

Making Autocracy Work*

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Abstract

One of the key goals of political economy is to understand how institutional arrangements shape policy outcomes. This paper studies a comparatively neglected aspect of this – the forces that shape heterogeneous performance of autocracy. The paper develops a simple theoretical model of accountability in the absence of regularized elections. Leadership turnover is managed by a selectorate – a group of individuals on whom the leader depends to hold onto power. Good policy is institutionalized when the selectorate removes poorly performing leaders from office. This requires that the selectorate’s hold on power is not too dependent on a specific leader being in office. The paper looks empirically at spells of autocracy to establish cases where it has been successful according to various objective criteria. We use these case studies to identify the the selectorate in specific instances of successful autocracy. We also show that, consistent with the theory, leadership turnover in successful autocracies is higher than in unsuccessful autocracies. Finally, we show by exploiting leadership deaths from natural causes, that successful autocracies appear to have found ways for selectorates to nominate successors without losing power – a feature which is also consistent with the theoretical approach.

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1 Introduction

One of the goals of political economy is to understand how institutional arrangements shape policy outcomes and human well-being. A large literature has now emerged which studies aspects of this. For the most part this has concentrated on studying democratic institutions where elections are the main institution that shapes policy choices. However, throughout most of human history, elections has served a fairly modest role. Far more common are systems based on coercive power – such as military dictatorships or one party systems where elections are either a veil or non-existent.

Recent history has seen a significant move towards open and free elections as a means of determining who should hold power. The case for such institutional arrangements is partly based on liberal values that emphasize the political freedoms that such institutions embody. Indeed, this intrinsic case for democracy, emphasized by Sen (1999), would stand regardless of whether it delivered concrete policy benefits to its citizens. But the case for democracy would be cemented further if there were demonstrable benefits in terms of outcomes.

A key observation which motivates this paper is that autocratic government is not always a disaster in economic terms. Indeed, throughout human history there has been growth and development in autocratic systems of government. For example, the British industrial revolution predates the introduction of free and fair elections with mass participation. Modern China is also a case in point with a spectacular growth performance in a non-democratic setting. Whether these observations damage the instrumental case for democracy is moot. After all, it is the counter-factual that matters – growth and development might have preceded at a greater pace were democracy present. But it is equally clear that whether one looks at democracy or autocracy there is a great deal of heterogeneity in their performance that cries out for explanation.

This fact is illustrated in Figure 1, which shows estimated density functions for real GDP per capita growth rates among autocratic and democratic regimes that lasted five full calendar years or longer.¹ A “regime” is defined

¹The density functions are estimated by using the Gaussian kernel and the bandwidth that minimizes the mean integrated squared error. Including regimes that lasted less than five years does not change the distributions substantially except for the inclusion of democratic regimes that existed less than 3 years, which tend to perform very badly (growth rates less than -1 percent).

as a period in which authority characteristics of a country stay the same, according to the POLITY IV data set.² Regimes are democratic if the Polity score is positive, and autocratic if it is non-positive.³ The striking fact that we will explore in more detail is that the distribution of autocracies has fatter tails—there are more very good autocracies and more very bad autocracies compared to democracies.⁴

The key challenge for students of political economy is to extract lessons from historical and contemporary experience about what makes government work in the general interest of its citizens. There is very little doubt that building infrastructure, managing macro-economic policy, facilitating private trade and investment and protecting the vulnerable are all facilitated by effective government. In this paper, we will focus somewhat narrowly on the issue of why autocracy can sometimes be successful. This project is not intended as defense of autocracy, but as means of gaining further insights into the institutional basis of good government. It also contributes to broader discussion about the differences in policy and performance between democracies and autocracies.

The main focus of the paper is on the institutions that make government accountable – specifically finding a means of removing poorly-performing leaders from office. Democracies organize this through regularized contests for power in elections. However, the means of achieving accountability are more murky in autocratic settings. The analysis emphasizes accountability from a “selectorate” comprising insiders who have the ability to depose a leader. Autocratic government works when this group is sufficiently confident that its hold on power is not dependent on the existing leader, i.e. the power of the ruling group is institutionalized in certain way. The simplicity of the framework makes it straightforward to contrast the performance of autocracy and democracy in terms of accountability. It shows that democracy need not be more successful. However, there are preconditions for democracy to have higher quality government than autocracy, including checks and balances and some degree of political competition.

We then turn to identifying successful autocracies empirically. We look

²See Section 4 for more details.

³The shapes of the two estimated density functions are similar if we define a democratic regime as its Polity score being more than 5, as Fearon (2007) does.

⁴Rodrik (1997, 2000), Almeida and Ferreira (2002), and Glaeser et al. (2004, Table 8) make similar observations although the unit of observation in their analysis is a country rather than a regime.

at a variety of methods and use these to pick out regimes that are robustly high performers. This sample of regimes provides a structured basis for some case study analysis. We are also able to look statistically at the patterns of successful autocracies across countries. We then try to test some of the ideas in the theory concerning the notion that successful autocracies are those that generate accountability mechanisms in the absence of open contests for power.

The remainder of this paper is organized as follows. In the next section, we review some of the voluminous literature on autocracy and democracy by both economists and political scientists to set our paper in context. Section three develops the model. In section four, we look empirically at successful autocracies and how far their incidence can be explained. Section five explores links back to the theory. Section six offers some concluding remarks.

2 Background

The background to this paper is a large body of studies on the way in which government and the economy interact. The key question for this research programme known as political economy (or sometimes political economics) is to understand how policy choices are shaped by institutions. One important institutional category is whether a country's political institutions are deemed to be democratic. While the effect of democratic institutions on policy choices has been a subject of long-standing interest, recent years in particular have seen a surge in interest in this issue.

Whether the analysis is theoretical or empirical, a precondition for investigating whether democracy or autocracy matters is to find some way of characterizing their differences. From a theoretical point of view, a lot of attention has been paid to whether a country uses elections to determine who governs. The literature on elections in general views them as potentially important in two main ways: determining the pattern of representation (i.e. which groups of citizens hold political power) and how politicians are held to account (i.e. whether the incumbents are punished for bad policy).

The influential work by Acemoglu and Robinson (2005) takes the first view, focusing on who controls political office and modeling autocracy as a dictatorship of the rich and democracy as a dictatorship of the poor or middle classes. As a result, income redistribution is larger under democracy than under dictatorship. The second perspective is taken in Bueno de Mesquita

et al. (2002, 2003) who are the first to model accountability in a framework applicable to non-democratic government. In their theory, given the total amount of government expenditures, the larger is the selectorate required for the government to stay in power, the higher the level of public goods provided by the government. Elections imply that the government requires the support from a large number of citizens to stay in power. Hence, democracy increases public goods provision. We follow them in putting weight on the role of the selectorate in shaping policy incentives. However, our theory gives greater emphasis to the interplay of accountability and representation issues in making government work.

Moving to the data, it is clear that elections are conducted very differently depending on who can vote, who is eligible to stand and whether there is open access to institutions like the media. The widely used Polity data base provides a more continuous measure of democracy in several categories: how competitive and open the recruitment of chief executives is; to what extent the chief executive is constrained institutionally; and how competitive and regulated political participation is. These continuous measures are then aggregated into the single Polity score, measuring the degree of democracy.⁵ It is commonplace to use this Polity score to create a discrete cutoff between democracies and autocracies. For example, Persson and Tabellini (2006, 2007) use a cutoff of zero with democracies being those with a positive Polity score. However, Fearon (2007) prefers a cutoff of five. Since discrete transformations of continuous data series are always somewhat arbitrary, it is important to test the robustness of specific empirical results to alternative definitions.

While elections are a central institution in democracies, it is clear that there are other aspects of institutions within democracy. One of the indicators in the Polity data set is concerned with the checks and balances on a leader. The executive constraints variable “refers to the extent of institutionalized constraints on the decision-making powers of chief executives” (Marshall and Jaggers 2005, p.23). The political economy literature has so far focused on the role of executive constraints in conflict of interest between policy-makers and citizens (e.g. property rights enforcement against government expropriation) and used the executive constraints variable in that context (e.g. Acemoglu and Johnson 2005, Acemoglu, Johnson, and Robinson 2005). However, it could also affect how distributional issues are

⁵See Marshall and Jaggers (2005) for more detail.

resolved among citizens. We will explore this aspect of checks and balances.

Mindful of the importance of institutional variation in democracies, Persson and Tabellini (2000, 2003) have explored how institutional variations matter *within* democracies. The main differences that they focus on are parliamentary versus presidential forms of government and proportional representation versus majoritarian electoral rules. They explore theoretical differences between these regimes in terms of representation and accountability. They also show that policies differ across forms of democracy.

The political economy literature, for the most part, has treated autocracy as a homogeneous type of government (see below).⁶ This contrasts with more sociological approaches.⁷ However, these are not easily translated into the kind of empirical differences which can be used for statistical analysis. Moreover, they are poorly tied into the kinds of theoretical categories that shape policy incentives which can inform measurement.⁸

The literature on the “developmental state” (Deyo 1987, Amsden 1989, Haggard 1990, Wade 1990, Evans 1994) can also be seen as focusing on a certain type of autocracy which is successful in achieving economic growth. These studies identify two seemingly contradictory institutional features as key for understanding economic success: (1) state autonomy and (2) institutions that prevent predatory behavior. Our theory may explain why these two features of the developmental state can coexist in autocracy: the state is autonomous only from opposition groups while the ruling group disciplines the state to avoid it from becoming predatory.

There is a small theoretical political economy literature that attempts to explain different economic performances among autocracies in a model in

⁶Wintrobe (1998) is an important exception.

⁷This political sociology literature has produced a wide array of terminology to classify autocratic regimes. Examples include totalitarianism (Linz 2000), one-party systems (Huntington and Moore 1970), bureaucratic authoritarianism (O’Donnell 1979), sultanistic regimes (Chehabi and Linz 1998), neopatrimonialism (Bratton and van de Walle 1997, chapter 2), the rentier state (Beblawi and Luciani 1987), and, perhaps most recently, competitive authoritarianism (Levitsky and Way 2002). Geddes (1999) classifies autocracies into personal, military, and single-party rules to investigate how the type of autocracy affects its duration and the way it terminates. Haber (2006) attempts to bridge the gap between this political sociology literature and the political economy approach by classifying autocracies into three types according to the way dictators stay in power: terror, cooptation, and organizational proliferation.

⁸An exception is Gandhi and Przeworski (2006), who try to find the determinants of institutional choices in autocracy by linking a theory of autocracy to data.

which an autocrat maximizes his private consumption subject to the probability of staying in power.⁹ One recurring theme in this literature is what is known as the “stationary bandits” theory of dictatorship, first formalized by McGuire and Olson (1996).¹⁰ The theory argues that if a dictator expects to stay in power for a long period of time, he has an incentive to promote economic development because he will then increase his private consumption through increased tax revenues resulting from economic growth. This mechanism has been incorporated in some subsequent studies of autocracy.¹¹ Our theory does not incorporate the stationary bandits theory in a strict sense; the dictator in our model has no private gain from choosing welfare-enhancing policies *per se*. However, successful autocracies emerge in our model if the ruling group of citizens are secure in power. In this sense, we incorporate one feature of the stationary bandits theory—the importance of political stability.

On the other hand, one contentious issue in this literature is how welfare-enhancing policies affect the probability of a dictator’s survival. Grossman and Noh (1994) and Overland et al. (2005) assume that a dictator’s survival is more likely if he adopts welfare-enhancing policies. Grossman and Noh (1994) additionally assume that the probability of survival also depends on non-economic factors, arguing that successful autocracies are those whose survival does not depend significantly on non-economic factors. Overland et al. (2005) propose that the dictator’s survival depends on the level of capital accumulation (and therefore on growth-enhancing policies). As a result, autocracies with a low level of initial capital accumulation do not perform well because the dictator will be thrown out anyway, failing to reap the benefit from increased tax revenues through economic growth. Acemoglu and Robinson (2006), in turn, assume that welfare-enhancing policies directly reduce the dictator’s survival chance while such policies can also increase the survival chance through competition for power with a challenger. Conse-

⁹Wintrobe (1990) uses a similar theoretical framework to analyze the effect of better economic performance on the level of repression.

¹⁰See also section VI of Barro (1990).

¹¹Examples include Overland, Simons, and Spagat (2005) and Acemoglu and Robinson (2006), as discussed below. What Acemoglu (2006) calls “revenue extraction” corresponds to this mechanism. Paltseva (2006) incorporates the stationary bandit theory into the theory of democratization. Azam, Bates, and Biais (2005) argue that autocrats may refrain from predation to build up their reputation as benevolent so that the gain from predation in the future will be larger due to increased economic productivity. Caselli (2006) uses this mechanism to explain the natural resource curse.

quently, successful autocrats are either those who are secure enough (so the stationary bandits theory applies) or those who face tough competition from a challenger. In the intermediate level of survival chance, autocrats fail to adopt welfare-enhancing policies because such policies increase the chance that the autocrat is overthrown.

Our theoretical model will show that whether welfare-enhancing policies increase the probability of a dictator's survival depends on the institutional features of autocracy. Autocracy with a strong selectorate as modeled here has some features in common with the notion of a "consensually strong state" of Acemoglu (2005). We emphasize the role of institutions that organize accountability of leaders in the absence of leaders to encourage a less short term perspective among the leaders. Thus it may be possible to achieve some aspects of good government without holding elections.

The political economy literature on autocracy discussed so far fails to explain why poorly-performing autocrats can stay in power for a long period of time in reality (e.g. Mobutu in former Zaire). Acemoglu, Robinson, and Verdier (2004) develop such a theory, arguing that autocrats can exacerbate the collective action problem involved in the ousting of leaders, by bribing loyalists and punishing coup plotters. This implies that autocracy performs poorly if natural resource abundance or foreign aid provision allows dictators to buy off the pivotal group of people. Padro-i-Miquel (2006) offers an alternative explanation, assuming that only the ruling group of citizens can replace the leader and that once the leader is replaced, there is a chance for citizens outside the ruling group to seize power. This implies that autocrats expropriate citizens outside the ruling group and that the ruling group cannot replace poorly-performing autocrats for fear of losing power and being expropriated under new leadership. Our theoretical model below assumes away the collective action problem in leadership replacement, but incorporates Padro-i-Miquel (2006)'s insight and therefore derives an equilibrium in which poorly-performing autocrats nevertheless stay in power.

There is a growing empirical literature asking whether democracy or autocracy is superior in terms of economic outcomes. The evidence that democracy promotes prosperity is neither strong nor robust. Przeworski and Limongi (1993) review empirical research on the effect of democracy on economic growth, concluding that the correlation is weak and not robust. Persson and Tabellini (2006) try a novel econometric approach finding some support for the proposition that persistent democracy is associated with improvements in economic performance. Papaioannou and Siourounis

(2005) and Rodrik and Wacziarg (2005) find that democratization is associated with subsequent growth. Jones and Olken (2005) find that economic growth rates change significantly when autocratic leaders are unexpectedly removed from office while such changes are less clear under democracy. Persson and Tabellini (2007) find evidence of heterogeneity with transitions out of democracy being damaging to growth, while transitions into democracy out of autocracy being less clearly marked by improved growth performance. Persson (2005) finds that whether the transition out of autocracy is towards a Presidential or Parliamentary system of government matters.

Which aspects of policy making and human well-being are promoted by democracies is also a subject of debate. For example, Mulligan et al. (2004) find few differences between policies enacted in democracies and autocracies. Besley and Kudamatsu (2006) find that there is a strong and robust correlation between democracy and life expectancy. Kudamatsu (2006) finds that democratization has reduced infant mortality in sub-Saharan Africa in the 1990s.

A characteristic of pretty much all prior efforts that contrast the performance of democracy and autocracy is to treat autocracies as a homogeneous institution.¹² But heterogeneity in the working of autocratic institutional arrangements comes out of a broad range of theoretical treatments. A key aim of this essay is to explore one dimension of this.

