a (breakdown) default outcome gives nothing to anybody.

In this setting, a higher q means that the incumbent group is more powerful under strong constraints. If we had allowed $q = 1$, executive constraints would have no effect at all, since the incumbent would have all the power. Conversely, if $q = 0$, the incumbent has the least power.

Payoffs When executive constraints are weak ($X_t = 0$), the incumbent group just grabs the whole pie, so that:

$$u^i(n_t, 0) = \tau w + n_t \text{ and } u^m(n_t, 0) = 0 \text{ for } m = 1, ...M.$$

When constraints are strong ($X_t = 1$), it is straightforward to solve for the legislative-bargaining outcome. At stage 2, any group will accept a very small amount to avoid the bad default allocation. We can set this amount to zero. The expected payoff for groups $1, .., M+1$, from rejecting the stage-1 proposal is thus $(1-q)/M$. With this continuation value, the stage-1 leader from group i needs only offer $s_{m,t} = (1-q)/M$ to $M/2$ groups to get his proposal approved. The share of y_t captured by the leader's group, $s_{i,t}$, is:

$$u^i(n_t, 1) = \frac{1+q}{2}[\tau w + n_t] - wf_t.$$

For citizens in groups $m = 1, .., M$, we have:

$$u^m(n_t, 1) = \begin{cases} [\tau w + n_t] \frac{(1-q)}{M} & \text{with probability } 1/2 \\ 0 & \text{with probability } 1/2. \end{cases}$$

As noted above, q measures the advantage of the incumbent group in democratic bargaining. The worst it can get by adopting strong executive constraints – with $q = 0$ – is half the pie.

Optimal fighting by the incumbent, at an interior point, solves:

$$-\rho p_f(\mu, f^*(\mu, n)) \frac{(1-q)[\tau w + n]}{2} = w.$$

Equilibrium executive constraints The choice of executive constraints hinges on $\tau + n_t/w$. All else equal, positive resource shocks makes it less likely that strong executive constraints are chosen, as they give the incumbent more pronounced motives to maintain power. There will be three ranges in which μ can fall: constraints are consolidated ($X_t = 1$) above μ^H, dependent on the realization of n_t for $\mu \in \left[\mu^L, \mu^H\right]$ and not being implemented at all ($X_t = 0$) for $\mu < \mu^L$.

For the case where $\mu \in \left[\mu^L, \mu^H\right]$, it is straightforward to see that $\hat{n}(\mu)$ is defined from:

$$\left[\frac{1-q}{2} - \rho p\left(\mu, f^*\left(\mu; \hat{n}(\mu)\right)\right)\right][\tau w + \hat{n}(\mu)] = w f^*\left(\mu; \hat{n}(\mu)\right).$$

For $n \geq \hat{n}(\mu)$, then executive constraints will be weak ($X_t = 0$).

Equilibrium dynamics The gains and losses for concerned citizens are now

$$G(n) = \left[[\tau w + n] \frac{(1-q)}{2}\right] \quad \text{and} \quad L(\mu, n) = [1 - \rho p(\mu, f)] \left[[\tau w + n] \frac{(1-q)}{2}\right]$$

Constructing $\Delta(\mu)$ according to equation (9), it is straightforward to verify that $\Delta_\mu(\mu) \geq 0$. Applying Proposition 2, a society with an initially low value of μ will not evolve high enough democratic values (share of concerned citizens) to support strong executive constraints.

The critical value, $\hat{\mu}$, from Proposition 2 is implicitly defined by

$$\int_{\hat{n}(\hat{\mu})}^{\bar{n}} (\tau w + n)\, dQ(z) = \int_{\underline{n}}^{\hat{n}(\hat{\mu})} [1 - \rho p(\hat{\mu}, f^*(\hat{\mu}; n))](\tau w + n)\, dQ(z). \quad (10)$$

Assuming an initial distribution μ, we will thus observe some countries converging monotonically to strong democratic values and strong executive constraints, while others will converge to weak democratic values and weak executive constraints. For the countries starting out in the mid region for democratic values, we may see institutional reversals depending on the realization of stochastic natural resource rents. The consistency with Facts 1-3 is further discussed at the end of the section.

Comparative statics Proposition 2 also gives insight into how the critical value $\hat{\mu}$ is determined. Specifically, any parameter shift that raises the loss from weak executive constraints raises $\hat{\mu}$ and hence widens the range of initial μ values from which there is no convergence to high and stable democratic values. Specifically:

Corollary 1: *From the perspective of executive constraints, all else equal, a polity is less likely to evolve democratic values, a cumulative increase in μ, if:*

1. *expected resource revenues are higher – a first-order stochastic dominating outward shift in n,*

2. *wages are is lower – a lower value of w,*

3. *executive constraints are more demanding – a lower value of q,*

4. *the incumbent has a more powerful fighting technology – a lower value of $p(\hat{\mu}, f^*(\mu, n))$.*

Each proposed comparative static on $\hat{\mu}$ increases the expected loss from not having strong executive constraints, which makes it more likely that the share of concerned citizens is declining over time. This result is consistent with the general observation in psychology that people rather adapt to their circumstances than face repeated disappointment.

By the third line of Corollary 1, strong executive constraints more binding on the incumbent (lower q) raises the expected loss, as the reference point associated with strong constraints is higher (with a larger utility loss from not having them). By the fourth line, an incumbent better at resisting protest – e.g., due to a new ability to eavesdrop on opponents in social media – raises the loss from being a concerned citizen because protests are less likely to be successful.

The resource curse, economic growth, and violence The first and second lines of Corollary 1 show why higher natural resources relative to wages create headwinds for democracy. This reminds of the standard view that resource dependence fosters violence, especially absent good governance (Mehlum, Moene, and Torvik 2006). However, the mechanism is novel. All else equal, citizens in resource-rich countries are more resentful of bad governance, which reduces the relative fitness of concerned types, while passive citizens accept their fate more readily. As long as there are concerned citizens, these will protest against the infringements on democracy when having the opportunity to do so. But they will often be unsuccessful, partly due to repression by the incumbent leader to protect the resources captured by his group. According to our model, the state-dependent correlation of violence and bad governance may reflect a joint dependence of bad institutions and violence on resources, rather than bad institutions mapping resource dependence into violence.

This discussion also makes clear that economic growth, which raises w, may be conducive to sustaining democratic institutions. Growing wages reduce resource dependence, while proportionately increasing the cost of fighting and revenues from standard taxation. That way economic growth may foster democratic values and democratic institutions by lowering $\hat{\mu}$.[15]

Critical junctures Our model makes sense of the idea championed by Acemoglu and Robinson (2012) that important moments – so-called critical junctures – in national political history are crucial to subsequent developments. To see this, recall the critical value $\hat{\mu}$ for the long-run dynamics in Proposition 2. Thus countries with similar initial levels of μ just above and below $\hat{\mu}$ can have radically different trajectories. Moreover, a (permanent) shock at such a juncture, e.g., to n or the repression technology, can flip a country to the opposite side of $\hat{\mu}$. This will have drastic long-run consequences for its democratic values and institutions, as shown by Proposition 2 and Corollary 1.

[15]It would be interesting, following Besley and Persson (2009), to make fiscal capacity endogenous, in this case the determination of τ.

5.2 Executive Recruitment

A similar argument straightforwardly applies to the other aspect of democratic institutions in Section 4 – openness in executive recruitment. In our second application, the analog to institutions D_t in the core model, is thus denoted by $O_t \in \{0,1\}$ where $O_t = 0$ is closed political entry and $O_t = 1$ is open. In the latter case, the incumbent group participates in an open contest for power, such as an election representating all groups. As with executive constraints, the dynamic evolution of μ helps shape the time path of executive-recruitment institutions.

The incumbent's probability of remaining in power In an open contest, an incumbent's probability of securing power is denoted by $z_t \in [\underline{z}, \overline{z}] \subset (0,1)$. This is drawn from a distribution with c.d.f. $Q(z_t)$. In other words, z_t has the same role as stochastic variable x_t in the core model. If $O_t = 1$ and $z_t = 1/(M+1)$, executive recruitment becomes a fair lottery over groups, while if $z_t = \overline{z}$ the incumbent group is maximally popular. With $O_t = 0$, whichever group holds power at the end of $t-1$ remains in power in t.

Payoffs with exogenous executive constraints In this subsection, we imagine that strong executive constraints are in place with exogenous and time-invariant probability $X \in [0,1]$ (this is endogenized in the next subsection). Let $u^i(O,z)$ be the payoff for the incumbent at executive recruitment O. Further, let $\bar{y} = \int_{\underline{x}}^{\overline{x}} [\tau w + n]\, dH(n)$ be expected public revenue, such that

$$\begin{aligned} \tilde{u}(z) &= \bar{y}\left\{ z\left[X\left[\frac{1+q}{2}\right] + (1-X)\right] + (1-z)\, X \frac{(1-q)}{2M} \right\} \\ &= a + bz \end{aligned}$$

where $a = \bar{y}\frac{[1-q]X}{2M}$ and $b = \bar{y}\left[1 - \frac{X(1-q)(M+1)}{2M}\right] > 0$. Note that b, the value of being the incumbent, is decreasing in X and increasing in q. Thus, $\tilde{u}(\cdot)$ is an (affine) increasing function. We can then define payoffs $u^i(z,1) = \tilde{u}(z)$ and $u^i(z,0) = \tilde{u}(z)(1 - \rho p(\mu, f))$, $u^m(z,1) = \tilde{u}\left(\frac{(1-z)}{M}\right)$, and $u^m(z,0) = \tilde{u}(0)$. Optimal fighting now solves:

$$-\rho p_f(\mu, f^*(\mu; b))\, b = w.$$

Given our assumptions, the probability of a successful protest if the incumbent chooses $O_t = 0$ is $p(\mu, f^*(\mu; b))$, which is decreasing in b.[16]

Equilibrium executive recruitment As in the previous subsection, we apply Propositions 1 and 2. Now, democratic values μ together with incumbent popularity z determine whether the incumbent picks open recruitment. For $\mu \geq \mu^H$, we get $O_t = 1$ and for $\mu \leq \mu^L$, we get $O_t = 0$, for all levels of popularity. With democratic values between these thresholds, executive recruitment depends on the realization of z.

