

Under What Conditions Does Co-optation Deter Violent Overthrow?

Tyson Roberts

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Abstract

Previous research (Arriola 2009) has found that African leaders are less likely to experience coups and other forms of violent overthrow when their patronage coalition is expanded with ministerial appointments. This paper argues that this pattern emerges primarily in countries with neopatrimonial institutions that facilitate the cooptation strategy - in particular, authoritarian party regimes, personalist leadership styles, and presidential systems. Relatedly, reliance on oil and mineral revenues, generally controlled by the government, increases the importance of buying political support with cabinet appointments. However, cabinet size should have less impact in governments where the leader relies less on cooptation to remain in power. For example, military governments have a comparative advantage in repression rather than targeting benefits to politically salient groups; cabinet size may therefore be less effective for regime survival. Other forms of government, such as those where the economy is diversified or where the leader is elected in competitive elections or by the legislature, rely more on public policies that satisfy broad segments of society; cooptation of targeted groups via cabinet seats is therefore less likely to be relevant. I find support for these arguments using a data set roughly twice as large as that used in Arriola's (2009) study.

Two widely recognized patterns in African politics are the prominent role of patronage and the prevalence of political instability. On average, political leaders in Africa have been at great risk of overthrow through extraconstitutional events such as military coups and civil wars (Goldsmith, 2001; McGowan, 2003), and African politics are often described as neopatrimonial, with the widespread practice of patronage and clientelism (Bratton and Van de Walle, 1997; Jackson and Rosberg, 1982).

Arriola (2009) notes that the relationship between patronage and political stability has been disputed in the literature. Some argue that patronage politics leads to political instability: “Violence erupts either because some elites crave a larger share of the spoils controlled by the leader or because those outside the leaders patronage-based coalition want access to resources to which they have been denied.”

Others argue that patronage politics reduces political stability, by enabling leaders faced with the danger of civil war and military coups, and equipped with relatively weak institutions, to strategically distribute state resources to remain in office. For example, Englebert (2000) summarizes this dynamic in his argument that African polities with low initial legitimacy are predisposed toward political instability (and the associated weak economic performance), which leaves leaders with neopatrimonial strategies such as distributing patronage as their best hope to remain in power in the short term, despite the fact that such practices may undermine growth and stability in the long term:

“This propensity for systemic political crises ... weakens the actual power of leaders and ties their hands as policy makers. ... The ruling elites of low legitimacy states find it therefore less destabilizing to adopt neo-patrimonial strategies of power ... These policies substitute patron-client links for the lack of moral legitimacy of the state and offer the regime a new lease on life.”

In a highly cited article, “Patronage and Political Stability in Africa,” Arriola (2009) makes a similar argument. Countries that have achieved a certain level of state capacity and economic prosperity are less likely to experience civil wars or military coups because potential rebel soldiers prefer to earn a living rather than take up arms, and the military is sufficiently paid to perform their role of maintaining order rather than overthrowing the government.

In lower income countries, on the other hand, state capacity is less developed and there is a greater willingness to take up arms to overthrow the government, particularly during times of economic distress. Although government leaders in such countries may wish to grow the economy and improve state capacity, doing so is difficult and costly in the short term, and so leaders rely on distribution of patronage in exchange for political loyalty. Recipients of patronage work to keep the leader in power, because if the leader is overthrown his successor might deliver the patronage to another.

One of Arriola’s contributions is to test the effect of patronage on political stability by measuring patronage with cabinet size (following Van de Walle (2001)). Cabinet ministers are able to deliver state resources to their home districts, and so larger cabinets (with more ministers) indicates a greater volume of patronage dispersed. He finds that as cabinet size increases, leaders are less likely to lose power in military coups and other extraconstitutional events. However, patronage has diminishing marginal returns - as cabinets become increasingly large, their stabilizing effect diminishes and very large cabinets may even undermine stability. In his conclusion, Arriola notes that these dynamics are not unique to Africa, but may extend to other regions where patronage plays an important role.

In this paper, rather than expand into other regions that may have similar levels of reliance on patronage, I look at variance within Africa, to identify under what conditions expansion of the cabinet plays a greater or lesser role in preventing military coups and other nonconstitutional leader exits.

To do so, I draw upon a number of theories that seek to explain political stability or leader survival, primarily from the authoritarian politics literature. Arriola focuses on the strategy of cooptation - distribution of state resources to targeted groups (through cabinet appointments) - to avoid overthrow. His main alternative explanatory variable is economic performance; leaders are less likely to be overthrown during periods of prosperity.

The efficacy of cabinet appointments to prevent overthrow, however, depends on the efficacy of cooptation (relative to other tactics such as repression or good governance) to avoid violent overthrow, the discretion of the leader to make cabinet appointments, and the economic importance of cabinet appointments (and the dispersion of state resources they represent) in the country.

This general framework identifies conditions under which cabinet size is mostly likely to play an important role in preventing violent exits for leaders, which can be tested using institutional and economic variables.

One set of variables is regime-type data from Geddes and her co-authors, which includes military, personalist, and party-based regimes, and democracies. Large cabinets should be particularly effective in preventing coups and other violent exits in party-based regimes, which often ban or absorb opposition parties and buy off minority factions with “the perquisites of office”; “co-optation rather than exclusion characterizes single-party regimes” (Geddes, 2003, 59). Large cabinets are less necessary in personalist regimes, since the personalist leader relies less on coopting rival factions because his consolidated power enables him to exclude rival elites from sharing the national cake. On the other hand, personalist leaders have high discretion in selecting who has a cabinet seat. A personalist leader who has consolidated power but nonetheless spreads the wealth among a large cabinet should be particularly secure. Using a Personalism Index from Weeks, I find that more personalist authoritarian rulers with very large cabinets are systematically safe from violent exits (many of these are leaders whose regime type is party-based, yet the leader has consolidated power

to himself). For military regimes, where leaders have more abilities in warfare and repression than in politicking, and democracies, where the need to satisfy broad segments of the public may be better accomplished with good governance rather than cooptation, cabinet size is less likely to have a systematic effect on the probability of violent overthrow.

I also consider formal institutions, including the executive-legislative relations and the minimum necessary winning coalition size relative to the “selectorate”. In a presidential system, the leader does not rely on the legislature to hold his office, and has great discretion to appoint and dismiss the cabinet, which makes patronage distribution through ministerial posts an efficient strategy. In Parliamentary or Assembly-elected President systems, on the other hand, the cabinet relies more heavily on support from the legislature. For leaders who require a small minimum winning coalition relative to the selectorate, awarding “private goods” through cabinet appointments should be an effective strategy relative to generating “public goods” such as good governance, and such a leader often has high discretion in choosing who will receive cabinet seats. Such leaders, often personalist leaders with a political party that contests elections, therefore benefit more from large cabinet size than leaders who require a large minimum winning coalition (i.e., leaders of democracies with competitive parties).