3 The Model

We lay out a very simple agency model of autocracy. The model studies the incentives of an incumbent policy maker to implement a costly action that yields benefits to all citizens. It differs from a standard model of democracy of the kind laid out in Besley (2006, chapter 3) in that there is no regularized contest for public office. We begin by assuming that such contests only arise when the ruling group replaces its leader. We will show that this feature of autocracy gives the best possible chance of autocracy working in

¹²An important exception is Gandhi (2003a,b), who finds that autocracies with legislatures and/or political parties have better economic performance, more spending on education and less on the military. The finding that a certain degree of institutionalization of autocracy yields better development outcomes is broadly consistent with our theory.

the interests of all citizens.¹³ We compare the outcome of this model with a stylized representation of democracy where power is contested regularly.

The world comprises two kinds of citizens each drawn from groups $J \in \{A, B\}$. The size of each group is a fraction β_J of the whole population. There are two time periods denoted by $t \in \{1, 2\}$. In each period, there is a policy maker in office who is a member of one of these two groups of citizens. Without loss of generality, we assume that the period one policy maker is from group A .¹⁴

The policy maker in office in period t makes two policy decisions. The first is a “general interest” policy decision denoted by $e_t \in \{0, 1\}$. This could be thought of as a wealth creation decision for the citizens which requires the policy maker to forego private benefits such as bribery by a special interest. The payoff to citizens and policy makers from this decision depends on a state of the world $s_t \in \{0, 1\}$ which is only observed by the policy maker. Each state occurs with equal probability. Citizens receive a payoff Δ if $e_t = s_t$ and zero otherwise.

The second policy decision is purely distributive. This divides an exogenous revenue of size T between the groups. Let $\sigma_{J,t} \in [\underline{\sigma}, \bar{\sigma}]$ denote the fraction of this revenue allocated to group J in period t . In the most extreme case $\bar{\sigma} = 1$ and $\underline{\sigma} = 0$. However, checks and balances may limit this possibility. Thus the upper and lower bounds of these transfers crudely capture the extent to which policy makers are constrained.

As well as having a group identity, each policy maker can be good or bad, denoted by $i \in \{g, b\}$. Let π be the probability that a randomly picked individual from either group is good.¹⁵ Both types of policy makers receive Δ as a citizen if they choose $e_t = s_t$. However, a good policy maker gets the payoff of 0 by choosing $e_t \neq s_t$. We think of this as having a moral stance so that they get no utility from earning rents. Hence, a good politician will always act in the interests of all citizens on the general interest issue. A bad politician gets a private benefit of $r \in (\Delta, R]$ from picking $e_t \neq s_t$, where r is drawn independently each period from a distribution whose cumulative distribution function is $G(r)$.¹⁶ The mean of r is μ . Let the realized value

¹³As we emphasise below, this is true when checks and balances are weak.

¹⁴Whether $\beta_A > \beta_B$ or not does not affect our analysis.

¹⁵We require that $\pi > 0$. However, π could be very small and many people plainly believe that it is in many practical settings. The key issue, however, is that the *possibility* of a good policy maker existing creates a role for signalling.

¹⁶Making Δ the lower bound on rents guarantees that it is never possible to motivate

of the rent available in period t be denoted by r_t . The action of a politician at time t is denoted by $e_t(s_t, i)$ with $s_t \in \{0, 1\}$ and $i \in \{g, b\}$.

Each group has a selectorate with the power to propose a policy maker for office.¹⁷ However, we assume an asymmetry between the two selectorates, however. The selectorate of the ruling group (A) decides whether to retain the incumbent policy maker. If it so chooses, then we assume that the incumbent remains in power. In this case, the selectorate of group B has no effective say in selection of the policy maker. If the selectorate of group A replace the incumbent, there is an "open" contest between two candidates, one from group A and the other from group B , competing for the support from the selectorate of groups A and B . Let $\phi_J \leq \beta_J$ be the size of the selectorate of group J as a fraction of the population where $J \in \{A, B\}$.

The outcome of the contest for power is probabilistic. Let $\{\kappa_A, \kappa_B\}$ be the levels of support enjoyed by the candidates from group A and B in a contest, and suppose that there is an uniformly distributed shock $\eta \in \left[-\frac{1}{2\xi}, \frac{1}{2\xi}\right]$ to the contest outcome. The group A candidate wins if

$$\kappa_A + \eta > \kappa_B.$$

Then the probability that A wins the contest is:

$$\gamma^A(\kappa_A - \kappa_B) = \begin{cases} 1 & \text{if } \kappa_A - \kappa_B > \frac{1}{2\xi} \\ \frac{1}{2} + \xi[\kappa_A - \kappa_B] & \text{otherwise} \\ 0 & \text{if } \kappa_A - \kappa_B < -\frac{1}{2\xi}. \end{cases}$$

This model allows us to incorporate the standard probabilistic voting model of democracy in our framework. If all citizens vote along group identity lines, we would have $\kappa_A = \beta_A$ and $\kappa_B = \beta_B$, i.e. support is proportional to group size.

In an autocratic world, we might suppose that the contest depends on the number of selectorate members supporting each candidate, in which case $\kappa_A = \phi_A$ and $\kappa_B = \phi_B$ if all selectorate members support their own group's candidate. We could also apply a power factor so that, even if every member of group B 's selectorate supports their own candidate, $\kappa_B = \nu\phi_B$ with $\nu < 1$ representing repression of the opposition. With little opposition and

a bad policy maker to act in the general interest on the basis of his personal payoff at the current period only.

¹⁷The term "selectorate" is borrowed from Bueno de Mesquita et al. (2003).

little noise, then $\gamma^A(\phi_A - v\phi_B) = 1$, i.e. group A is certain to hold onto power in the second period. This would represent the case of an effectively institutionalized autocracy along the lines of modern day China.

Finally, if the period one policy maker is removed from office, he receives a period two payoff as a citizen from group A .

The timing of the game is as follows:

1. Nature determines (s_1, r_1) and whether the period one policy maker is good or bad. These are private information to the policy maker.
2. The policy maker picks (σ_{A1}, e_1) and period one payoffs are realized.
3. Members of the selectorate of group A observe their period one payoff and decide whether to retain the policy maker.
4. If the policy maker is removed from office, then nature determines whether two candidates in an open contest are good or bad, which are not observable to citizens. An open contest then ensues in which the selectorates of groups A and B decide which candidate to support.
5. Nature determines (s_2, r_2) .
6. The period two policy maker chooses (σ_{A2}, e_2) and period two payoffs are realized.

A key feature of the model is that there is a contest for power only if the selectorate of group A chooses to replace the current leader. It is the absence of a guarantee contest at the end of period one that we will say characterizes autocracy in the model. Below, we will contrast this with a situation where there is an election at the end of period one as in the standard political agency model.

3.1 Equilibrium

We solve for the perfect Bayesian equilibrium of our model. This requires that, in every period, each type of policy maker behaves optimally given the contest rule in place. Members of the selectorate use Bayes rule to update their beliefs on the type of the period one policy maker accordingly and decide optimally whether to replace the policy maker at the end of period one.

It is very easy to work out the equilibrium behavior of policy makers in period two. In terms of the general interest policy, every kind of policy maker takes his short term optimal action. Thus $e_2(s_2, g) = s_2$ and $e_2(s_2, b) = (1 - s_2)$. In terms of the distributive policy, the policy maker of group J chooses $\sigma_{J2} = \bar{\sigma}$, i.e. giving the biggest reward that he can to his own group.

Turning now to period one, the distributive policy is again straightforward and the policy maker of group J will set $\sigma_{J1} = \bar{\sigma}$. Good policy makers always make the right decision on the general interest policy so that $e_1(s_1, g) = s_1$. The only issue concerns how bad policy makers behave. Let λ be the probability that a bad policy maker chooses the right general interest action in period one. Applying Bayes rule, the posterior probability Π that the incumbent policy maker is good having produced the good outcome in period one is:

$$\Pi = \frac{\pi}{\pi + (1 - \pi)\lambda} \geq \pi$$

To work out the bad policy maker's incentive to produce Δ , we must compare his payoffs from the good and bad actions. Let $\rho(\delta)$ be the probability that the period one policy maker will stay in office if he produces a payoff of $\delta \in \{0, \Delta\}$ from the general interest policy.

Let $V^J(J, \pi)$ and $V^J(K, \pi)$ be the period two payoffs to a citizen of group J when a policy maker of group J and K , respectively, is in office who is good with probability π . It is simple to see that:

$$V^J(J, \pi) = \bar{\sigma}T + \pi\Delta$$

and

$$V^J(K, \pi) = \underline{\sigma}T + \pi\Delta.$$

The bad policy maker's period two payoff from producing a payoff of δ to the citizens in period one is:¹⁸

$$\rho(\delta)(\mu + \bar{\sigma}T) + (1 - \rho(\delta))[\gamma^A V^A(A, \pi) + (1 - \gamma^A) V^A(B, \pi)].$$

Using this, it is easy to see that the bad policy maker will produce the good action in period one if:

$$[\rho(\Delta) - \rho(0)](\mu - \pi\Delta + (1 - \gamma^A)(\bar{\sigma} - \underline{\sigma})T) + \Delta > r_1.$$

¹⁸Note that γ^A does not depend on δ . This is because in an open contest both candidates are equally likely to be good. Group B 's selectorate, therefore, only cares about the distributional policy and always supports their own candidate regardless of δ . This is no longer the case if an open contest ensues even when the selectorate of group A prefers keeping the incumbent in office. See section 3.3 below.

When making this decision, the bad politician is motivated by two sources of future rents. The first is the personal rent μ that he earns. The second is the group specific rent $(\bar{\sigma} - \underline{\sigma})T$. The latter is relevant only if his group may lose office in an open contest, i.e. if $\gamma^A < 1$.

To understand $\rho(\Delta) - \rho(0)$, we need to examine the behavior of the group A selectorate. Observe that if the policy maker generates Δ , then it is always optimal to retain him. He creates both higher rents from the redistributive policy (strictly so if $\gamma^A < 1$) and there is a higher probability of good behavior than would arise in an open contest. This implies that $\rho(\Delta) = 1$. If the policy maker does not generate Δ , then it is optimal for group A selectorate to fire him if:

$$\bar{\sigma}T < \gamma^A V^A(A, \pi) + (1 - \gamma^A) V^A(B, \pi)$$

or

$$(1 - \gamma^A) (\bar{\sigma} - \underline{\sigma}) T < \pi \Delta.$$

Thus poor quality policy makers will be fired as long as the selectorate has a sufficient grip on power so that they will keep their group specific rents if they decide to replace the policy maker. If not, then they cannot commit to firing poorly performing policy makers.

This leads us to the following result:

Proposition 1 *In the unique perfect Bayesian equilibrium, the probability that a bad policy maker picks the right general interest action in period one is given as follows:*

1. If $(1 - \gamma^A) (\bar{\sigma} - \underline{\sigma}) T < \pi \Delta$ then:

$$\lambda = G(\mu - \pi \Delta + (1 - \gamma^A) (\bar{\sigma} - \underline{\sigma}) T + \Delta). \quad (1)$$

2. If $(1 - \gamma^A) (\bar{\sigma} - \underline{\sigma}) T \geq \pi \Delta$ then:

$$\lambda = 0.$$

This result says that the selectorate will be able to discipline policy makers in autocracy leading to a good action on the general interest policy if their grip on power is sufficiently strong. If not, they will fear that removing

the policy maker will trigger a contest in which the other group can seize power.¹⁹ This suggests that successful autocracies will tend to be those with strong selectorates who can commit to removing bad leaders.

The case of $\gamma^A = 0$ is interesting here and could be thought of as a case of personal rule where group A 's grip on power is entirely dependent on the specific policy maker remaining in power. If $(\bar{\sigma} - \underline{\sigma})T \geq \pi\Delta$, then personal rule in this sense will always result in $\lambda = 0$. This is because the accountability mechanism via the group A selectorate has no bite. This accords with intuition and often-made empirical claim that personal rule is not conducive to good government. We develop a case study to illustrate this in section 5.3 below.

The role of checks and balances in disciplining autocrats turns out to be subtle. First, if group A retains power for sure ($\gamma^A = 1$), there is no role for constraints on the executive in improving the quality of government. The complete lack of checks and balances could still lead to good policy outcomes if the selectorate is secure in power with certainty. Otherwise, improvements in checks and balances have a non-monotonic impact on the incentive of autocrats to make a good policy. On one hand, improvements in checks and balances make the case of successful autocracies more likely. On the other hand, once checks and balances start disciplining bad politicians, further improvements in checks and balances actually undermine their incentive to take the good action. This is because a high level of checks and balances makes an autocrat less concerned about the seizure of power by group B as a result of his bad performance. Finally, if we compare two autocracies with the same level of checks and balances, we could see a stark difference in performance between the two, depending on how salient the distributional issue is due to the size of T .

As we observed above, a key feature of our model is the assumption that a contest for power is triggered only if there is a decision to replace the leader in period one. The role of this assumption can now be assessed. Suppose instead that there is a probability ξ that a contest ensues even if the selectorate chooses to retain the incumbent. The incumbent then competes with a challenger from group B for office in period two.²⁰ This does not

¹⁹Padro-i-Miquel (2006) uses the same logic to analyze why African dictators have implemented inefficient policies.

²⁰We assume here that checks and balances are weak enough so that $(1 - \pi)\Delta < (\bar{\sigma} - \underline{\sigma})T$. This implies that group membership is the salient issue if there is a contest for power. Were this not the case, then the group B selectorate would be content

change the optimal strategy of the selectorate. However, it weakens the incentive of the leader in case 1 of the Proposition since we would now have:

$$\lambda = G([\xi\gamma^A + (1 - \xi)]\{\mu - \pi\Delta + (1 - \gamma^A)(\bar{\sigma} - \underline{\sigma})T\} + \Delta)$$

which is decreasing in ξ . Thus the model predicts that, conditional on having an effective selectorate disciplining the leader, political stability (low ξ) is an asset. This offers a perspective on autocracy that is reminiscent of Olson (1993) who put weight on the power of longer time horizons in improving the quality of government within autocracy.²¹ However, the exact mechanism in which political stability induces a better quality of autocratic government is different. In Olson (1993)'s theory, political stability allows an autocrat to internalize the benefit from good economic policies through an increased amount of tax revenue. In our model, political stability allows the selectorate to discipline an autocrat who otherwise chooses bad policies for his private gains.

3.2 Repression of the Selectorate

The basic model assumes that the selectorate is powerful enough to replace the leader if they want to. But autocratic leaders frequently take actions against their own group to entrench their power. If such actions were costless, then the leader would always choose repression and would stay in office setting $\lambda = 0$.

Assume instead that he must pay a cost $b > 0$ to repress the selectorate of group A and stay in office against their wishes. In the case of $(1 - \gamma^A)(\bar{\sigma} - \underline{\sigma})T < \pi\Delta$, the bad policy maker prefers repression to simply choosing the bad policy and being ousted if the cost of repression is not too high:

$$b < \mu - \pi\Delta + (1 - \gamma^A)(\bar{\sigma} - \underline{\sigma})T.$$

Under this condition, the bad policy maker will choose repression if:

$$r_1 - b > \Delta.$$

to support an incumbent who had taken the good general interest action in period one if there were a contest for power at the end of period one. Thus a guaranteed contest would strengthen incentives for good behavior in an autocracy as it does in the analysis of democracy with low polarization presented below.

²¹This idea is later formalized in McGuire and Olson (1996).

As a result, the probability that the bad leader chooses the good policy is

$$\lambda = G(\Delta + \min\{b, \mu - \pi\Delta + (1 - \gamma^A)(\bar{\sigma} - \underline{\sigma})T\}).$$

It is clear from this that possibility of repression (weakly) reduces the incidence of good period one behavior under autocracy. Thus if $b = 0$ (costless repression), then $\lambda = 0$ and we are back to the case of bad autocracy (case 2 in Proposition 1).