For the case where $\mu \in \left[\mu^L, \mu^H\right]$, it is straightforward to see that $\hat{z}(\mu; b)$ is defined from:

$$\{[1 - \rho p(\mu, f^*(\mu; b))] - \hat{z}(\mu; b)\} b = w f^*(\mu; b).$$

Note that $\hat{z}(\mu; b) < [1 - \rho p(\mu, f^*(\mu; b))]$. That is, an incumbent only picks closed executive recruitment when he has a strictly lower probability of staying in power under open recruitment than if he chooses to fight concerned citizens under closed recruitment. Note also that $\hat{z}(\mu; b)$ is increasing in b and decreasing in μ – i.e., an incumbent group is less likely to take a bet on relinquishing power when holding power is more valuable or fewer citizens are concerned.

Equilibrium dynamics The gains and losses for concerned citizens are given by

$$G(z) = (1 - z) b \text{ and } L(\mu, z) = [1 - \rho p(\mu, f^*(\mu; b))](1 - z) b.$$

The apparatus of the core model applies, and $\Delta_\mu(\mu) \geq 0$ as required for Proposition 2.[17] The critical value $\hat{\mu}$ from Proposition 2 is now implicitly defined by

$$\int_{\hat{z}(\hat{\mu};b)}^{\bar{z}} (1 - z)\, dQ(z) = [1 - \rho p(\hat{\mu}, f^*(\hat{\mu}; b))] \int_{\underline{z}}^{\hat{z}(\hat{\mu};b)} (1 - z)\, dQ(z) \qquad (11)$$

This depends on the expected value of holding power b only through its effect on the critical threshold $\hat{z}(\mu; b)$ and its impact on fighting. Thus, as above,

[16] Unlike executive constraints, this does not depend on the realization of the "shock", i.e. z in this case.

[17] To see this recall that $\hat{z}(\mu; b)$ is decreasing in μ and $p(\mu, f^*(\mu, b))$ is increasing in μ.

the polity converges either to fully democratic values and open executive recruitment, or to absent democratic values and closed executive recruitment, when initial democratic values are above or below their critical level $\hat{\mu}$. The predicted overall patterns again rhyme well with the patterns found in the data, and our previous comments about critical junctures for democratic values close to $\hat{\mu}$ apply here as well.

Comparative statics As in the last subsection, any parameter shift that raises the intrinsic loss from not having democratic institutions increases $\hat{\mu}$ and hence increases the range of initial μ values from which there is no convergence to high and stable democratic values. Again, we apply Proposition 2 for insights into how $\hat{\mu}$ is determined. A useful observation from (11) is that the critical value $\hat{\mu}$ is increasing in b. Hence, anything which raises b, makes it less likely that a polity adopts open recruitment over time. Specifically,

Corollary 2: *From the perspective of openness, all else equal, a polity is less likely to evolve democratic values, in the form of a cumulative increase in μ, if:*

1. *expected incumbent turnover is lower – a first-order stochastic dominating inward shift in z,*

2. *being an incumbent is more valuable – a higher b – due to*

- **(a)** *a lower probability of strong executive constraints – a lower X*
- **(b)** *less demanding executive constraints – a higher q*
- **(c)** *greater expected resource revenues – a first-order stochastic dominating shift in n,*

3. *the incumbent has a more powerful fighting technology – a lower value of $p(\hat{\mu}, f^*(\mu; b))$.*

Comparing Corollaries 1 and 2, we see that higher resource rents and a better fighting technology creates headwinds for both types of democratic institutions. The main new implications concern the impact on openness of factors which directly affect leadership survival. Thus the model in this incarnation casts light on an additional range of phenomena discussed in the literature and their implications for long-run institutional choices.

However, property 2 (a) also suggests a complementarity between executive recruitment and executive constraints. Having strong executive constraints (probabilistically), reduces the value of holding on to power, which makes it more likely that open recruitment will emerge. Hence, expectations about executive constraints matter for executive recruitment, something we will see more clearly when both institutions are chosen together.

Social networks and hereditary rule Part of the societal fabric are the slow-changing social networks which regulate access to power. Good examples would be an aristocratic network to ensure hereditary rule, or an elite kept in power by name recognition and social ties. Such networks would affect the distribution of z and the likelihood that a leader stays in office. Our model predicts that this will affect the pattern of institutional development, so our approach allows us to consider social ties between politicians.

Critical junctures redux The prospective role for critical junctures can also be seen for executive constraints. One example would be a shock to an incumbent group, when a member of the group who assumes power is either strongly charismatic or strongly unpopular. This will alter the likelihood that the group will be able to sustain its power in an election and may influence long-run political development if it comes at a juncture where μ is close to $\hat{\mu}$. At other times, its impact would tend to be ephemeral.

5.3 Executive Constraints *cum* Recruitment

In this subsection, we extend the model to both dimensions of institutions. Some of the details are merely sketched here, but appear in Appendix B. We assume a sequential process where the incumbent group first chooses executive recruitment, and the winner from any contest then chooses executive constraints. There are now two potential rounds of protest, one after the choice of each institution. Since the fraction of concerned citizens is fixed within a generation, the intensity of citizen protest is the same.

However, the incumbent's incentives to fight may vary and to recognize this possibility, we use f to denote resources in fighting over executive constraints and F to ddnote those used fighting over open recruitment. As before, we assume that generations can not commit the next generation to an institutional arrangement. Neither do we assume any within-period com-

mitment, requiring instead each one of the two institutions to be incentive-compatible. (Appendix B formally spells out the timing in the new model.)

The spirit of our earlier analysis translates into this sequential model. However, the precise results in Proposition 2 do not immediately apply, First, the function $u^i(O,z)$ – which played a key role in the last subsection – now depends directly on μ. Second, when we model gains and losses which generate the value-dynamics, we need to allow for two dimensions of institutions.

Payoffs The analysis of executive constraints is identical to the single-institution case and we can summarize this choice by a function $X(\mu,n)$, which allows us to endogenize the probability that open executive recruitment is chosen Let

$$\tilde{u}(\mu,z) = a(\mu) + zb(\mu),$$

where $a(\mu) = \left[\frac{1-q}{2M}\right]\int_{\underline{n}}^{\overline{n}}\left[X(\mu,n) + [1-X(\mu,n)]\,\rho p(\mu, f^*(\mu,n))\right][\tau w + n]\,dH(n)$ and $b(\mu) = \int_{\underline{n}}^{\overline{n}} X(\mu,n)[\tau w + n]\left[\frac{1+q}{2}\right] + [1-X(\mu,n)]\,V(\mu,n)\,dH(n) - a(\mu)$. Function $\tilde{u}(\mu,z)$ is the expected utility of an interim leader with survival probability z as she contemplates the choice of executive recruitment. Thus, $a(\mu)$ is the utility of a group with no chance of being in power and $b(\mu)$ is the expected gain from holding office. Unlike in Subsection 5.2, these are now functions of μ. This is because μ affects the probability of strong executive constraints, which we earlier took as exogenous. As above, write the incumbent's payoffs as $u^i(\mu,z,0) = \tilde{u}(\mu,z)$ and $u^i(\mu,z,1) = \tilde{u}(\mu, 1-\rho p(\mu,F))$. The material gains to the other groups are $u^m(\mu,z,1) = \tilde{u}\left(\mu, \frac{1-z}{M}\right)$ and $u^m(\mu,z,0) = \tilde{u}(\mu,0)$, which are all linear in z.

Equilibrium choices Optimal fighting solves

$$-\rho p_F(\mu, F^*(\mu; b(\mu)))\, b(\mu) = w.$$

Our assumptions imply that $b(\mu)$ is decreasing: the gain from holding office is lower when the prospect of strong executive constraints is greater.[18] Higher μ thus reduces fighting over executive recruitment by the incumbent.

[18] To see this, observe that $V(\mu, \hat{n}(\mu)) = \frac{1+q}{2}\hat{n}(\mu)$ if there is an interior value of n above which weak executive constraints are chosen and $V(\mu,n)$ is decreasing in μ for all n such that the incumbent group chooses to fight to maintain weak executive constraints.

As in Subsection 5.2, in a range $\mu \in \left[\mu^L, \mu^H\right]$, $\hat{z}(\mu; b)$ is defined from:

$$([1 - \rho p(\mu, F^*(\mu; b(\mu)))] - \hat{z}(\mu; b(\mu)))\, b(\mu) = wF^*(\mu; b(\mu)).$$

And as before, $\hat{z}(\mu; b(\mu)) < [1 - \rho p(\mu, F^*(\mu; b(\mu)))]$. An incumbent will only choose closed executive recruitment when he has a strictly lower probability of staying in power in an open recruitment than when he optimally fights with concerned citizens after insisting on closed recruitment. Note also that $\hat{z}(\mu; b(\mu))$ is decreasing in μ which is reinforced by the institutional complementarity between executive constraints and openness, as higher μ also lowers the value of holding office for any group of citizens.

Mixed regimes Even though the model identifies a common factor in the form of μ, choices over the two democratic institutions need not be synchronized. Our extended framework is thus consistent with mixed regimes – e.g., open executive recruitment coupled with weak executive constraints. That said, the model points to the existence of an institutional complementarity beyond the common driver μ. For stronger executive constraints reduce the incentive to fight to maintain closed executive recruitment. In addition, we have emphasized the possibility of different short-run shocks driving the dynamics – those that affect an incumbent group's hold on power and those that affect the attractiveness of holding office such as resource rents.

