Do Authoritarian Institutions Constrain? How Legislatures Affect Economic Growth and Investment

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This article explores why authoritarian regimes create legislatures and then assesses their effect on economic growth and investment. In authoritarian regimes more dependent on domestic investment than natural resource revenue, the dictator creates a binding legislature as a credible constraint on the regime's confiscatory behavior. In regimes dependent on natural resource revenue, the nonbinding legislature serves as a mechanism for the dictator to bribe and split the opposition when he faces credible challenges to the regime. Using data from 121 authoritarian regimes from 1950 to 2002, the results indicate that binding legislatures have a positive impact on economic growth and domestic investment, while nonbinding legislatures have a negative impact on economic growth.

Recently, scholars have begun to systematically examine authoritarian political institutions such as parties, legislatures, and elections (Boix 2003; Gandhi 2005; Gandhi and Przeworski 2001, 2006; Geddes 1999; Przeworski et al. 2000). The literature on authoritarian institutions generally addresses one of two questions: (1) why authoritarian regimes have political institutions similar to those in democracies (Gandhi and Przeworski 2006; Magaloni 2006), and (2) what impact these institutions have on political and economic outcomes such as economic growth and regime duration (Boix 2003; Brownlee 2005; Gandhi 2005; Geddes 1999). This article addresses both questions. I first explain why different types of authoritarian regimes create political institutions such as legislatures and then explore the conditions under which different types of regimes establish legislatures. I then test the effect of legislatures on important outcomes such as investment and growth.

To date, scholars have generally assumed that political institutions such as legislatures and party systems serve the same purpose in all types of authoritarian regimes. But just as differences amongst democratic political institutions explain variation in important political and economic outcomes in democracies (Persson and Tabellini 2000), so too do differences among authoritarian institutions explain variation in economic growth and investment. Personalist or neo-patrimonial regimes differ in their method of rule from other types of authoritarian regimes (e.g., military, single party, corporatist; Bratton and van de Walle 1997; Geddes 1999; Jackson and Rosberg 1982). Because personalist rule is based explicitly on the exchange of private goods for political support, dictators in these regimes create formal political institutions that differ from the institutions observed in other types of regimes.

This article demonstrates that military and single-party regimes are more dependent on domestic investment and less dependent on natural resource revenue than personalist regimes and monarchies. Because the former are more dependent on the production of the domestic economy to generate the revenue necessary to sustain their rule, they have an incentive to establish governing institutions that constrain their own power. Therefore, these regimes have an incentive to create binding legislatures. Personalist regimes and monarchies, however, do not have the same incentive to establish binding legislatures because they are more dependent on sources of "unearned" income such as natural resource rents and foreign aid and

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less dependent on investment in the productive economy. This does not mean that personalist regimes do not have legislatures; rather theirs tend to be nonbinding. In these regimes, nonbinding legislatures are part of the strategy to split and pay off potential challengers to the regime.

Second, this research shows that, consistent with the conventional view of authoritarian institutions as constraints on the dictator, legislatures in military and single-party regimes occur under the conditions we should expect to find binding legislatures: less oil revenue, a more productive economy, and a longer time horizon. In personalist regimes and monarchies, however, the analysis indicates that legislatures occur under the opposite conditions, suggesting these regimes establish legislatures for very different reasons than in military and single-party regimes.

Third, this articles looks at the impact of legislatures on investment and growth. Consistent with the hypothesis that legislatures in military and single-party regimes are binding, the results indicate that legislatures in these regimes increase growth and investment. In personalist regimes and monarchies, however, legislatures decrease growth.

Legislatures in Authoritarian Regimes

Scholars have long distinguished amongst different types of authoritarian regimes and frequently acknowledge that personalist regimes differ from other types of authoritarian rule (e.g., military, single-party, or corporatist; Bratton and van de Walle 1997; Geddes 1999; Jackson and Rosberg 1982; Linz and Chehabi 1998). Researchers have also found that distinguishing amongst different types of dictatorships has been useful for understanding how and when dictatorships transition to democracy (Bratton and van de Walle 1997; Geddes 1999) and when and with whom dictatorships initiate conflict (Lai and Slater 2006; Pency and Sanchez-Terry 2002). The theoretical underpinnings of these empirical findings focus on institutional differences amongst regimes. For example, Reiter and Stam show that personalist dictators are more likely to initiate a war with democracies because they are institutionally unconstrained and therefore "unlikely to lose power if they launch an unsuccessful diplomatic challenge or even a losing war short of catastrophic defeat" (2003, 336). Summing up these differences, Geddes (2003) argues that the institutional feature that distinguishes personalist regimes from others is that "although personalist regimes have parties and militaries, these organizations have not become sufficiently developed or autonomous to prevent the leader from taking personal control of policy decisions and selection of regime personnel" (2003, 53). The basic method of rule in personalist regimes is simply the exchange of material rewards to a select group of regime insiders in return for mobilizing political support (Bratton and van de Walle 1994). The development of formal political institutions, such as legislatures, in such an environment should reflect this method of rule. That is, formal institutions in personalist regimes should further the exchange of private goods for political support, not hinder it. Below is a discussion of how legislatures can facilitate this exchange.

The literature on authoritarian legislatures generally assumes that legislatures serve the same purpose in all types of regimes (Boix 2003; Folch 2003; Gandhi and Przeworski 2006). The argument of this article, however, is that not all legislatures serve as a constraint on the dictator's power. To understand why some authoritarian regimes establish binding legislatures while others do not, we need to first look at why some regimes would potentially need a credible constraint on their own power. One argument suggests that regimes which depend on domestic investment (or loans) to grow the economy create and maintain political institutions that not only help them rule, but do so by credibly binding their own power (North and Weingast 1989). These regimes depend on a productive domestic economy from which they glean the tax revenue necessary to stay in power and therefore need a legislature which ensures domestic investors (including the state sector) that the dictator will not steal the economic product of the country. The conventional view of legislatures as constraints (Boix 2003; Folch 2003; Gandhi and Przeworski 2006) generally fits this model of authoritarian rule. Regimes that are largely dependent on "unearned" income from sources such as natural resource rents and foreign aid, however, do not necessarily have an incentive to create and maintain institutions that constrain their power, because they are less dependent on the productive resources of the economy. Regimes largely funded by "unearned" income do establish legislatures, but they do not necessarily bind the dictator, and are used to pay off potential challengers as part of a survival strategy.

Before discussing authoritarian legislatures, I first establish empirically that personalist[1] regimes are more

[1]I use the coding of authoritarian regimes developed by Geddes (1999) to delineate types of authoritarian regimes. When I refer to military and single-party regimes, I also include hybrid forms of these regimes: single-party/military regimes (such as El Salvador during 1970s and early 1980s and Rwanda and Burundi during the 1970s and 1980s); military/personalist regimes (such as Chile under Pinochet and Ethiopia under Mengitsu), and triple-hybrid regimes

Table 1 Potential Sources of Government Revenue in Authoritarian Regimes

	Military	Single Party	Personalist	Monarchy
Domestic Investment (% GDP)	14.3	14.2	9.7	11.2
Log Oil Reserves pc	0.02	0.05	0.10	1.07
Foreign Aid (% GNI)	5.5	6.2	10.1	3.5
Population (millions)	25.7	23.5*	13.0	9.2

Observations are country-years. Domestic investment is a share of GDP, from Penn World Tables. Oil revenue is per capita oil production times the oil price index, from Humphreys (2005). Foreign aid is a share of GNI, from WDI 2005. Population is from WDI 2005. *China's population set at 200 million (the size of the next largest country, Indonesia).

likely in countries with more sources of "unearned" income than other types of regimes.[2] Table 1 reports the mean values for domestic investment, oil reserves, foreign aid, population, and GDP per capita. Military and single-party regimes have, on average, more investment and much smaller oil reserves than personalist regimes or monarchies. Personalist regimes also receive over 60% more foreign aid, on average, than single-party regimes, the next largest recipient of aid. While these figures do not tell us the direction of causation, they do suggest that military and single-party regimes are more likely in countries with larger shares of domestic investment and less likely in countries with larger sources of "unearned" income.

Table 2 verifies these relationships by testing a multinomial logit model where the dependent variable is the type of authoritarian regime: personalist, monarchy, military, and single-party (omitted).[3] Controls include *log(GDPpc)*, *life expectancy*, *ethnic fractionalization*, *log population*, *Lifetime*, the percent of the population that is *Islamic*, decade dummies, and dummies for former colonial status.[4] Since wealth and life expectancy[5] impact investment decisions, controlling for them accounts for the possibility that different types of regimes are easier to establish at higher (or lower) levels of development. Decade dummies are included to control for the possibility that certain types of regimes (e.g., military) may be more difficult to establish and maintain during certain periods (e.g., post–Cold War). Percent *Islamic* should control for the possibility that states with large Muslim populations may be less inclusive in their pattern of rule (Midlarsky 1998), and Islamic countries also tend to have larger oil reserves (Ross 2001). *Lifetime* controls for duration dependence.[6] Finally, we know that more ethnically diverse countries suffer from poor growth, perhaps through investment (Easterly and Levine 2000), so we do not want investment patterns to proxy for *ethnic fractionalization*.

The first column includes *Oil reserves*; the second column substitutes *Oil revenue* for *Oil reserves*; and the third column includes *Investment*, but drops the oil variables, which changes the sample size due to the availability of data on investment and oil reserves.[7] Columns 4–6 include

which contain elements of military, single-party, and personalist regimes (such as Egypt, Syria, and Paraguay under Stroessner).

[2]Further, understanding selection into regime type will be important for obtaining unbiased estimates of the determinants of legislatures in different types of regimes.

[3]Data description and sources are included in the web appendix (D). I use an updated version of Geddes' (1999) coding of authoritarian regimes, included in the web appendix (A). One concern using a multinomial logit model is that the assumption of irrelevance of independent alternatives (IIA) may be violated. Running the two standards tests of this violation of IIA, I found that the Hausman-McFadden tests consistently could not reject the null that the odds are independent of other alternatives, while the Small-Hsiao test was not consistent in this regard. However, Long and Cheng show that the Small-Hsiao test "has severe size distortion even in large samples when there are sparse cells in the table of the outcome variable with a binary independent variable" (2007, 583). The models in Table 2 include many binary independent variables, such as decade dummies and colony dummies, and there are many "zero" observations for oil reserves. Second, when I conduct these tests for model 5 (Table 2), which excludes the hybrid regimes, both tests consistently accept the null that IIA is not violated. Including these hybrid regimes almost by definition might lead to a violation of IIA—because "hybrid" suggests that the alternatives are not all that different. Third, when I exclude monarchies from the model, both IIA tests consistently accept the null that IIA is not violated. One reason the Small-Hsiao test is inconsistent when I include monarchies is that monarchies are relatively geographically concentrated, which means that observations for regions with no monarchies (e.g., Latin America) will have no leverage because there is no variation in either the DV or some of the region dummies for these regions.