This simple extension further emphasizes an institutional feature that is essential for successful autocracy—namely an effective group to manage leadership transitions. To the extent that high values of b can be institutionalized, we expect autocracy to work better. However, the amount that the incumbent leader is “willing to pay” to stay in office will increase with prospective rents/punishments. This case illustrates why severe punishments for poorly performing leaders after they leave office are a doubled-edged sword. On one hand, they should improve incentives. On the other, they increase the incentive to use repression as a tool for staying in office, making it less likely that a bad policy maker will be removed from office.

3.3 Comparison with Democracy

We now contrast the model above with a stylized representation of democracy. This is a non-trivial comparison since it is well-known from the literature on political agency models (see, for example, Besley (2006)) that elections are an imperfect way of delivering incentives for good public policies.

Now the selectorate is the entire population with each having one vote: $\phi_A = \beta_A$ and $\phi_B = \beta_B$. The key feature that we model here is a guaranteed contest for power at the end of period one even when group A citizens prefer retaining the incumbent policy maker. We assume that group A citizens first decide whether to support the incumbent policy maker or a randomly picked citizen from group A (i.e. a primary election). Then the chosen candidate from group A faces a random challenger from group B . The contest is now an election with $\gamma^A(v_A - v_B)$ being the probability that the incumbent from group A wins if he receives v_A votes and there are v_B votes for the group B candidate. A key issue under democracy in our model concerns whether voters reward good policy on the general interest issue. This depends on how salient to voters the general interest policy is relative to the distributional policy.

We first look at the case in which the distributional policy is more salient:

$$(1 - \pi) \Delta < (\bar{\sigma} - \underline{\sigma}) T.$$

This condition says that group B voters will support a candidate from their own group regardless of whether the group A candidate has a reputation for being good. This is likely when checks and balances are weak. In this case, the probability of group A retaining power is $\gamma^A(\beta_A - \beta_B)$. It is straightforward to see that

$$\lambda = G(\gamma^A(\beta_A - \beta_B)(\mu - \pi\Delta) + \Delta). \quad (2)$$

Since voting is not responsive to the policy maker's reputation, only private rents motivate good behavior. This is because the distribution of group specific rents does not depend on which common interest policy is adopted in period one. Comparing (2) and (1), there is now less good behavior than under successful autocracy, but more than under bad autocracy ($\lambda = 0$) as long as $\gamma^A(\beta_A - \beta_B) > 0$. So, other things equal, a good autocracy can perform better on general interest policy compared to a polarized democracy.

We next turn to a situation where the general interest policy is more salient:

$$(1 - \pi) \Delta \geq (\bar{\sigma} - \underline{\sigma}) T$$

We will look at the best performance of democracy that can be sustained in this case. Suppose that all group B voters will support a candidate from group A who takes the good action in period one. Then, it is straightforward to see that

$$\lambda = G(\mu - \pi\Delta + (1 - \gamma^A(\beta_A - \beta_B))(\bar{\sigma} - \underline{\sigma})T + \Delta). \quad (3)$$

Good behavior by the period one policy maker is now rewarded with personal rents in period two for sure and by an increase in the probability of retaining group specific rents. This will be an equilibrium consistent with Bayes rule provided that at this value of λ :

$$\pi \left[\frac{(1 - \pi)(1 - \lambda)}{\pi + (1 - \pi)\lambda} \right] \Delta > (\bar{\sigma} - \underline{\sigma}) T$$

which will always hold for large enough checks and balances.²² This suggests that democracy in this case will perform better than successful autocracy as

²²If this condition does not hold, then there will be a mixed strategy equilibrium with

long as:

$$\gamma^A (\beta_A - \beta_B) < \gamma^A (\phi_A - \phi_B)$$

i.e. power is more contestable in the event of an open leadership challenge in democracy. Thus democracy is now better in so far as it strengthens the power of the opposition and increases the group specific motivation to stay in office. Thus the value of democracy in producing good policy outcomes lies in having better accountability for period one actions due to greater contestability of power. This suggests that democracy will out perform good autocracies when checks and balances are strong so that common interest policies are salient in elections.

To summarize, the above analysis makes clear when democracy and autocracy can work in improving the quality of government in this setting. Democracy regularizes contests for power which can discipline bad leaders only when polarization is limited. When democracy is polarized to the point that voting is along group lines (generally associated with weak checks and balances), then autocracy can work by limiting regular contests for power, but only when there is a sufficiently secure and effective (unrepressed) electorate.

a lower level of λ . This is a little tricky as it is not entirely obvious how to put mixed strategies together with probabilistic voting. However, define:

$$\pi \left[\frac{(1 - \pi) (1 - \hat{\lambda})}{\pi + (1 - \pi) \hat{\lambda}} \right] \Delta = (\bar{\sigma} - \underline{\sigma}) T$$

Then we require that $\hat{\lambda}$ is a fixed point of the mapping

$$\hat{\lambda} = G \left(\psi \left(\hat{\lambda} \right) (\mu - \pi \Delta) + \left(\psi \left(\hat{\lambda} \right) - \gamma^A (\beta_A - \beta_B) \right) (\bar{\sigma} - \underline{\sigma}) T + \Delta \right)$$

where $\psi(\lambda) < 1$ is the probability of re-election given that the leader has produced Δ . Since all group B voters are, by construction, indifferent between group A and group B candidates at $\hat{\lambda}$, we suppose that a proportion ζ of the group B voters support the group A candidate ex ante (i.e. before the aggregate shock takes place) so that:

$$\psi \left(\hat{\lambda} \right) = \gamma^A (\beta_A + \zeta \beta_B - (1 - \zeta) \beta_B).$$

The key observation is that any equilibrium where $\lambda = \hat{\lambda}$, must have less good behavior by the leader so that the equilibrium behavior in (3) is an upper bound on the performance of democracy consistent with the level of checks and balances in place.

3.4 Discussion

While the analysis is very simple indeed, it gives a novel take on the difference between autocracy and democracy in delivering policies. First, there is no easy ranking between democracy and autocracy—it depends on the institutional setting and the environment in which system of government is implemented. For given polarization levels and checks and balances, the model suggests a natural ordering in terms of implementation of general interest policies. Best of all is responsive democracy where polarization in elections is low. Second best is successful autocracy, requiring an effective selectorate. Next is polarized democracy where elections do not reward good general interest policies. Worst of all is bad autocracy where leaders are able to hold on to power regardless of their performance while in office.

This simple analysis suggests that we would not expect to find an unambiguous ranking of autocracy and democracy in the data although there should be some tendency for democracy to be better than autocracy. First, there is an interaction between the method of accountability, i.e. whether contests for power are regularized and other institutional features which are routinely measured in the data. For example, the analysis highlights the role of checks and balances in affecting issue salience in democracy. Equally, the underlying nature of the groups and the way in which power is institutionalized in the selectorate would seem to be important.

Perhaps the main attraction of the approach taken here is that it gets the focus on institutional features that shape policy incentives. Within the confines of institutional variants such as autocracy and democracy, we have emphasized the sources of heterogeneous outcomes which are typical of the data.

Our model is related to Padro-i-Miquel (2006). Although it is not explicitly discussed, his model also predicts that secure power of the selectorate (high γ^A) improves the policy-maker's performance. What distinguishes our model from his is the effect of institutionalizing participation by the opposition group in leadership selection. In Padro-i-Miquel (2006)'s model, the institutionalized participation by the opposition prevents an autocrat from expropriating them at his will, which in turn reduces the ruling group's fear of losing power and allows them to discipline the autocrat. In our model, allowing the opposition to participate in leadership selection may not improve the policy choice if the distributional policy is more salient. The difference stems from the fact that in our model the distributional policy depends on

checks and balances and not the contest for power. As long as checks and balances are weak, electoral participation may not greatly improve government performance.

The model has deliberately focused on the incidence of common interest policy decisions in democracy and autocracy. This makes sense as the performance metric that it invokes is uncontroversial.²³ However, it is clear that the distributional outcomes under all the cases that we have studied may be quite different. Thus, there could be a preference for one regime or another on distributional grounds. For example, in the case of successful autocracy, power is monopolized by group A and this may not be good from a social point of view. A more complete treatment of the issues would clearly have to widen the perspective that we have taken here to reflect this taking a stance on a welfare criterion that pays attention to distributional issues.

Our comparison between autocracy and democracy assumes that all other institutional features remain fixed except for regularizing contests for power. However, we might expect institutional differences in other dimensions too.

It is plausible to assume that the extent of executive constraints (as proxied by $(\bar{\sigma} - \underline{\sigma})$) is lower in a political system without regularized contests for power. Therefore, by comparing equations (1) and (3), it is possible to observe autocracies more successful than democracies without polarization as long as the degree of checks and balances in autocracy is not too low to satisfy $(1 - \gamma^A) (\bar{\sigma} - \underline{\sigma}) T < \pi \Delta$. This observation could explain why there are autocracies whose economy grows much faster than the best democracies as seen in Figure 1. The theory suggests that there are likely to be important interaction terms between the different dimensions of government institutions as measured in data sets like POLITY IV.

We also assumed that the fraction of good politicians π is fixed in comparing across political regimes. However, this model makes clear that this can affect the quality of government, both directly in determining whether good actions are taken and indirectly by changing the political equilibrium. Besley (2005) emphasizes the importance of selection mechanisms in political regimes both in history and comparing contemporary political regimes. More open access to political life could be an important difference between autocracy and democracy which would affect the comparison in a way that

²³Under weak assumptions, it will be possible to create a Pareto improvement with appropriate policy instruments when the bad common interest action is taken by the leader.

is not modeled in our baseline case.

Perhaps the most interesting possibility for future work is to appraise the way in which this framework predicts the evolution of institutional choices over time. We should expect autocracy and democracy to prevail when they are successful. Thus there should be a bias (among long-lived regimes) towards cases where (in terms of the model) the equilibrium policy outcomes are (1) and (3). But for that democracy requires good checks and balances with general interest policies being more salient. Equally, successful autocracy requires a strong, i.e. hard-to-repress, selectorate. However, coping with weak checks and balances (and polarization) should be less of an issue for producing general interest actions in autocracy.

4 Successful Autocracies?

In this section, we look at autocracies empirically. This analysis serves two purposes. The first is to show that there are indeed cases of successful autocracies according to objective criteria. Although we have some sense of which autocracies are more successful than others (e.g. the Chinese communist regime versus African dictatorships), to the best of our knowledge, there has been no systematic analysis to identify good autocracies empirically. The second aim of this section is to identify the cases of successful autocracy which we will use to investigate the validity of our theory in the next section. By relying on objective criteria to identify successful autocracies, we avoid arbitrarily selecting only cases that are consistent with our theory.

To identify successful autocracies, we first need to decide how to define an autocracy empirically. We adopt the following procedure to divide country-years into different autocratic and democratic regimes. First, for each country, we divide years from 1800 or independence until 2004 between democratic and autocratic periods according to the Polity score in the POLITY IV data set (version 2004). The Polity score, ranging from -10 to 10, measures the degree of democracy.²⁴ If the Polity score is positive, we treat such a year as democratic. Years with a non-positive Polity score are autocratic.²⁵ To capture heterogeneity among autocracies and democracies, we further divide consecutive democratic and autocratic years into different regimes if there is

²⁴If the Polity score is either -66 (foreign occupation), -77 (anarchy), or -88 (regime transition periods), we see it as a year without a regime.

²⁵See below for the robustness to choosing a different cut-off value.

a change in authority characteristics (the method of chief executive recruitment, the constraint on chief executive, and political participation) according to the POLITY IV data set.²⁶ These three dimensions of authority characteristics loosely correspond to three institutional features of autocracy in our model: the degree to which there is a regularized contest for executive power, checks and balances on the distributional policy, and the probability that the selectorate stays in power when the incumbent is replaced. Relying on authority characteristics coded by POLITY IV to define an autocratic regime, therefore, makes sense because our model predicts that the degree to which the policy maker is disciplined differs according to different values for the three features of political institutions.

In sum, we define a “regime” as consecutive years with the same authority characteristics. A regime is autocratic if its POLITY score is non-positive. Below, we restrict our attention to regimes that lasted at least five full calendar years. Autocratic regimes of shorter length may perform very well simply because of luck or just by inheriting a good performance of the previous regime.

In the following subsections, we first identify autocracies successful in achieving economic growth. We then turn to autocracies successful in human development: health and education. These two investigations identify the core set of successful autocracies, successful in at least two dimensions of performance among the three (growth, health, and education). We check the robustness of the selection of these autocracies to alternative definitions of autocracy. Finally, we show that “standard” exogenous characteristics of countries identified by the literature on the quality of government and institutions do not predict whether a country has a successful autocracy. The final section uses our theoretical framework to investigate cases of successful autocracy.

4.1 Economically Successful Autocracies

We measure each regime’s economic performance as follows. Suppose that a regime starts in year s and ends in year t . We calculate the regime’s annual economic growth rate as

$$\frac{\ln Y_{t-1} - \ln Y_s}{t - 1 - s}, \quad (4)$$

²⁶These three authority characteristics are measured by the concept variables (EXREC, EXCONST, and POLCOMP, respectively) in the POLITY IV dataset.

where Y_t is real GDP per capita in year t , taken from the Penn World Table version 6.2 (the variable RGDPCH).²⁷

We then obtain the 80th percentile of the distribution of annual growth rates among all regimes, including democratic ones (313 in total). We regard an autocratic regime as successful if its annual growth rate exceeds this 80th percentile of the distribution.²⁸

Table 1 shows the list of economically successful autocracies obtained by the above procedure. There are 35 autocratic regimes whose annual growth rate is above the 80th percentile of the distribution. The list includes East Asian autocracies well-known for high economic growth such as China, Indonesia, Singapore, South Korea, Taiwan, and Thailand. Dictatorships in southern Europe are also in the list. On the other hand, there are lesser-known autocracies as well: a couple of African countries in the 1960s (Gabon and Togo), those in the Middle East (Iraq in the 1970s, Syria in the 1960s), communist regimes in East Europe (Poland, Romania), and a few Latin American countries (Ecuador in the 1970s, Peru and Venezuela in the 1950s). Overall, the table shows that there are indeed successful autocracies in terms of economic growth.

Measuring success based on annual growth rates may not be an accurate way of assessing economic performance of regimes, however. One concern is that a regime's growth rate may pick up the effect of country characteristics. Whatever regime may exist, it can be that a country's economy grows anyway. Another concern is that an economy under a certain regime may grow rapidly solely due to the convergence effect if the regime emerges when per capita GDP is very low. Finally, a regime may perform well simply because it succeeds the previous regime which devastated the economy.

To deal with these concerns, we conduct three alternative assessments of success. First, we subtract the *country's* annual economic growth rate from each regime's growth rate, obtain the 80th percentile of the demeaned growth rates among all regimes, and check whether autocratic regimes in

²⁷We choose $t-1$ rather than t as the end year for calculating annual growth rate because Y_t may reflect an economic turmoil caused by the regime change and/or the succeeding regime. In a few cases where the succeeding regime starts on January 1 of the next year, we use Y_t instead of Y_{t-1} . If GDP observations are not available for the entire period of a regime, we use the first and/or the last observation to calculate the growth rate. In doing so, we drop regimes with less than five years of GDP observations.

²⁸Note that this procedure would yield very few successful autocracies if most regimes in the top quintile of the growth distribution were democratic.

Table 1 are above the 80th percentile. This procedure removes “country fixed effects” from the measure of performance of each regime. Second, we group regimes into five quintiles according to their initial GDP per capita (Y_s in equation (4)), obtain each quintile’s average growth rate, subtract it from each regime’s growth rate, calculate the 80th percentile of the demeaned growth rates among all regimes, and check whether autocratic regimes in Table 1 are above the 80th percentile. As a result, the convergence effect is removed from each regime’s performance measure. Finally, we disqualify a regime’s success if it does not survive ten years or longer *and* if it follows a three-year period of negative growth (i.e. $Y_s - Y_{s-3} < 0$), because such a regime can perform well simply due to the reconstruction effect. Note that this procedure is not applicable to regimes for which Y_{s-3} is not available in the data.