Apart from political factors, a high reliance on oil and mineral exports should increase the importance of cabinet seats to avoid violent overthrow. After independence, most African governments nationalized their oil fields and mineral deposits. As a result, revenues from these sources go to the government and can be distributed to political supporters. A government with large revenues from such sources that does not spread the wealth sufficiently is a tempting target for military officers considering a coup or rebel leaders seeking to capture the seat of government.¹ Governments with economies less reliant on oil and mineral exports

¹Oil-rich countries are also more likely to have a personalist authoritarian regime rather than a military or party-based regime (Wright, 2008).

have a lower share of economic resources under their control, so cabinet size should have a lower influence on the probability of violent overthrow.

I find support for these arguments in empirical tests using an unbalanced sample of 39 sub-Saharan countries over the years 1960-2013.

1 Patronage, Political Institutions, and Political Stability

One important source of political stability is economic development and prosperity. When a nation's citizens are prosperous, they have little desire to take dangerous risks to overthrow the government. In countries with a developed and diversified economy, the prospect of economic prosperity through investing in physical and human capital deters actors from undertaking projects of violence. Cross-national analyses demonstrate that military coups and civil wars are less common in countries with high income levels, positive economic growth, and low dependence on natural resources (Johnson, Slater and McGowan, 1984; Collier and Hoeffler, 2002).

Many African countries, however, have low income levels, high dependence on natural resources, and are susceptible to periods of weak economic growth. In such cases, the leader must identify strategies to remain in power (and thus achieve political stability) in the face of a dissatisfied populace who may be willing to resort to violence. The leader is economically constrained from making everyone in the country happy, but he does not need to satisfy everyone; he only needs to satisfy enough people to retain his hold on power, at least in the short-term.

An ideal strategy for a leader seeking stability in office might be to eliminate all threats from the opposition, by forbidding opposition groups to form and purging any potentially disloyal followers. If successful, the leader would become an *established autocrat* more likely

to die a natural death than fall to a military coup or violent uprising (Svolik, 2012, 77). Rulers who are able to successfully carry out multiple purges have little need to share power with political parties or a legislature (Gandhi, 2008, 96).

For rulers who face an opposition too strong to repress successfully, another strategy is to govern effectively in a way that benefits everyone in the country. According to Selectorate Theory (Bueno de Mesquita et al., 2002), each leader must retain the support of at least a minimum necessary winning coalition, drawn from the “selectorate” - residents who have a role in selecting who leads the country - to remain in power. A leader who requires a large minimum winning coalition - for example, the leader in a democracy with competitive political parties - can best retain his hold on office by providing “public goods,” including good governance, which increases the probability of positive economic growth. In a consolidated democracy, leaders who do not govern in a way that benefits the majority is likely to be removed through peaceful elections. In transitional democracies, however, leaders who attempt good governance may be overthrown by elites who may benefit more from a corrupt system than from a system in which corruption is being tackled, and the masses may support violent overthrow of a democratic government that attempts to provide good governance but is unsuccessful.

A third strategy, which many view as the most prevalent strategy used by leaders in sub-Saharan Africa who are too weak to successfully repress or to provide good governance, is cooptation - targeting state resources to a variety of clients or political allies in exchange for political loyalty. Cabinet seats are an effective tool to execute this strategy. Appointing the chief of a particular group minister of transportation, for example, enables that chief to build roads in his region, hire companies owned by his supporters to build those roads, and hand out jobs such as bus drivers or train attendants.

Bueno de Mesquita et al. (2002) argue that leaders who require a small winning coalition efficiently retain their hold on power by distributing patronage, because distributing targeted

goods to a small group is less costly than investing in public goods that benefit the entire population. For this reason (and because members of small coalition, relative to the size of the electorate, have more to fear from a change in leadership which may put them outside the ruling coalition), Bueno de Mesquita et al. (2002) argue that leaders who require a small winning coalition relative to the size of the electorate, and leaders with access to state-controlled resources (such as oil and mineral rents and foreign aid) tend to survive longer than leaders who require a larger (and more costly) winning coalition, once the small-coalition leader makes it past the turbulent beginning of his rule (p. 300).

If increased cabinet size indicates distribution to members of a winning coalition, then a large cabinet in a country with a a small minimum necessary winning coalition relative to the electorate (e.g., personalistic leaders in a system where the ruling party mobilizes support through legislative elections) should produce particularly high political stability, despite economic challenges. President Houphouet-Boigny is a classic example of a president who achieved political stability (from independence in 1960 until his death in 1993) through distributing patronage, with a cabinet size that averaged 30 seats (versus the continent average of 20).

Whereas Bueno de Mesquita et al. (2002) use characteristics such as military regimes as indicators of the minimum necessary winning coalition size, Geddes (2003) argues that different authoritarian regime types have particular characteristics that affect their internal dynamics. For example, Geddes (p.54) notes that there is a consensus among many scholars of military coups and military regimes that “professional soldiers place a higher value on the survival and efficacy of the military itself than anything else.” Therefore, although the military may unite behind a faction that leads a military coup to take control of the government, when faced with economic downturns or other crises that may undermine support for the military, the majority of military leadership will take the military back to the barracks (from which they can continue to protect their interests with the threat of a future coup)

and restore civilian rule.

According to this argument, cabinet size should have relatively little effect on the likelihood of violent overthrows of military regimes, because governments in such regimes will tend to hand over power before the situation becomes so dire: “Because of the *internal* sources of fragility in military regimes, we should expect them to be overthrown by armed insurgents or ousted by popular uprisings only rarely.”

The leaders in personalist or party-based authoritarian regimes, on the other hand, have much more at stake if they should lose office. Geddes argues that party-based regimes seek to extend their monopoly on power by broadening their coalition to include rival factions who can benefit more from sharing power than from challenging the dominant group; “This is why co-optation rather than exclusion characterizes established single-party regimes” (p. 59). Because cooptation is the chief political strategy of party-based authoritarian regimes, cabinet size should systematically prevent nonconstitutional exits in such regimes.

In personalist regimes, where power is more concentrated in the person of the leader, the leader can also extend his rule by sharing patronage with rival factions, but the leader has a greater temptation to exclude peripheral groups. When the leader has pushed the consolidation of power too far (which may be indicated by a very small cabinet size), this may trigger violent overthrow. For a leader who has successfully consolidated personal control over the government (becoming what Svobik (2012) calls an *established autocrat*), the leader could maximize his security in office with a large cabinet.

The relationship between the executive and the legislature should also condition the effectiveness of cabinet seats. Presidents who do not rely on the legislature for their office (whether because they are directly elected or not elected at all) are often able to select their cabinet members (perhaps with approval from the legislature), and are able to administer the government with that cabinet. Cabinet seats are therefore likely to be an important institution for distributing benefits. Leaders who are elected by the legislature, on the other

hand (including Prime Ministers in Parliamentary systems and Assembly-elected Presidents), have less discretion in appointing cabinet ministers, and more power rests in the legislature. Cabinet seats are therefore more likely to be an effective method to prevent nonconstitutional exits in countries with a presidential system than a parliament-based system.