It should come as no surprise that countries with high spoils form office choose closed executive recruitment together with weak executive constraints. This regime could be quite stable (for given μ) if governments are willing quash protest, and have the capacity to do so, as in the stable but undemocratic oil kingdoms of the Gulf. Equally, high-income countries where resource rents are small and elites diffuse tend to spawn open recruitment and strong executive constraints (for given μ).

The most interesting mixed regime to pinpoint – given Fact 2 in the data – is where executive recruitment is open and executive constraints are weak. Our model predicts when mixed regimes will most likely arise:

Corollary 3: *All else equal, a polity is more likely to have a mixed regime with open (closed) executive recruitment and weak (strong) executive constraints, if:*

1. *executive constraints are more (less) demanding – a lower (higher) value of q,*

2. *the incumbent is more (less) popular – a higher (lower) value of* z,

3. *expected resource rents are higher (lower) – a first-order stochastically dominating outward (inward) shift in* n.

The first prediction deserves comment. A careful reader will already have noticed that the condition for open executive recruitment, depends on parameter q in the opposite way to the threshold for strong executive constraints (Corollaries 1 and 2). Lower q, executive constraints less favorable to the incumbent, gives a stronger case for pursuing open recruitment. Because opening access to power is the only way to gain a larger share of the rents from government, low q environments are less conducive to strong executive constraints but more conducive to open executive recruitment.

Dependence on parameters Apart from permitting these broad interpretations, the model has further implications on the influence of different parameters. We have already noted the dependence on resource rents in our discussion of the resource curse. But other parameters matter as well.

For example, the model suggests that a higher value of q – a larger recognition probability for incumbents after a failed confidence vote – will work in favor of building democratic values. Because incumbents get more out of democracy, they are more likely to introduce strong executive constraints, which leads to a gradual building of democratic values that helps consolidate strong executive constraints. This fits the history of England and Sweden, where Parliaments gained power precisely at a time when elites maintained control over Parliamentary representation. Representation was only liberalized in reform acts of the 19th century (in the UK) and early 20th century (in Sweden). By then, however, democratic values may have been entrenched enough that the reversion risk was low.

At the other end of the spectrum, countries that give large parliamentary powers early in their history make it harder for themselves to build effective executive constraints. For instance, some of the post-colonial regimes in Africa – in Nigeria, Sudan, Somalia, and Uganda – started out with strong executive constraints giving substantial powers of the legislature (a low q). But these were repealed within a decade, perhaps because of a lack of democratic values that could sustain broad protests against these reversing political reforms.

Cultural dynamics To study the cultural dynamics in a model with two dimensions of institutions, it makes sense to have two different reference points. For gains, the reference point is $X_t = O_t = 0$ and for losses, it is $X_t = O_t = 1$. This implies that, for intermediate cases, there can be gains and losses at the same time and it is the *net* gain or loss which influences the cultural dynamics.

Appendix B analyzes these gains and losses and shows that if $\underline{z} \geq 1/(M+1)$, then $\Delta(\mu)$ is still increasing, which means a similar complementarity as the one that drives the value dynamics in Proposition 2.[19] Thus democratic values change over time, the polity converges either to fully democratic values and open executive recruitment, or to absent democratic values and closed executive recruitment, depending on initial democratic values being above or below critical level $\hat{\mu}$. The predicted overall patterns again rhyme well with the patterns in the data, and our previous comments about critical junctures for democratic values close to $\hat{\mu}$ apply here as well.

5.4 The Three Facts Revisited

We now argue that our modeling can help make sense of the empirical regularities we uncovered in the PIV and WVS data on political institutions and values, as summarized by Facts 1-3 in Section 4. We then look at some correlations between values and country characteristics motivated by our model.

Interpreting Fact 1 Our Fact 1 noted a growing prevalence of strong executive constraints and open executive recruitments over the past two hundred years. Our model would attribute this to the evolution of democratic values (a growing share of concerned citizens) across a majority of older polities. This trend would be reinforced by the complementarity behind the increasing $\Delta(\mu)$ function noted in Section 3. If enough countries had democratic

[19] The additional assumption is needed because subordinate citizens might prefer weak executive constraints, conditional on openess, as this gives them a chance of sharing in the "plunder" if they are selected into office. If $M = 1$, then the subordinate group will be in power for sure if the incumbent loses while for large M, this is unlikely. Hence, given the survival probability of the leader, a higher M will tend to rule out this case and the complementarity that delivers the core result is guaranteed. Note also, that even if the condition $\underline{z} \geq 1/(M+1)$ does not hold, then there will always be a critical value of μ above which $X_t = O_t = 1$ is consolidated and a critical value of μ below which $X_t = O_t = 0$ is consolidated.

values above their critical value $\hat{\mu}$, this complementarity would have helped consolidate democratic institutions.

Fact 1 says that reforms towards strong executive constraints generally lag behind those towards open executive recruitment. Moreover, regimes with open recruitment and weak constraints have been more or less constant over time, while those with strong executive constraints and closed recruitment have more or less died out. The extended model in Section 5.3 would interpret this as reflecting changing drivers for the two aspects of institutions in countries in the mid region for values, where we expect some churning of institutions until values consolidate institutional arrangements. Despite differences in timing, the common driver of changes in μ does suggest a broadly common direction of change for executive recruitments and executive constraints.

Fact 1 also points to bidirectional reforms. In the model, this can be interpreted as different countries starting out on opposite sides of their critical (country-specific) value of $\hat{\mu}$, such that the equilibrium shares of concerned citizens evolve in different directions. Some may have crossed their μ^H threshold to achieve a permanent democratic reform, while others have crossed their μ^L threshold towards permanent autocracy. Others yet may have remained in their churning region, where reforms in both directions occur in the wake of shocks to leader popularity and resource rents.

Interpreting Fact 2 The model can also explain the individual country reversals in executive constraints (and electoral openness) documented in Fact 2. Observing strong executive constraints would suggest that a polity is on a path towards consolidation. But the model suggests why this path need not be deterministic. Even a country with $\mu < \hat{\mu}$ could have fleeting episodes with strong executive constraints along its downward trajectory – e.g., due to negative temporary resource shocks to public revenue y. Similarly, a positive permanent resource shock could change the long-run path of a country closely above $\hat{\mu}$. More generally, current or past reversals among countries in the middle group of Table 1 can be interpreted as a result of democratic values in the range $\mu \in \left[\mu^L, \mu^H\right]$.

The observation in Fact 2 of heterogenous political histories across countries can be seen as due to different initial parameters among those that shape the evolution of democratic values. Of course, these parameters can also change along the development path. This provides a link to changes

such as increases in wages and/or resources rents.

The model also allows us to make sense of specific country trajectories with long-lasting transitions to strong or weak institutions. Take Sweden, which reached the highest executive-constraints score in 1917. Its path of democratic reforms began with the 1809 Instrument of Government, establishing separation of powers between the King (executive branch) and the Riksdag of the Estates (legislative branch), though the King retained unilateral powers to choose government members. These powers became weaker in practice, especially as political parties became more powerful after the creation of the Riksdag in 1866. But the King kept his powers until 1917, from when government choices required direct or indirect support from a Riksdag majority. In terms of the model, we could explain this reform path by emerging democratic values. Indeed, Sweden has one of the strongest levels of democratic support in Figure 7, consistent with its robust democratic tradition.

Corollary 3 can be used to understand determinants of the mixed regimes documented in Table 2. For example, the table shows that a number of old monarchies (most of these in Western Europe) introduced strong executive constraints before going to open executive recruitment. The model suggests that this might have reflected a combination of unpopular rulers and meagre government resources (low values of z, τ and n). Table 2 also showed that new nations in Africa and Asia – and Latin America before them – introduced open executive recruitment, but stuck with weak executive constraints. This may reflect popular and/or charismatic leaders from ruling groups – often tied to liberation movements – along with considerable rents to distribute from plentiful natural resources (high values of z and n). This short discussion suggests that the model could be useful in structuring specific case studies to delve into the details of historical country circumstances.

Interpreting Fact 3 The model may also underpin the observation in Fact 3 that countries which never transit into strong executive constraints have low levels of democratic support. A case in point is Russia, with a very short history of strong executive constraints and low democratic values according to WVS. Up to 1990, the Soviet state effectively repressed any nascent democratic reforms. In our model this would weaken democratic values over time. Weak values could undermine a democratic reform – such as the one attempted by Boris Yeltsin – giving it little chance of becoming per-

manent. Instead, we would predict a reversal to weak executive constraints, especially in the wake of rising resource rents. A different trajectory would require changing fundamentals or some exogenous shock to μ. For example, the regime could be weakened by a lower *willingness* or *capacity* to repress, which would raise the prospective influence of citizens holding democratic values. Both could reflect a state collapse with y becoming persistently low. That said, one would also need a very high value of b for any chance of a switch into a democratic regime, once μ has fallen to a low value.

Some countries, like the UK and the US, made once-and-for-all stable transitions to strong executive constraints. Our model would interpret these transitions as passing the critical threshold μ^H which permanently sustains such institutions. According to Fact 3, the support for democracy appears strong in such countries, consistent with democratic values and strong institutions being complements. We documented this pattern in the right-most column of Table 1 for countries with consolidated strong executive constraints.

Fact 3 also documents a positive correlation between a long history of strong executive constraints *cum* open executive recruitment and strong support for democratic institutions. This observation was also made by Persson and Tabellini (2009), who saw it as evidence for what they call democratic capital. Our model suggests a micro-foundation for this empirical pattern, in terms of evolving democratic values in a share μ of concerned citizens. As these values will also manifest themselves in longer experience with democratic institutions, past institutional patterns may not cause persistence but an omitted variable of democratic values. Causality is thus running in both directions, requiring care in interpreting the correlation between democratic values and institutions.

Democratic values and natural resources A distinct feature of our approach is that values and institutions coevolve. Our model provides a new perspective on the relationship between natural-resource dependence and the adoption of strong executive constraints. All else equal, it predicts that countries with high levels of natural resource rents will require high democratic values to enter a path towards strong executive constraints. This suggests that the timing of resource discoveries in history may be critical.