The three columns to the right in Table 1 show the results from these three robustness checks. Among the 35 successful autocracies, 21 survive all the robustness checks that are applicable. The first robustness check turns out to be tough for East Asian autocracies since these countries grew consistently over time. Notwithstanding, China since 1976, South Korea in the 1980s, Thailand in the 1960s, and Indonesia since 1967 survive this test, proving to be very successful autocracies.

4.2 Autocracies Successful in Human Development

We now turn to human development. To measure success in human development, we first remove the effect of real GDP per capita by obtaining residuals from the estimation of the following equation for each cross-section of countries in year t :

$$H_t = \alpha + \beta Y_t + \gamma(Y_t)^2 + \varepsilon_t, \quad (5)$$

where H_t is either life expectancy at birth in year t , obtained from World Development Indicators (September 2006 edition), or the gross primary school enrollment ratio in year t obtained from UNESCO Institute for Statistics (through the EdStats web site maintained by the World Bank).²⁹ We in-

²⁹For life expectancy, years 1960, 1962, 1967, 1970, 1972, 1977, 1980, 1982, 1985, 1987, 1990, 1992, 1995, 1997, 2000, 2002, 2003, and 2004 are chosen since data for more than 100 countries is available for these years. For primary school enrollment ratio, years 1970, 1975, 1980, 1985, 1990-1996, and 1999-2004 are chosen for the same reason. For Taiwan, we use several issues of Statistical Yearbook of the Republic of China.

clude the squared term of per capita income as a regressor because health and education exhibit a strong non-linear relationship with income in a cross-section of countries.³⁰ We can interpret the obtained residuals as the degree to which the government plays a direct role in promoting human development by public health interventions and public school construction.

Then we average the obtained residuals for each regime and calculate the 80th percentile of its distribution among all regimes (307 for health and 275 for education).³¹ We also conduct the first of the three robustness checks we did for economic performance (i.e. removing “country fixed effects”). Tables 2 and 3 show successful autocracies in terms of health and education, respectively. Communist regimes in China, Cuba, Poland, Romania, and Vietnam appear in these tables. For health, regimes in the Middle East and North Africa enter the list (Algeria, Iraq, Jordan, Morocco, Syria, Tunisia) while the list for education includes quite a few African regimes.

Figures 2 and 3 show the distributions of the mean residuals across democratic and autocratic regimes for health and education, respectively. Figure 2 confirms the finding by Besley and Kudamatsu (2006) that democracies have higher life expectancy than autocracies conditional upon income per capita. In addition, both figures show that the performance of autocracies is more heterogeneous than that of democracies for human development as well.³²

4.3 Robustness

In order to identify autocracies that are successful in at least two dimensions of performance among the three (economic growth, health production, and education), we assign the score of success to each regime which is equal to the number of the league tables in which a regime appears. If a regime does not fail to pass the robustness check in each table, one more point is added to the score in each case. The highest score is, therefore, six. We choose four as the cut-off because this ensures success in at least two dimensions

³⁰Preston (1975) finds this non-linear relationship for health. It turns out that a similar non-linear relationship can be found for primary school enrollment.

³¹In calculating the average residual for each regime, we exclude the residuals in the first year of each regime because they may reflect what the previous regime achieved or political instability caused by regime change.

³²The lower tail of the distribution for democracies in Figure 2 (below -15 years) only includes two regimes: South Africa (since 1994) at -19.3 years and Botswana (since 1997) at -30 years, both of which suffer severely from HIV epidemics.

and at least one robust success. Table 4 shows the list of autocracies whose score is four or higher. The list includes dictatorships in southern Europe (Greece, Portugal, and Spain), communist regimes in China, Cuba, Poland, and Romania, and military dictatorships in Latin America (Brazil, Chile, and Panama) and in East Asia (South Korea and Thailand).

Below, we check the robustness of this list to alternative definitions of autocratic regimes.

4.3.1 Definition of Regimes

Our definition of a “regime” entirely depends on the coding in the POLITY IV data set. As the original aim of the POLITY data set is to analyze the duration of regimes, we have much confidence in the coding of regime change timing in the data set. However, defining the beginning and end of regimes in a different way may yield a different list of successful autocracies. To check this possibility, we use an alternative definition of regimes. We first divide years for each country between democratic and autocratic periods according to the Polity variable as we did above. For autocratic periods, we then divide them into different regimes if chief executives of government are different according to the Archigos data set (version 2.5).³³ In other words, an autocratic regime terminates either if a country is democratized or if a different person assumes executive power. Consequently, each autocratic regime now represents one dictator. For a democratic period, we treat it as one regime, because leadership changes are so frequent in democracies that many democratic regimes would not survive 5 full calendar years or longer if we divided them by leadership changes.

With this definition of a regime, we conduct exactly the same analysis as in the previous subsections. Table 5 lists dictators under whose rule annual economic growth exceeds the 80th percentile of the growth distribution among all regimes. The table also reports whether human development performances are above the 80th percentile of the distribution and whether each autocrat passes the robustness checks. The majority of successful autocratic regimes identified in Table 4 also appear in this table and perform well in health and/or education, too. Brazil (1965-74) and Thailand (1958-68) do not appear here because both regimes have relatively frequent leadership changes and are therefore split into multiple regimes of less than five full

³³Jones and Olken (2006) use this dataset, which is downloadable at Hein Goemans’s website: <http://mail.rochester.edu/~hgoemans/data.htm>

calendar years. Chile (1973-81) and Cuba (1961-76) are dropped because these regimes are part of a dictator’s long-lived rule (Pinochet and Castro) and these dictators perform less successfully during the rest of their rule.

As our theory in Section 3 emphasizes the role of leadership changes under the fixed parameters of regime characteristics, we prefer the definition of regimes according to the authority characteristics coded by the POLITY IV data set, which allows leadership changes to happen within each regime. However, Table 5 shows that the definition of regimes does not affect the list of successful autocratic regimes substantially.

4.3.2 Definition of Democracy

We define democracies as regimes with their Polity score being positive. As Fearon (2007) argues, however, this definition allows some dubious cases to be classified as democracies. Table 6 shows the list of regimes whose Polity score is between 1 and 5 inclusive and whose growth rate is above the 80th percentile of the distribution of all regimes. Ten more regimes now enter the league table for economic growth. Among them, South Korea (1963-1972) and Greece (1949-1967) join the core set of successful autocracies in Table 4.

We further check the robustness of our definition of democracy to the use of a completely different democracy data set, the one by Przeworski et al. (2000).³⁴ We define a regime as a period in which three aspects of political institutions remain the same: (1) how the chief executive is elected (directly, indirectly, or not elected by popular elections); (2) how the legislature is elected (elected by popular elections, not elected, non-existent); and (3) the number of legal political parties (more than one, one, none).³⁵ A regime is democratic if all of the following five conditions are met: (1) the chief executive is elected directly or indirectly; (2) the legislature is elected by popular elections; (3) there is more than one legal political party; (4) the current chief executive will not establish non-party or one-party rule or unconstitutionally close legislature in subsequent years; and (5) there was, or will be, power alternation via elections.³⁶ Otherwise a regime is autocratic.

Table 7 provides the list of successful autocracies when we define democratic and autocratic regimes in this way. Since Przeworski et al. (2000)’s

³⁴The dataset was obtained from Jose Cheibub’s website.

³⁵These three aspects correspond to variables EXSELEC, LEGSELEC, and PARTY in their dataset, respectively.

³⁶See Chapter 1 of Przeworski et al. (2000) for details.

data ends in 1990, all the autocracies since the 1990s do not appear in this table.³⁷ Autocracies in Romania, Spain, South Korea, China, Panama, Portugal, and Thailand appear in this table as well though, except for South Korea, the robustness of their good performances is more tenuous than in Table 4. Brazil and Greece drop because these two regimes are split into multiple autocracies according to Przeworski et al. (2000)’s coding. Chile and Poland drop because the less successful period of autocracy (the 1980s) is now integrated into the same regime. Cuba drops due to the lack of Przeworski et al. (2000)’s coding.

The last three columns in Table 7 show three institutional features of these successful autocracies according to the coding by Przeworski et al. (2000). Successful autocracies do not seem to share institutional characteristics in terms of the way executive office and legislature seats are filled and the number of legal political parties.

4.4 Correlates of Successful Autocracies

In what kind of countries do successful autocracies tend to emerge? In this section, we seek exogenous characteristics of countries that are correlated with the incidence of successful autocracies. It turns out that exogenous country characteristics often used in the literature to explain socioeconomic performances, on the whole, do not seem to explain (in a statistical sense) the emergence of successful autocracies.

We estimate the following probit regression for the sample of autocratic regimes (defined by POLITY IV), to see if any country characteristics predict successful autocracies:

$$\Pr(SUCCESS_{ic}^k = 1) = \Phi(\alpha + \mathbf{X}_{ic}\boldsymbol{\beta} + \mathbf{Z}_{ic}\boldsymbol{\gamma}), \quad (6)$$

where $SUCCESS_{ic}^k$ is 1 if an autocratic regime i in country c appears in Table k and 0 otherwise, $\Phi(\cdot)$ is the cumulative distribution function of the standard normal distribution, α is a constant, and \mathbf{Z}_{ic} is a vector of controls including region dummies³⁸ and dummies for decades (1960s, 1970s, 1980s, 1990s) in which regime i emerges. \mathbf{X}_{ic} is a vector of exogenous characteristics

³⁷The updated versions of Przeworski et al. (2000)’s data by Boix and Rosato (2001) or by Cheibub and Gandhi (2004) do not provide information on disaggregated aspects of political institutions. Therefore, we cannot exploit heterogeneity across autocracies in terms of institutional characteristics.

³⁸East Asia and Pacific, Eastern Europe and Central Asia, South Asia, Middle East and

of country c that are known as determinants of the quality of government and institutions in the literature (ethnic fractionalization, legal origins, European settlers' mortality).

Table 8 shows the results from this analysis. Columns (1) to (3) look at success in economic growth ($k = 1$). Column (1) shows that ethnic fractionalization, which Alesina et al. (2003) identify as a significant determinant of economic growth, does not predict the emergence of successful autocracies. Column (2) shows that European settlers' mortality, which Acemoglu et al. (2001) argue affects the degree of secure property rights and thus the level of economic development today, does not predict the economic success of autocracies, either.

In column (3), we deal with a concern that economically successful autocracies simply reflect oil booms. Autocratic regimes in oil producing countries like Ecuador, Equatorial Guinea, Gabon, Indonesia, Iran, Iraq, UAE, and Venezuela appear in Table 1. It may be the case that these successful autocracies simply coincide with periods of high oil prices. We first identify net oil exporting countries in 2003 according to Table 3.1 of International Energy Annual 2004.³⁹ Next, we create a dummy variable which is equal to one if a country's net oil export is more than 100 barrels per day.⁴⁰ We also obtain the world crude oil prices (in US dollars per barrel) from International Financial Statistics (March 2007),⁴¹ and deflate them by the World Bank's Manufactures Unit Value Index (100 in 1990).⁴² We then calculate the average deflated oil price for each autocratic regime and subtract the average deflated oil price during the period between 1960 and 2004 to measure the extent to which each autocratic regime enjoys an oil price boom. Finally, we interact the oil exporter dummy with the regime-specific oil price deviation

North Africa, Sub-Saharan Africa, and Latin American and the Caribbean (with Western Europe - Greece, Portugal, and Spain - omitted). We follow the World Bank's classification of regions.

³⁹See <<http://www.eia.doe.gov/iea>>. We calculate net oil exports by subtracting the sum of "crude oil imports" and "total imports of refined petroleum products" from the sum of "crude oil exports" and "total exports of refined petroleum products".

⁴⁰We do not use time-variant oil exporter dummies because oil export data does not date back to the 1950s.

⁴¹The average prices of UK Brent (light), Dubai (medium), and West Texas Intermediate crude oil (line number 00176AAZZF).

⁴²See <<http://go.worldbank.org/VDQ5AA3VP0>>. The Index measures the price of developing country imports of manufactures in U.S. dollar terms. We follow Deaton (1999), who uses this index to deflate commodity export price indices.

from the 1960-2004 average. If the coefficient on this interaction term is positive, then successful autocracies simply reflect the oil price boom that these regimes enjoy. Column (3) shows that the coefficient is significantly *negative*, suggesting that oil price booms actually make autocracies less likely to be successful.⁴³ If we interpret oil export revenues as the source of polarization (a large T in our model), this finding is consistent with our theory though we cannot exclude alternative explanations such as Caselli (2006).⁴⁴

In columns (4) and (5), we look at success in health production ($k = 2$). La Porta et al. (1999) find that ethnic fractionalization and the French legal origin are positively correlated with infant mortality. Column (4) shows that autocratic regimes successful in health production tend to be in countries with lower ethnic fractionalization. Thus the performance of autocracies in terms of health partly reflects the effect of ethnic homogeneity. However, as a low value of the Pseudo R^2 indicates, it is not the whole story. Column (5) shows that the French legal origin does not explain success of autocracies in health production. Countries with the socialist legal origin tend to have autocracies successful in terms of health. This result may be in line with our theory to the extent that communist regimes tend to have a strong selectorate. The positive correlation of German legal origin and success in health is difficult to interpret because only regimes in South Korea and Taiwan have German legal origin in the sample.

The dependent variable in columns (6) and (7) is success in education ($SUCCESS_{ic}^3$). La Porta et al. (1999) also find that ethnic fractionalization and the French legal origin are negatively correlated with school enrollment. We do not find these two exogenous country characteristics are correlated with success in education among autocracies, either.⁴⁵

Finally, columns (8) and (9) investigate whether the core set of successful autocracies identified in Table 4 have any particular characteristics. Since the number of successful autocracies is very limited in these regressions, a

⁴³The standard deviation of the deflated oil price is 12.4 US dollars per barrel. Therefore, one standard deviation of the oil price decreases the probability of economic success by 24.8 percentage points for autocracies in oil-exporting countries.

⁴⁴If we choose the cut-off of 500 barrels per day to create the oil exporter dummy, the coefficient on the interaction term becomes larger in magnitude. If we choose the cut-off of 0 barrel per day instead, the coefficient is no longer significant. However, a small amount of oil exports is unlikely to push up GDP per capita substantially during the period of oil price booms.

⁴⁵The results in columns (1) to (7) are robust to the exclusion of autocratic regimes that do not survive robustness checks.

large number of observations are dropped because some decade dummies and region dummies perfectly predict success. Neither ethnic fractionalization nor European settlers' mortality is significantly correlated with success. Compared to the British legal origin, countries with the French legal origin are *more* likely to see successful autocracies, contrary to the negative correlation between the French legal origin and the quality of government, found by La Porta et al. (1999). Countries with the socialist and German legal origins are also more likely to have successful autocracies than those with the British legal origin. Indeed, only Thailand has the British legal origin among the countries listed in Table 4.

These results suggest that the previous literature on the quality of government and institutions cannot fully explain why some autocracies are successful in achieving high economic growth, better health, and better education. A theory to explain successful autocracies is necessary to make further progress. We now investigate how well institutional features identified in our model relate to cases of successful autocracy as identified by this empirical exercise.

5 Link to the Theory

The previous section identified the core set of successful autocracies. In this section, we link these autocracies to our theory in Section 3. We first provide several case studies of successful autocracies to motivate the institutional context suggested by our theory. Next, we provide evidence that autocracies are more likely to be successful if the rate of leadership change is high, which is consistent with our theory. Finally, we exploit the natural death of leaders as a natural experiment to see if the selectorate's grip on power is indeed secure in successful autocracies, as predicted by our theory.