2 Patronage, Resource Dependence, and Political Stability

Whereas neopatrimonialism (including presidential politics and cooptation through patronage) are common features in African politics, reliance on oil and mineral wealth is a common feature in African economies. The two are related; after independence, most African governments nationalized any oil or mineral deposits that might be in their country, and used control of those resources to finance development projects, to distribute rents in exchange for political support, and to enrich the political elites. Because oil and mineral wealth is controlled by the government leadership, cabinet seats can be an important method to distribute that wealth in exchange for political support. For example, in Nigeria (historically the top oil producer in the region), each state has a right to a certain share of oil revenues, and each state also has a right to a cabinet seat.

Furthermore, oil and mineral wealth controlled by the central government creates a strong incentive for the military or an armed insurrection to capture the central government, especially because the leader who seizes power can use control of state resources to consolidate his rule. For example, Wright (2008) finds that oil-rich countries are there more likely to have a personalist authoritarian regime rather than a military or party-based regime.

I therefore expect cabinet seats to have a particularly strong effect on the probability of nonconstitutional exit in countries with high dependence on oil or mineral wealth.

3 Data and Method

Following Arriola (2009), I begin by analyzing the determinants of cabinet size, and then model leader survival, with cabinet size included as an explanatory variable. The principal innovation in the paper is to introduce new political institutions to analyze the sources of cabinet size, and to interact those political institutions (as well as oil and mineral dependence) with cabinet size, to better understand under what conditions cooptation through cabinet size is most successful in preventing violent overthrow. In addition, I have expanded the years covered by utilizing the cabinet seat data from the Cross National Time Series data set (Banks). The Arriola paper covers 1970-2000; this paper covers 1962-2013 (or fewer years when using some institutional variables).

Cabinet size refers to the number of ministers of “cabinet rank”, excluding undersecretaries, parliamentary secretaries, ministerial alternates, etc. It includes the president and vice-president under a presidential system, but not under a parliamentary system.

In each set of analyses, I begin with a model (Model 1) that includes all of the variables in Arriola’s base model, include the Polity score (-10 to 10, where -10 is a fully authoritarian regime and 10 is a full democracy), Civil war, GDP per capita (as a measure of level of development), Population (larger countries may require a larger cabinet), GDP growth (as a measure of prosperity), a dummy for oil exporters and mineral exporters (defined as those where oil or mineral exporters make up one-third or more of total exports, a measure of natural resource dependence and state control of rents), aid per capita (another source of state-controlled resources), Ethnic fractionalization (more fractionalized societies may require a larger cabinet and may be at greater risk of political instability), French colony, Urbanization, and Trade (% of GDP). Apart from the introduction of new political institutions, I also use a different source for GDP, GDP per capita, GDP growth, and aid per capita. The control variables generally come from the World Bank World Development In-

dicators, as is the case for the Arriola paper. The Civil War data (intrastate war occurring or not occurring) comes from the Uppsala Conflict Data Program (UCDP). The leader duration and nonconstitutional exit data come from Archigos. Net Aid Transfers per capita (logged) comes from Roodman (2005) for aid per capita. Ethnic fractionalization comes from Fearon.

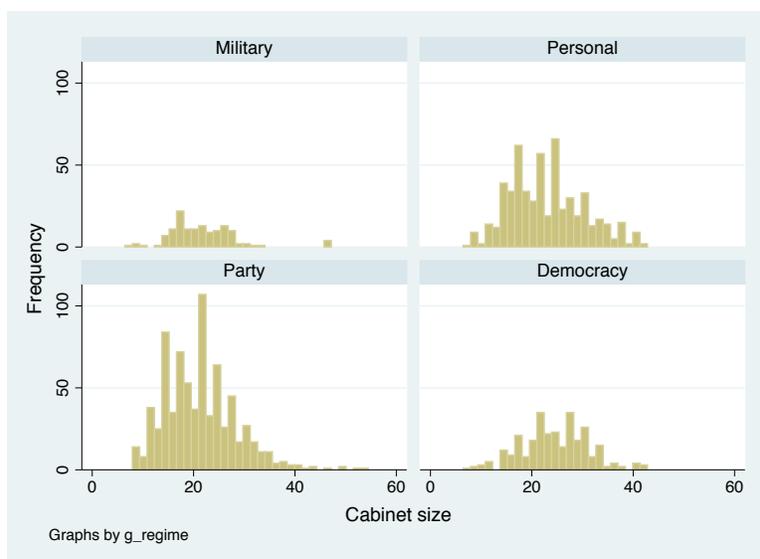


Figure 1: Cabinet size (CNTS), by Regime type (Geddes)

In order to test the effect of *regime type*, in Model 2 I use data from Geddes, Wright and Frantz (2014): categorical variables for Personalist autocracy, Party-based autocracy, and Democracy; Military regime is the omitted category.²

I also use (in Model 3) the continuous *Personalism Index* from Weeks (2012), which uses questions from Geddes to score authoritarian leaders on a scale from 0 to 1.³ As shown in Figure 4, some leaders in what Geddes considers to be a party-based regime (because of factors such as a party that was active before the leader joined it) have successfully

²Monarchies are excluded because of data limitations.

³“To measure the personalist dimension, (Weeks) created an index of eight variables, including whether access to high government office depends on the personal favor of the leader, whether country specialists viewed the politburo or equivalent as a rubber stamp for the leaders decisions, and whether the leader personally controlled the security forces.”

consolidated personal power (examples include Mugabe in Zimbabwe and Bongo in Gabon).