[4]Colonies are British, French, Portuguese, and Spanish.

[5]Life expectancy is a further control for level of development because, as some researchers have argued (Przeworski et al. 2000), GDP per capita may not be a good measure of the level of development in oil-rich countries.

[6]See Beck and Katz (1998).

[7]Because investment is potentially endogenous, models both with and without investment are tested, and the results for the other variables of interest remain the same. These tests are designed to ensure that the bivariate relationships in Table 1 are not caused

both *Investment* and *Oil reserves*. Column 4 adds *Life Expectancy*; and column 5 excludes hybrid[8] regimes from the sample. Finally, the last column adds a control variable for *Gulf States* to see if these countries with small populations and large oil reserves are driving the results.[9]

The coefficients for *Oil reserves* and *Oil revenue* are positive and statistically significant at conventional levels for personalist regimes and monarchies, indicating that larger oil reserves increase the likelihood of personalist rule.[10] The coefficients for *Investment* in personalist regimes and monarchies are negative and significant, suggesting that higher levels of investment decrease the likelihood of personalist rule.[11] These coefficients are stable across various specifications and samples. The only exception is when a control for *Gulf States* is included; here the coefficient for *Investment* drops to nearly zero and is no longer significant, suggesting that Gulf States with large oil investments drive the relationship between investment and the probability of being a monarchy.

The coefficients for *Oil reserves* in military regimes are negative, large in absolute value, and statistically significant, indicating that larger oil reserves make countries less likely to be military regimes than single-party regimes. The coefficients for *Investment* in military regimes are not statistically different from zero in most models, suggesting that countries with more investment are no more (or less) likely to be military regimes than single-party regimes. These models largely concur with the evidence in Table 1 and suggest that even after controlling for demographic characteristics, level of development, and former colonial status, military and single-party regimes are more likely in countries that have more domestic investment and less oil reserves, while personalist regimes and monarchies are more likely in countries with less investment and larger oil reserves. Finally, the coefficients for *Log(population)* for both personalist regimes and monarchies are negative and statistically significant in all the models, suggesting that smaller populations make personalist rule more likely.

The evidence in Tables 1 and 2 suggests that personalist rule is more likely in countries with smaller populations, less investment, and larger oil reserves. While these results do not pin down the direction of causation with regard to investment, they do suggest that personalist rule occurs under much different conditions than single-party or military rule.[12] Thus dictators who choose personalist rule usually do so in countries with less domestic investment and larger sources of "unearned" income, and these structural differences translate into personalist regimes that are less dependent on the proceeds of a productive economy for their survival. Consequently, the dictator's strategy for ruling will require legislatures that differ from the binding legislatures that military and single-party regimes employ. The next two sections explore the reasons why dictators in different types of regimes establish legislatures and then test the factors that make legislatures more likely in different types of regimes, controlling for selection into regime type.

Legislatures in Military and Single-Party Regimes

Following the literature on political institutions and economic growth (Levi 1988; North and Weingast 1989), one view of authoritarian legislatures is that they act as a constraint on a dictator's power. An authoritarian ruler cedes institutional power as a way of offering a credible constraint on his own power to expropriate so that he can secure more loans or grow a larger economy from which to tax. For example, Boix (2003) argues that the existence of an authoritarian legislature indicates multiple veto players, which reinforces property rights and ensures investors that their product will not be expropriated. Indeed, this is a possible strategy of the "stationary" bandit (Olson 1993). Confirming this logic, Boix finds that authoritarian regimes with legislatures are less likely to expropriate rents. This view is also consistent with the empirical evidence that authoritarian legislatures (Folch 2003) and multiple legalized parties (Gandhi and Przeworski 2006) are more likely in regimes that have fewer natural resource exports. In a theoretical model, Folch shows that when private capital assets are relatively mobile, as in a

by intervening variables. A full test of causality that models initial selection into regime type is beyond the scope of the present study. However, a preliminary test which looks only at the first year of each regime suggests that the results in Table 2 point toward the correct inference. While not statistically significant because the number of observations is much smaller ($N<200$), the coefficients for oil reserves and population are in the expected direction.

[8] Hybrid regimes are single-party/personalist, single-party/military, military/personalist, and single-party/military/personalist.

[9] Regimes coded as Gulf State are Kuwait, Oman, Saudi Arabia, and the United Arab Emirates.

[10] Increasing log(oil reserves) by one standard deviation nearly doubles the probability of being a personalist regime (from 21% to 40%) and of being a monarchy (from 0.65% to 1.21%).

[11] Simulations indicate that a one standard deviation increase in investment (8.8%) decreases the probability of being a personalist regime from 21% to 14% and decreases the probability of being a monarchy from 0.65% to 0.45%.

[12] One implication of this finding is that if natural resource dependence impedes democratization as earlier research suggests (Jensen and Wantchekon 2004; Ross 2001), then this may be because natural resource dependence breeds personalist authoritarian rule, but not necessarily other forms of authoritarian rule.

TABLE 2 Choosing Regime Type

Model	(1)	(2)	(3)	(4)	(5)	(6)
Personalist						
Log(Oil Reserves)$_{t-1}$	1.087**			0.966**	0.926**	1.040**
	(0.15)			(0.16)	(0.18)	(0.19)
Log(Oil Revenue)$_{t-1}$		0.273**				
		(0.08)				
Investment (% GDP)			−0.066**	−0.063**	−0.069**	−0.060**
			(0.01)	(0.01)	(0.01)	(0.01)
Lifetime	−0.048**	−0.074**	−0.052**	−0.050**	−0.065**	−0.048**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log(GDPpc)	−0.970**	−1.304**	−0.451**	−0.816**	−0.625**	−0.713**
	(0.09)	(0.11)	(0.08)	(0.12)	(0.12)	(0.11)
Ethnic Frac.	0.164	−0.072	0.363+	0.323	−0.692**	0.262
	(0.20)	(0.22)	(0.20)	(0.23)	(0.25)	(0.21)
Log(Population)	−0.150**	−0.099*	−0.116**	−0.106*	−0.059	−0.103*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
% Islamic	0.005**	0.007**	0.004**	0.003*	0.003+	0.003*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Life Expectancy				0.011		
				(0.01)		
Gulf State						−0.585
						(0.37)
Monarchy						
Log(Oil Reserves)$_{t-1}$	1.141**			1.134**	1.138**	0.888**
	(0.13)			(0.14)	(0.17)	(0.21)
Log(Oil Revenue)$_{t-1}$		0.366**				
		(0.07)				
Investment (% GDP)			−0.054**	−0.021*	−0.054**	−0.012
			(0.01)	(0.01)	(0.01)	(0.01)
Lifetime	0.093**	0.110**	0.080**	0.096**	0.059**	0.112**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log(GDPpc)	0.148	0.169	0.629**	0.597**	0.103	−0.371*
	(0.14)	(0.17)	(0.11)	(0.17)	(0.15)	(0.16)
Ethnic Frac.	1.678**	2.394**	1.476**	0.365	−0.167	0.968**
	(0.31)	(0.40)	(0.31)	(0.33)	(0.31)	(0.32)
Log(Population)	−0.694**	−0.837**	−0.794**	−0.641**	−0.544**	−0.534**
	(0.06)	(0.08)	(0.06)	(0.06)	(0.06)	(0.06)
% Islamic	0.025**	0.029**	0.023**	0.018**	0.019**	0.020**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Life Expectancy				−0.072**		
				(0.01)		
Gulf State						39.975
						.
Military						
Log(Oil Reserves)$_{t-1}$	−3.579**			−3.802**	−3.192**	−3.738**
	(0.56)			(0.55)	(0.49)	(0.55)
Log(Oil Revenue)$_{t-1}$		−0.561**				
		(0.10)				

(*continued*)

TABLE 2 Continued

Model	(1)	(2)	(3)	(4)	(5)	(6)
Investment (% GDP)			−0.014+	0.007	−0.025**	−0.012
			(0.01)	(0.01)	(0.01)	(0.01)
Lifetime	−0.181**	−0.186**	−0.182**	−0.191**	−0.198**	−0.189**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Log(GDPpc)	0.385**	0.365**	0.207+	1.021**	0.439**	0.496**
	(0.11)	(0.13)	(0.12)	(0.15)	(0.14)	(0.13)
Ethnic Frac.	−0.833**	−0.767**	−0.949**	−1.286**	−1.416**	−0.851**
	(0.24)	(0.25)	(0.25)	(0.27)	(0.29)	(0.25)
Log(Population)	0.598**	0.594**	0.570**	0.739**	0.593**	0.616**
	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
% Islamic	−0.004+	−0.004+	−0.010**	−0.010**	−0.004+	−0.008**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Life Expectancy				−0.078**		
				(0.01)		
Gulf State						1.773**
						(0.63)
Log Likelihood	−2539.396	−2321.510	−2480.539	−2234.557	−1918.894	−2207.612
Observations	3003	2839	2909	2699	2244	2699
Countries	107	104	103	104	91	103
Exclude hybrids	No	No	No	No	Yes	No

Multinomial logit estimation. Dependent variable is regime type: Personalist, Monarchy, Military, and Single Party (excluded category). Years covered: 1960–1999 due to availability of oil data. All models include decade (1960, 1970, 1980, and 1990 [omitted]) and colony dummies (British, French, Spanish, and Portuguese), not reported. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

natural resource–poor country, the dictator concedes a legislature to ensure capital owners that he will not confiscate their mobile assets. Without a legislature, these mobile assets would flee. Gandhi and Przeworski argue that dictators with few natural resources need more cooperation from the productive economy. Thus, these dictators have a greater incentive to create a legislature that acts as a credible constraint on their power to expropriate. Resource-rich dictators, alternatively, have little need to secure economic cooperation from citizens or ensure against their own confiscatory power.