5.1 The Selectorate in Successful Autocracies: Some Case Studies

A core idea in our model is the role of the selectorate in organizing leadership contests *within* regimes in successful autocracies. We begin by looking at five case studies suggested by Table 4. Of these, we will argue that Brazil (1965-1974), China (1976-2004), and Romania (1948-1977) appear to be consistent with our theory. On the other hand, Spain (1939-1975) does not seem

to match very well with our theoretical predictions. Finally, we consider South Korea (1973-1981). Although this does not seem to fit with our theory either, the advent of this autocratic regime can be explained by our theoretical framework.

Brazil (October 1965 - January 1974) According to the POLITY IV data set, the Brazilian military dictatorship from 1964 to 1985 went through three regime changes in 1965, 1974, and 1982. Tables 1 and 3 reveal that the second phase was successful in economic development and primary school enrollment. During this period, Humberto Castelo Branco, Artur da Costa e Silva, and Emilio Garrastazu Medici were the chief executives (Presidents) according to the Archigos data set.

The *de facto* selectorate of this regime was the armed forces. The national legislature (Congress) had the formal right to elect President.⁴⁶ However, it was only allowed to rubber-stamp the sole presidential candidate presented by the military both when the presidential term for Castelo Branco came to an end in 1967 and when Costa e Silva was incapacitated due to a stroke in 1969. In both cases, top military officers chose a candidate behind whom the armed forces could be united.⁴⁷

The replacement of Castelo Branco in 1967 appears to be consistent with our theoretical prediction that the selectorate can oust a poorly-performing incumbent in a successful autocracy. Kaufman (1979, pp.172-3) argues that Castelo Branco's economic policy resulted in only a moderate reduction in inflation and that the recession in the industrial southeast showed few signs of abating. Castelo Branco was determined to step down in 1967 (see Stepan 1971, p.248), but he tried to nominate his successor and prevent Costa e Silva from assuming office (see Skidmore 1988, pp.51-2). One of the reasons why he failed could be the unpopularity of his economic policies among military officers. Upon assuming presidency, Costa e Silva appointed Delfim Neto as Finance Minister, under whose economic management the Brazilian economy grew rapidly.

The presidential succession after the incapacitation of Costa e Silva also shows that the Brazilian armed forces' grip on power was secure. Although the Constitution stipulated that vice-president would succeed the incapacitated president, the military did not allow Vice President Pedro Aleixo, a

⁴⁶ *Keesing's Contemporary Archives*, pp.21063, 21939, 23706.

⁴⁷ See Skidmore (1988, pp. 18-21, 51-53) and Stepan (1971, pp.248-252).

veteran Congressman, from taking office. Those outside the regime, including Congressmen, had no say in leadership selection.

This episode is consistent with our theory in that successful autocracies are those with the selectorate whose power is secure in the case of a leadership replacement.

China (since September 1976) Since the death of Mao Zedong, who had been Communist Party Chairman since the proclamation of People's Republic of China in 1949, China has been a stable autocratic regime according to the POLITY IV data set. As Tables 1 to 3 show, the communist regime of China during this period has been successful in economic and human development (though success in human development is less spectacular than in Mao's era). According to Archigos, Hua Guofeng, Deng Xiaoping, Jiang Zemin, and Hu Jintao were the chief executives under this regime.

Members of the Politburo of the Chinese Communist Party appear to correspond to the selectorate in our theory. Formally, the Party's leader (Party Chairman until 1982 and General Secretary afterwards) is elected by the Central Committee of the Party whose several hundreds members are in turn elected by the Party Congress. However, members of the Central Committee are *de facto* appointed by around 20 members of the Politburo.⁴⁸

After the death of Mao Zedong, Hua Guofeng assumed party chairmanship by the Politburo's appointment.⁴⁹ During the subsequent years until his resignation as Party Chairman in June of 1981, Hua's power was gradually transferred to Deng Xiaoping, apparently because the Politburo members were dissatisfied with Hua's attempt to continue Mao's policies.⁵⁰ This gradual power transfer paralleled with the replacement of Hua's supporters with Deng's in the Politburo membership.⁵¹

As Deng never assumed leadership formally, it is hard to tell whether members of the Politburo disciplined him during his rule. However, the selection of General Secretary of the Party does appear to have been in the

⁴⁸See Lieberthal (2004, pp.173-5) for the formal organizational structure of the Party.

⁴⁹See *Keesing's Contemporary Archives*, pp. 28205-7 and 28719.

⁵⁰See Lieberthal (2004, pp. 125-7).

⁵¹Deng's supporters (Chen Yun, Deng Yingchao, Hu Yaobang, and Wang Zhen) joined the Politburo in December of 1978 (*Keesing's Contemporary Archives*, p.30488). Lieberthal (2004, p.126) regards Wang Dongxing, Wu De, Ji Dengkui, and Chen Xilian as Politburo members supporting Hua. All of them resigned from the Politburo in February of 1980 (*Keesing's Contemporary Archives*, p.30498).

hands of the Politburo. Hu Yaobang, Deng's designated successor and General Secretary since 1982, resigned in January of 1988, when several members of the Politburo were dissatisfied with his economic policies and tolerance on pro-democracy student protests.⁵² Zhao Ziang, who succeeded Hu as General Secretary, was in turn dismissed by the Politburo for similar reasons in May of 1989.⁵³

The handover of power from Deng to Jiang Zemin, who was appointed as General Secretary in June of 1989, took place gradually.⁵⁴ Jiang was formally re-elected as General Secretary by the Central Committee in October of 1992 and September of 1997. Given that Central Committee members are effectively appointed by the Politburo, the re-election of Jiang implies that the Politburo supported him. In November of 2002, Hu Jintao became General Secretary. Lieberthanal (2004, p.156) notes that "Jiang reportedly tried to convince his colleagues to allow him to stay on as General Secretary". But he failed, indicating that members of the Politburo supported Hu's succession.

In every case of leadership succession over this period, the opposition to the Communist Party rule did not manage to participate in leadership selection (in our model's term, γ^A was close to zero because $\kappa_B = v\phi_B$ where the repression parameter, v , was close to zero). When Zhao Ziang was dismissed in May of 1989, there had been student-led anti-government demonstrations in Beijing since April. The communist government, however, managed to stay in power by mobilizing the army to suppress the demonstrations (the Tiananmen Square massacre).⁵⁵

Overall, China since 1976 fits well with our model of autocracy and case 1 of Proposition 1.

Romania (January 1948 - January 1977) Since the proclamation of People's Republic of Romania until Nicolae Ceausescu consolidated his per-

⁵²See the account by Ruan (1994, pp. 165-9, 175-6), who was Hu's friend.

⁵³*Keesing's Record of World Events*, p. 36640. An immediate reason for Zhao's dismissal was his support for pro-democracy student protests in Tianamen Square. However, Zhao's support had already waned since late 1988 due to his too radical economic reform causing inflation. Also, Zhao's sons were alleged to be corrupt businessmen in Guangdong Province. See Gilley (1998, pp.129-31) and Lieberthal (2004, pp. 144-5).

⁵⁴By the end of 1995, Deng was effectively incapacitated and no longer commented on policies (Gilley 1998, p.288).

⁵⁵*Keesing's Record of World Events*, pp. 36587, 36640, 36720.

sonal rule, Romania's communist rule is coded as one regime by the POLITY IV data set. According to Archigos, Gheorghe Gheorghiu-Dej and Nicolae Ceausescu are the rulers during this period. As Tables 1 to 3 show, the regime's performance is impressive in all the three dimensions of development.

Top officials in the communist party are clearly the selectorate under this regime. At a meeting in October of 1945, the party's central committee secretaries agreed that Gheorghiu-Dej became general secretary, the top position to lead the party.⁵⁶ At the central committee plenum in March of 1956, two members of the Politburo (Iosif Chisinevski and Miron Constantinescu) challenged Gheorghiu-Dej's authority. When Gheorghiu-Dej died of lung cancer in March of 1965, members of the Politburo chose Ceausescu as his successor.⁵⁷

It appears that Gheorghiu-Dej decided to promote industrialization after his Stalinist background became the source of criticism due to Khrushchev's Secret Speech, denouncing Stalinism, in 1956. In this context, the leadership challenge by Chisinevski and Constantinescu took place. Determined to promote industrialization, he even resisted Khrushchev's plan to transform Romania into the agricultural base in the Soviet bloc.⁵⁸

Ceausescu continued this effort of industrialization. By the time this centrally-planned industrialization caused economic problems in the late 1970s, however, Ceausescu managed to consolidate his power and established his personal cult, appointing his wife as the number two in the communist party hierarchy and promoting his son as heir-apparent. The selectorate's grip on power appears to have become dependent on Ceausescu, unable to discipline his economic policies.

Spain (April 1939 - November 1975) Franco ruled Spain during this period (from the end of the Civil War until his death). Although the regime began in 1939, the data that we used to identify Franco as an successful autocrat comes from the 1950s at the earliest.

We are unable to find any characteristics of Franco's regime consistent with our theory. The formal rule of leadership succession (Law of Succes-

⁵⁶See Tismaneanu (2003, p.121).

⁵⁷See Tismaneanu (2003, pp.185-6).

⁵⁸See Tismaneanu (2003, pp.142-180) for a series of events from the Secret Speech to the adoption of industrialization plans.

sion), adopted in a popular referendum on July 6, 1947, stipulated that Spain was a monarchy which Franco would govern until his death and that Franco had the right to appoint his successor.⁵⁹ Therefore, there was no selectorate, at least formally.

Franco's regime supporters consist of *Falangists* (Spanish fascists), the military, the Catholic church, and monarchists. These groups might be seen as the selectorate, but there is little evidence that any of them seriously challenged Franco's leadership.⁶⁰ Franco's balancing act looks like the divide-and-rule tactic, which Acemoglu, Robinson, and Verdier (2004) identify as the source of long-lasting kleptocracy.

Given this personal-rule characteristics of the regime, Franco's flexibility on economic policies is remarkable. When the policy of an autarky and import-substitution industrialization ended up with government deficits, inflation, and current-account imbalances by the mid-1950s, culminating in strikes and student protests, Franco shuffled the cabinet, appointing technocrats, Alberto Ullastres and Mariano Navarro Rubio, to economic ministers in 1957. When they proposed the abandonment of the autarky policy and the plan for macroeconomic stabilization, Franco accepted the proposal even though this was against Franco's ideology.⁶¹ We cannot relate this policy change to the selectorate's pressure on Franco. If any, it appears to be the pressure from the opposition outside the regime—protesting workers and students in the 1950s. Weirdly enough, the logic of successful democracy in our model seems to apply here, if not through regularized elections but through strikes and protests. Alternatively, Franco might have been a good policy maker in the terms of our model.

South Korea (February 1973 - March 1981) According to the POLITY IV data set, South Korean military dictatorship, initiated by a coup in 1961, went through four changes of authority characteristics (1963, 1972, 1973, 1981).⁶² We have identified the fourth regime as the most

⁵⁹See Payne (1987, pp.372-5), Grugel and Rees (1997, pp.42-3), Fusi (1987, pp.66-7).

⁶⁰See Grugel and Rees (1997, pp.30-43, 51-8).

⁶¹See Payne (1987, p.470).

⁶²Park Chung Hee staged a military coup and became president in 1961; held multiparty presidential elections and won in 1963; disbanded the national legislature, banned political parties, and introduced the indirect presidential election by non-partisan electoral college (see below for more detail) in 1972; and held multiparty legislative elections for the two-thirds of the seats in 1973 (the remaining one-third is appointed by the president). In

successful.⁶³ During this period, Archigos identifies four leaders ruling the country: Park Chung Hee until his assassination in 1979, Choi Kyu Hah from 1979 to 1980, Park Chung Hun briefly in 1980, and Chun Doo Hwan from 1980, who continued to rule the country until 1988.

Formally, the selectorate was an electoral college, the *National Conference for Unification* (NCU), whose members were elected by popular votes on a non-partisan basis. The Constitution (proposed by Park and approved in a referendum in November, 1972) stipulated that the NCU would elect the President for six years with no term limits. Elections for the NCU took place in December of 1972 (5,876 candidates contested the 2359 seats with 225 unopposed in their constituencies) and in May of 1978 (boycotted by opposition parties), both followed by the re-election of Park as President.⁶⁴ After Park's assassination, the NCU elected Choi Kyu Hah, who had been Prime Minister since 1975, as new President in December of 1979. After the resignation of Choi in August of 1980, the NCU elected Chun Doo Hwan as new President in the same month.⁶⁵ It is not entirely clear whether members of the NCU had any influence on leadership selection, however.⁶⁶

Informally, the Korean CIA (KCIA), the regime's secret police organization, could have been the selectorate. It was the KCIA chief who assassinated Park in 1979. However, the assassin's predecessors as the KCIA chief were purged by Park.⁶⁷ There is little evidence that anyone within the regime credibly threatened to oust Park.

A threat does appear to have come from those outside the regime, especially the opposition party leader Kim Dae-Jung.⁶⁸ He ran for the presidency in the 1971 election, only narrowly defeated by Park, even though Park's export-led industrialization policy had been successful. This electoral result appears to have prompted Park to abolish multiparty direct presidential elec-

1981, members of the electoral college were allowed to be affiliated with political parties.

⁶³Table 6 shows that, if we define democracy as a regime with its Polity score larger than 5, the second phase (1963-1972) is also a successful autocracy.

⁶⁴See *Keesing's Contemporary Archives*, pp.25747, 29795).

⁶⁵Chun Doo Hwan seized the control of the military in December of 1979 and imposed martial law in May 1980, shortly after which he became the head of an advisory body (consisting of military officers) to President Choi. See Clifford (1998, pp.143-163).

⁶⁶We are unable to find any scholarly research on the NCU, which Korea specialists appear to dismiss as a rubber-stamping organization.

⁶⁷See Clifford (1998, pp.80-90).

⁶⁸Clifford (1998, p.86) notes that, according to a former KCIA director, Park feared two things: Kim Dae Jung and the U.S. Congress.

tions in 1972.⁶⁹ We can interpret this series of events in terms of our model. South Korea in the early 1970s could have been the case of high polarization where $(1 - \pi) \Delta < (\bar{\sigma} - \underline{\sigma}) T$. Although the economy grew rapidly and therefore the size of the pie to share among the population, T , became larger, workers did not benefit much from it due to wage suppression by the regime.⁷⁰ The opposition group, therefore, would never reward the incumbent’s good behavior. Park’s supporters including the business community—and Park himself if he is a good policy maker—therefore preferred the autocratic regime in which the selectorate could discipline the incumbent (or Park as a good policy maker could keep choosing a good policy without being ousted).

5.2 Turnover

Our theory above predicts that autocracies are successful if the selectorate can credibly remove poorly-performing leaders. This implies that an autocratic regime with a high rate of leadership change is more likely to be successful on average than those with less turnover.

To test this empirical implication, we obtain the number of leadership changes for each autocratic regime, from the Archigos data set.⁷¹ We then calculate the number of leadership changes per year for each regime. The raw data support the idea that there are turnover differences in successful and unsuccessful autocracies (as identified in the base case of section 4.1 above). The probability of turnover in a successful autocracy is 13% compared to 7% in an unsuccessful autocracy (the difference being statistically significant at 5%). This implies that leaders in successful autocratic regimes spend on average seven and half years in office compared to nine years for unsuccessful autocratic regimes. Interestingly, this contrasts with a much higher rate of annual turnover of leaders (26%) in regimes classified as democracies implying an average leadership tenure of just over four years.

⁶⁹Sohn (1989, pp.31-2) quotes Park’s remark on the electoral result: “... I have done my best to get rid of poverty. ... [D]o I deserve only this margin against Kim Dae Jung?”

⁷⁰See the account on worker protests in the early 1970s by Sohn (1989, pp.34-6).