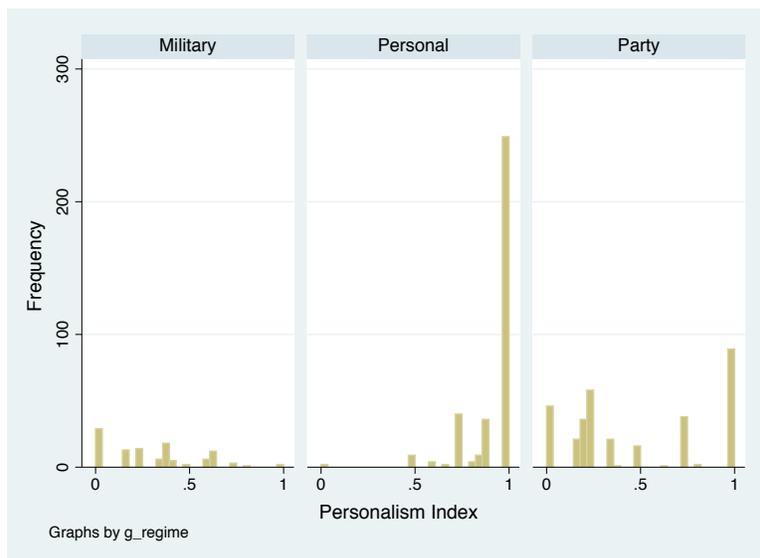


Figure 2: Personalism Index (Weeks), by Regime type (Geddes)

In order to test the effect of executive selection rules, in Model 4 I use the *system* variable from the Database of Political Institutions (DPI) (Beck et al., 2001). The *system* variable is coded as Presidential if the executive is not elected or if the executive is elected by direct vote (or by an electoral college whose only purpose is to elect the president). The *system* is Parliamentary if the legislature can both elect the executive and remove the executive, and the system is *Assembly-elected president* if the legislature elects the president but cannot remove him with a simple majority vote. Because there are few cases of Parliamentary and Assembly-elected Presidents, and both of these are cases in which the legislature selects the executive they are combined. The analysis uses a dummy variable for Presidential systems and the omitted category is Parliament-based systems (Parliamentary and Assembly-elected Presidents).

In Model 5, I include the *Winning Coalition relative to the Selectorate (W/S)* from Bueno de Mesquita et al. (2002).⁴ The size of the minimum winning coalition depends on

⁴The original data for this variable ends in to 1999. In the next iteration of the paper I'll generate these

underlying conditions such as political rules and norms and the distribution of economic and military resources. The size of the minimum necessary winning coalition is suggested by the presence of certain indicators. For example, characteristics assumed to indicate a small minimum necessary winning coalition include (1) a military regime, (2) a hereditary executive, (3) an executive who does not face a contested election, and (4) an absence of opposition parties (p.134-135). Selectorate size is considered to be small if there is no legislature, large if there is an elected legislature, and of intermediate size if there is an appointed legislature.

A low value for W/S indicates that the necessary winning coalition is small relative to the selectorate; for example, a military leader with an elected legislature. A large value for W/S indicates that the necessary winning coalition is large relative to the selectorate; for example, a democracy with competitive parties. According to Selectorate Theory, a leader with a small minimum necessary winning coalition relative to the selectorate has the greatest discretion to monopolize state benefits for himself without being challenged by other members of the selectorate. In some ways, therefore, W/S can be characterized as an inverted measure of *personalism*. The W/S data, however, includes democracies. As shown in Figure 3, democracies tend to have a high W/S and military and personalist regimes tend to have a low W/S .

Following Arriola (2009), “I first estimate a between-groups regression model of cabinet size that focuses on cross-sectional comparisons and essentially reduces variables to group means and computes an ordinary least squares estimator.” I then use a fixed effects model, with a lagged dependent variable, in order to assess whether the key explanatory variables in the survival model are correlated with cabinet size. The goal of the fixed effects model is to address the concern that cabinet size and nonconstitutional exit may be endogenous. (In a later iteration of the paper, I intend to use a matching technique to more fully deal with the concern that political institutions are likely to affect the distribution of cabinet sizes and

data for later years using the component variables from other sources.

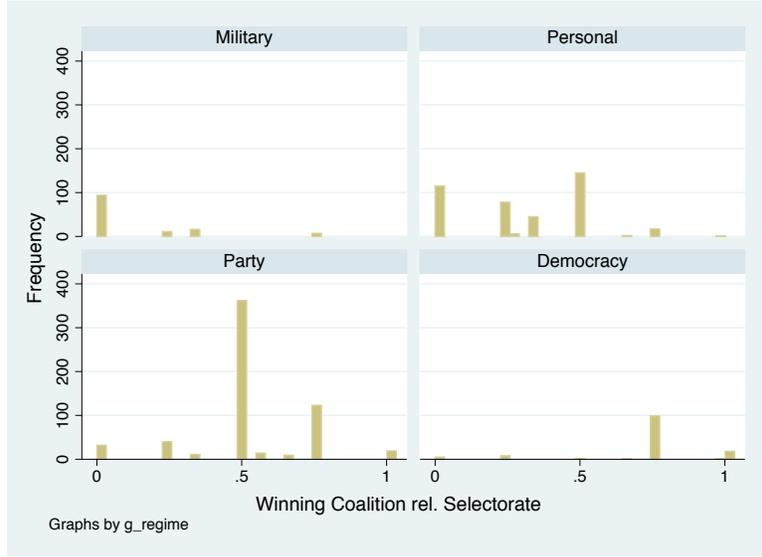


Figure 3: Winning Coalition relative to the Selectorate (W/S), by Regime type (Geddes)

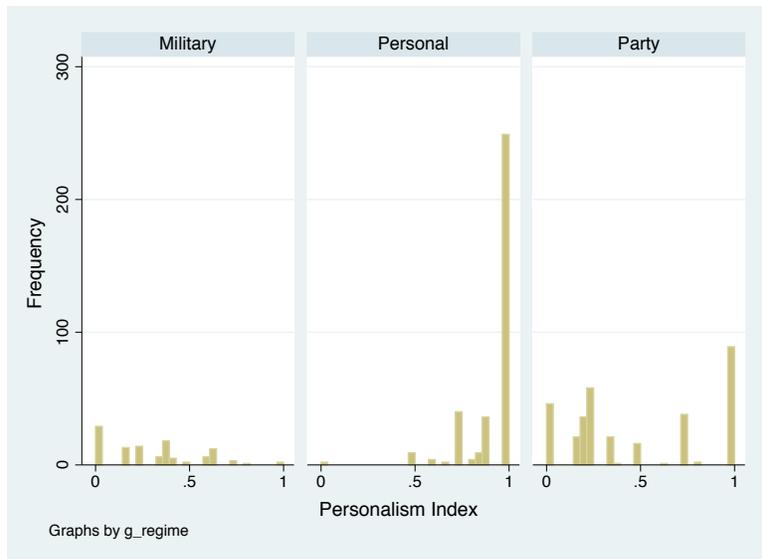


Figure 4: Personalism Index (Weeks), by Regime type (Geddes)

the probability of leader survival.)

To model leader survival, I follow previous work (Brownlee, 2007; Wright, 2009; Roberts, 2015) and use a binary logistic model with cubic time polynomials to account for duration dependence Carter and Signorino (2010). The dependent variable is regime failure, which takes the value of 1 if the leader suffers a nonconstitutional exit (military coup or ouster in a civil war) in that year and 0 if the leader remains in office (or exits by constitutional means, such as term limits or natural death). As does Arriola, I introduce cabinet size as a quadratic; to model the predicted diminishing marginal returns of additional cabinet seats. As cabinets become increasingly large, adding cabinet seats will have less positive effect on the survival of the leader, and may eventually decrease the probability of survival. To facilitate comparison with Arriola's results, I report hazard ratios rather than coefficients; a hazard ratio greater than 1 indicates an increased coup risk, whereas a value less than 1 indicates a decreased coup risk.