Countries with rich natural resources and strong executive constraints are rare. Norway is an interesting counterexample, with exceptionally strong support for democracy in WVS and strong executive constraints in place.

Because Norway experienced its major oil discovery late in its democratic history, oil richness was perhaps insufficient to undermine established democratic institutions.

From the World Bank website, we take a list of countries with oil rents (revenues less production costs) exceeding 10% of GDP. The 15 countries in this category, which also appear in the WVS, are Algeria, Azerbaijan, Bahrain, Ecuador, Iran, Iraq, Kazahkstan, Kuwait, Libya, Nigeria, Russia, Qatar, Trinidad and Tobago, Venezuela and Yemen. Of these, only Ecuador and Trinidad and Tobago have strong executive constraints. The model would say that many of these countries show little sign of reform towards strong constraints as they all have democratic values below $\hat{\mu}$.

Columns (1) and (2) in Table 3 look at the relation between natural resources and democratic support in WVS waves 5 and 6. They report estimates from a linear probability model where the left-hand side variable is our dummy for a score of 9 or 10 of democratic support. We control for gender, ten dummies for income, three dummies for education, and three age bands (standard errors clustered at the country level). We also control for three country-level variables: human capital from Barro-Lee, income per capita from the Penn World Tables, and the history of strong executive constraints from PIV.

For the countries in Table 1 with WVS data, column (1) shows a significant negative correlation between high dependence on oil rents and support for democracy. Specifically, living in a resource-dependent country is associated with a lower probability of supporting democracy of 0.17. Column (2) shows that this result is weaker for all countries in PIV, although we cannot reject the correlation being the same in the two columns.

While it is well-known that oil-rich countries are less likely to have strong executive constraints, it is less well-known that they also exhibit low levels of democratic support. Our theory links these correlations together.

6 Foreign Influence

Our modeling framework shows how values and values and institutions may coevolve as a result of domestic factors. We now discuss how it can also shed light on how foreign influence can help shape the dynamics of institutions and values. In doing so, we distinguish direct and indirect influence.

6.1 Direct Influence

We now revert back to the case of a single institution $D_t \in \{0, 1\}$ as treated in Section 3. We consider two main cases. The first is the case of colonialism and/or military occupation. Here, a foreign power is in fact the incumbent and decides over both D_t and f_t. The second is the case of military influence by a foreign power, like the interventions of the Soviet Union during the Cold War or that of Western powers supplying weapons to the rulers of Arab states in the Gulf. Here, D_t is chosen by a domestic incumbent, but the foreign power can put resources into fighting protest so that the probability of successful protest becomes $p\left(\mu, \theta f^R + f\right)$, where parameter θ may capture that the foreign power has a more efficient fighting technology.

Colonialism Under colonialism, colonial powers established governance rules directly. As emphasized by Acemoglu, Johnson and Robinson (2001), institutions varied in the degree to which they were extractive or inclusive which can be interpreted as different values of D_t. Colonial powers often faced resistance from citizens such as the Mau-Mau uprising in Kenya or the Indian Mutiny, which required fighting to preserve the status quo. A colonial regime with sufficient power can enforce extractive institutions (here $D_t = 0$) with sufficient investment in fighting, such that short-term shocks to x_t may be less relevant to the institutional choice.

However, more interesting is the model's prediction for the longer-term impact of colonialism. In fact, our model gives a theoretical underpinning for the empirical argument in Acemoglu, Johnson and Robinson (2001) that the nature of colonialism, with extractive or inclusive institutions, can persistently influence institutions. Specifically, by shaping the democratic values at the end of colonialism, colonial institutions may influence the post-colonial time path of institutions. Moreover, by maintaining $D_t = 0$ (extractive institutions) or $D_t = 1$ (inclusive institutions), colonialism may have a permanent effect on long-run political development by inhibiting or promoting the emergence of democratic values – in fact, Acemoglu, Johnson and Robinson use strong executive constraints as their dependent variable. When μ is close to its critical value $\hat{\mu}$, colonialism of either kind would be especially prone to tilt the time path of μ in an opposite direction.

The same basic idea applies to country subjugation following an external conflict, a frequent historical occurrence. The experience of Europe during World War II, or the influence of the USSR during the cold war, are inter-

esting examples in history of repressed democratic institutions. On the other side of the cold war, we have the experiences of Japan and West Germany, where the victorious Western allies imposed democratic institutions. Our model suggest that this may be a hazardous exercise. While political institutions can be imposed to some degree, democratic values cannot be so easily controlled and this can create an unstable set of institutions until values and institutions are aligned. Occupations too can potentially have long-run effects through their impact on the evolution of democratic values.

Military intervention Turning to less direct form of influence, a foreign power may also give military support with the aim of strengthening a ruling elite's capacity to fight rebellions. Our model suggests that this too might have an impact on D_t. In particular, the foreign power lowers the cost of choosing $D_t = 0$. Examples include the puppet regime in Vichy France, or Vidkun Quisling's leadership in Norway during World War II. Such military support may also affect the time path of democratic values, potentially with long-term consequences.

Yet another form of direct influence could involve the foreign power changing the distribution of shocks which a country faces or their consequences. Aid which builds the economy can raise w which has an indirect effect on institutions according to our theory. The same would be true of foreign responses to economic and political shocks. For example, foreign governments are sometimes accused of directly intervening to affect the survival prospects of specific leaders.

6.2 Indirect Influence

Other forms of foreign influence can be thought of as acting directly on μ. In our core model, the values of each generation are simply learned from the previous generation. We now discuss how values can be influenced by events in other countries. This creates cross-country complementarities, which may reinforce the kind of patterns we have already discussed.

Migration A first example is when emigrants bring democratic, or non-democratic, values to their new location. Proposition 2 says that such migrations will mostly have a temporary effect by shifting the value of μ. But they can also have a long-run effect if they push democratic values above

or below $\hat{\mu}$. For example, an influx of a large enough number of concerned citizens into an autocratic country could help foster long-run institutional change. Bandiera et al (2016) discuss an example of such interplay between immigrant values and institutions in 19th-century US states.

What if migration is endogenous? One driver may be that concerned citizens who live in an autocracy simply leave rather than wait for a chance to challenge the ruling elite – to paraphrase Hirschman (1970), they use "exit" rather than "voice". This would decrease democratic values in autocracies and raise them in democracies, which would speed up the dynamics vs. our single-polity model.

One could also imagine external influences, which act in other ways on μ. One example, stressed by Spilimbergo (2009), is that foreign education may change democratic values enough to help promote democratic reforms, once students return home.

Cultural spillovers Another interesting mechanism of indirect influence is the possibility of cross-border cultural influence. Persson and Tabellini (2009) and Acemoglu et al (2015) have exploited the fact that democracy in one country is systematically related to democracy in its neighbors or in its regional surroundings. This could reflect direct social interactions or media influence across borders. A simple way to incorporate such interactions into our framework would be to consider two countries A and B and suppose that in country A, democratic values evolve as

$$\tilde{\Delta}\left(\mu_A, \mu_B\right) = (1-\beta)\,\Delta^A\left(\mu_A\right) + \beta\Delta^B\left(\mu_B\right),$$

where β is a spillover parameter. Suppose now that $\Delta^J\left(\mu_J\right)$ is increasing in both countries. This will yield a two-way evolution of democratic values with cross-country complementarities: growing democratic values in one location reinforce the same pattern in other locations. Such spillovers could help explain the worldwide trend towards strong executive constraints in Fact 1.

Cultural spillovers relate to discussions in the international-relations literature about "soft power", an idea pushed by Nye (2004), who argues that:

> "(a) country may obtain the outcomes it wants in world politics because other countries – admiring its values, emulating its example, aspiring to its level of prosperity and openness – want to follow it. ... This soft power – getting others to want the outcomes that you want – co-opts people rather than coerces them."

Using media and imagery may increase parameter β. This provides a window on the large funding of foreign-news networks and other kinds of cultural influence. Our approach suggests that if such activities reinforce a direction of on-going change, they could potentially lead to quicker adoption of a stable form of institutions. But if they operate at critical junctures around $\hat{\mu}$, they could have a more fundamental effect.

6.3 Correlations of Values and Foreign Influence

We now correlate our measure of individual-level values with variables that represent foreign influence.

Soviet influence after WWII One interesting episode is the long-term postwar influence of the USSR. Some countries were absorbed into the USSR, as the Baltic states, while others became satellite countries in Eastern Europe, as Bulgaria, Hungary, and Romania. We would expect Soviet influence not just to have eliminated democratic institutions, but to have weakened democratic values. As in the first part of Table 3, we use waves 5 and 6 of the WVS microdata. Again we estimate a linear probability model, where strong individual democratic values is the left-hand side variable, and individual and country-level controls appear on the right-hand side together with the dummy for Soviet postwar influence.

We find a negative significant correlation. The coefficient is particularly large in column (3) for the sample of countries in Table 1, but it continues to be significant in the larger sample of column (4). Moreover, it holds up n column (5), when we also include the natural-resources dummy variable. The negative correlation suggests that long-term Soviet influence did erode democratic values, as our model predicts.[20]

German occupation during WWII A second example of foreign influence is the German World War II occupation. Some countries in the middle category of Table 1 had achieved strong executive constraints prior to the war and their only reversal of the democratic path is due to German influence or occupation. These countries are Austria, Belgium, Denmark, Netherlands

[20]These findings are consistent with Neundorf (2010) who studies satisfaction with democracy in Eastern Europe between 1990 and 2003 and finds that respondents with a "socialist upbringing" tend to show less satisfaction.

and Norway. Through the lens of our model, their prewar strong executive constraints suggest that their μ was relatively high. We thus expect that they may have resumed their "natural state" of strong constraints once German influence ended, which is exactly what happened after the war. This implies that, all else equal, the occupied countries should have stronger democratic values today than the other churning countries in Table 1.