There are at least three conditions that should make a binding legislature more likely. First, as previous studies have found (Folch 2003; Gandhi and Przeworski 2006), legislatures that constrain should be more likely in regimes that have fewer natural resources. Whether these regimes have more mobile assets or require more cooperation from the productive economy, regimes with less natural resource revenue should have a greater need to establish a legislature that constrains their own confiscatory power. We should find a *negative correlation*, for example, *between binding legislatures and oil revenue*.

Second, if legislatures act as a constraint necessary to secure the cooperation of a more productive economy, the payoff for a dictator from investment in a legislature should be larger when the economy is more productive. Because output per worker is higher in wealthier countries, binding legislatures should be more likely in regimes with higher per capita income. Standing up a binding legislature also requires fiscal resources, as this typically entails conducting elections and establishing a bureaucracy with sufficient power to circumscribe the confiscatory appetite of the dictator. Elections and bureaucracies both require a certain level of state capacity (Herbst 2000). If GDP per capita is a good proxy for state capacity, then dictators in wealthier countries should be better able to establish legislatures that constrain. Consequently, we should find a *positive correlation between per capita income and binding legislatures*.

Finally, a dictator should only invest in a binding legislature if he expects to remain in power for a long time. To build a credible constraint on his own power, a dictator needs time to demonstrate that the legislature constrains his power. Investors need time to trust this constraint

before making investments. These investments, in turn, need time to grow a larger economy from which the dictator can tax. By constraining his own power, the dictator is investing in property rights, which, following the logic of the stationary bandit, is something the dictator is more likely to pursue when he faces a long time horizon. In addition, if the dictator makes a large initial investment of financial resources to establish a legislature and affiliated bureaucracy and incurs only minimal costs (relative to the start-up costs) to maintain the legislature, the initial fixed cost decreases the longer the ruler is in power. Thus, we should find a *positive correlation between binding legislatures and the time horizon a dictator faces*.

Legislatures in Personalist Regimes and Monarchies

Personalist regimes and monarchies establish legislatures as well, but for different reasons. In these regimes, the dictator creates a legislature not to bind himself but to reward and punish elites who challenge him.[13] The dictator can use the legislature to sanction a legislative member who reneges on supporting the dictator, which can serve as a deterrent to others. On the flip side, the legislature also gives the dictator a forum to publicly resuscitate a former member of the inner circle. In the Dominican Republic, Rafael Trujillo used the legislature to routinely sanction and resuscitate potential rivals. Any cabinet member he suspected of becoming too powerful or too contrarian was sent to Congress to demonstrate his loyalty to Trujillo.[14] Over time, too much turnover in the legislature weakened this accountability mechanism. As Trujillo's grip on power declined, he shuffled legislators through the door at a pace that quickly descended into a hyperinflationary spiral of legislative turnover.[15] Dr. Hastings Banda used the legislature in Malawi in a very similar manner and even resuscitated his once imprisoned (and popular) former vice president when it became apparent Banda was going to face a competitive multiparty election in 1994.[16] These leaders used legislatures to pit potential rivals, who at various times were also crucial supporters, against one another in competition for blandishments from the dictator.

Second, paying credible challengers to publicly support the dictator by standing up in the legislature delegitimizes the recipients of payoffs (credible challengers) in the eyes of other regime opponents who remain outside the government (Lust-Okar 2005). Lust-Okar's model of monarchies in Jordan and Morocco shows how the dictator can manipulate the costs to some opposition members of joining other opposition groups in confronting the regime. In this game, the dictator creates a legislature and permits moderate opposition members formal representation to make them dependent on the regime for their institutional survival. The dictator then permits some protest space for the moderate opposition to voice their demands. But if the moderates join the radical opposition in direct conflict against the dictator, he can punish the moderates by removing their institutional privileges as well as their access to rents. This raises the costs to the moderate opposition of joining the radical opposition in conflict against the dictator. Thus, precisely when joint conflict is more likely to succeed in replacing or reforming the dictator, the moderates become less likely to join the radicals in conflict against the dictator because the cost of doing so increases. Legislatures in these regimes serve as a means to constrain and split the opposition by making some of the opposition—those permitted in the legislature and formal party system—dependent on the dictatorial regime for their survival. Lust-Okar shows that King Hassan II in Morocco and King Husayn in Jordan permitted moderate opposition groups into the formal political system precisely as a means to split the opposition when economic crises undermined popular support for the regime. Consequently, she finds that opposition parties in Jordan are weak and generally unsuccessful because of their dependence on the monarchy. Elections in Jordan, she argues, are simply contests over patronage spoils and do not seriously threaten or constrain the dictator's behavior.

If these arguments are correct, the conditions under which authoritarian regimes set up nonbinding legislatures should vary from the conditions identified earlier for binding institutions. First, we should expect dictators to create nonbinding legislatures when their regimes are most unstable. As their regimes face challengers, these

[13] Further, a personalist dictator often lacks complete control over the military. Indeed, military officers are often the potential rivals the personalist dictator needs to pay off to survive.

[14] Wiarda writes, "[t]he Congress also served as a dumping grounds for out-of-favor Trujillo cronies, as an agency where they could demonstrate their continued loyalty and perhaps be 'rehabilitated' and restored to favor" (1975, 1262).

[15] Wiarda (1968) notes that during Trujillo's first term, only two of 12 Senators and 19 of 33 Deputies "resigned." In his second term, the Senate saw 12 resignations for 13 seats and 46 resignations for 35 lower house seats. In his third term, 32 Senators (19 seats) and 122 Deputies (42 seats) "resigned."

[16] Decalo writes of Banda's usefulness in rotating legislators in and out of the legislature: "every year between 1970 and 1980 an average of seven Malawi constituencies remained unrepresented in Parliament due to expulsions; and of the 150 members expelled during 1964-1981, forty ended up in prison" (1998, 68).

Table 3 Do Legislatures Constrain?

Regimes with binding legislatures:		
Long time horizon/low failure probability	⇒	increase likelihood of a legislature
Natural resource poor	⇒	increase likelihood of a legislature
High income	⇒	increase likelihood of a legislature
Regimes with nonbinding legislatures:		
Short time horizon/high failure probability	⇒	increase likelihood of a legislature
Smaller population	⇒	increase likelihood of a legislature

dictators establish legislatures to buy off and split the opposition as a strategy to remain in power. As the regime becomes less stable, promises of future payments to challengers become less credible. If a dictator uses the legislature to increase the credibility of the exchange of blandishments for political support, the dictator's incentive to create or maintain a legislature should increase as the time horizon decreases. Thus, we should find a *positive correlation between the probability of failure and nonbinding legislatures* in these regimes—just the opposite expectation we had for the creation of binding legislatures in single-party and military regimes.

Second, if nonbinding legislatures are part of the dictator's strategy to buy off and split potential political opponents with private goods, then the usefulness of this strategy should decrease as the size of the population increases. As the number of recipients of rents increases, the relative mix of spending on private versus public goods should tilt away from private spending because nonrival public goods become cheaper to provide as the target population increases (Cox 1987). Therefore, as the size of the population increases, the strategy of exchanging private goods for political support should become less prevalent as the regime switches to providing cheaper (targeted) public goods. If nonbinding legislatures help enforce the private goods strategy, then these legislatures should become less useful (and more scarce) as the population increases and the private goods strategy becomes less effective—suggesting a *negative correlation between the size of the population and a nonbinding legislature*.

Data

To test the preceding hypotheses, an updated version of Geddes' (1999) data on authoritarian regime types is used.[17] The updated data include monarchies and authoritarian regime-years for regimes that lasted less than four years. I then updated Przeworski and colleague's (2000) data on authoritarian legislature and parties through 2002. As Table 4 shows, legislatures are present in 69% of personalist regime-years, 62% of monarchy regime-years, 92% of single-party regime-years, but only 37% of military regime-years. While all regimes are more likely to have legislatures in the post–Cold War period, significant variation exists in the dependent variable during this period.

The key explanatory variables that follow from the hypotheses in Table 3 are the probability of regime failure *(Prob(Fail)), Log(GDPpc), Log(OilRevenuepc)*, and *Log(Population)*.[18] Using the per capita oil revenue variable (Humphreys 2005) as a measure of resource dependence is a significant improvement on the measure used in earlier research (Folch 2003; Gandhi and Przeworski 2006) because it covers more years and is continuous. It also incorporates fluctuations in the world price of oil. These previous studies simply used a dichotomous variable to separate those countries where oil exports constituted more than half of total exports from those where oil exports were less than half of all exports.[19] This approach groups a country with virtually no oil production, such as Kenya, into the same category as a country with substantial oil production, but where oil exports constitute less than half of all exports, such as Malaysia. Similarly, the dichotomous measure groups countries with moderate levels of per capita oil production, such as Indonesia (typically less than 10,000 barrels per day per capita), with countries that produce massive amounts of oil, such as Oman or Libya (typically over 500,000 barrels per day per capita). The raw oil production variable, though, is highly skewed because a handful of countries in the Arabian peninsula have very high oil production and relatively

[17] See the web appendix for updated regime type (A) and legislatures coding (B), with a brief review of the coding rules.

[18] Variables and data sources are listed in the web appendix (D).

[19] Ross (2006) outlines a number of the problems that occur when using a dichotomous measure of resource wealth or a measure as a share of GDP.

Table 4 Legislatures in Authoritarian Regimes

	All Years	Cold War	Post–Cold War
Personalist	69%	63%	82%
Monarchy	62%	60%	69%
Military	37%	36%	42%
Single Party	92%	90%	98%

Each cell is the percent of country-year observations where there is a legislature.

small populations, yielding extreme values for per capita oil production. Therefore, in the models below I test the natural log of this variable.[20]

To construct a proxy for autocratic time horizons, previous researchers have used either (1) the number of changes in the chief executive and the number of coups in each authoritarian spell as proxies for regime stability (Folch 2003; Gandhi and Przeworski 2006); or (2) the age of the regime (Clague and Olson 1996; Folch 2003). All of these measures are problematic.