In Table 3 I present the coefficient results for the leader survival analysis.

I then interact the political institutions, or dependence on oil or mineral exports, with cabinet size and cabinet size squared. To conserve space, I do not report these coefficients, but instead generate graphs with the predicted probability of the nonconstitutional exit from each model (using *marginsplot* in Stata) in order to facilitate the interpretation of the interaction terms (which, because of the cabinet quadratic, are three-term interactions).

4 Cabinet Size Analysis

Table 1 presents the regression results from the between groups estimator of cabinet size. The positive coefficient for (logged) GDP per capita indicates that wealthier countries tend to have larger cabinets. Arriola interprets this as indicating that leaders of wealthier nations are able to mobilize more resources to distribute as patronage. As expected, (logged)

population also has a positive effect on cabinet size. Unlike Arriola, I do not find that Ethnic fractionalization is statistically significant, although the magnitude of the coefficient is similar.

In Model 1, I find that Polity (a summary measure of autocracy and democracy, ranging from -10 for full autocracy to 10 for full democracy) is not statistically significant, whereas Arriola found it to be negative.

Model 2 suggests that cabinet size tends to be larger in non-Military regimes than in Military regimes, but these differences are not statistically significant. Similarly, Model 3 suggests that more personalist dictators tend to have larger cabinet sizes, but again this finding is not statistically significant.

Model 4 indicates that leaders in Presidential systems have systematically larger cabinets (with an average of 7 more seats) than is the case for leaders in Assembly-elected president or Parliamentary systems. Model 5 suggests that regimes with a large necessary winning coalition relative to the selectorate tend to have more cabinet seats but this finding is not statistically significant.

Whereas Table 1 helps explain differences in cabinet size across countries, Table 2 reports estimates based on a fixed-effect analysis that controls for unobserved country-specific factors. The lagged dependent variable indicates that cabinet size tends to change little from year to year. Furthermore, the rise over time in cabinet size is driven not by a rise in income level, but rather by an increase in population size.

In general, political institutions do not have a systematic effect on change in cabinet size. Political events such as civil war also do not appear to systematically drive changes in cabinet size. (Arriola finds that government crises and antigovernment demonstrations also have no systematic effect on changes in cabinet size.)

In general, the finding that political institutions and political shocks such as civil wars do not appear to systematically cause changes in cabinet size provides some justification

Table 1: Regression Analysis of Cabinet Size

	(1)	(2)	(3)	(4)	(5)
	b/se	b/se	b/se	b/se	b/se
Polity (t-1)	-0.3006 (0.20)				
Log GDP per capita (t-1)	2.4469** (0.85)	1.1950 (0.93)	3.7494** (1.12)	2.9441** (0.77)	2.4482* (0.94)
Log Net aid per capita (t-1)	0.3068 (1.93)	-3.0805 (3.18)	-0.6553 (3.33)	-3.5404 (2.35)	-0.4821 (2.38)
Oil exporter	1.1293 (2.74)	4.1243 (3.32)	0.7244 (2.71)	1.4364 (2.18)	2.1057 (2.96)
Mineral exporter	-2.2836 (2.21)	-0.4354 (2.10)	-1.7856 (1.76)	-0.8181 (1.77)	-0.8293 (1.87)
Ethnic fractionalization	3.8930 (2.80)	2.0310 (4.00)	-1.8816 (3.35)	1.2499 (2.87)	4.5790 (3.00)
French colony	0.7890 (1.14)	1.5599 (1.25)	0.6981 (1.16)	1.2273 (1.05)	-0.1935 (1.20)
Log Population (t-1)	2.0059** (0.62)	1.2015 (0.93)	2.2897+ (1.20)	1.0702 (0.74)	1.3568 (0.86)
1980s indicator	16.6026 (10.30)	11.0426 (11.30)	-0.5800 (5.34)	46.6673* (19.25)	16.1072* (5.91)
1990s indicator	11.9234 (7.61)	7.8088 (6.61)	9.2126** (3.11)	28.1001* (13.29)	7.4813* (3.21)
2000s indicator	7.4982+ (4.37)	9.7120+ (5.23)		28.1559* (12.36)	
Personal		2.8063 (6.49)			
Party		4.1406 (6.85)			
Democracy		2.5494 (7.78)			
Personalism Index			2.1732 (1.97)		
Presidential				7.3457** (2.31)	
Winning Coalition rel. Selectorate					-3.9034 (3.80)
Observations	1603	1586	745	1276	1193

Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$ ** $p < 0.01$

Table 2: Regression Analysis of Change in Cabinet Size With Fixed Effects

	(1)	(2)	(3)	(4)	(5)
	b/se	b/se	b/se	b/se	b/se
Cabinet size (t-1)	0.6933** (0.04)	0.6756** (0.03)	0.6392** (0.06)	0.6567** (0.03)	0.6749** (0.05)
Polity (t-1)	-0.0015 (0.02)				
Log GDP per capita (t-1)	-0.0425 (0.20)	0.3468 (0.40)	2.3290** (0.75)	-0.1315 (0.25)	0.4468 (0.56)
Log Population (t-1)	3.2502** (0.52)	3.2568** (0.51)	4.0359** (0.99)	2.9964** (0.55)	3.8909** (0.68)
Civil war	-0.1138 (0.28)	-0.0741 (0.29)	-0.0107 (0.44)	-0.2199 (0.32)	-0.1258 (0.34)
Personal		-0.1672 (0.43)			
Party		-0.7684 (0.49)			
Democracy		0.0456 (0.45)			
Personalism Index			0.7491 (0.71)		
Presidential				0.4849 (0.44)	
Winning Coalition rel. Selectorate					0.8601 (0.60)
Observations	1695	1611	741	1364	1242

Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$ ** $p < 0.01$

for treating cabinet size as exogenous to leader survival. Further investigation into the endogeneity problem, however, is warranted in later research.

5 Regime Duration Analysis

The results from the duration analysis without interactions between cabinet size and political institutions are reported in Table 3. A hazard ratio greater than 1 indicates an increased risk of violent overthrow (through a military coup or other nonconstitutional event such as overthrow in a civil war), whereas a value less than 1 indicates decreased risk. For example, the reported hazard ratios indicate that the risk of violent removal is approximately three times higher in years of civil war than in years without civil war, while for every percentage point in GDP growth, the probability of violent overthrow is reduced by approximately 5 percent.

Confirming Arriola’s finding, larger cabinet size is associated with a reduced risk of violent overthrow, and the squared term indicates diminishing marginal returns from additional seats. However, Arriola finds the relationship to be statistically significant, which is not found to be the case here. This effect is depicted graphically, using the results from Model 1, in Figure 5.⁵ The predicted probability of violent overthrow in a given year decreases from 7 percent to 3 percent if the cabinet size increases from 13 to 30 seats.