⁷¹We match the POLITY IV and the Archigos on a daily basis to avoid assigning leadership changes to regimes that emerge later in the same year. If a leadership change and the emergence of a new regime take place in the same date, we assign the leadership change to the preceding regime. Finally, if the Archigos indicates that there is no national leader, we regard only the beginning of such a period as a leadership change rather than counting two leadership changes at the beginning and the end, because we are interested in whether the selectorate can replace the incumbent.

To examine this further, we estimate equation (6) where \mathbf{X}_{ic} is now the number of leadership changes per year for regime i . Table 9 shows the estimated marginal effect of the rate of leadership changes. The dependent variable in column (1) is a dummy indicating economic success (whether an autocratic regime is listed in Table 1). The higher rate of leadership changes is significantly associated with a higher likelihood of economic success, consistent with our theoretical prediction. One standard deviation of the number of leadership changes per year (0.11) changes the probability of economic success by 11.4 percentage points.

If we restrict economic success to robust cases, the significant positive correlation between leadership turnover and success remains. For success in health and education, however, columns (3) to (6) show no significant correlation between the rate of leadership changes and regime performance. In column (7), the dependent variable is a dummy indicating whether an autocratic regime is in the core set of successful ones identified by Table 4. There is no correlation for this group either.⁷²

In sum, evidence suggestively supports a key idea from our theory when economic success is used as the outcome. The results on health and education suggest that the selectorate in autocracy is less responsive to leadership performance in human development, perhaps because members of the selectorate can privately afford better health and education.

5.3 Death of Leader as a Natural Experiment

Our theory predicts that an autocracy is successful if the selectorate’s grip on power is secure (γ^A is high). More specifically, an autocrat is disciplined by the selectorate if overthrowing him does not lead to the seizure of power by citizens outside the selectorate.

Observing γ^A for each autocratic regime is not an easy task. We may observe a leadership change in a poorly-performing autocracy with the selectorate remaining in power afterwards. This may be interpreted as an unsuccessful autocracy with a high γ^A which is apparently inconsistent with our theory. However, it can also be interpreted as an equilibrium outcome of our model where the policy maker chooses the bad policy and thus gets

⁷²These results are robust to excluding leadership changes due to natural causes (natural deaths, resignation for health reasons, and suicides) from the calculation of the rate of leadership turnover.

removed from office by the selectorate with a high γ^A . The problem here is that leadership changes are endogenous to the regime performance.

However, if a leader dies or becomes incapacitated due to natural causes, whether the selectorate remains in power afterwards does indicate γ^A . Our theory, therefore, predicts that an autocratic regime performs well if a random death or incapacitation of the leader does not lead to the loss of power by the selectorate. It also should be the case that after a poorly-performing dictator dies due to natural causes, the selectorate is likely to change afterwards.⁷³

Table 10 shows the list of autocratic regimes (with data on either growth, health, or education) under which the chief executive died in office due to natural causes, according to Archigos. Among the core set of successful autocracies identified in Table 4, regimes in China, Poland, Portugal, Romania, Spain, and Thailand went through a natural death of the leader. We already saw above that the deaths of Deng Xiaoping in China and Gheorghe Gheorghiu-Dej in Romania did not lead to the loss of power by the selectorate, indicating that these two regimes had a high value of γ^A and this might have allowed the selectorate to discipline their leader. We find that Portugal and Thailand are also consistent with our theory. But it should also be the case that unsuccessful autocracies confronted with a random death reveal a poorly entrenched selectorate. We look at Guinea as an example of an unsuccessful autocracy to illustrate this.

We proceed as follows. For each autocratic regime, we (i) describe the performance of an autocrat who died in office; (ii) identify the selectorate under the dead leader's rule; and (iii) investigate whether the selectorate remained in power after the death.

Portugal (July 1930 - April 1974) Prime Minister Oliveira Salazar suffered a cerebral thrombosis and hemorrhage, lapsing into a coma on September 16 of 1968.⁷⁴ Salazar had been premier since 1932. His rule was successful in economic growth and health production as seen in Table 5.

The selectorate under Salazar's rule appears to be the armed forces.⁷⁵

⁷³Jones and Olken (2005) first exploit the random death of leaders as a natural experiment.

⁷⁴Salazar was alive until 1970. Wiarda (1977, footnote 3 in Chapter 9) notes, however, that "he no longer made decisions and ... had no impact on the policies of the new government." The following account is derived from Wiarda (1977, pp. 253-4).

⁷⁵Maxwell (1986, p.112) provides an alternative view, however, by noting that "[t]he

Before Salazar became prime minister in 1932, the armed forces had controlled the government since its seizure of power in 1926. The Constitution of 1933 stipulated that the ceremonial president had the power to appoint and remove premiers, and the post of presidency was consistently given to military men (Wiarda 1977, pp. 100, 122-3).

The armed forces retained the control of the country after Salazar's incapacitation. President Americo Thomaz, a retired admiral, summoned the Council of State, a constitutional advisory body consisting of the nation's prominent figures, and also met with other powerful figures of the regime. On September 26, Thomaz announced publicly that he released Salazar from his post and appointed Marcello Caetano as prime minister. Caetano remained in power until 1974.⁷⁶

This sequence of events after the incapacitation of Salazar indicates that the selectorate's grip on power was rather secure. Salazar, whose rule could be seen as personal rule, may have actually been disciplined by the military, and thus had an incentive to promote economic development and improve people's health.

Thailand (October 1958 - February 1968) Prime Minister Sarit Thanarat died from heart and lung ailments on December 8, 1963 (Lentz 1994, p.749). Sarit, a military officer, seized power in a bloodless coup in October of 1958. His dictatorial rule since then performed well in economic growth and health production.⁷⁷

The selectorate under Sarit's regime appears to be King Bhumibol Adulyadej and the military. In February of 1959, Sarit was formally elected prime minister by the Constituent Assembly whose members were appointed by royal decree.⁷⁸ According to Chaloeontiarana (2007, p.187), 152 out of the 220 members of the Assembly were military officers. Chaloeontiarana (2007, chapter 6) argues that Sarit needed the support from the military and the

Portuguese dictatorship was preeminently civilian and legalistic."

⁷⁶Maxwell (1986, p.112) notes that the appointment of Caetano as premier was conditional on his acceptance of the military's position on what to do with Portugal's territories in Africa. This further suggests that the selectorate was the military.

⁷⁷Thailand's economic growth rate from 1958 to 1962 is 5.5 percent. Life expectancy at birth conditional on real GDP per capita is 11.4 years (the average of 1960 and 1962), comparable to the whole regime performance (see Table 2). Sarit does not enter Table 5 because his rule did not last more than five full calendar years.

⁷⁸*Keesing's Contemporary Archives*, p.16691.

king. The support from the king appears to have been the most crucial for Sarit, as he “accorded the throne much more power and prestige than [his] predecessors had” (Chaloemtiarana 2007, p.205) to seek the military regime’s legitimacy.

After the death of Sarit, the selectorate remained the same. The king’s influence got even stronger. Thanom Kittikachorn, a military officer who had been Deputy Minister and Defence Minister since 1959, succeeded Sarit by King Bhumibol’s appointment.⁷⁹ Thanom “turned increasingly to the king for support and advice” (Chaloemtiarana 2007, p.217). The military had the last say in keeping Thanom in power. When Thanom’s government faced student demonstrations in 1973, the military refused to suppress them, forcing Thanom to flee the country (Nelson 2001, p.262).⁸⁰

The above episode suggests that the selectorate – the king and the military – had a tight grip on power. Our theory implies that this allowed them to credibly threaten to oust Sarit or Thanom in the case of a poor performance. Impressive performance of the Thai military regime by Sarit and Thanom on economic growth and health could have been due to the discipline imposed by the king and the military.

Guinea (October 1958 - April 1984) On March 26 of 1984, President Ahmed Sekou Toure died in an US hospital to which he was taken by air from Guinea after suffering a heart attack on the day before.⁸¹ Sekou Toure ruled Guinea since its independence. As Table 10 shows, the performance of his rule is miserable: a negative economic growth rate (-0.67%), lower life expectancy and lower primary school enrollment compared to countries with the same level of real GDP per capita.⁸²

The ruling selectorate appears to have been members of the sole legal party, the *Parti Democratique de Guinea* (PDG).⁸³ By Constitution, the

⁷⁹ *Keesing’s Contemporary Archives*, p.19814.

⁸⁰ Although the POLITY dataset codes 1968 as the end of Thai military regime, Thanom remained in power by holding multiparty parliamentary elections in which his party won. He then dissolved the parliament and banned political parties in 1971, restoring the military dictatorship.

⁸¹ *Africa Research Bulletin*, March 1-31, 1984, p.7178.

⁸² Kaba (1977, p.40) lists Sekou Toure’s failures in health production: the shortage of hospital beds in the capital city, the appointment of inexperienced individuals to hospital administration, medicine shortage, and Sekou Toure’s denial of a cholera epidemic in 1973.

⁸³ Sekou Toure was a founding-member of the PDG and became Secretary General of the Party in 1952 (Johnson 1970, p.350). In 1957, the PDG won multiparty elections

political bureau of the PDG would meet to choose a new leader within 45 days after the incapacitation of the president.⁸⁴

After the death of Sekou Toure, Prime Minister Lansana Beavogui became interim president and was supposed to succeed formally by the appointment of the PDG political bureau.⁸⁵ On April 3, however, young military officers staged a bloodless coup with Colonel Lansana Conte becoming a new president. The PDG was then dissolved.

This episode indicates that the selectorate, the PDG, stayed in power solely due to Sekou Toure's presence. They plausibly expected that they would lose power if they kicked out Sekou Toure ($\gamma^A \approx 0$). This lack of secure power on the part of the selectorate may explain why Sekou Toure performed so badly while remaining in office.⁸⁶

5.4 Summary

This tour of the evidence conducted through the lens of our model is sketchy. However, it does breath life into the institutional setting that we modeled. The case studies suggest that the power of the selectorate and their role in disciplining poorly performing leaders could be a force in shaping the performance of autocracy in the absence of an electoral sanction. This leads to more turnover on average in successful autocracies than in unsuccessful autocracies.

6 Conclusion

This paper is a contribution to on-going debates about the institutional basis of successful government. It tries to understand differences between good and bad autocracies in terms of the forces that shape accountability in the

for the Territorial Assembly under French rule. In November of 1958, one month after independence, the PDG became the sole legal party by the Constitution (see Brune 1999).

⁸⁴*Keesing's Record of World Events*, p.32955.

⁸⁵According to Momoh (1984), "the powerful Toure family including the ambitious Minister of Mines and Geology, Ismael Toure, had persuaded ... Beavogui to accept the post of acting president. ... Beavogui, as it was understood, would have held the post for two or three years..."

⁸⁶According to Jackson and Rosberg (1982, p.210), Guinea under Sekou Toure's rule saw "persistent attempts by the government to hold to the ruler's ideological approach while ignoring the lessons to be learned from economic and planning failures.

absence of regularized elections. It does so in three steps. The first has been to develop a simple model of incentives to generate good policy when the decision to retain the leader is vested in a selectorate comprising citizens from some ruling “group”. Second, it has identified “successful autocracies” using objective empirical criteria. Third, it has used the group of autocracies identified from this exercise as a basis for case studies in successful autocracy with a view to matching the theory to real world experience.

Our modeling approach makes clear that democracies can be better or worse than autocracies in terms of accountability although it suggests a presumption in favour of democracy on this basis. This is consistent with the raw data. In our model, successful autocracies are those where poor quality leadership leads to removal of leaders from office. While it is asking too much of a simple theory to do justice to the richness of the real world experience, we find some suggestive evidence that the forces shaping leadership replacement in the way that the model suggests may be at work in successful autocracies. Leadership turnover is greater in successful compared to unsuccessful autocracies. Moreover, studying the sample of successful autocracies that handled leadership deaths from natural causes reinforces the view that successful autocracies are those where the ruling group has a hold over power.

The analysis in this paper is a first step in a wider project. It seems essential in collecting data that characterizes differences in political regimes to be guided by what theory suggests could be important. Among the large array of impressive data collection exercises, there is very little that provides a persuasive mapping between things that shape political incentives and outcomes. For a broad category like autocracy, it is essential to bridge this gap more in future work to understand the lessons for the genesis of good government.

This paper provides a complement to other on-going work in this area. The approach emphasizes the value of rooting our understanding in simple theoretical models, not least as a lens to focus empirical exercises. It also suggests a way of applying agency models to the democracy-autocracy comparison which may have other fruitful applications. While it is evident that much remains to be done to bring theory and data together in understanding the forces that shape the quality of government, the theoretical tools that are being developed in political economy and the rich data now available provide a secure starting point for this endeavour.

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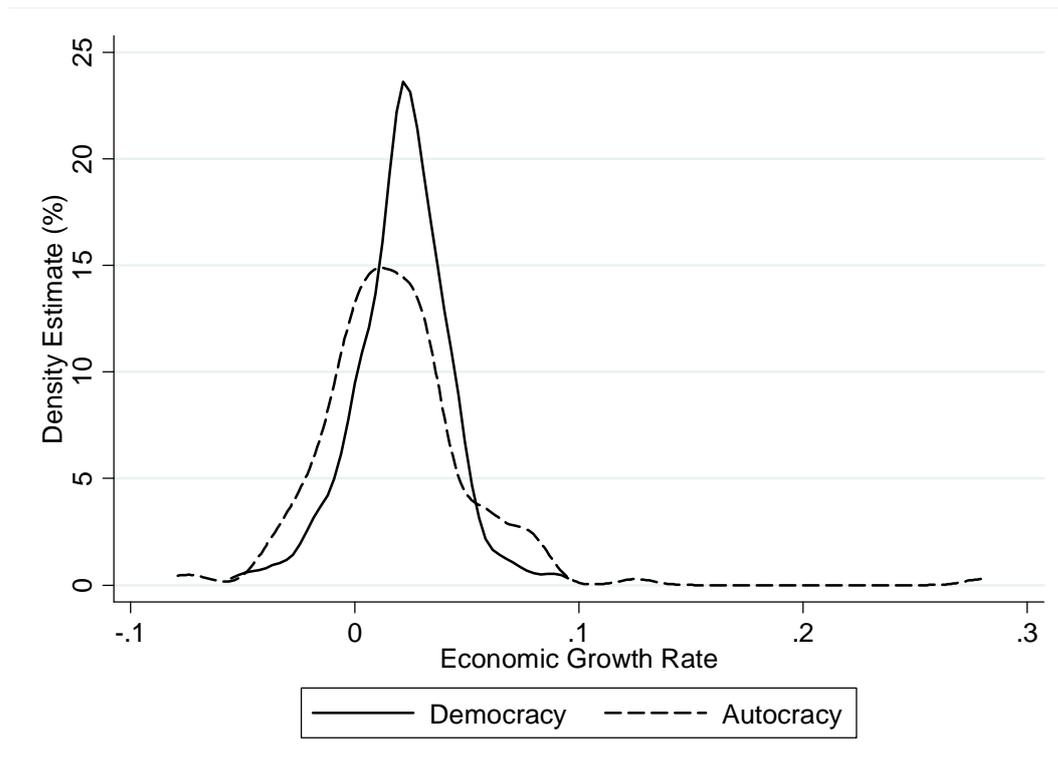


Figure 1: Economic Growth Distributions among Democracies and Autocracies

Sources: Penn World Table 6.2 and POLITY IV (version 2004)

Notes: Plotted are the density functions estimated by using the Gaussian kernel and the bandwidth that minimizes the mean integrated squared error (the *kdensity* command in STATA with the *gaussian* option).