First, the proxies for regime stability are taken from the Przeworski et al. (2000) data, which do not separate out authoritarian regime changes within a particular authoritarian spell. That is, the data do not account for successive authoritarian regimes, only authoritarian spells uninterrupted by democratic spells. According to this measure, countries that have many autocratic regime changes within an autocratic spell (i.e., many successive authoritarian regimes) are probably more unstable than countries that have no or few autocratic regime changes during a particular autocratic spell, which may be true. But this measure also assumes that every regime within a particular autocratic spell has the same amount of instability, which is simply not true. For example, Benin had a series of very unstable authoritarian regimes before Kerekou consolidated power in 1972 and ruled for nearly 20 years, but in Przeworski and colleagues' (2000) coding, these unstable regimes are grouped into a single authoritarian spell with Kerekou's regime. In 1963, General Soglo seized power in a coup, but was replaced a year later by Apithy—a civilian leader backed by an opposition faction within the military. In 1965, General Soglo reclaimed power from Apithy and ruled until 1968 when he appointed a civilian president, Zinzou. Zinzou's rule lasted just over a year until the military intervened again in 1969 and appointed a presidential council with a two-year rotating presidency. In 1972, Kerekou put an end to this cycle of military-civilian rule when he seized power in a coup and ruled for almost 20 years before giving way to a democracy in 1991. But because all these regimes represent a single autocratic spell, they are all coded with the same number of changes in the chief executive and the same number of coups. Yet, any casual observer would note that Kerekou's rule was much more stable than the military regimes that preceded him.

Second, the age of an autocratic regime is not a good indicator of the time horizon a dictator faces because it assumes that all dictators in their first year of rule have the same time horizon. Again, no one would argue that the military regimes that ruled Benin (each for less than two years) from 1963 to 1972 faced the same time horizons that Kerekou faced in his first year of rule, much less the time horizons of the Communist Party in China or Qadhafi in Libya faced in their first years of rule.

Instead of using these measures, this analysis employs the predicted probability of failure as a proxy for autocratic time horizons, assuming that autocrats themselves are attuned to the same predictors of leadership survival as researchers. With this assumption, we can build an empirical model of regime survival and calculate the predicted value of survival for each autocrat in every year of rule. These predicted probabilities, based on the observable causes of regime failure (i.e., the explanatory variables in the model in the web appendix, Table 1), give us a measure of how likely an autocrat is to be replaced in any given year. The greater the perceived probability of failure, the shorter the time horizon. Given the wide coverage of this measure of time horizons, this analysis uses the predicted probability of regime failure taken from the updated version of the Geddes data.[21] Using the predicted probability of regime failure as a measure of autocratic time horizons and regime stability is less problematic than the other measures because (1) it captures

[20] Precisely, the logged variable is equal to *ln(OILRevenuepc+1)*.

[21] While regime type does explain much of the variation in the predicted probability of failure, *Prob*(*fail*) was recalculated from Table 1 in the web appendix but excluded regime type. The new measure of regime failure, which is not calculated using regime type, is correlated with the original measure at 0.72. The models in Table 5 (the equation for legislature) were then recalculated, and the results for *Prob*(*Fail*) are very similar to those reported in the text. The only difference is with regard to single-party regimes: while negative, the coefficient for *Prob*(*Fail*) + *Prob*(*Fail*) ∗ *SingleParty* is no longer statistically significant. But the coefficients for *Prob*(*Fail*) (personalist is the reference category) and *Prob*(*Fail*) + *Prob*(*Fail*) ∗ *Monarch* are both positive and significant, suggesting that as the time horizon shortens (high failure probabilities), these regimes are more likely to have a legislature. Finally, the coefficient for *Prob*(*Fail*) + *Prob*(*Fail*) ∗ *Military* is negative and significant, suggesting that as the time horizon lengthens (low failure probabilities), these regimes are more likely to have a legislature. Second, when *Prob*(*Fail*) and the interactions between *Prob*(*Fail*) and regime type are excluded entirely from the models in Table 5, the results do not change for the other variables of interest in the regression. This suggests that if the inclusion of *Prob*(*Fail*) is problematic, it does not bias the other coefficients in the model.

variation between different authoritarian regimes within a particular authoritarian spell, and (2) it does not assume that all authoritarian leaders, no matter their type, face the same time horizon at the same age of the regime. The drawback to using the predicted probability of regime failure is that we are measuring something that is not directly observable.[22]

The model also incorporates the following control variables: *Ethnic Fractionalization*, a *Cold War* dummy, the number of years the regime has been in power (*Lifetime*), and former colonial status. Ethnic fractionalization may influence the demand for civil institutions to bridge ethnic conflict in a heterogeneous polity, and ethnic fractionalization has also been shown to impact economic growth (Easterly and Levine 2000) and conflict (Montalvo and Reynal-Querol 2005)—both of which may impact the decision to establish a legislature.[23] *Cold War* is an important control because international pressure on authoritarian regimes to appear democratic by holding elections and standing up legislatures has increased in the post–Cold War world (see Table 2). Economic growth in most of the developing world has also been much slower in the post–Cold War period than in the 1960s and 1970s, and the probability of regime failure is higher in the post–Cold War period—all for reasons that are probably exogenous to the existence of a legislature. Thus, we do not want the *legislature* to simply proxy for a change in the international environment. *Lifetime* controls for the fact that the probability of failure may be time dependent (Beck and Tuck 1998). Former colonial status serves as a control for inherited political institutions (La Porta and Vishny 1998).

Results

To test the preceding arguments, the model pools all the observations and includes interactions between regime type dummy variables (*Military*, *Single Party*, and *Monarchy*) and explanatory variables of interest: *Prob(Fail)*, *Log(Oil Revenue)*, *Log(GDPpc)*, and *Log(Population)*.[24] Because authoritarian regime types are not distributed randomly throughout the world, it is possible that selection into regime type may bias our results (Gandhi 2005; Vreeland 2003). While we can control for the observable determinants of regime type (as in Table 2) in our analysis of why different types of regimes establish legislatures, it is still possible that unobserved factors that account for selection into regime type may be correlated with the errors in an equation where regime type is an explanatory variable used to predict the choice of legislature versus no legislature. In this case we need to control for selection into regime type. So in the following models, three selection parameters calculated from Model 5 in Table 2 are included (Bourguignon, Fournier, and Gurgand forthcoming; Dubin and McFadden 1984).[25]

The first column of Table 5 is the fully specified model. In column 2, two control variables are dropped. The third column includes controls for former colonial status (British, French, Spanish, and Portuguese); and the fourth column keeps the colonial controls but excludes hybrid regimes from the analysis. Finally, the fifth column omits Gulf states.[26] The coefficients for *Prob(Fail)*, which reflect the marginal effect of time horizons in personalist regimes, are all positive and significant, indicating that legislatures are more likely when the probability

[22] A further objection to using this measure is that it may be collinear with some of the other explanatory variables (e.g., log(GDP) and growth) because some of the variables in the survival model were used to construct the predicted probability of failure. If present, this multicollinearity might bias the coefficient estimates toward zero.

[23] Gandhi and Przeworski (2006) find that religious fractionalization is a strong determinant of the number of parties in an authoritarian regime. They argue that dictators create legislatures to implement policy concessions in the face of an opposition that has policy preferences widely divergent from the dictator's. Religious fractionalization, they argue, is a good proxy for policy dispersion in the population. I tested models that include religious fractionalization instead of ethnic fractionalization and the results do not change.

[24] Due to collinearity between regime type and the interaction between regime type and log(GDPpc), Log(GDPpc) is rescaled so that it varies from 0.03 to 3.7 instead of varying from 5.5 to 9.1.

[25] Excluding the selection parameters does not change the core results, even though $\lambda_{SingleParty}$ is significant in most models. This suggests that though selection into the sample of single-party regimes is correlated with having a legislature, which should make sense since almost all single-party regimes have legislatures, this selection does not necessarily bias the estimates of the other variables in the model. Because personalist regimes are the reference category in the models reported in Table 2, selection parameters for military regimes, single-party regimes, and monarchies are calculated. Since these selection parameters come from a multinomial logit model (instead of a probit model), we calculate the inverse Mill's ration differently than in most Heckman selection models. With four categories in the dependent variable in Table 2, we calculate three inverse Mill's ratios as the following (Bourguignon et al. forthcoming):

$$\lambda_{Monarchy} = 3 * ln(p1) + (p0 * ln(p0))/(1 - p0) + (p2 * ln(p2))/(1 - p2) + (p3 * ln(p3))/(1 - p3);$$

$$\lambda_{Military} = 3 * ln(p2) + (p0 * ln(p0))/(1 - p0) + (p1 * ln(p1))/(1 - p1) + (p3 * ln(p3))/(1 - p3);$$

$$\lambda_{Single\ Party} = 3 * ln(p3) + (p0 * ln(p0))/(1 - p0) + (p1 * ln(p1))/(1 - p1) + (p2 * ln(p2))/(1 - p2).$$

Where p0 = prob(personalist), p1 = prob(monarchy), p2 = prob(military), p3 = prob(single-party) from column 5, Table 2.

[26] See footnote 8.