To explore this empirically, we create a dummy variable for countries that dropped strong executive constraints only due to World War II. We then regress the individual indicator for high democratic values on this dummy, also including the individual and country control variables. The estimate in column (6) is only for the churning sample in Table 1. It shows that among those with a mixed history, countries that reversed only due to German occupation have higher democratic vales. The result holds up in column (7) when we widen the sample to all countries with mixed histories in PIV.

This finding is consistent with our model if the countries that acquired strong executive constraints prior to German occupation did so because of strong democratic values. If these values persisted through a relatively short interruption, the model would also predict the immediate return to strong constraints. This differentiates the occupied subset of countries from others which have experienced reversals. These are plausibly in the range $\mu \in \left[\mu^L, \mu^H\right]$ where values may still be building, or were reaching a consolidation point after the countries that suffered Nazi occupation.

Settler mortality Finally, we consider the possibility that colonial institutions leave a long-run legacy on values. As mentioned, our approach suggests that values may help drive the finding by Acemoglu, Johnson and Robinson (2001) that colonial regimes – when instrumented by settler mortality – persistently affect institutions. We exploit the intersection between their data and waves 5 and 6 of the WVS (only 12 countries). Specifically, we include their measure of settler mortality in an individual-level regression for democratic values, along with the earlier battery of individual-level and country-level controls. The result in column (8) of Table 3 shows a negative and significant relationship between democratic values and settler mortality. As we control for institutional history, this correlation suggests a persistent effect. It thus supports the core idea of Acemoglu et al (2001) with the added twist that persistence may arise (partly) via endogenous democratic values which can be explained by our framework.

7 Concluding Comments

We have developed a model of the two-way interaction between coevolving values and institutions. The single state variable in this model is the proportion of citizens who hold strong enough democratic values that they are willing to defend democratic institutions. These concerned citizens resent non-democratic institutions and their resentment helps propagate democratic values in the pool of citizens. Because the relative fitness of citizen types drives evolutionary change, those whose hopes are repeatedly disappointed have less fitness (defined in expected utility terms). This leads to a complementarity between values and institutions which shapes the model's dynamics.

The main aim of the paper is to reorient analysis and debate on the political economics of institutional change to a new set of issues. We do so by building an analytical bridge between the cultural and strategic approaches to democratization. In our framework, it is natural to see democratization as a process, where formation of democratic values and experience with democratic institutions reinforce each other. These joint dynamics help us better understand real-world persistence and change of political institutions across countries and time.

Clearly, the paper merely scratches the surface of a wide range of issues. More narrowly, the model as it stands has a number of empirical implications, which we have not yet explored. One implication concerns the within-country inter-generational distribution of democratic values, conditional on the country's political history. We could also explore the robustness of our results on democratic institutions to different specific models of the process whereby democratic values change.

More broadly, it is only recently that economists and other social scientists have begun to think seriously about the mutual interplay between formal institutions and cultural values (informal institutions). As our model has but a single state variable, it's ease of analysis opens the door to other applications than democratization. We believe that more research along similar lines should follow.

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A Proofs

Proof of Proposition 1. First define

$$\Gamma(\mu, x) = u^i(x, 1) - V(\mu, x)$$

as the utility difference between the two institutions. Hence, $D(\mu, x) = 1$ if and only if $\Gamma(\mu, x) \geq 0$. Now observe that $\Gamma(1, \overline{x}) > 0$ using (6) and $\Gamma(0, \underline{x}) > 0$ using (3). Since $\Gamma(\mu, x)$ is continuous and increasing in $\mu \in [0, 1]$, the intermediate-value theorem implies that there exists μ^H such that

$$\Gamma\left(\mu^H, \overline{x}\right) = 0.$$

Next define μ^L from

$$\Gamma\left(\mu^L, x\right) = 0$$

Since $\Gamma(\mu, x)$ is increasing in μ, it follows that for $\mu \in \left[\mu^L, \mu^H\right]$, there exists a critical value $\widehat{x}(\mu) \in [x, \overline{x}]$ such that

$$\Gamma(\mu, \widehat{x}(\mu)) = 0.$$

■

Proof of Proposition 2. This rests on the complementarity such that $\Delta_\mu(\mu) \geq 0$. To see this, note that (7) implies:

$$\Delta_\mu(\mu) = \begin{cases} \int_{\underline{x}}^{\overline{x}} G(x)\, dH(x) & \mu \geq \mu^H \\ \rho \int_{\widehat{x}(\mu)}^{\overline{x}} \frac{dp(\mu, f^*(\mu,x))}{d\mu} G(x)\, dH(x) + & \\ \quad [G(x) + L(\mu, \widehat{x}(\mu))]\, h(\widehat{x}(\mu)) \frac{\partial \widehat{x}(\mu)}{\partial \mu} & \mu \in \left[\mu^L, \mu^H\right] \\ \rho \int_{\underline{x}}^{\overline{x}} G(x) \frac{dp(\mu, f^*(\mu,x))}{d\mu} dH(x) & \mu \leq \mu^L. \end{cases} \tag{A.1}$$

That is to say, we get $\Delta_\mu(\mu) \geq 0$ for all $\mu \in [0, 1]$ after observing that

$$\frac{\partial \widehat{x}(\mu)}{\partial \mu} = \frac{f^*(\mu, \widehat{x}(\mu))}{\frac{\partial p(\mu, f^*(\mu, \widehat{x}(\mu)))}{\partial \mu} \widehat{x}(\mu)} > 0.$$

■

B Choice of Executive Constraints and Openness

In this Appendix, we discuss some of the detailed modeling of executive recruitment and constraints.

New timing in the sequential-choice model In the sequential model, each generation goes through the following 6 steps.

1. An interim leader from generation t is chosen from the ruling group at $t-1$. The popularity shock of the incumbent group z_t is realized.

2. The interim leader chooses O_t and resources to fight F_t at step 3.

3. If $O_t = 1$, the interim leader is confirmed in power with probability z_t and a leader from each one of the other groups is selected with probability $(1 - z_t)/M$.

3′. If $O_t = 0$, (concerned) citizens get an opportunity to protest with probability ρ. If the protest is unsuccessful, then the interim leader is confirmed in power. If the process is successful, then the interim leader is removed from power and a leader is selected at random from one of the other groups.

4. The revenue shock, n_t, is realized and the leader from step 3 chooses X_t and f_t

5. If $X_t = 1$, at stage 1 of the legislative bargaining game the leader proposes an allocation S_t and the other groups vote whether to accept or reject it. If a majority rejects it, the legislative bargaining game goes on to stage 2 as described in the text.

5′. If $X_t = 0$, (concerned) citizens get an opportunity to protest with probability ρ. If the protest is unsuccessful, then $s_i = 1$ and $s_m = 0$ for $\mathcal{M}_{-i_t}$. If it is successful, then $s_i = 0$, and $s_m = \frac{1}{M}$ for $\mathcal{M}_{-i_t}$.

6. Payoffs are realized, a new generation is born and socialized by their parents. Parents die.

As before, we solve the model in period t backwards.

Cultural dynamics in the sequential-choice model We now compute the terms which drive the cultural dynamics. Let $\omega^m(O, X; z, n)$ be the total expected utility of the subordinated citizens from a particular configuration

of institutions, and let $v(q, M; z, n)$ be the expected material utility from policy under full democracy. Then

$$\begin{aligned}
\omega^m(0,0;z,n) &= 0 \\
\omega^m(0,1;z,n) &= \left[\frac{1-q}{2}\right](\tau w + n) \\
\omega^m(1,1;z,n) &= \omega^m(0,1;z,n) + \frac{(1-z)}{2M}\left[M(1+q) - (1-q)\right](\tau w + n) \\
&= \omega^m(0,1;z,n) + v(q,M;z,n) \\
\omega^m(1,0;z,n) &= (1-z)(\tau w + n).
\end{aligned}$$

Note that $\nu(0,1;z,n) = 0$, i.e., with two groups and a single shot at proposing, openness has no additional value over and above executive constraints.

We can use these to compute gains γ and losses λ, where the reference point for gains is $X_t = O_t = 0$ and for losses is $X_t = O_t = 1$. As $\omega^m(0,0;z,n) = 0$, $\gamma(O,X;z,n) = \omega^m(O,X;z,n)$.

Turning to losses, we have:

$$\begin{aligned}
\lambda(0,0;z,n) &= -\omega^m(1,1;z,n) \\
\lambda(1,1;z,n) &= 0 \\
\lambda(0,1;z,n) &= -\nu(q,M;z,n) \\
\lambda(1,0;z,n) &= \omega^m(1,0;z,n) - \omega^m(1,1;z,n).
\end{aligned}$$

The critical terms to study the cultural dynamics are the sum of the gain and loss in each state:

$$\begin{aligned}
\delta(0,0;z,n) &= -\omega^m(1,1;z,n) \\
\delta(1,1;z,n) &= \omega^m(1,1;z,n) \\
\delta(0,1;z,n) &= \omega^m(1,1;z,n) - 2\nu(q,M;z,n) \\
\delta(1,0;z,n) &= 2(1-z)(\tau w + n) - \omega^m(1,1;z,n).
\end{aligned}$$

The model induces two probability distributions over institutions, which we will denote by $o(z,n;\mu)$ and $e(z,n;\mu)$. Moreover, we have shown that an increase in μ raises the probability that $O_t = 1$ and $X_t = 1$. Then

$$\begin{aligned}
\Delta(\mu) = \int_{\underline{n}}^{\bar{n}} \int_{\underline{z}}^{\bar{z}} & \left([o(z,n;\mu)\, e(z,n;\mu)]\, \delta(1,1;z,n) + \right. \\
& [[1 - o(z,n;\mu)][1 - e(z,n;\mu)]]\, \delta(0,0;z,n) \\
& + [[1 - o(z,n;\mu)]\, e(z,n;\mu)]\, \delta(0,1;z,n) \\
& \left. + [o(z,n;\mu)[1 - e(z,n;\mu)]]\, \delta(1,0;z,n)) \, dH(n)\, dQ(z).\right.
\end{aligned}$$