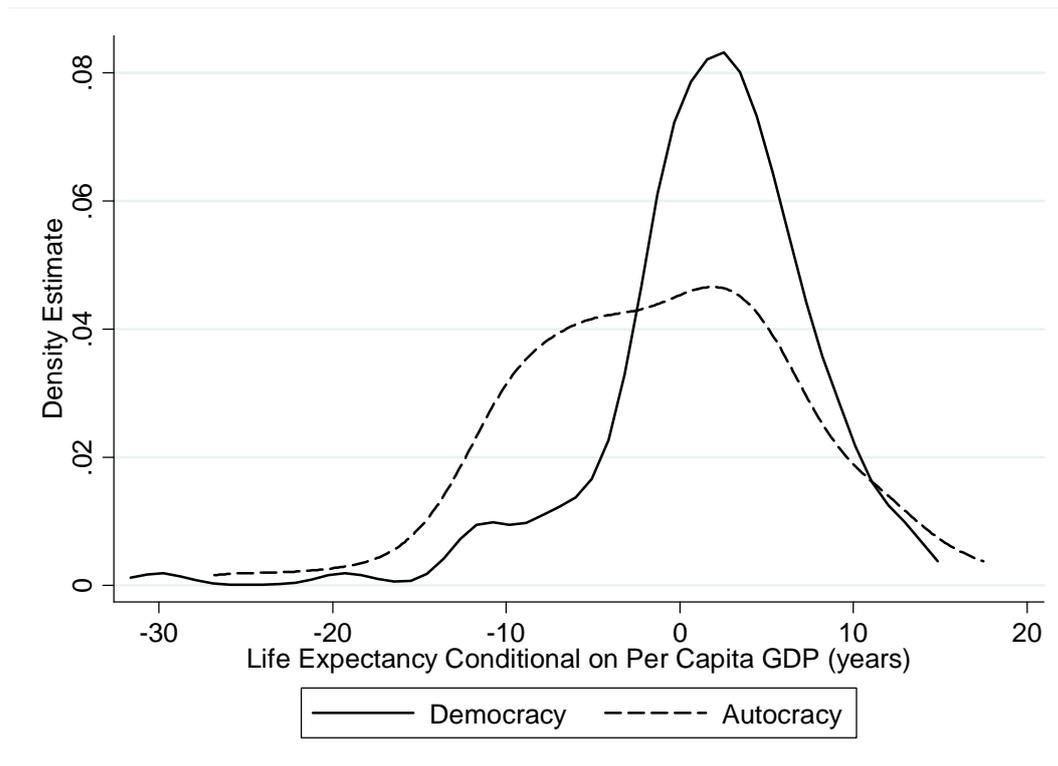


Figure 2: Health Performance Distributions among Democracies and Autocracies

Sources: World Development Indicators (September 2006), Penn World Table 6.2, Statistical Yearbook of the Republic of China (1987, 2004), and POLITY IV (version 2004)

Notes: See Figure 1.

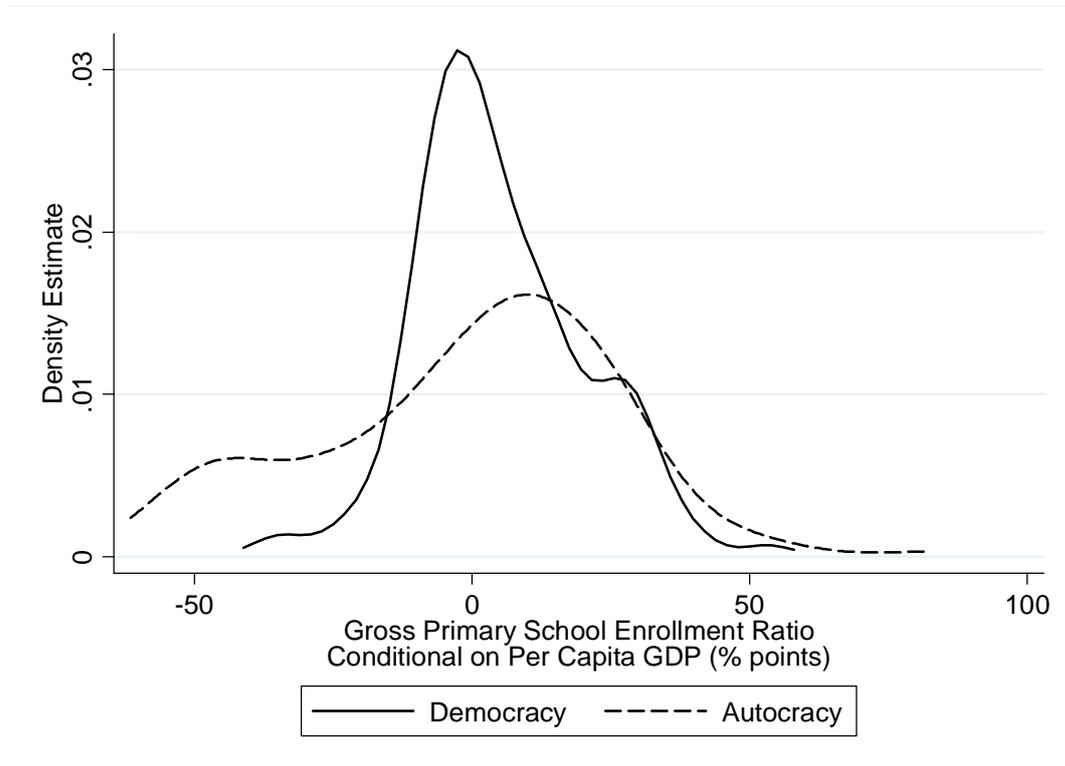


Figure 3: Education Performance Distributions among Democracies and Autocracies

Sources: UNESCO Institute of Statistics, Penn World Table 6.2, Statistical Yearbook of the Republic of China (1994, 2005), and POLITY IV (version 2004)

Notes: See Figure 1.

Table 1: Economically Successful Autocracies

Regime	Years of Observations	Growth	Robustness		
			1	2	3
Equatorial Guinea(1996-2004)	1996-2003	28.04%	Y	Y	Y
Rwanda(1994-2000)	1994-1999	12.56%	Y	Y	N
Gabon(1960-1968)	1960-1967	8.59%	Y	Y	-
Belarus(1996-2004)	1996-2003	8.15%	N	Y	-
Liberia(1997-2003)	1997-2002	7.94%	Y	Y	Y
China(1976-2004)	1976-2004	7.87%	Y	Y	-
Greece(1967-1974)	1967-1973	7.85%	Y	Y	Y
Ecuador(1972-1979)	1972-1978	7.73%	Y	Y	Y
Romania(1948-1977)	1960-1976	7.63%	Y	Y	-
South Korea(1981-1987)	1981-1986	7.23%	Y	Y	Y
Azerbaijan(1998-2004)	1998-2003	7.15%	Y	Y	Y
Taiwan(1975-1987)	1975-1986	6.81%	N	Y	-
Niger(1974-1981)	1974-1981	6.27%	Y	Y	N
Iraq(1968-1979)	1970-1978	6.17%	Y	Y	-
Taiwan(1949-1975)	1951-1974	5.98%	N	Y	-
Brazil(1965-1974)	1965-1973	5.89%	Y	Y	Y
Spain(1939-1975)	1950-1974	5.77%	Y	Y	-
Poland(1947-1980)	1970-1979	5.76%	Y	Y	-
Portugal(1930-1974)	1950-1973	5.75%	Y	Y	-
Togo(1960-1967)	1960-1966	5.68%	Y	Y	-
South Korea(1973-1981)	1973-1980	5.50%	N	Y	Y
Thailand(1958-1968)	1958-1967	5.34%	Y	Y	Y
Venezuela(1941-1958)	1950-1957	4.93%	Y	Y	-
Singapore(1965-2004)	1965-2004	4.80%	N	Y	-
Indonesia(1967-1998)	1967-1997	4.56%	Y	Y	-
Vietnam(1976-2004)	1989-2003	4.47%	N	Y	-
Bhutan(1953-2004)	1970-2003	4.28%	N	Y	-
China(1969-1976)	1969-1975	4.04%	N	Y	N
Iran(1955-1979)	1955-1978	4.01%	Y	Y	-
Tunisia(1971-1981)	1971-1980	3.86%	N	N	Y
Syria(1963-1970)	1963-1969	3.82%	Y	Y	Y
North Korea(1966-2004)	1970-2003	3.75%	N	Y	-
Peru(1950-1956)	1950-1955	3.73%	Y	N	-
Pakistan(1977-1985)	1977-1984	3.70%	Y	Y	Y
UAE(1971-2004)	1971-2003	3.70%	N	N	-

Notes: "Years of Observations" indicate the period for which the annual economic growth rate is calculated. This can differ from the regime period if GDP observations are missing in some years during the regime.

Robustness 1 is "Y" if the regime's growth rate minus the country average is above the 80 percentile of the distribution; "N" otherwise. Robustness 2 is "Y" if the regime's growth rate minus the average among regimes in the same initial income quintile is above the 80 percentile; "N" otherwise.

Robustness 3 is "Y" if the growth rate during the 3-year period preceding the regime is positive; "N" if negative; and "-" either if the regime lasted 10 years or longer or if there is no data on GDP for the preceding period.

Table 2: Autocracies Successful in Health Production

Regime	Years of Observations	Conditional Life Expectancy	Robustness	Economic Success
Cuba(1961-1976)	1970-1972	17.48	Y	N
Romania(1948-1977)	1960-1972	17.48	Y	Y
Taiwan(1949-1975)	1960-1972	16.34	Y	Y
China(1969-1976)	1970-1972	13.89	N	Y
Poland(1947-1980)	1970-1977	12.68	Y	Y
China(1976-2004)	1977-2004	12.43	N	Y
Paraguay(1954-1967)	1960-1962	12.28	Y	N
Syria(1970-2000)	1972-1997	11.89	N	N
Azerbaijan(1998-2004)	2000-2003	11.83	N	Y
Vietnam(1976-2004)	1990-2003	11.49	N	Y
North Korea(1966-2004)	1970-2003	11.35	N	Y
Cuba(1977-2004)	1980-2003	11.22	N	N
Panama(1969-1978)	1970-1977	11.03	Y	N
Thailand(1958-1968)	1960-1967	10.69	Y	Y
Taiwan(1975-1987)	1977-1985	10.08	Y	Y
Jordan(1992-2004)	1995-2003	9.67	Y	N
Morocco(1998-2004)	2000-2003	8.73	Y	N
Paraguay(1967-1989)	1970-1987	8.49	N	N
Kyrgyzstan(1991-2004)	1995-2002	8.09	N	N
Greece(1967-1974)	1970-1972	7.88	Y	Y
South Korea(1973-1981)	1977-1980	7.80	Y	Y
Chile(1973-1981)	1977-1980	7.67	Y	N
Uzbekistan(1991-2004)	1997-2003	7.58	N	N
Spain(1939-1975)	1960-1972	6.80	Y	Y
Morocco(1992-1998)	1995-1997	6.79	Y	N
Syria(1963-1970)	1967	6.39	N	Y
Portugal(1930-1974)	1960-1972	6.15	Y	Y
Tunisia(1987-1993)	1990-1992	6.08	N	N
Algeria(1995-2004)	1997-2003	6.00	Y	N
Iraq(1979-2003)	1980-1997	5.85	N	N
Tunisia(1993-2002)	1995-2000	5.82	N	N

Notes: "Years of Observations" indicate the first and last years of observations on life expectancy at birth for each regime. "Conditional Life Expectancy" is the number of years in life expectancy at birth unexplained by the Preston curve (the quadratic function of per capita real GDP). "Robustness" is "Y" if the regime is above the 80 percentile of the distribution of conditional life expectancy minus the country average; "N" otherwise. "Economic Success" is "Y" if the regime appears in Table 1; "N" otherwise.

Table 3: Autocracies Successful in Education

Regime	Years of Observations	Conditional Enrollment Ratio	Robustness	Economic Success
Equatorial Guinea(1969-1993)	1990	81.55	Y	N
Congo-Brazzaville(1963-1979)	1970-1975	57.44	Y	N
Congo-Brazzaville(1979-1991)	1980-1990	50.68	Y	N
Cuba(1961-1976)	1970-1975	48.13	Y	N
Brazil(1965-1974)	1970	42.25	Y	Y
Uganda(1996-2004)	1999-2003	40.87	Y	N
China(1969-1976)	1970-1975	38.01	N	Y
Romania(1948-1977)	1970-1975	34.27	Y	Y
Madagascar(1975-1991)	1980-1990	32.39	Y	N
Mongolia(1952-1990)	1970-1985	31.72	Y	N
China(1976-2004)	1980-2004	30.98	N	Y
Panama(1969-1978)	1970-1975	29.78	Y	N
Spain(1939-1975)	1970	29.58	Y	Y
Lesotho(1973-1986)	1975-1985	29.40	N	N
Peru(1968-1976)	1970-1975	28.87	N	N
Philippines(1972-1981)	1975-1980	28.59	N	N
Togo(1979-1991)	1980-1990	28.12	N	N
Laos(1975-2004)	1980-2003	27.62	N	N
Equatorial Guinea(1996-2004)	1999-2002	26.74	N	Y
Mexico(1930-1977)	1970-1975	25.41	Y	N
South Korea(1973-1981)	1975-1980	24.98	Y	Y
Ecuador(1972-1979)	1975	24.60	N	Y
Gabon(1991-2004)	1999-2004	24.52	N	N
Dominican Republic(1966-1978)	1970-1975	24.41	Y	N
Mexico(1977-1988)	1980-1985	23.96	Y	N
Zimbabwe(1987-2000)	1990-1999	23.77	N	N
Tunisia(1981-1987)	1985	23.77	Y	N
Indonesia(1967-1998)	1970-1996	23.64	N	Y
Chile(1973-1981)	1975-1980	23.15	Y	N
Togo(1993-2004)	1994-2004	22.77	N	N
Paraguay(1967-1989)	1970-1985	22.29	N	N
Vietnam(1976-2004)	1990-2003	22.13	N	Y
Cameroon(1966-1972)	1970	21.82	Y	N
Syria(1970-2000)	1975-1999	21.03	N	N

Notes: "Years of Observations" indicate the first and last years of observations on gross primary school enrollment ratio for each regime. "Conditional Enrollment Ratio" is the percentage points in gross primary school enrollment ratio unexplained by the quadratic function of per capita real GDP. "Robustness" is "Y" if the regime is above the 80 percentile of the distribution of conditional enrollment ratio minus the country average; "N" otherwise. "Economic Success" is "Y" if the regime appears in Table 1; "N" otherwise.

Table 4: Core Set of Successful Autocracies

Regime	Score	Economic Growth		Health		Education	
		Success?	Robust?	Success?	Robust?	Success?	Robust?
Romania(1948-1977)	6	Y	Y	Y	Y	Y	Y
Spain(1939-1975)	6	Y	Y	Y	Y	Y	Y
South Korea(1973-1981)	5	Y	N	Y	Y	Y	Y
Brazil(1965-1974)	4	Y	Y	N	-	Y	Y
Chile(1973-1981)	4	N	-	Y	Y	Y	Y
China(1976-2004)	4	Y	Y	Y	N	Y	N
Cuba(1961-1976)	4	N	-	Y	Y	Y	Y
Greece(1967-1974)	4	Y	Y	Y	Y	N	-
Panama(1969-1978)	4	N	-	Y	Y	Y	Y
Poland(1947-1980)	4	Y	Y	Y	Y	N	-
Portugal(1930-1974)	4	Y	Y	Y	Y	N	-
Thailand(1958-1968)	4	Y	Y	Y	Y	-	-

Notes: For each performance measure (Economic Growth, Health, Education), "Success?" is "Y" if the regime's performance is above the 80 percentile, "N" if not, and "-" if data is unavailable. For Economic Growth, "Robust?" is "Y" if the regime does not fail to pass the three robustness checks shown in Table 1, "N" if it does, and "-" if "Success?" is "N". For Health and Education, "Robust?" is "Y" if the regime passes the robustness check of subtracting the country average (see Tables 2 and 3), "N" if it does not, and "-" if "Success?" is "N". "Score" is calculated as the number of "Y" in each row.