TABLE 5 Legislatures in Authoritarian Regimes

Model	(1)	(2)	(3)	(4)	(5)
Prob(Fail)	6.654**	11.108**	8.023**	10.264**	4.847*
	(1.87)	(2.10)	(2.29)	(2.16)	(2.07)
Single Party * Prob(Fail)	−11.590**	−14.028**	−10.001**	−11.671**	−12.495**
	(3.26)	(2.96)	(3.06)	(3.11)	(3.19)
Military * Prob(Fail)	−9.432**	−13.147**	−10.995**	−12.155**	−6.826**
	(2.24)	(2.36)	(2.31)	(2.23)	(2.34)
Monarchy * Prob(Fail)	1.297	−2.873	0.611	2.249	−2.440
	(9.39)	(7.12)	(7.43)	(6.68)	(12.63)
Log(GDPpc)	0.055	−0.033	0.159	0.194	−0.325**
	(0.10)	(0.09)	(0.13)	(0.13)	(0.12)
Single Party * Log(GDPpc)	0.483**	0.501**	0.533**	0.439**	0.672**
	(0.14)	(0.13)	(0.14)	(0.16)	(0.14)
Military * Log(GDPpc)	0.648**	0.493**	0.667**	0.609**	0.906**
	(0.14)	(0.14)	(0.12)	(0.11)	(0.15)
Monarchy * Log(GDPpc)	−0.484*	−0.363*	−0.544**	−0.487*	−0.944**
	(0.23)	(0.18)	(0.18)	(0.21)	(0.37)
Log(Oil Revenue pc)$_{t-1}$	−0.095	−0.078	−0.122	−0.219**	0.492**
	(0.08)	(0.06)	(0.09)	(0.07)	(0.11)
Single Party * Log(Oil Revenue pc)$_{t-1}$	−0.344**	−0.294**	−0.416**	−0.523**	−0.822**
	(0.11)	(0.10)	(0.11)	(0.14)	(0.10)
Military * Log(Oil Revenue pc)$_{t-1}$	−0.966**	−0.722**	−0.810**	−0.573*	−1.379**
	(0.27)	(0.26)	(0.23)	(0.25)	(0.20)
Monarchy * Log(Oil Revenue pc)$_{t-1}$	0.634*	0.573*	0.636**	0.601**	0.347*
	(0.27)	(0.23)	(0.21)	(0.18)	(0.14)
Log(Pop)	−0.235**	−0.221**	−0.240**	−0.243**	−0.358**
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Single Party * Log(Pop)	0.275**	0.286**	0.275**	0.414**	0.326**
	(0.06)	(0.07)	(0.05)	(0.08)	(0.07)
Military * Log(Pop)	0.495**	0.449**	0.355**	0.300**	0.458**
	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)
Monarch * Log(Pop)	−0.210+	−0.119	−0.183*	−0.073	0.140
	(0.11)	(0.07)	(0.09)	(0.09)	(0.10)
Lifetime	0.038**	0.034**	0.036**	0.022**	0.055**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Single Party	−0.329	−0.311	−0.414	−0.464	−0.898**
	(0.30)	(0.29)	(0.32)	(0.40)	(0.32)
Military	−2.988**	−2.458**	−2.453**	−2.234**	−3.394**
	(0.46)	(0.38)	(0.36)	(0.37)	(0.42)
Monarchy	1.582*	1.243**	1.610**	1.228*	1.596+
	(0.71)	(0.48)	(0.48)	(0.52)	(0.90)
Ethnic Frac.	0.640**		0.655**	0.361**	0.442**
	(0.12)		(0.11)	(0.13)	(0.13)
Cold War	−0.537**		−0.478**	−0.397**	−0.678**
	(0.09)		(0.10)	(0.10)	(0.10)
$\lambda_{Monarchy}$	−0.001+	−0.001+	−0.001+	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

(*continued*)

TABLE 5 Continued

Model	(1)	(2)	(3)	(4)	(5)
$\lambda_{Military}$	−0.002	−0.003	0.000	−0.006	0.061**
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
$\lambda_{SingleParty}$	0.028**	0.028**	0.025**	0.030**	0.216**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)
Constant	0.433	0.257	0.238	0.422	
	(0.27)	(0.21)	(0.37)	(0.41)	
Log Likelihood	−1092.204	−1123.211	−1079.954	−927.206	−939.336
Observations	2658	2658	2658	2209	2540
Countries	103	103	103	88	96
Colony dummies	No	No	Yes	Yes	No
Hybrids	Yes	Yes	Yes	No	Yes
Gulf states	Yes	Yes	Yes	Yes	No

Probit estimation. Robust standard errors in parentheses. Years covered in sample are 1960–1999 due to availability of data on oil revenue. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

of regime failure is higher. To interpret the interaction terms, recall that we have to add the coefficient for the interaction term to the coefficient for the raw variable. For example, the marginal effect of *Prob(Fail)* in military regimes is $\beta_{Prob(Fail)} + \beta_{Military*Prob(Fail)}$. The coefficients for *Monarchy* ∗ *Prob(Fail)* are small and not statistically different from zero, indicating that the effect of time horizons on the probability of having a legislature in monarchies and personalist regimes are both positive. The coefficients for *Single Party* ∗ *Prob(Fail)* and *Military* ∗ *Prob(Fail)* are negative, significant, and greater in absolute value than $\beta_{Prob(Fail)}$, indicating that higher failure probabilities decrease the likelihood of a legislature in single-party and military regimes. These findings confirm two of our expectations: unstable personalist regimes and stable single-party and military regimes are more likely to have legislatures.

The coefficients for *Log(GDPpc)* are small and statistically insignificant in all the models except when we exclude Gulf states in the last model, where the coefficient is negative and significant, suggesting that wealth decreases the likelihood of a legislature. The coefficients for the interactions between *Log(GDPpc)* and *Single party* and *Military* regimes are all positive and highly significant, suggesting that wealthier regimes are more likely to have a legislature. Finally, the coefficient for the interaction between *Monarchy* and *Log(GDPpc)* is negative and significant, indicating that wealthier monarchies are less likely to have a legislature. These findings support the hypothesis that wealthier single-party and military regimes are more likely to have legislatures. Thus, the incentive to invest in a binding legislature should be greater when productivity per worker (proxied by wealth) is higher. The fact that we find the opposite relationship between wealth and legislatures in personalist regimes suggests that, at a minimum, wealth incentives to establish a legislature are not present in these regimes.

The results for oil revenue are very similar to those for time horizons and wealth. The coefficients for the interaction between *Oil revenue* and *Single party* and *Military* regime type are negative, significant, and larger in absolute value than the coefficient for *Oil revenue*, indicating that more oil revenue decreases the likelihood of having a legislature in these regimes. The finding concurs with earlier research on authoritarian institutions (Folch 2003; Gandhi and Przeworski 2006) and suggests that oil revenue substitutes for legislatures in these types of regimes. The coefficient for *Oil revenue* is small and not statistically different from zero in most of the models, suggesting that oil revenue has no impact on the probability of a legislature in personalist regimes. When we exclude hybrid regimes, this negative coefficient is statistically significant, suggesting similarities with single-party and military regimes. However, when the Gulf states are excluded in the fifth model, this coefficient flips signs and remains significant, suggesting that outside the Gulf region, legislatures and oil revenue are actually complements in personalist regimes. The coefficients for the interaction between *Monarchy* and *Oil revenue* are positive and significant in all the models, suggesting that oil revenue and legislatures are anything but substitutes in monarchies. Consistent with expectations for legislatures that constrain, oil

revenue makes a binding legislature in military and single-party regimes less likely. However, there is some evidence that more oil revenue is associated with a higher probability of standing up a nonbinding legislature in personalist regimes, suggesting that rents from oil revenue in these regimes do not substitute for legislatures.

The coefficients for *Population* and its interaction with regime types follows a familiar pattern. The negative and significant coefficient for *Population* indicates that legislatures are more likely in personalist regimes with smaller populations. The positive and significant coefficients for the interactions between *Population* and *Single party* and *Military* regimes suggests that, in single-party regimes, population has no impact on the likelihood of a legislature in single-party regimes (because the coefficient is roughly the same size as the coefficient for *Population*), but a positive impact in military regimes. These findings match well with our earlier results. If nonbinding legislatures in personalist regimes facilitate the exchange of political support for private payoffs, then one interpretation of the finding for population is that legislatures are more common amongst personalist regimes with smaller populations because the exchange of private goods for political support should become less effective as the size of the population increases.

To get a sense of the substantive difference between legislatures in personalist and nonpersonalist regimes, Figure 1 plots the predicted probability of having a legislature (vertical axes) against the probability of regime failure, oil revenue, income, and population (horizontal axes) for each of the regime types.[27] In the top-left panel, the probability of having a legislature falls from over 0.60 in a very stable single-party regime, such as the PRI in Mexico, to around 0.30 for a relatively unstable single-party regime such as the Sandanistas in Nicaragua in the early 1980s.[28] Military regimes follow a similar trajectory: relatively stable military regimes, such as Algeria in the 1990s, have a better than 50% probability of having a legislature, while in unstable military regimes, such as Argentina in the early 1980s, this probability falls to under 0.20. In personalist regimes and monarchies, the opposite pattern occurs: in relatively stable regimes such as Eyadema's regime in Togo in the late 1960s and 1970s, the probability of a legislature is about 0.50, rising to nearly 1 in unstable regimes such as Mobutu's regime in Zaire, L. Kabila's in Congo, and the latter years of Somoza's regime in Nicaragua.

The top-right panel plots the simulations for oil revenue. The slope is negative for both single-party and military regimes, though the maximum (log) value of oil revenue in military regimes is about 2. These simulations illustrate the relative unimportance of oil revenue on the probability of having a legislature in personalist regimes: the slope is relatively flat. Finally, in monarchies, the slope is increasing, indicating that monarchies with large amounts of oil revenue nearly always have legislatures. These simulations reinforce the point that oil revenue acts as a substitute for legislatures in single-party and military regimes, but in personalist regimes has either a negligible or positive impact on the likelihood of having a legislature.

The bottom-left panel illustrates that single-party regimes are generally much more likely than any other type of regime to have legislatures, except at very low levels of development (<$2,000 per capita) when single-party regimes such as Ethiopia (late 1990s) have only a 0.70 probability of having a legislature. Wealthier single-party regimes are virtually ensured of having a legislature. In military regimes, poor regimes such as Benin (1960s) have a very low probability of having a legislature (<0.10), while in wealthier regimes such as South Korea (1980s), the probability increases to about 0.50. In personalist regimes, the curve is nearly flat. Income has a negative impact in monarchies, suggesting that poor monarchies are more likely to have legislatures than richer ones.