For $\Delta(\mu)$ to be everywhere increasing, a sufficient condition is that

$$\delta(1,1;z,n) > \max\{\delta(1,0;z,n), \delta(0,1;z,n)\}$$

and

$$\min\{\delta(1,0;z,n), \delta(0,1;z,n)\} > \delta(0,0;z,n)$$

for all (z,n). Necessary and sufficient conditions for this are:

$$\omega^m(1,1;z,n) > \nu(q,M;z,n)$$

and

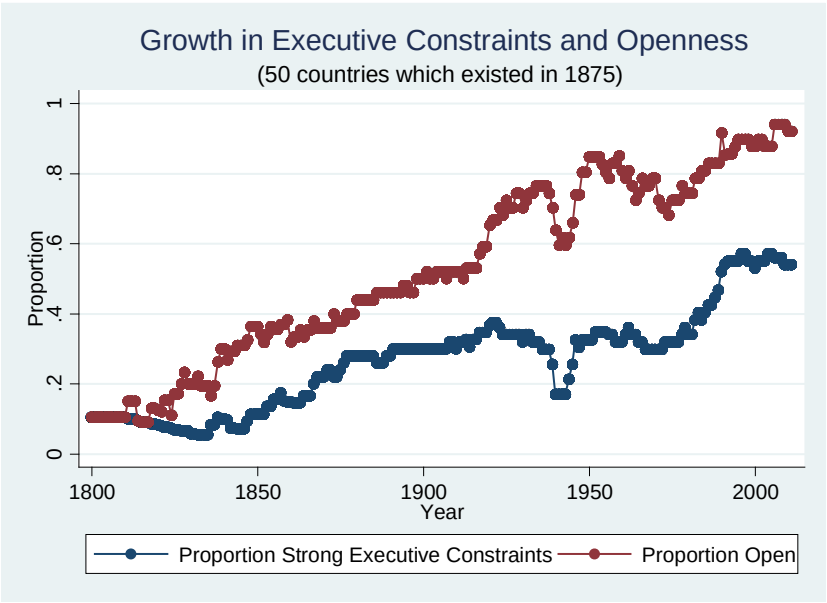
$$\omega^m(1,1;z,n) > (1-z)(\tau w + n). \tag{B.2}$$

The first of these always holds in our framework. However, the second requires that

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

or that $z \geq 1/(M+1)$. So the complementarity is present if $\underline{z} \geq 1/(M+1)$, which will hold if M is large enough.

Figure 1


Growth in Executive Constraints and Openness
(50 countries which existed in 1875)
Proportion
0
.2
.4
.6
.8
1
1800
1850
1900
1950
2000
Year
Proportion Strong Executive Constraints
Proportion Open

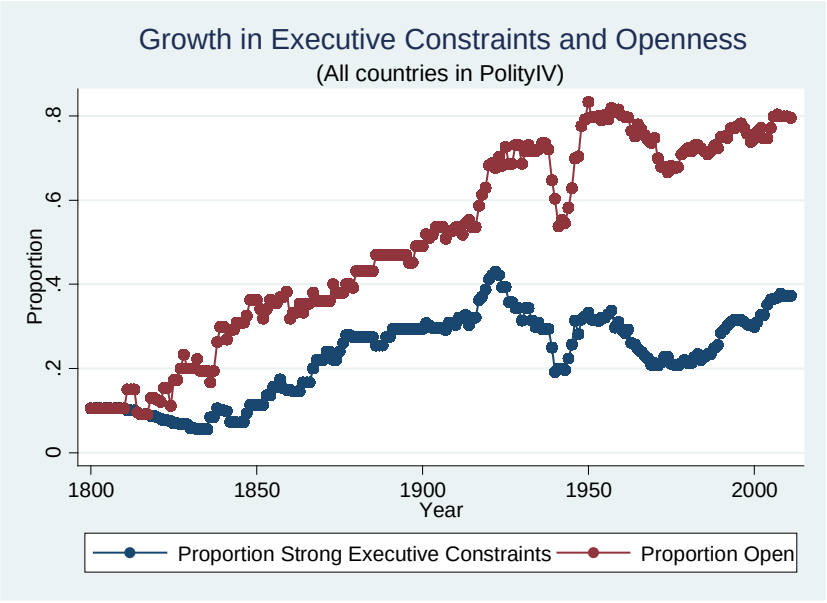
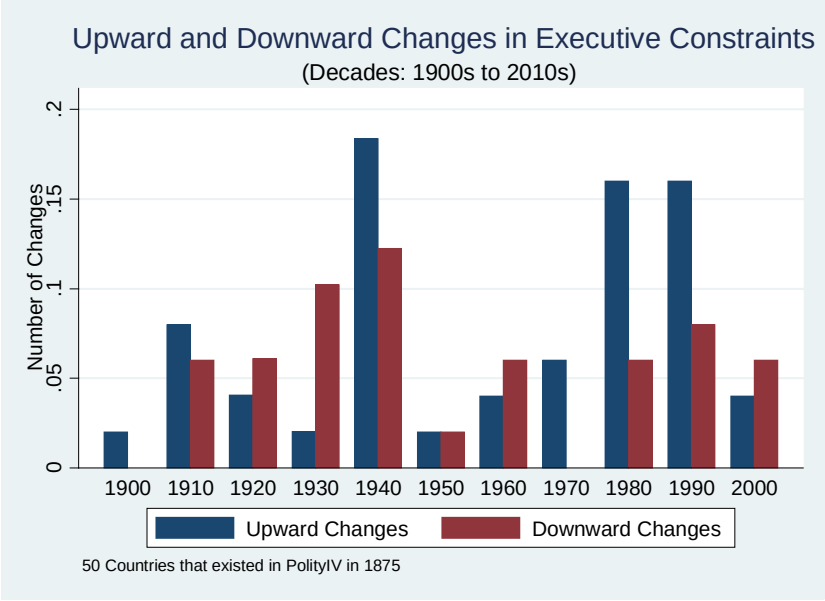

Growth in Executive Constraints and Openness
(All countries in PolityIV)
Proportion
0
.2
.4
.6
.8
1800
1850
1900
1950
2000
Year
Proportion Strong Executive Constraints
Proportion Open

Figure 2


Upward and Downward Changes in Executive Constraints
(Decades: 1900s to 2010s)
Number of Changes
0
.05
.1
.15
.2
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Upward Changes
Downward Changes
50 Countries that existed in PolityIV in 1875

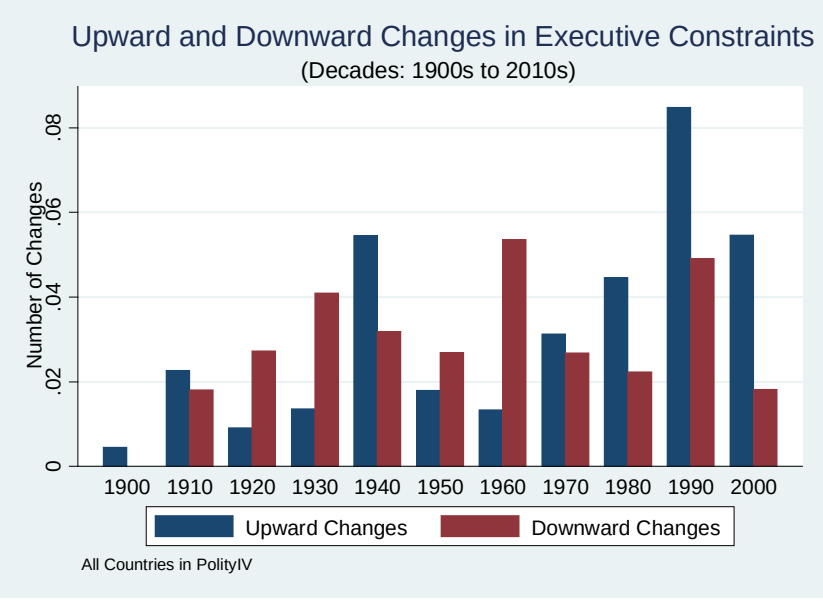
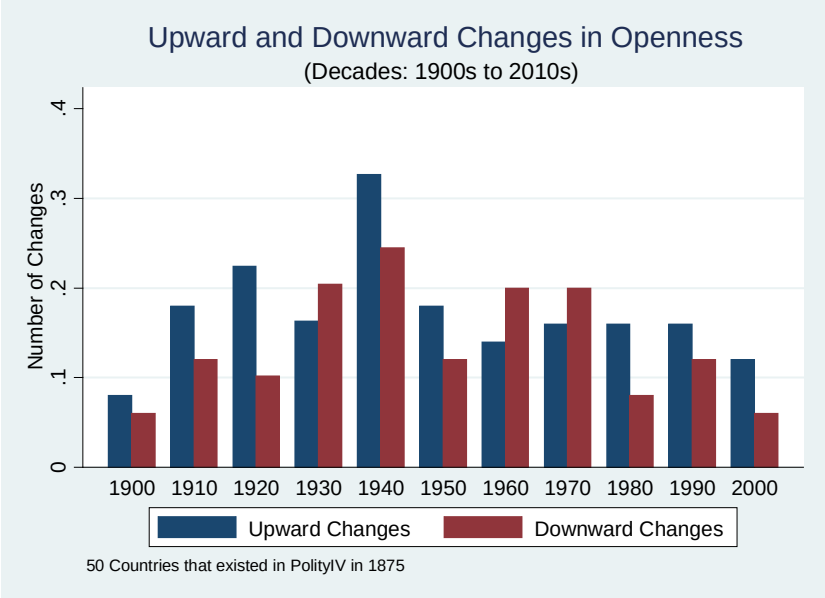

Upward and Downward Changes in Executive Constraints
(Decades: 1900s to 2010s)
Number of Changes
0
.02
.04
.06
.08
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Upward Changes
Downward Changes
All Countries in PolityIV