Also confirming Arriola’s findings, civil war and reliance on oil exports increases the probability, and economic growth reduces the probability, of nonconstitutional exit. Arriola also finds that governments in wealthier countries are less likely to experience violent overthrow; this finding is not confirmed, although in the base model, the coefficient is below 1.

In Models 2-5, I introduce the political institutions described above instead of the Polity measure. Model 2 indicates that Personalist regimes and Party-based regimes are less likely

⁵The predicted probability of nonconstitutional exit is generated using *marginsplot* with cabinet size varying over the middle 90% of the data.

Table 3: Analysis of Regime Duration, Without Cabinet-Institution Interactions (DV: Non-constitutional Exit)

	(1)	(2)	(3)	(4)	(5)
	b/se	b/se	b/se	b/se	b/se
Nonconstitutional Exit					
Cabinet size (t-1)	0.9560 (0.10)	0.9151 (0.09)	0.8420 (0.11)	0.9079 (0.12)	0.8904 (0.10)
Cabinet size squared (t-1)	1.0004 (0.00)	1.0011 (0.00)	1.0026 (0.00)	1.0015 (0.00)	1.0012 (0.00)
Polity (t-1)	1.0256 (0.03)				
Personal		0.4363+ (0.21)			
Party		0.3799* (0.18)			
Democracy		0.7541 (0.35)			
Personalism Index			0.2956* (0.18)		
Presidential				2.5379+ (1.42)	
Winning Coalition rel. Selectorate					0.0233** (0.02)
Civil war	2.8178** (0.84)	3.1341** (0.96)	5.3075** (2.51)	2.2671** (0.71)	4.3666** (1.41)
Log GDP per capita (t-1)	0.8006 (0.19)	0.7638 (0.21)	1.0592 (0.51)	0.7816 (0.25)	1.4117 (0.46)
GDP growth (t-1)	0.9542** (0.02)	0.9529* (0.02)	0.9361* (0.02)	0.9623* (0.02)	0.9552* (0.02)
Oil exporter	2.6904+ (1.46)	1.7665 (1.00)	1.2892 (1.00)	2.8019+ (1.64)	2.4616 (1.50)
Mineral exporter	1.7364 (0.69)	1.2554 (0.50)	0.4502 (0.38)	1.4617 (0.59)	1.3270 (0.58)
Log Population (t-1)	0.7960 (0.14)	0.7649 (0.14)	0.7478 (0.23)	0.7196+ (0.14)	0.7499 (0.15)
Ethnic fractionalization	1.9023 (1.63)	2.4792 (2.32)	4.2863 (6.13)	2.1017 (1.81)	3.0975 (2.65)
French colony	1.0764 (0.34)	1.2501 (0.41)	0.7006 (0.36)	1.2184 (0.38)	0.6156 (0.20)
Urbanization	0.9858 (0.01)	0.9972 (0.02)	0.9886 (0.03)	0.9733+ (0.02)	0.9690+ (0.02)
Trade	0.9952 (0.01)	0.9963 (0.01)	1.0020 (0.01)	0.9981 (0.01)	0.9999 (0.01)
Observations	1399	1445	713	1227	1143

Exponentiated coefficients

Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$ ** $p < 0.01$

Note: Hazard ratios reported; coefficients less than 1 indicate lower probability of nonconstitutional exit; coefficients greater than 1 indicate higher probability of nonconstitutional exit.

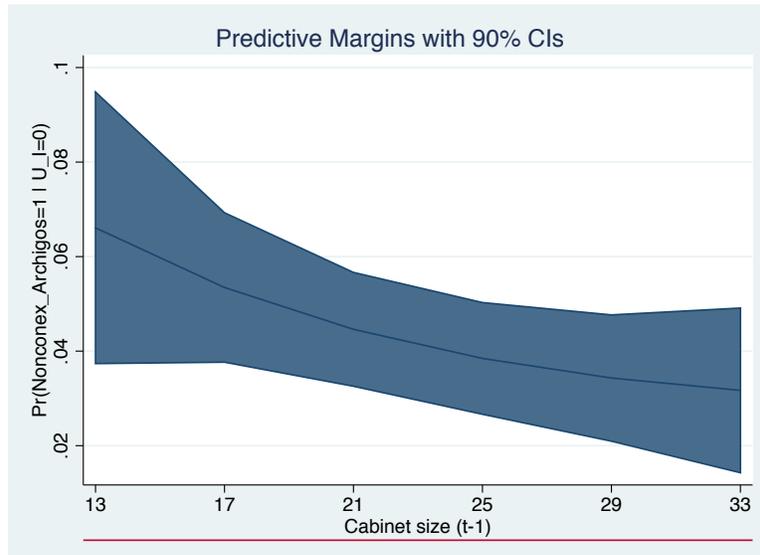


Figure 5: Probability of Nonconstitutional Exit and Cabinet Size

to experience violent overthrow than military regimes (the omitted category) or democracies. Model 3 indicates that highly personalist dictators are less likely to be violently removed than less personalist dictators. Model 4 indicates that Presidential leaders are more likely to be violently removed than Parliament-based leaders. Model 5 indicates leaders with large necessary winning coalition are less likely to be violently overthrown than leaders with a small necessary winning coalition relative to the selectorate size. Although this appears to contradict the finding for the Personalism Index analysis, it should be noted that the Personalism Index includes autocrats only. Together, these findings suggest that violent overthrow is relatively less likely in democracies and in consolidated autocracies, and more likely in intermediate categories, such as personalist leaders who face elections but have not consolidated their rule. This is compatible with the finding in the global model for forecasting political stability that full autocracies and full democracies experience relatively few civil wars, whereas partial autocracies and partial democracies are at higher risk (Goldstone et al., 2010).

In Figures 6-11, I present the predicted probabilities of nonconstitutional exit by cabinet

size for each of the political institutions described above, and with the dummy variables for oil and mineral exporters. These probabilities are generated using the same variables shown in Table 3, but with cabinet size (and cabinet size squared) interacted with the political institutions and economic resource dependence. Thus, these figures show how political institutions and economic structure condition the effectiveness of cooptation through cabinet seats.⁶

Figure 6 presents the probability of nonconstitutional exit with cabinet size (and cabinet size squared) interacted with each of the four regime types from Geddes. Military regimes generally come to power through coups, and leaders of such regimes are often deposed by coups. It is unsurprising, therefore, that the risk of violent overthrow is relatively common for leaders in military regimes. Cabinet size produces little political stability for military leaders, who have a comparative advantage in repression but not politics.

Democracies are also at high risk of violent overthrow in Africa, and cabinet size again provides no political stability. Democratic leaders may be constrained in their ability to target plum seats to elites who can achieve violent overthrow, and the masses can more easily mobilize against leaders in democracies, which may trigger violent overthrow through military coups or rebellions.