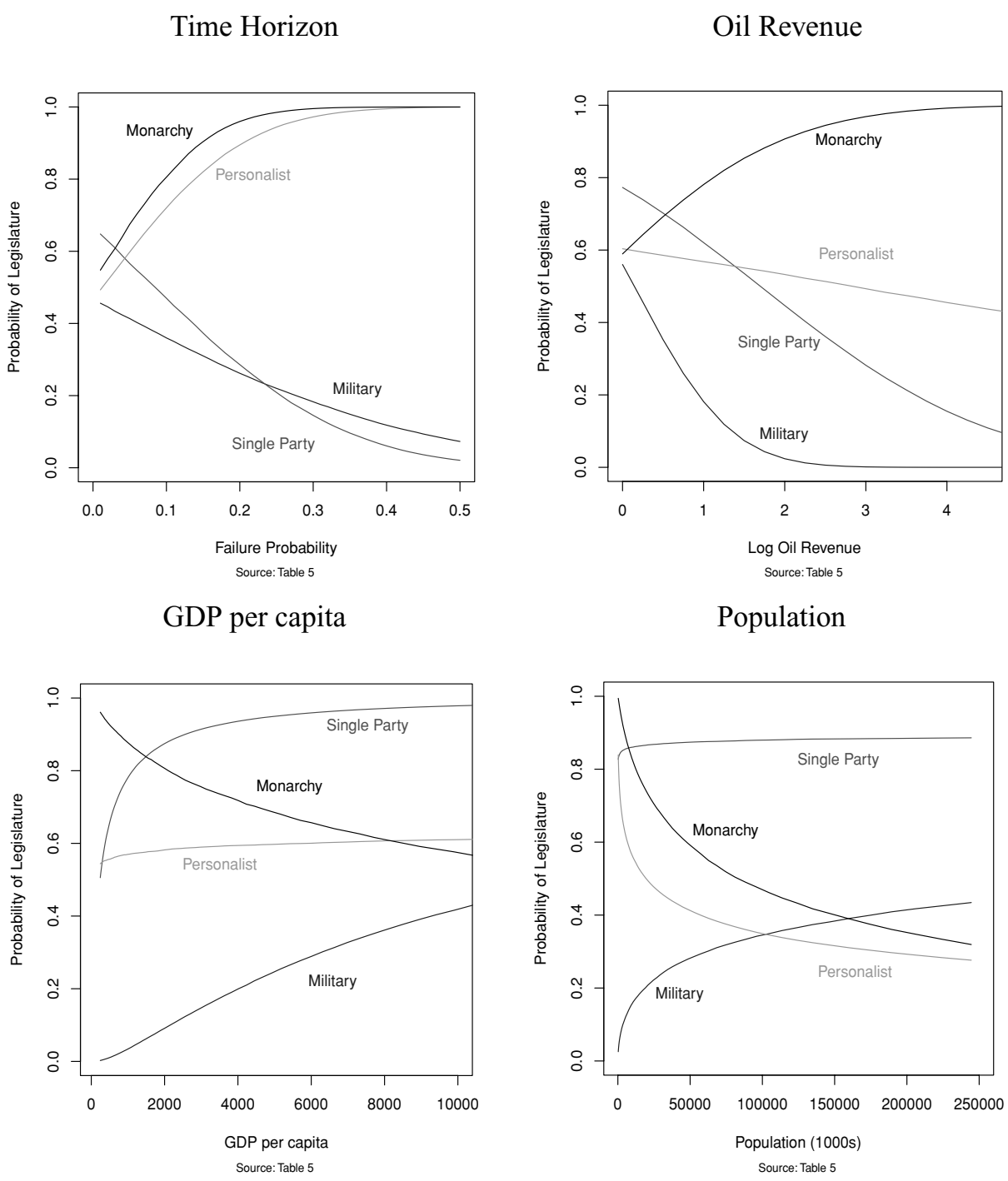
Finally, the bottom-right panel depicts the findings for population. In single parties, the relationship between population and legislature is flat, and in military regimes it is positive. In personalist regimes and monarchies, we see just the opposite: legislatures are less likely in countries with larger populations. The probability of having a legislature in small countries with less than 50 million citizens (e.g., Gambia and Guineau-Bissau) is over 75% in personalist regimes, but falls to under 40% for larger personalist regimes (e.g., Bangladesh late 1980s).

To summarize briefly, legislatures are more likely in single-party and military regimes when those regimes are less likely to fail, less dependent on oil revenue, and wealthier. These regimes permit legislative institutions (1) when they are most stable and (2) when they need the cooperation of domestic investors to grow the economy and extract resources with which to rule. If wealth is a proxy for state capacity, the positive correlation between wealth and legislatures suggests that legislative institutions in single-party and military regimes require a certain degree of state capacity to establish and maintain. In personalist regimes

[27]These predicted probabilities are based on 1,000 simulations of the model in column 1, where all continuous explanatory variables are held constant at their respective means and *Cold War* is one (King and Wittenberg 2003).

[28]The maximum observed value for probability of failure in single-party regimes is 0.23, so the right half of the curve for single-party regimes in the upper left panel contains out-of-sample predictions.

FIGURE 1 Legislatures in Authoritarian Regimes



and monarchies, legislatures are more likely when these regimes are most likely to fail, suggesting that legislative institutions in these regimes may be part of a short-term strategy to save the regime from collapse. We also find no consistent relationship between oil revenue and legislatures in these regimes, suggesting that legislatures are not part of a long-term strategy to constrain the state in the absence of natural resource revenue. That wealth has no impact on (or decreases) the probability of having a legislature in personalist regimes and monarchies suggests that standing up a legislature in these regimes does not necessarily require a large degree of state capacity. Finally,

in both personalist regimes and monarchies, legislatures are more likely in regimes with smaller populations. This finding fits well with my interpretation of legislatures as part of a strategy to pit potential rivals against one another when the regime faces challengers.

Legislatures do not occur under the same conditions in all types of authoritarian regimes. Thus, legislatures in single-party and military regimes are established to constrain the state in meaningful ways, while legislatures in personalist regimes and monarchies do not; then legislatures should not have the same impact on investment and economic growth in different types of regimes.

Legislatures, Investment, and Economic Growth

Economists have long argued that political institutions impact economic growth (North 1990; North and Thomas 1973). Much of the debate has centered on whether economic growth is higher in democracies or dictatorships (Przeworski et al. 2000), but recently scholars have started to look at specific political institutions within democracies (Persson and Tabellini 2000), within authoritarian regimes (Gandhi 2005), and across both democracies and dictatorships (Henisz 2000). The general consensus in the empirical literature is that political institutions—whether property rights protection, veto players, or legislatures—constrain the behavior of politicians and help foster growth. First, political constraints can provide investors with a credible signal that the state will not confiscate investment returns, via taxation or frequent policy changes (Levi 1988; North and Weingast 1989; Weingast and North 1997). Second, political constraints may reduce politicians' ability to give away economic benefit through political channels (rent-seeking behavior) and so provide incentives for citizens to invest in economic production rather than rent-seeking activity (Krueger 1974; Murphy and Vishny 1993). The hypothesis in this section is no different from this literature, and here the analysis only attempts to show that the impact of legislatures on growth and investment should differ by authoritarian regime type, because only in single-party and military regimes do legislatures serve as a constraint.

Legislatures and Investment

To test the effect of legislatures on investment, a cross-section, time-series model using generalized least squares with AR(1) correlation and panel corrected standard errors is used (Beck and Katz 1995).[29] To parse out the impact of legislatures in different types of regimes, I include explanatory variables that interact regime type with *Legislature* and regime type with *No Legislature* (Brambor and Golder 2006; Wright 1976):

$$Investment = \beta_0 + \beta_1 Leg. + \beta_2 RegimeType * Leg. + \beta_3 RegimeType * NoLeg. \quad (1)$$

Model (1) is used instead of the more familiar model in (2) because over 95% of single-party regimes have legislatures, which means that the interaction between *Legislature* and *Single-party* would be highly collinear (corr>0.96) with the single-party dummy variable.

$$Investment = \beta_0 + \beta_1 Leg. + \beta_2 RegimeType + \beta_3 RegimeType * Leg. \quad (2)$$

Because the interaction term (legislature) is dichotomous, model (1) is one of the few cases in which a multiplicative interaction model does not require that we add a dummy variable for the other term in the interaction (regime type). In (1), the marginal effect of a legislature on investment in a particular regime type is $\beta_1 + \beta_2 - \beta_3$. To see why this is the case, consider that $\beta_1 + \beta_2$ is the impact of a particular regime on investment when there is a legislature. When there is no legislature in that regime, the marginal effect is simply β_3. Thus the difference between the two gives an estimate of the marginal effect of a legislature on investment in a particular regime type. For the omitted regime type (personalist), the marginal effect is simply β_1.

The basic controls in the investment models are measures of the level of development: *log(GDPpc)* and *life expectancy*. Larger values of each should indicate a higher return on productive investment, all else equal, and thus should be associated with larger investment shares. In the first column, I test the basic model. The second column drops hybrid regimes from the analysis, and the third model excludes influential observations.[30] Models 4–7 add four other control variables: probability of regime failure, Polity score, a dummy variable for communist

[29] Using a model with a lagged dependent variable to control for autocorrelation yields the same results. OLS estimates with Newey-West standard errors to correct for AR(1) correlation and panel heterogeneity yield similar findings: legislatures significantly improve investment in military and single-party regimes, but have no impact on investment in personalist regimes or monarchies.

[30] The Hadi (1992) method is used to determine influential observations.

regimes,[31] and government consumption. Scholars have found that political time horizons impact investment decisions (Feng 2001), and from Table 5 we know that time horizons vary considerably by regime type and are a factor in determining whether to establish a legislature. The Polity score controls for the possibility that the legislature is simply a proxy for the overall institutionalization of the regime. The communist dummy should control for the fact that some types of regimes are more likely to be communist (single-party), and it is possible that because communist regimes often confiscated private property, citizens in these countries were less likely to invest. Finally, we know that government consumption decreases investment, and governments generally consume less in right-wing dictatorships, which are predominantly military regimes. Column 8 adds region dummies to the base model; and column 9 contains both region and decade dummies.

The coefficient for legislature (β_1) gives us an estimate of the marginal impact of legislatures on investment in personalist regimes. It is negative in all the models, and statistically significant at least at the 0.10 level in seven of the nine models. These results provide some evidence that legislatures decrease investment in personalist regimes, perhaps by as much as 0.7% of GDP. The bottom panel of Table 6 reports the estimates of the marginal effect of legislatures on investment in the other three regime types. The coefficient for military regimes is larger than 1.0 and statistically significant in all the models, indicating that legislatures increase investment by over 1% of GDP in military regimes. The coefficients for single-party regimes are all small and not statistically different from zero, suggesting that legislatures have little impact on investment in single-party regimes. However, to put this finding in context, we need to recall that over 92% of single-party regimes have legislatures, and of all regime types, single-party regimes have the most investment.[32] The marginal impact of legislatures on investment in monarchies is positive, but not statistically different from zero.

The results for military and personalist regimes support the hypotheses that binding legislatures increase investment while nonbinding legislatures decrease investment. I will return to the finding for monarchs below in the selection-corrected analysis. While a simple cross-tab indicates that single-party regimes with legislatures (14.5%) have significantly more investment than regimes without legislatures (9.9%), the null result in Table 6 for single parties suggests that legislatures do not impact investment. Analysis in a subsequent section checks to see if these results are robust to the inclusion of selection effects.