Figure 3


Upward and Downward Changes in Openness
(Decades: 1900s to 2010s)
Number of Changes
0
.1
.2
.3
.4
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Upward Changes
Downward Changes
50 Countries that existed in PolityIV in 1875

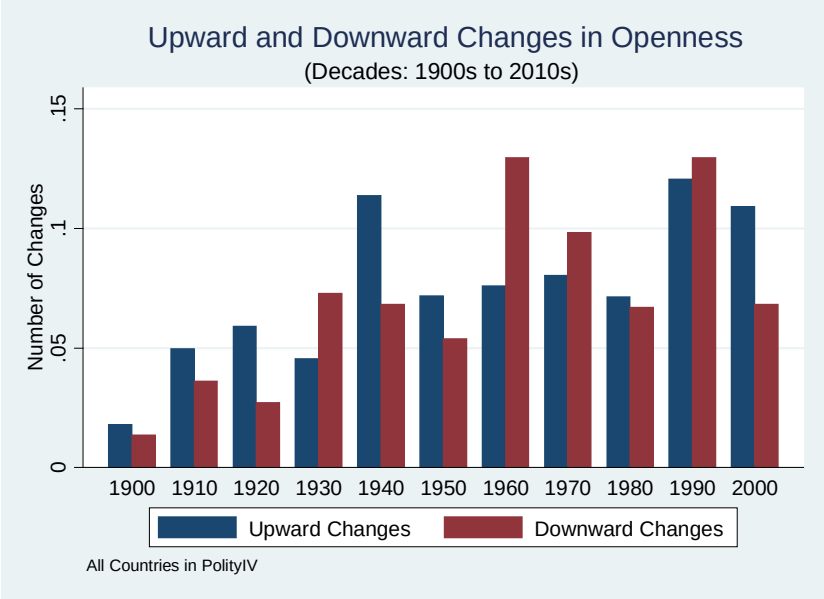

Upward and Downward Changes in Openness
(Decades: 1900s to 2010s)
Number of Changes
0
.05
.1
.15
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Upward Changes
Downward Changes
All Countries in PolityIV

Figure 4

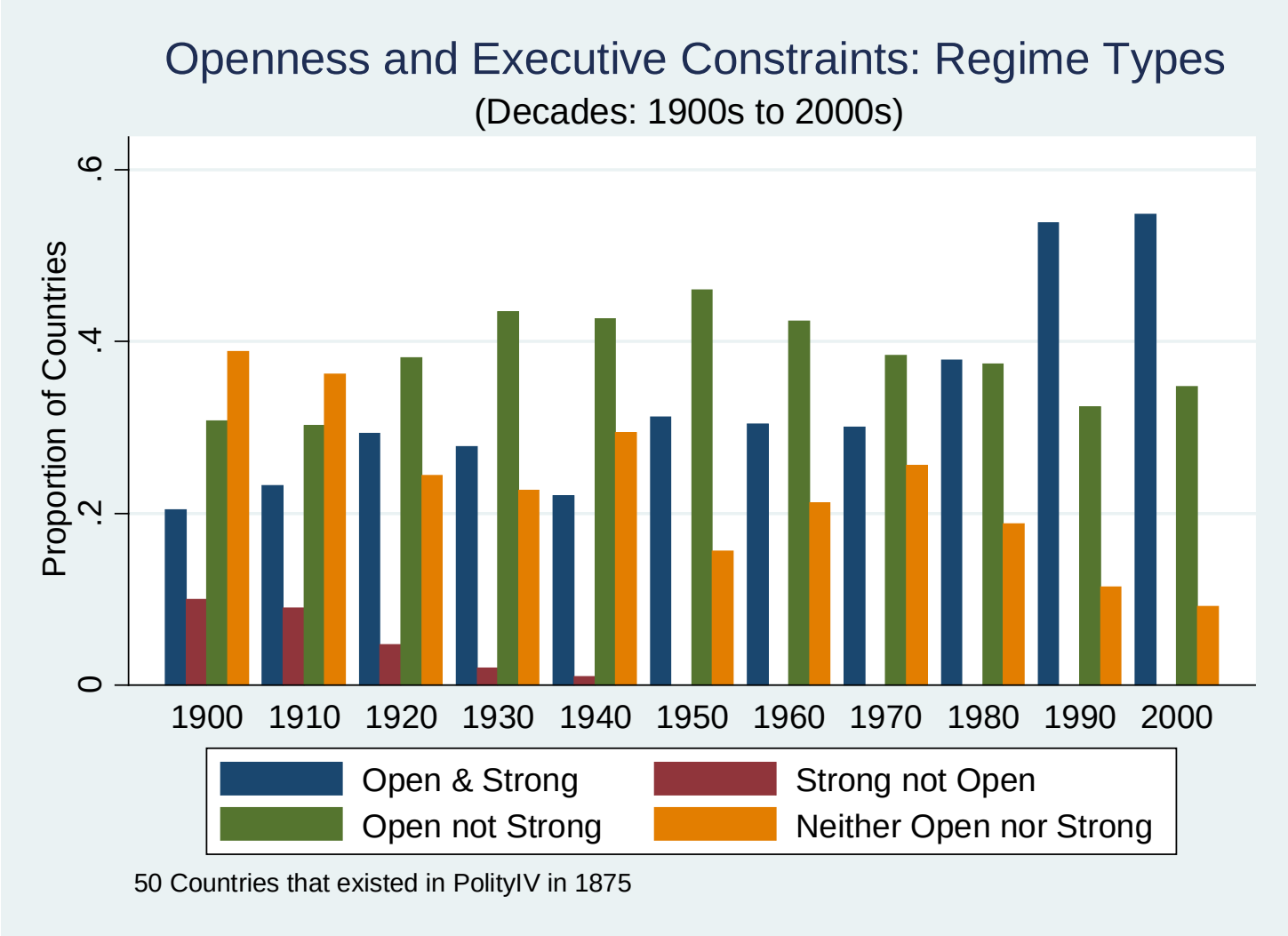
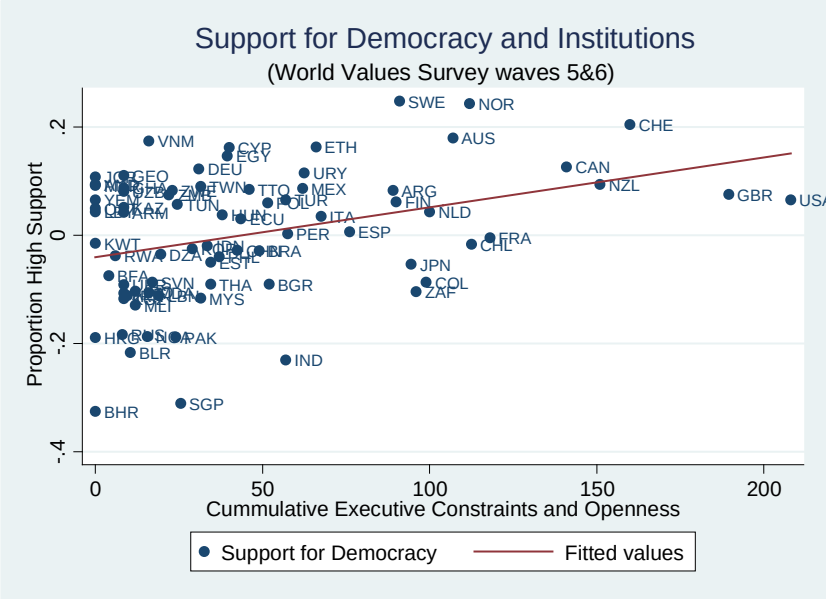

Openness and Executive Constraints: Regime Types
(Decades: 1900s to 2000s)
Proportion of Countries
0
.2
.4
.6
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
Open & Strong
Strong not Open
Open not Strong
Neither Open nor Strong
50 Countries that existed in PolityIV in 1875

Figure 5


Support for Democracy and Institutions
(World Values Survey waves 5&6)
Proportion High Support
Cummulative Executive Constraints and Openness
Support for Democracy
Fitted values

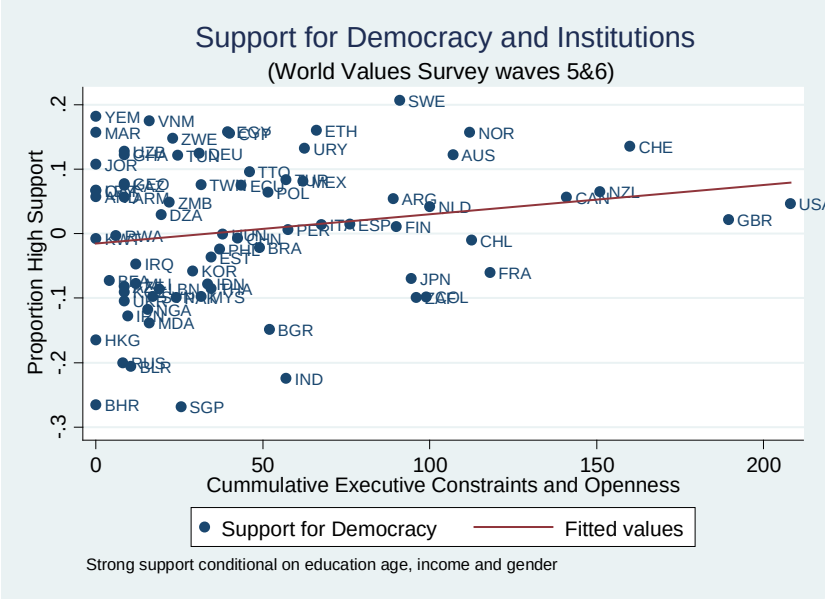

Support for Democracy and Institutions
(World Values Survey waves 5&6)
Proportion High Support
Cummulative Executive Constraints and Openness
Support for Democracy
Fitted values
Strong support conditional on education age, income and gender