Table 5: Successful Autocrats

Country	Years	Name of Autocrat	Annual Growth	Robust for Growth?	Health Success?	Health Robust?	Education Success?	Education Robust?
Rwanda	1994-2004	Paul Kagame	10.19%	N	N	-	N	-
China	1980-1997	Deng Xiaoping	8.51%	Y	Y	Y	Y	N
Equatorial Guinea	1969-1979	Macias Nguema	8.07%	Y	N	-	-	-
Liberia	1997-2003	Charles Taylor	7.94%	Y	N	-	N	-
Greece	1967-1973	Papadopoulos	7.90%	Y	Y	Y	N	-
South Korea	1972-1979	Park Chung Hee	7.74%	Y	Y	Y	Y	Y
Belarus	1995-2004	Lukashenko	7.23%	N	N	-	N	-
China	1997-2003	Jiang Zemin	7.20%	Y	Y	N	Y	N
Portugal	1968-1974	Caetano	7.03%	Y	Y	Y	N	-
Equatorial Guinea	1979-2004	Nguema Mbasogo	7.02%	N	N	-	Y	N
South Korea	1980-1987	Chun Doo Hwan	6.61%	Y	N	-	N	-
Taiwan	1978-1988	Chiang Ching-Kuo	6.25%	N	Y	N	N	-
Iraq	1968-1979	Hassan Al-Bakr	6.17%	Y	N	-	N	-
Swaziland	1968-1982	Subhuza II	6.14%	Y	N	-	N	-
Taiwan	1950-1975	Chiang Kai-shek	5.98%	N	Y	Y	-	-
Nicaragua	1947-1956	Anastasio Somoza Garcia	5.91%	Y	-	-	-	-
North Korea	1948-1994	Kim Il-Sung	5.83%	Y	Y	N	-	-
Spain	1939-1975	Franco	5.77%	Y	Y	Y	Y	Y
Singapore	1965-1990	Lee Kuan Yew	5.77%	N	N	-	N	-
Poland	1970-1980	Gierek	5.76%	Y	Y	Y	N	-
Romania	1965-1989	Ceausescu	5.68%	Y	Y	N	Y	Y
Vietnam	1991-1997	Do Muoi	5.55%	N	Y	N	Y	Y
Portugal	1932-1968	Salazar	5.01%	N	Y	Y	-	-
Venezuela	1950-1958	Perez Jimenez	4.93%	Y	-	-	-	-
Qatar	1995-2004	Amad Al Thani	4.87%	Y	N	-	N	-
Bhutan	1972-1998	Jigme Singye Wangchuck	4.83%	N	N	-	-	-
Mexico	1976-1982	Lopez Portillo	4.63%	Y	N	-	Y	Y
Indonesia	1966-1998	Suharto	4.30%	N	N	-	Y	N
Iran	1989-1997	Rafsanjani	4.17%	Y	N	-	N	-
Congo-Brazzaville	1969-1977	Ngouabi	4.16%	Y	N	-	Y	Y
Iran	1955-1979	Mohammad Reza	4.01%	N	N	-	N	-
Pakistan	1977-1988	Zia	3.78%	Y	N	-	N	-
Nigeria	1966-1975	Gowon	3.73%	Y	N	-	N	-
Peru	1950-1956	Odria	3.73%	N	-	-	-	-
UAE	1971-2004	An-Nahayan	3.70%	N	N	-	N	-
Panama	1968-1981	Torrijos Herrera	3.68%	N	Y	Y	Y	Y
Mexico	1952-1958	Ruiz Cortines	3.65%	N	-	-	-	-

Notes: Included in the list are autocrats under whose rule annual growth rate exceeds the 80 percentile of the distribution. "Years" indicate the period in which an autocrat rules the country non-democratically. "Robust for Growth?" is "Y" if an autocrat's rule does not fail to the three robustness checks described in the note for Table 1. For columns titled Health and Education, see the note for Table 4.

Table 6: Successful Regimes with their POLITY score between 1 and 5

Regime	Annual Growth	Robust for Growth?	Health		Education	
			Success?	Robust?	Success?	Robust?
South Korea(1963-1972)	6.57%	Y	Y	Y	Y	Y
Greece(1949-1967)	5.33%	Y	Y	Y	-	-
Pakistan(1962-1969)	4.66%	Y	N	-	-	-
Malaysia(1971-1995)	4.63%	N	N	-	N	-
Turkey(1954-1960)	4.55%	Y	-	-	-	-
France(1958-1969)	4.27%	Y	N	-	-	-
Cambodia(1998-2004)	4.14%	Y	N	-	Y	N
Brazil(1947-1958)	3.77%	N	-	-	-	-
Sri Lanka(1982-2001)	3.62%	N	Y	N	Y	N
Thailand(1978-1988)	3.59%	N	Y	N	N	-

Notes: Listed in the table are regimes with their Polity score between 1 and 5 inclusive whose annual economic growth exceeds the 80 percentile of the distribution. "Success?" is "-" if there is no data on life expectancy or gross primary school enrollment ratio for the regime. See also notes for Table 5 for the last five columns in the table.

Table 7: Successful Autocracies defined by Przeworski et al. (2000)

Regime	Annual Growth	Robust for		Health		Education		Executive Selection	Legislature Selection	Number of Parties
		Growth?	Success?	Robust?	Success?	Robust?				
Botswana(1966-1990)	7.90%	N	Y	N	N	-	Indirect	Elective	2+	
Ecuador(1972-1979)	7.73%	Y	N	-	N	-	Non-elective	No legislature	2+	
South Korea(1981-1988)	7.67%	Y	N	-	N	-	Direct	Elective	1	
South Korea(1973-1980)	7.41%	Y	Y	Y	Y	Y	Indirect	Elective	2+	
Jordan(1955-1966)	7.21%	Y	N	-	N	-	Non-elective	Elective	0	
Singapore(1965-1981)	7.05%	N	N	-	N	-	Indirect	Elective	1	
Iraq(1963-1980)	6.77%	Y	Y	N	N	-	Non-elective	No legislature	1	
South Korea(1963-1972)	6.57%	N	Y	Y	Y	Y	Direct	Elective	2+	
Taiwan(1952-1990)	6.20%	N	Y	N	N	-	Indirect	Elective	2+	
Portugal(1951-1974)	5.60%	Y	N	-	N	-	Indirect	Elective	1	
Romania(1961-1990)	5.31%	N	Y	N	N	-	Non-elective	Elective	1	
China(1961-1990)	5.18%	N	Y	N	Y	N	Non-elective	Elective	1	
Spain(1951-1977)	5.01%	N	N	-	N	-	Non-elective	Non-elective	1	
Niger(1974-1983)	4.96%	N	N	-	N	-	Non-elective	No legislature	0	
Morocco(1956-1963)	4.85%	Y	N	-	N	-	Non-elective	No legislature	2+	
Thailand(1957-1969)	4.71%	N	Y	Y	N	-	Non-elective	No legislature	0	
Togo(1961-1967)	4.70%	Y	N	-	N	-	Indirect	Elective	1	
Panama(1978-1984)	4.67%	Y	Y	N	N	-	Indirect	Elective	0	
Pakistan(1962-1969)	4.66%	Y	N	-	N	-	Indirect	Elective	2+	
Singapore(1981-1990)	4.35%	N	N	-	N	-	Indirect	Elective	2+	
Malaysia(1971-1990)	4.31%	N	Y	N	N	-	Indirect	Elective	2+	
Iran(1963-1979)	4.28%	N	N	-	N	-	Non-elective	Elective	1	
Uruguay(1976-1982)	4.11%	Y	N	-	N	-	Non-elective	No legislature	0	
Indonesia(1971-1990)	4.02%	N	N	-	Y	N	Indirect	Elective	1	
Lesotho(1970-1984)	3.95%	N	N	-	Y	N	Non-elective	Non-elective	1	
Philippines(1972-1978)	3.93%	N	N	-	Y	Y	Direct	No legislature	0	
Syria(1963-1970)	3.82%	Y	Y	N	N	-	Non-elective	No legislature	1	
Egypt(1979-1990)	3.34%	N	N	-	N	-	Direct	Elective	2+	
<i>Successful in Human Development only</i>										
Panama(1969-1978)	2.59%	-	Y	Y	Y	Y	Non-elective	No legislature	0	
Togo(1979-1990)	-3.76%	-	Y	Y	Y	Y	Direct	Elective	1	

Notes: Listed in the table are autocracies, as defined by Przeworski et al. (2000), whose annual economic growth exceeds the 80 percentile of the distribution. Also included are autocracies successful in human development only (the last two rows). "Executive Selection" indicates how the chief executive is chosen (Non-elective: assuming power without elections; Indirect: elected by legislature; Direct: elected by popular votes); "Legislative Selection" indicates how legislative members are chosen (No legislature: there is no legislature; Non-elective: appointed by the executive or hereditary succession; elective: elected by popular votes); "Number of Parties" indicates the number of legal political parties. These three columns are obtained from Przeworski et al. (2000). For the rest of the columns, see notes for Table 4.

Table 8: Exogenous Country Characteristics and Successful Autocracy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable:	Growth	Growth	Growth	Health	Health	Education	Education	Core	Core
Ethnic Fractionalization	-0.12 [0.16]			-0.50** [0.25]		0.00 [0.19]		-0.32 [0.43]	
Log European Settlers' Mortality		-0.0139 [0.0267]							0.0377 [0.1599]
French Legal Origin					-0.14 [0.25]		0.12 [0.10]	0.81*** [0.14]	
Socialist Legal Origin					0.57** [0.26]		0.45 [0.30]	0.99*** [0.01]	
German Legal Origin					0.60*** [0.15]		-0.14 [0.15]	0.84*** [0.08]	
Oil Price Boom			-0.02** [0.01]						
Constant	YES	YES	YES	YES	YES	YES	YES	YES	YES
Decade dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Region dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	176	87	170	89	90	148	149	37	19
Pseudo R-squared	0.24	0.16	0.30	0.18	0.23	0.17	0.20	0.34	0.12

Notes: Reported are the marginal effect for continuous regressors and the discrete change in the probability of success for dummy regressors (legal origins), both evaluated at the mean of all regressors. Robust standard errors are reported in brackets. The unit of observation is an autocratic regime. The dependent variables are: a dummy for success in economic growth (included in Table 1) in columns (1)-(3); a dummy for success in health production (included in Table 2) in columns (4)-(5); a dummy for success in education (included in Table 3) in columns (6)-(7); and a dummy for being included in the core set of successful autocracies (see Table 4). Decade dummies refer to dummies indicating the decade in which the regime begins (1960s, 1970s, 1980s, 1990s). Region dummies include East Asia and Pacific, Eastern Europe and Central Asia, South Asia, Middle East and North Africa, Sub-Saharan Africa, and Latin America and the Caribbean (with Western Europe omitted). Depending on the specification, some dummies perfectly predicts the dependent variable, which causes reductions in the number of observations.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9: Leadership Turnover and Successful Autocracies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable:	Success in Growth	Robust Success in Growth	Success in Health	Robust Success in Health	Success in Education	Robust Success in Education	Core Success
# of leadership changes per year	1.04*** [0.29]	0.62*** [0.21]	-0.18 [0.58]	-0.31 [0.57]	-0.33 [0.37]	0.04 [0.28]	0.14 [0.88]
Constant	YES	YES	YES	YES	YES	YES	YES
Decade dummies	YES	YES	YES	YES	YES	YES	YES
Region dummies	YES	YES	YES	YES	YES	YES	YES
Observations	177	177	90	83	149	149	37
Pseudo R-squared	0.3	0.26	0.14	0.18	0.18	0.12	0.24

Notes: Reported are the marginal effect evaluated at the mean of all regressors. Robust standard errors are reported in brackets. The unit of observation is an autocratic regime. The dependent variables are: in column (1), a dummy for being included in Table 1; in column (2), a dummy for being included in Table 1 and not failing to pass any robustness checks; in column (3) a dummy for being included in Table 2; in column (4), a dummy for being included in Table 2 and passing the robustness check; in column (5) a dummy for being included in Table 3; in column (6), a dummy for being included in Table 3 and passing the robustness check; in column (7), a dummy for being included in Table 4. See Table 8 for details on decade and region dummies.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 10: Autocratic Regimes with Leader's Natural Death

Regime	Year of Leader's Death	Score	Annual Growth	Economic Growth		Conditional Life Expectancy	Health		Conditional Enrollment Ratio	Education	
				Success?	Robust?		Success?	Robust?		Success?	Robust?
Romania(1948-1977)	1965	6	7.63%	Y	Y	17.48	Y	Y	34.27	Y	Y
Spain(1939-1975)	1975	6	5.77%	Y	Y	6.80	Y	Y	29.58	Y	Y
China(1976-2004)	1997	4	7.87%	Y	Y	12.43	Y	N	30.98	Y	N
Poland(1947-1980)	1956	4	5.76%	Y	Y	12.68	Y	Y	19.82	N	-
Portugal(1930-1974)	1968	4	5.75%	Y	Y	6.15	Y	Y	8.46	N	-
Thailand(1958-1968)	1963	4	5.34%	Y	Y	10.69	Y	Y	-	-	-
China(1969-1976)	1976	3	4.04%	Y	N	13.89	Y	N	38.01	Y	N
Taiwan(1949-1975)	1975	3	5.98%	Y	N	16.34	Y	Y	-	-	-
Taiwan(1975-1987)	1978	3	6.81%	Y	N	10.08	Y	Y	5.56	N	-
Vietnam(1976-2004)	1986	3	4.47%	Y	N	11.49	Y	N	22.13	Y	N
Gabon(1960-1968)	1967	2	8.59%	Y	Y	-26.81	N	-	-	-	-
Jordan(1992-2004)	1999	2	0.89%	N	-	9.67	Y	Y	-6.92	N	-
Morocco(1998-2004)	1999	2	1.19%	N	-	8.73	Y	Y	2.24	N	-
North Korea(1966-2004)	1994	2	3.75%	Y	N	11.35	Y	N	-	-	-
Syria(1970-2000)	2000	2	2.18%	N	-	11.89	Y	N	21.03	Y	N
Bhutan(1953-2004)	1972	1	4.28%	Y	N	0.92	N	-	-	-	-
Lao PDR(1975-2004)	1992	1	1.35%	N	-	-3.72	N	-	27.62	Y	N
Algeria(1965-1989)	1978	0	1.35%	N	-	-0.75	N	-	4.01	N	-
Egypt(1952-1976)	1970	0	1.29%	N	-	-0.20	N	-	-3.77	N	-
Guinea(1958-1984)	1984	0	-0.67%	N	-	-14.59	N	-	-44.54	N	-
Haiti(1961-1971)	1971	0	-	-	-	-3.24	N	-	-15.74	N	-
Iran(1982-1997)	1989	0	0.86%	N	-	1.78	N	-	11.13	N	-
Kenya(1969-1979)	1978	0	-0.47%	N	-	3.66	N	-	12.64	N	-
Kuwait(1965-1971)	1965	0	-	-	-	2.25	N	-	8.57	N	-
Liberia(1909-1980)	1971	0	-1.13%	N	-	-9.03	N	-	-35.24	N	-
Mauritania(1962-1991)	1979	0	-0.19%	N	-	-5.44	N	-	-42.17	N	-
Nepal(1962-1981)	1972	0	0.49%	N	-	-4.75	N	-	-18.18	N	-
Nicaragua(1936-1979)	1966	0	2.45%	N	-	-7.86	N	-	-6.87	N	-
Saudi Arabia(1926-2004)	1953,1982	0	0.20%	N	-	-12.30	N	-	-40.52	N	-
Swaziland(1973-1993)	1982	0	3.31%	N	-	-9.63	N	-	10.28	N	-

Notes: Listed are autocratic regimes under which the chief executive died in office due to natural causes. "Year of Leader's Death" indicates the year of such death. For the rest of the columns, see notes for Tables 1, 2, 3, and 4.