Legislatures and Growth

To estimate the effect of legislatures on growth, a cross-section, time-series model using generalized least squares with panel-specific AR(1) correlation and panel corrected standard errors is used (Beck and Katz 1995).[33] The model includes the usual battery of controls used in growth regressions: log(GDP), ethnic fractionalization, former British colony, a sub-Saharan Africa dummy, investment, government consumption, inflation, and decade dummies.[34] To check the robustness, models that include Polity scores and a dummy variable for communist regimes are also tested.[35]

The same rules for interpreting the coefficients apply. The first model simply includes dummies for regime type and a dummy for legislature (no interaction terms). Here we can see that the legislature variable is small and not statistically different from zero. The coefficients for *Single party* and *Monarchy* are both positive and significant, suggesting that, on average, single-party regimes grow 0.75% faster (per year) than personalist regimes, while monarchies grow 1.5% faster. The next seven columns include interactions between legislature and regime type. In all of these specifications, the coefficient for *Legislature* (reflecting the marginal effect of legislature in personalist regimes) is negative and statistically significant, indicating that legislatures decrease growth in personalist regimes by about 1.4% (per year). The bottom panel of Table 7 reports the marginal impact of legislatures on growth for the other regime types. The coefficient for *Military* regimes is positive and in some specifications statistically significant at the 0.10 level, providing some scattered evidence that legislatures in these regimes increase growth. The coefficients for *Single-party* regimes, however, are small and not statistically different from zero in any of the specifications, suggesting that legislatures have no impact on growth in these regimes. Finally, the coefficients for *Monarchy* are all negative, large in absolute value, and statistically significant, suggesting that legislatures in monarchies decrease growth by over 2% per year.

[31] Communist regimes are Albania, Bulgaria, China, Cuba, Hungary, Poland, Romania, and Vietnam. (Investment data for Soviet Union is missing.) An alternative measure of communist countries which included the following countries was tested as well: Angola, Laos, and Mongolia. This specification did not change the results.

[32] $\beta_4 > \beta_2 > 0 > \beta_6$ and $\beta_5 > \beta_3 > 0 > \beta_7$, suggesting there is more investment in single-party regimes than any other regime type.

[33] OLS estimates with Newey-West standard errors yield the same results.

[34] Investment and inflation data are from WDI (2005).

[35] See footnote 29.

TABLE 6 Authoritarian Legislatures and Investment

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
β_1Legislature	−0.736*	−0.741*	−0.701*	−0.510	−0.649+	−0.735*	−0.682	−0.667+	−0.647+
	(0.36)	(0.37)	(0.35)	(0.37)	(0.36)	(0.36)	(0.41)	(0.36)	(0.36)
β_2Military	1.880*	3.361**	1.773*	2.323**	1.958*	1.891*	1.611+	1.922**	1.846*
Legislature	(0.77)	(0.99)	(0.75)	(0.77)	(0.77)	(0.77)	(0.83)	(0.74)	(0.74)
β_3Military No	0.036	1.103+	−0.015	0.695	0.040	0.034	−0.222	0.139	0.111
Legislature	(0.47)	(0.62)	(0.46)	(0.49)	(0.47)	(0.47)	(0.53)	(0.47)	(0.47)
β_4Single Party	2.641**	3.778**	2.623**	1.848**	2.599**	2.544**	1.992**	2.264**	2.214**
Legislature	(0.70)	(0.76)	(0.63)	(0.64)	(0.70)	(0.72)	(0.77)	(0.71)	(0.70)
β_5Single Party No	1.869**	2.359**	1.867**	1.102+	1.844**	1.806**	1.375+	1.733**	1.686**
Legislature	(0.62)	(0.78)	(0.59)	(0.61)	(0.62)	(0.63)	(0.72)	(0.62)	(0.62)
β_6Monarchy	−1.605	−1.137	−1.739	−1.893+	−1.760	−1.615	−1.711	−1.333	−1.169
Legislature	(1.16)	(1.08)	(1.14)	(1.03)	(1.15)	(1.16)	(1.60)	(1.16)	(1.12)
β_7Monarchy	−3.470**	−3.005*	−3.576**	−3.624**	−3.623**	−3.476**	−4.941**	−3.045*	−2.823*
No Legislature	(1.34)	(1.28)	(1.34)	(1.25)	(1.35)	(1.34)	(1.74)	(1.34)	(1.31)
Log(GDPpc)	5.533**	3.908**	5.590**	4.562**	5.462**	5.602**	5.510**	6.169**	5.968**
	(0.62)	(0.60)	(0.61)	(0.55)	(0.61)	(0.62)	(0.63)	(0.69)	(0.67)
Life Expectancy	0.068	0.202**	0.068+	0.127**	0.074+	0.056	0.080+	0.034	0.027
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
Prob(Fail)				−14.421**					
				(2.74)					
Polity					−0.056+				
					(0.03)				
Communist						1.478			
						(1.99)			
Govt Consumption							−0.066*		
							(0.03)		
Constant	−32.932**	−28.063**	−33.249**	−28.007**	−32.974**	−32.881**	−32.456**	−34.520**	−32.618**
	(3.42)	(3.15)	(3.35)	(2.90)	(3.39)	(3.43)	(3.43)	(4.83)	(4.73)
R^2	0.162	0.226	0.183	0.197	0.165	0.162	0.201	0.179	0.189
Observations	2342	1766	2340	2340	2340	2342	1926	2342	2342
Countries	91	77	91	91	91	91	88	91	91
Influential obs	no	no	yes	no	no	no	no	no	no
Hybrid regimes	yes	no	yes	yes	yes	yes	yes	yes	yes
Region dummies	no	no	no	no	no	no	no	yes	yes
Decade dummies	no	no	no	no	no	no	no	no	yes
Marginal Effect of Legislature: $\beta_{Legislature} + \beta_{RegimeLeg} - \beta_{RegimeNoLeg}$									
Military $\beta_1 + \beta_2 - \beta_3$	1.11+	1.52+	1.09+	1.12+	1.27*	1.12+	1.15+	1.12+	1.09+
	(0.65)	(0.85)	(0.64)	(0.67)	(0.65)	(0.65)	(0.68)	(0.59)	(0.60)
Single Party	0.04	0.68	0.06	0.24	0.11	0.00	0.06	−0.13	−0.12
$\beta_1 + \beta_4 - \beta_5$	(0.48)	(0.67)	(0.47)	(0.48)	(0.48)	(0.48)	(0.58)	(0.48	(0.48)
Monarchy	1.13	1.13	1.13	1.22	1.21	1.12	2.55*	1.00	1.01
$\beta_1 + \beta_6 - \beta_7$	(0.79)	(0.80)	(0.79)	(0.80)	(0.79)	(0.79)	(1.09)	(0.79)	(0.79)

Dependent variable is domestic investment as a share of GDP. Estimation is OLS with AR(1) correlation and panel corrected standard errors that allow for panel heteroskedasticity. Omitted regime type is personalist. Decade dummies are 1950s, 1960s, 1970s, 1980s, and 1990s (omitted). Region controls are Central America, South America, Sub-Saharan Africa, North Africa, Middle East, Central Asia, East Asia, and Europe (omitted). Years covered in sample: 1950–2000. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

TABLE 7 Authoritarian Legislatures and Growth

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
β_1 Legislature	−0.519	−1.448*	−1.451*	−1.342*	−1.154+	−1.607*	−1.426*	−1.225+
	(0.39)	(0.68)	(0.66)	(0.66)	(0.66)	(0.68)	(0.68)	(0.69)
β_2 Military Legislature		1.012	0.834	0.766	0.938	1.052	1.033	0.569
		(0.68)	(0.70)	(0.68)	(0.70)	(0.67)	(0.68)	(0.66)
β_3 Military No Legislature		−1.614*	−1.623*	−1.499*	−1.194+	−1.687*	−1.581*	−1.284+
		(0.73)	(0.71)	(0.71)	(0.71)	(0.74)	(0.73)	(0.76)
β_4 Single Party Legislature		1.061*	1.079*	1.064*	1.019*	1.130*	1.000*	0.459
		(0.45)	(0.48)	(0.43)	(0.45)	(0.44)	(0.45)	(0.45)
β_5 Single Party No Legislature		−0.080	−0.433	0.005	0.301	−0.080	−0.041	−0.410
		(0.91)	(1.38)	(0.91)	(0.90)	(0.91)	(0.91)	(0.92)
β_6 Monarchy Legislature		1.402*	1.249*	0.885	0.835	1.624*	1.427*	0.251
		(0.64)	(0.60)	(0.64)	(0.58)	(0.66)	(0.64)	(0.79)
β_7 Monarchy No Legislature		2.194*	2.167+	1.772+	2.042+	2.425*	2.221*	1.167
		(1.11)	(1.12)	(1.08)	(1.05)	(1.14)	(1.11)	(1.25)
Log(GDPpc)	0.583	0.534	0.685+	0.302	0.132	0.570	0.563	0.818+
	(0.38)	(0.39)	(0.37)	(0.36)	(0.31)	(0.39)	(0.39)	(0.43)
Ethnic Frac.	−2.314**	−2.491**	−2.303**	−2.084**	−1.873**	−2.614**	−2.375**	−2.892**
	(0.64)	(0.67)	(0.72)	(0.65)	(0.63)	(0.68)	(0.68)	(0.69)
Sub-Saharan Africa	0.443	0.504	0.731	−0.027		0.625	0.541	1.034
	(0.59)	(0.61)	(0.62)	(0.57)		(0.62)	(0.61)	(0.71)
British Colony	1.224*	1.384**	1.162*	1.152*		1.319**	1.379**	1.454**
	(0.48)	(0.49)	(0.47)	(0.48)		(0.48)	(0.49)	(0.49)
Investment (% GDP)	0.168**	0.173**	0.186**	0.172**	0.179**	0.174**	0.169**	0.153**
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Govt Consumption	−0.204**	−0.210**	−0.193**	−0.177**	−0.182**	−0.216**	−0.207**	−0.210**
	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Inflation	−0.000*	−0.000*	−0.000*	−0.007**	−0.000*	−0.000*	−0.000*	−0.000*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
1960s	1.053*	0.960+	0.912+	0.821	0.832	0.963+	1.007+	1.270*
	(0.52)	(0.53)	(0.53)	(0.51)	(0.53)	(0.53)	(0.53)	(0.52)
1970s	1.410**	1.452**	0.887*	1.348**	1.346**	1.500**	1.485**	1.762**
	(0.36)	(0.37)	(0.38)	(0.36)	(0.37)	(0.37)	(0.37)	(0.37)
Polity						0.057+		
						(0.03)		
Communist							1.271	
							(1.30)	
Military	−0.422							
	(0.51)							
Single Party	0.763+							
	(0.40)							
Monarchy	1.502**							
	(0.52)							
Constant	−2.181	−1.119	−2.588	0.457	1.417	−0.974	−1.438	−3.190
	(2.65)	(2.83)	(2.61)	(2.67)	(2.19)	(2.87)	(2.84)	(3.08)
R^2	0.130	0.135	0.147	0.165	0.126	0.137	0.135	0.154
Observations	1576	1576	1279	1571	1576	1575	1576	1576
Countries	80	80	73	80	80	80	80	80