Figure 6

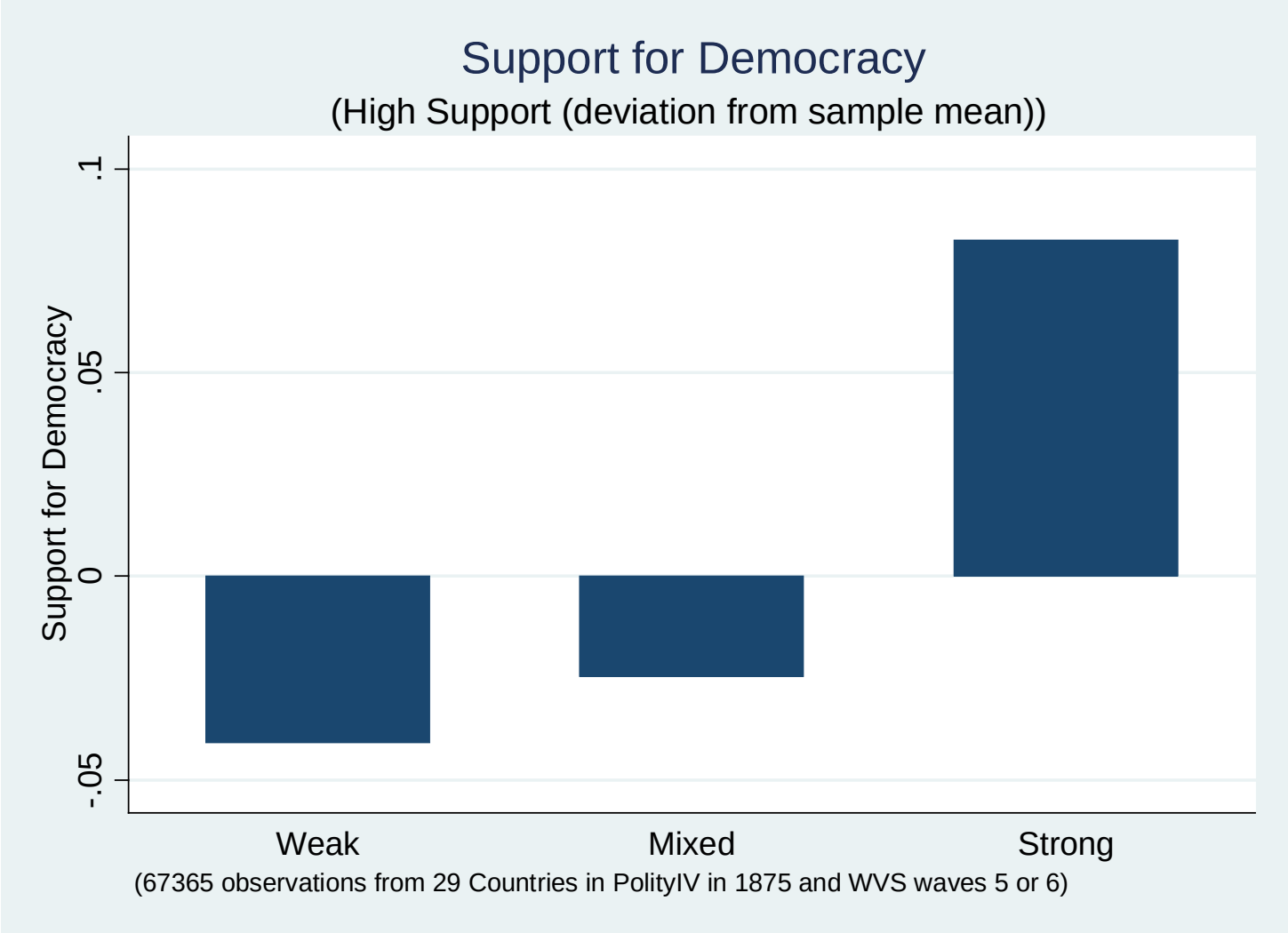

Support for Democracy
(High Support (deviation from sample mean))
Support for Democracy
-.05
0
.05
.1
Weak
Mixed
Strong
(67365 observations from 29 Countries in PolityIV in 1875 and WVS waves 5 or 6)

Table 1: Classification of Countries

Weak	Mixed	Strong
Always Weak Executive Constraints (Year of Entering Data)	Multiple Changes (Number of Upward Changes, Number of Downward Changes)	Always Strong Executive Constraints (Year of Entering Data)
Afghanistan (1800) China*† (1800) El Salvador (1841) Guatemala (1839) Honduras (1839) Iran*† (1800) Mexico*† (1822) Morocco*† (1800) Nepal (1800) Russia*† (1800) Venezuela (1830)	Argentina*† (1,1) Austria (2,1) Belgium (3,2) Bolivia (1,1) Brazil*† (1,1) Chile*† (2,1) Colombia*† (2,2) Denmark (2,1) Dominican Republic (1,1) Ecuador† (2,2) France* (2,2) Greece (4,3) Haiti (1,1) Japan*† (2,1) Netherlands*† (2,1) Norway* (2,1) Peru*† (2,1) Portugal (4,3) Paraguay (2,1) Serbia* (1,1) Spain*† (4,3) Thailand*† (1,1) Turkey*† (3,2)	Canada*† (1867) New Zealand† (1857) Switzerland* (1848) United Kingdom*† (1800) United States*† (1800)
Permanent Switch to Weak Executive Constraints (Year of Entering Data, Year of Switch)		Permanent Switch to Strong Executive Constraints (Year of Entering Data, Year of Switch)
Ethiopia*† (1855, 1930) Liberia (1847, 1884)		Costa Rica (1838, 1875) Germany*† (1800, 1990) Hungary* (1867, 1990) Italy* (1861, 1948) Nicaragua (1838, 1995) Romania (1859, 2004) Sweden*† (1800, 1917) Uruguay* (1830, 1985)

Notes: Sample is 50 countries which appear in the PolityIV data base as independent countries in 1875. The data base covers the period 1800 to 2011. Data for Germany are for unified Germany; West Germany had strong executive constraints from 1950 onwards. A * denotes a country in wave 5 and a † denotes a country in the wave 6 of World Values Survey.

Table 2: Timing of Institutional Changes

Country	Year First in Data	First Year Open	First Year Strong	Country	Year First in Data	First Year Open	First Year Strong
Afghanistan	1800	1989	-	Japan	1800	1952	1868
Argentina	1825	1825	1983	Liberia	1847	1847	1847
Austria	1800	1920	1946	Mexico	1822	1867	-
Belgium	1830	1919	1853	Morocco	1800	-	-
Bolivia	1825	1825	1982	Nepal	1800	2006	-
Brazil	1824	1894	1946	Netherlands	1815	1917	1889
Canada	1867	1867	1867	New Zealand	1857	1857	1857
Chile	1818	1818	1891	Nicaragua	1838	1838	1995
China	1800	1914	-	Norway	1814	1898	1884
Colombia	1832	1832	1867	Oman	1800	-	-
Costa Rica	1838	1838	1875	Paraguay	1811	1811	1992
Denmark	1800	1915	1915	Peru	1821	1822	1990
Dominican Republic	1844	1844	1962	Portugal	1800	1911	1836
Ecuador	1830	1901	1979	Romania	1859	1859	2004
El Salvador	1841	1903	-	Russia	1800	1992	-
Ethiopia	1855	1946	1855	Serbia	1830	1838	1838
France	1800	1800	1877	Spain	1800	1873	1871
Germany	1800	1919	1990	Sweden	1800	1917	1917
Greece	1827	1827	1864	Switzerland	1848	1848	1848
Guatemala	1839	1876	-	Thailand	1800	1935	1992
Haiti	1820	1918	-	Turkey	1800	1923	1961
Honduras	1839	1839	-	United Kingdom	1800	1837	1800
Hungary	1867	1948	1990	United States	1800	1800	1800
Iran	1800	1982	-	Uruguay	1830	1904	1985
Italy	1861	1928	1948	Venezuela	1830	1830	-

Notes: Sample is 50 countries which appear in the PolityIV data base as independent countries in 1875. The data base covers the period 1800 to 2011. Data for Germany are for unified Germany; West Germany had strong executive constraints from 1950 onwards.

Table 3: Determinants of Values

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Major Oil Producer	-0.166***	-0.073			-0.089*			
	(0.059)	(0.053)			(0.051)			
Soviet Influence			-0.270***	-0.148**	-0.196**			
			(0.079)	(0.065)	(0.084)			
German Occupation						0.087**	0.085**	
						(0.0411)	(0.032)	
Settler Mortality								-0.005**
								(0.002)
Individual & country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Countries	28	62	28	62	28	14	26	12
Sample	Countries in Table 1 and in WVS wave 5 or 6	All Countries in WVS wave 5 or 6 and PIV	Countries in Table 1 and in WVS wave 5 or 6	All Countries in WVS wave 5 or 6 and PIV	Countries in Table 1 and in WVS wave 5 or 6	Countries in Mixed Category in Table 1 in WVS wave 5 or 6	All Countries in Mixed Category in WVS wave 5 or 6	All Countries in Mixed Category in WVS wave 5 or 6
Observations	57690	117133	57690	117133	57690	30956	55834	25298
R^2	0.037	0.025	0.039	0.027	0.041	0.030	0.032	0.033

Notes: Dependent Variable is a dummy variable which equals one if Support for Democracy (on a 10 point Scale) is 9 or 10. Major oil producer is a dummy variable which is equal to one if a country has a oil rents in excess of 10% of GDP according to the World Bank. Individual controls are ten dummies for income group, three for education group, gender and three age bands. Country level controls are for GDP, human capital and the cumulative history of executive constraints. Standard errors are adjusted for clustering at the country level. German occupation is equal to one if the country was occupied n WWII and had a prior history of strong executive constraints A "*" denotes significant at 10%, a "**" significant at 5% and "***" significant at 1%.