As predicted by Geddes's theory, party-based regimes generate the most stability from large cabinets. Cooptation is most efficient in such regimes, which facilitate power sharing with rival factions. Personalist regimes, on the other hand, appear to be relatively safe from violent overthrow (compared to military regimes and democracies) but gain no benefit from a large cabinet size.

Figure 7 depicts the results when I interact the continuous Personalism Index with cabinet size (and cabinet size squared). A leader with a very high Personalism Index, generally in

⁶These results are generated from a single regression; the predicted probabilities are graphed separately to improve visibility.

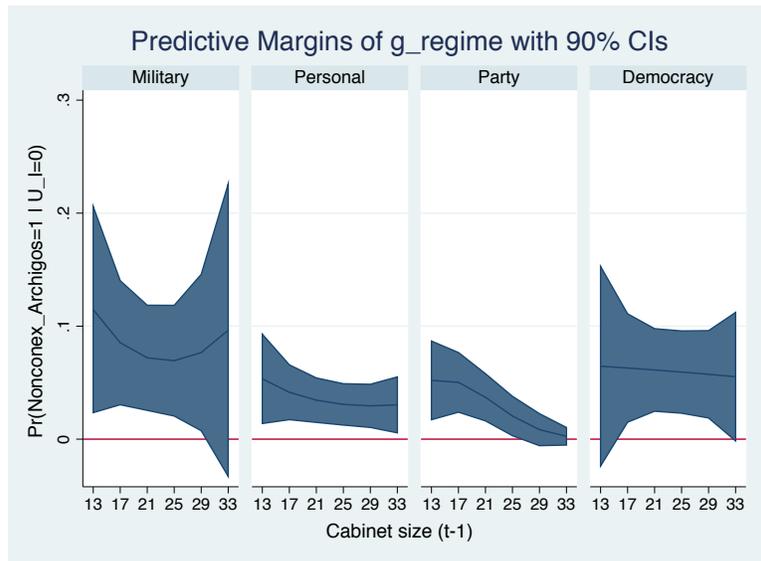


Figure 6: Probability of Nonconstitutional Exit, Cabinet Size, and Regime Type (Geddes)

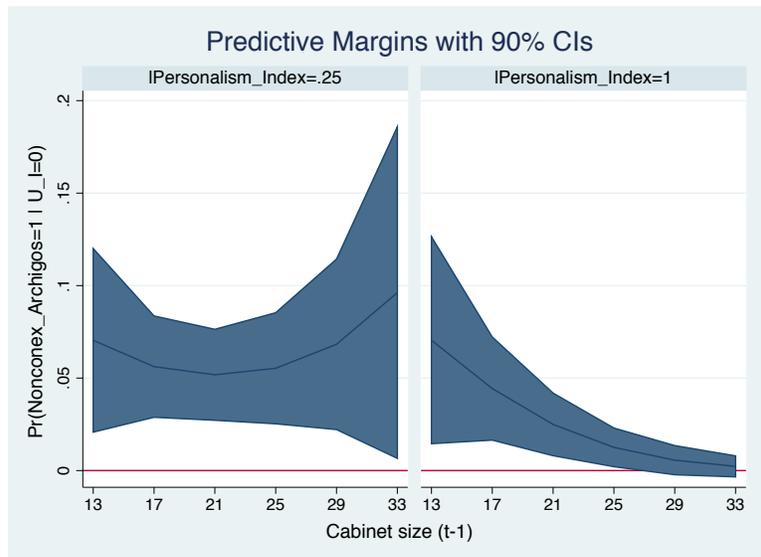


Figure 7: Probability of Nonconstitutional Exit, Cabinet Size, and Level of Personalism in Dictatorships (Weeks)

regimes defined by Geddes as Personal but sometimes in Party-based regimes as well, has successfully consolidated power and eliminated rival elites. Such a leader should be at low risk of overthrow generally, and a large cabinet should reduce that risk further (these leaders, despite requiring a very small coalition, may have a large selectorate, meaning large cabinets need not increase risk to the leader; these cabinet leaders have little chance of overthrowing the leader and can be easily replaced). As shown in Figure 7, highly personalist dictators have a systematically lower risk of violent overthrow as cabinet size increases. The effect for less personalist dictators - the risk of violent overthrow appears to rise when cabinet size is very large, but the confidence intervals are also very large, such that no clear conclusions can be drawn for non-personalist leaders. Leaders with a maximum Personalism Index score and a large (30 or more seats) cabinet size (for at least some years) include Biya in Cameroon, Mobutu in Zaire, Bongo in Gabon, Museveni in Uganda, Rawlings in Ghana, and Compaore in Burkina Faso.

Figure 8 depicts the results when I interact the *system* (Presidential versus Parliament-based) with cabinet size (and cabinet size squared). The prediction is that cabinet size should be particularly important for Presidential leaders, because they have greater autonomy from the legislature and the party, and have more discretion to appoint cabinet members in order to maintain their hold on power. As shown in Figure 8, the data conforms to these expectations, but the confidence intervals do not permit conclusions that are statistically significant. Presidential leaders are at somewhat higher risk of violent overthrow when the cabinet is very small and at lower risk of violent overthrow when the cabinet is large. As indicated by the large confidence intervals, cabinet size plays no systematic role in preventing nonconstitutional exit for leaders in a Parliament-based system.

Figure 9 depicts the results when I interact the minimum necessary winning coalition relative to selectorate size with cabinet size (and cabinet size squared). As expected, leaders with a small necessary coalition size relative to the selectorate benefit greatly when the

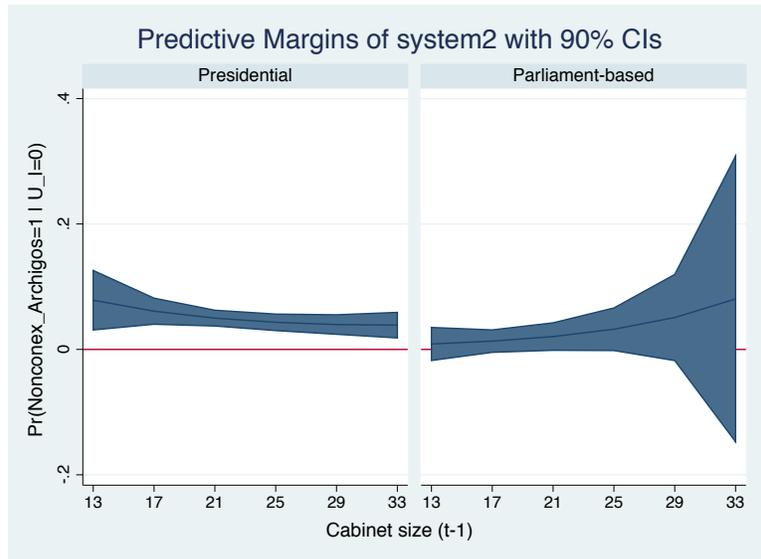


Figure 8: Probability of Nonconstitutional Exit, Cabinet Size, and Executive System (Presidential vs. Parliament-based)