(*continued*)

TABLE 7 Continued

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Influential obs	yes	yes	yes	no	yes	yes	yes	yes
Hybrid regimes	yes	yes	no	yes	yes	yes	yes	yes
Region dummies	no	no	no	no	no	no	no	yes
Marginal Effect of Legislature: $\beta_{Legislature} + \beta_{RegimeLeg} - \beta_{RegimeNoLeg}$								
Military $\beta_1 + \beta_2 - \beta_3$		1.18+	1.00	0.92	0.99+	1.13+	1.19+	0.63
		(0.68)	(0.70)	(0.68)	(0.69)	(0.68)	(0.68)	(0.69)
Single Party $\beta_1 + \beta_4 - \beta_5$		−0.30	0.06	−0.28	−0.43	−0.39	−0.39	−0.35
		(0.76)	(1.29)	(0.76)	(0.76)	(0.76)	(0.76)	(0.75)
Monarchy $\beta_1 + \beta_6 - \beta_7$		−2.24*	−2.23*	−2.23*	−2.36*	−2.41*	−2.21	−2.14*
		(1.00)	(1.00)	(1.01)	(1.00)	(1.05)	(1.03)	(1.07)

Dependent variable is per capita economic growth. Estimation is OLS with panel specific AR(1) correlation and panel corrected standard errors that allow for panel heteroskedasticity. Omitted regime type is personalist. Region dummies are Central America, South America, North Africa, Middle East, Central Asia, East Asia, Europe (omitted). Years covered in sample are 1965–2000. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$.

Selection-Corrected Growth and Investment Estimates

From the first section, we know that legislatures are not randomly distributed amongst authoritarian regimes. While we can control for the observable determinants of legislatures (as we did in Table 5), there may still be unobserved heterogeneity among dictators. Vreeland (2003) and Gandhi (2005) argue, for example, that the unobservable motivations of different dictators bias our estimates of the effect of institutions on growth. An "enlightened" leader might both choose to create a legislature and be more interested in economic development than an "unenlightened" leader (Gandhi 2005); similarly, some leaders might have more "political will" to both prioritize economic growth and create or maintain a legislature.

One way of dealing with this potential selection effect is to estimate a two-stage Heckman model: in the first stage, estimate the probability of having a legislature using a probit model;[36] and in the second stage,[37] estimate the outcome model but include the selection parameter ($\lambda \equiv$ inverse Mill's ratio) from the first stage. For each first-stage outcome ($j \in$ (*nolegislature*, *legislature*)) within each subsample (single-party/military, personalist/monarch), estimate the second-stage equation with λ:

$$Y_{itj} = \beta_j \mathbf{X}_{itj} + \theta_j \lambda_{itj} + \varepsilon_{itj} \quad (3)$$

This provides unbiased estimates for β_j for each first-stage outcome of interest (no legislature, legislature). We can then calculate the predicted value of the growth outcome ($\hat{Y}_{itj}$) using all the observations within each subsample (single-party/military, personalist/monarch), under each condition j, where $\hat{\beta}_j$ are the estimated coefficient values from (1):

$$\hat{Y}_{itj} = \hat{\beta}_j \mathbf{X}_{itj} \quad (4)$$

Calculating (2) for each first-stage outcome ($j \in$ (*nolegislature*, *legislature*)) for each subsample leaves us with the average values for growth under each set of legislative conditions ($\hat{Y}_{j=0}$ and $\hat{Y}_{j=1}$) for each subsample of regimes, as shown in Table 8. The first-stage equation used to predict the existence of a legislature is model 1 in Table 5. The second-stage estimates are reported in the web appendix (C).[38]

The average growth rates reported in Table 8 corroborate many of the earlier findings for growth and investment. Models that control for selection effects suggest that legislatures in military regimes increase growth and investment by over 1%. The impact of legislatures on growth in single-party regimes is positive and statistically different from zero, but is relatively small (0.2%). However, legislatures increase investment by over 2% in single-party regimes. In personalist regimes, the results suggest that legislatures decrease both growth (−0.8%) and investment (−1.1%). Finally, in monarchies, the findings indicate that legislatures hurt growth (−1.1%) but increase

[36]The first-stage equation is reported in column 5, Table 5. Using this same first-stage equation (column 5, Table 5), except without the selection parameters for regime types, does not alter the results reported in Table 8.

[37]This second-stage equation is the same as Models 1 and 2 in Table 3. Results are reported in the web appendix (C).

[38]The results remain the same for both *Growth* and *Investment* when we exclude hybrid regimes, and in the *Growth* equations when we drop *Inflation*, thereby expanding the sample.

TABLE 8 Selection-Corrected Growth and Investment Estimates

Sub-Sample	Military	Single Party	Personalist	Monarchy
Average Growth with Legislature	2.46	1.66	0.80	1.96
$\hat{Y}$, $j = 1$	(.11)	(.07)	(.08)	(.11)
Average Growth No Legislature	1.17	1.43	1.58	3.07
$\hat{Y}$, $j = 0$	(.11)	(.07)	(.07)	(.11)
Difference	1.30*	0.23*	−0.78*	−1.1*
	(.06)	(.03)	(.05)	(.10)
Average Investment with Legislature	15.4	15.6	8.8	10.3
$\hat{Y}$, $j = 1$	(.30)	(.15)	(.18)	(.39)
Average Investment No Legislature	13.8	13.2	9.9	9.6
$\hat{Y}$, $j = 0$	(.25)	(.14)	(.17)	(.37)
Difference	1.6*	2.4*	−1.1*	0.7*
	(.09)	(.03)	(.04)	(.06)
Observations	406	1146	587	155
Controlling for *Gulf* in the outcome equation:				
Average Investment with Legislature	15.4	15.6	8.8	10.3
$\hat{Y}$, $j = 1$	(.30)	(.15)	(.18)	(.39)
Average Investment No Legislature	13.8	13.5	9.8	11.1
$\hat{Y}$, $j = 0$	(.25)	(.16)	(.18)	(.37)
Difference	1.6*	2.2*	−1.0*	−0.82*
	(.08)	(.03)	(.05)	(.12)
Observations	406	1146	587	155

Mean per capita growth rate and investment shares reported in each cell. Standard errors in parentheses. *$p < .0001$.

investment (0.7%)—results that mirror those in Tables 6 and 7.

This last set of findings appears inconsistent—an inconsistency mirrored in the naive models above. However, these models do not control for *Gulf* states. When we include a dummy variable for *Gulf* in Tables 6 and 8, the finding that monarchies with legislatures have more investment is *reversed* (not reported for Table 6).[39] For example, including *Gulf* in the outcome equations (the same as reported in Table 4, web appendix) yields roughly the same differences for the impact of legislatures on investment in all regime types, except monarchies. The bottom panel of Table 8 indicates that including *Gulf* increases the average investment level in monarchies with no legislature from 9.6% to 11.1%, which is now more than the average level of investment in monarchies with a legislature (10.3%). This suggests that the inconsistent finding for investment in monarchies is simply the result of not controlling for oil-exporting Gulf states.[40]

Overall, the selection models indicate broad support for the hypotheses regarding the impact of legislatures on growth and investment.[41] When legislatures bind, they have a positive impact on both these outcomes.

[39]This parallels the impact on investment in monarchies in column 6, Table 2, when a dummy for *Gulf* is included.

[40]Controlling for *Gulf* in the growth outcome equation does not alter the results.

[41]The reader may be concerned that two variables in this analysis, *Investment* and *RegimeType*, pose problems of endogeneity because they appear on both sides of different equations. *Investment*, for example, is an explanatory variable in Table 2 and a dependent variable in Tables 6 and 8. However, Table 2 includes models that exclude investment, which demonstrates that investment is not necessary for the other results to hold. Further, when I run the complete analysis through to the selection models in Table 8, where investment is a dependent variable, but exclude investment from the equation for selection into regime type, the results remain robust. Second, *RegimeType* appears as an explanatory variable used to calculate the *Prob*(*Failure*) and also as a dependent variable in Table 2 where I model selection into regime type. Excluding *RegimeType* from the calculation of *Prob*(*Failure*), as noted earlier, does not change any of the results. The selection-corrected results for investment and growth in Table 8 are also robust to the exclusion of both the λs and

Conversely, in personalist regimes, where legislatures are generally nonbinding, they depress both growth and investment.

Conclusion

This article has yielded a number of important findings. First, the results suggest that personalist rule occurs under different conditions than military or single-party rule. Personalist rule is more likely in countries with larger oil reserves, less domestic investment, and smaller populations. Second, this article finds that not all authoritarian institutions are the same. The findings are consistent with the hypothesis that legislatures in single-party and military regimes constrain the power of the dictator, while legislatures in personalist regimes are nonbinding. The evidence indicates that binding legislatures in single-party and military regimes are more likely when regimes have less oil revenue, are richer, and are most stable. Here, the results suggest that nonbinding legislatures are more likely when regimes are most unstable and in countries with smaller populations. Third, the impact of legislatures on investment and economic growth varies by regime type. Binding legislatures in single-party and military regimes are associated with higher growth rates, while nonbinding legislatures in personalist regimes are correlated with slower growth.

These findings confirm our growing knowledge of the importance of political institutions that constrain the power of politicians. This article, however, moves beyond the simple dichotomy between dictatorship and democracy. The appellations "authoritarian regime" or "dictatorship" are often used as a residual category to house polities that do not fit nicely into whatever definition of democracy we like to use. But we are beginning to understand that variation among different types of authoritarian polities can perhaps be as important as the distinction between democracies and dictatorships. The answers to many of the enduring questions in comparative political economy—such as whether dictatorships or democracies grow faster, whether aid can foster growth, or whether growth will eventually breed democratization—may hinge on the careful study of distinctions between different types of authoritarian polities.

Prob(*Fail*) in Table 5. While investment is a potentially problematic variable because it is difficult to gain traction on the direction of causation, the main results suggesting that authoritarian legislatures differ significantly in their effect on growth are robust to the exclusion of this variable from the analysis.

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