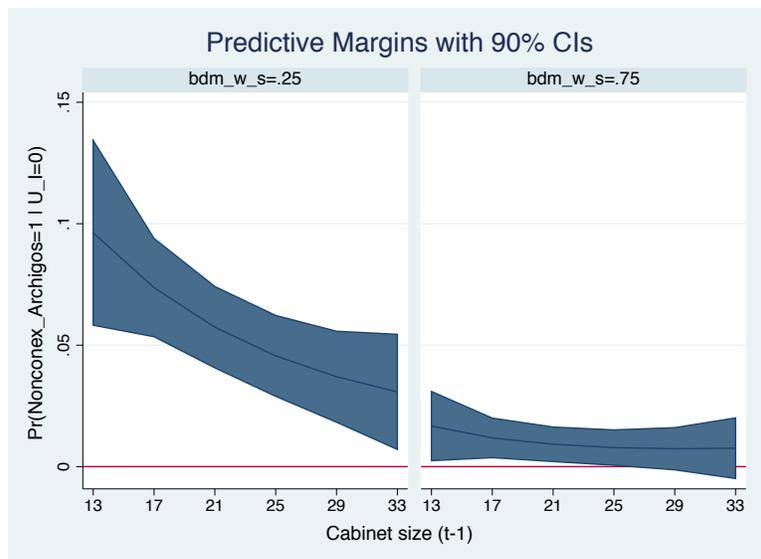


Figure 9: Probability of Nonconstitutional Exit, Cabinet Size, and Winning Coalition relative to Selectorate W/S

cabinet size is larger, whereas leaders in regimes with a large necessary winning coalition size (which includes democracies but also some regimes that Geddes considers to be a party-based autocracy, such as Botswana, where the ruling party has never lost an election) generate little benefit from larger cabinets.

Finally, Figures 10 and 11 depicts the results when I interact the oil exporter and mineral exporter dummy variables with cabinet size (and cabinet size squared). As expected, cabinet size is particularly important for countries where natural resources make up a large share of total exports. Governments with oil or mineral wealth who don't distribute through ministerial appointments are at very high risk of violent overthrow; this risk can be diminished significantly by sharing through a large cabinet. In countries with a more diversified economy (or one reliant on exports that generate fewer rents for the government), cabinet size plays a smaller role in preventing nonconstitutional exit.

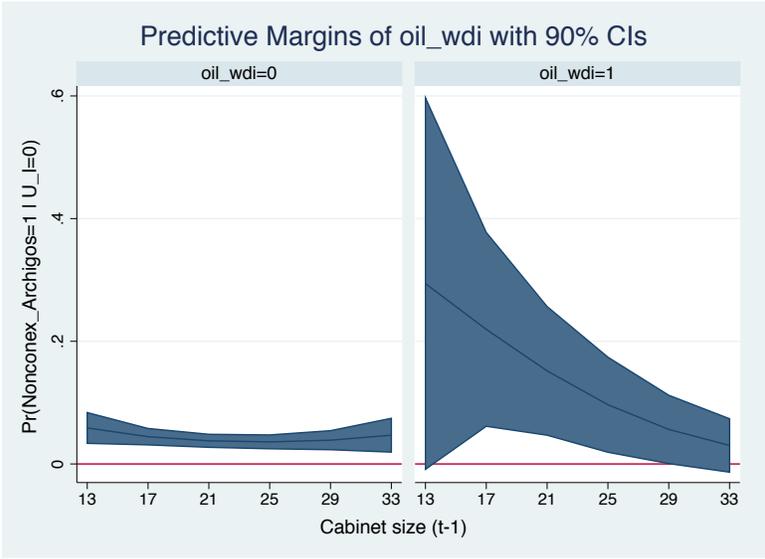


Figure 10: Probability of Nonconstitutional Exit, Cabinet Size, and Reliance on Oil Exports

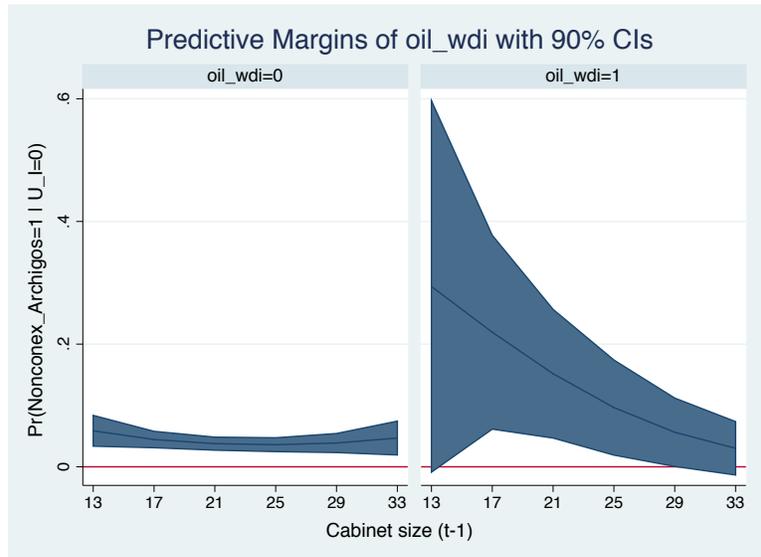


Figure 11: Probability of Nonconstitutional Exit, Cabinet Size, and Reliance on Mineral Exports

6 Conclusion

In the highly-cited work, Arriola (2009) uses cabinet-size data to make the argument that patronage distribution is an effective strategy to avoid violent overthrow in African countries where economic prosperity may be elusive. The assumption is that African leaders generally adopt a “big man” or patrimonial strategy, distributing state resources in exchange for political support, in order to avoid violent overthrow, because economic development (the other main strategy to avoid overthrow) is difficult to achieve for leaders with little state capacity.

In this paper, I explore under which institutional conditions cabinet size is an important tool for leaders to avoid violent overthrow. Not surprisingly, I find that leaders in party-based regimes, leaders who have successfully consolidated power to their person, and leaders who require a small minimum winning coalition in particular benefit from large cabinet sizes. Leaders of military regimes and democracies, on the other hand, gain little in the way of political stability from cabinet size.

Relatedly, leaders in countries that are highly reliant on oil or mineral exports (who are often personalist) are at particularly high risk of violent exit if they have a small cabinet. In countries where oil or mineral exports make up an important share of national resources, sharing those resources with politically salient rivals is an effective method to avoid violent overthrow. In more diversified economies, where control of state resources is likely to be less important, cooptation is less critical for political stability.

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