Contracting on Violence: Authoritarian Repression and Military Intervention in Politics*

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This version: December 2009

Abstract

Why does the military intervene in the politics of some countries but remain under firm civilian control in others? I argue that the origins of military intervention in politics lie in a fundamental moral hazard problem associated with authoritarian repression. Dictators must deter those who are excluded from power from challenging them. In economically unequal dictatorships, this is best accomplished by employing the military to repress the poor masses. The military exploits this pivotal position by demanding greater institutional autonomy as well as a say in policy, and it threatens to intervene if the civilian leadership departs from a subsequent compromise on these issues. I develop a theoretical model of such contracting on violence and show that the likelihood of military intervention in politics is first increasing and then decreasing in a country’s level of economic inequality. I find strong support for these claims when I examine original, large-N data on military intervention.

*I would like to thank the Center for the Study of Democratic Politics at Princeton University for generous support and Robert Bates, Mark Beissinger, Jennifer Gandhi, Barbara Geddes, Adam Przeworski, Bonnie Weir, and participants at a seminar at the University of Illinois at Urbana-Champaign and at the APSA Annual Convention for helpful comments and conversations.

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1 Introduction

In a recent wave of studies, scholars have examined the role of political institutions in dictatorships, finding that the internal make-up of these regimes fundamentally affects how they operate.\(^1\) This research indicates that one prominent category of dictatorship – military dictatorship – is systematically associated with a range of important political outcomes. Compared to single-party and personalist dictatorships, military dictatorships are the most common form of authoritarian government prior to the 1990s (Geddes 2005; Hadenius and Teorell 2007), yet they also have the shortest lifespan (Geddes 2005; Brownlee 2009). Furthermore, leaders of military dictatorships are less likely to survive in office than leaders of non-military ones (Geddes 2005; Gandhi 2008), and they tend to be deposed by coups (Nordlinger 1977; Debs 2009). Importantly, the effects of military rule persist even after a country transitions to democracy, by increasing the likelihood of authoritarian reversals (Cheibub 2007) and impeding democratic consolidation (Svolik 2008).

Despite the conceptual and empirical prominence of military dictatorships, recent research has primarily focused on the consequences of military rule rather than its underlying causes. Here, I explain the latter puzzle: Why does the military intervene in the politics of some dictatorships but remain under firm civilian control in others? Consider that from 1946 to 2002, militaries participated in the installation or removal of roughly two out of every three Latin American leaders.\(^2\) Meanwhile, the Soviet Union maintained firm civilian control over its armed forces throughout its seven decades of existence (Taylor 2003). Similarly, why do some democracies break down due to military coups while others


\(^2\)This statistic is based on my original data, which I describe in section 4.
do not? Simply put, why is it that in some countries, those with guns obey those without guns?\textsuperscript{3}

In this paper, I argue that military intervention in politics arises from a fundamental moral hazard problem associated with authoritarian repression. I start with the observation that there is a generic political conflict in any dictatorship between those in power and those excluded from power. The politically salient differences between these two actors determine both the form and the magnitude of threats posed by those excluded from power to those in power and, in turn, the regime’s optimal response to those threats. When an underlying, polity-wide conflict results in threats to the regime that take the form of mass, organized, and potentially violent opposition, the military is usually the only force capable of defeating those threats. I argue that one, particular factor that systematically favors the regime’s use of the military in responding to such threats is economic inequality. In economically unequal dictatorships, poor peasants or workers may threaten to expropriate or replace the rich, ruling elite in power. These threats typically take the form of labor strikes, land invasions, or guerilla attacks. The military has an advantage in containing such threats because of its proficiency in the deployment of large-scale violence, labor-intensive nature, and hierarchical chain of command.

Such “contracting on violence” between an authoritarian government and the military is complicated by the following moral hazard problem: The military understands that it plays a pivotal political role in economically unequal dictatorships, and it exploits this role by demanding greater institutional autonomy, resources, and influence over policy from the regime. Yet because of its lack of policy expertise and bureaucratic distance from policy-making institutions, the military’s ability to assess whether the government is

\textsuperscript{3}I am paraphrasing Adam Przeworski’s (2007) concise formulation of the conceptual problem that underlies these questions.
complying with any policy compromise is limited and this creates the opportunity for the government to depart from it. On the other hand, the military’s increased autonomy and resources enhance its ability to successfully intervene in politics if it suspects that the government is departing from a policy compromise. Thus contracting on violence – the cooptation of the military for domestic political repression – may fail and result in military intervention.

I develop a theoretical model of contracting on violence and show that the likelihood of military intervention in politics depends on the type and magnitude of the threat that those excluded from power pose to the government. My analysis predicts that the empirical association between this threat and military interventions will be non-monotonic, first increasing and then decreasing in the magnitude of the threat. When the threat to the government is low – that is, in economically equal dictatorships – the military will lack the autonomy and resources to successfully intervene in politics. In fact, I show that in this case the military will not intervene even if it is allocated a positive amount of resources by the government. At the other extreme – in economically unequal dictatorships – the threat from those excluded from power is greatest and the government concedes a correspondingly large amount of autonomy and resources to the military. In this case, the military’s threat to intervene is so credible that it almost entirely deters the government’s temptation to depart from a policy compromise. However, when the magnitude of the threat from those excluded from power is between these two extremes, the likelihood of military intervention is greatest. In this case, the military’s autonomy and resources are large enough that it is willing to risk intervention, yet because such an intervention may still fail, the mere threat by the military is not sufficient to deter the government from reneging on a policy agreement. Thus although the military’s autonomy and resources may be greater in
unequal dictatorships, the observed association between economic inequality and the likelihood of military intervention in politics will be non-monotonic.

I find strong empirical support for the predicted, non-monotonic effect of economic inequality on military intervention in politics. I use original, large-N data that covers all military interventions that brought about the entry or exit of an authoritarian leader during the period 1946-2002. Together, these two indicators – dictators’ entry or exit due to military interventions – provide a comprehensive measure of military intervention in politics. I find that, as I propose, the likelihood of military intervention in politics is first increasing and then decreasing in the level of a country’s economic inequality. This non-monotonic effect of inequality on the likelihood of military intervention is large in magnitude, statistically significant, and robust to two different measures of economic inequality, unobserved country-level heterogeneity, and a range of statistical specifications.

In the next section, I present my theoretical argument in detail and discuss my conceptual and empirical contribution to the scholarship on authoritarian politics, military intervention in politics, and transitions to democracy. In section 3, I develop a game-theoretic model of the moral hazard of contracting on violence in dictatorships and consider several extensions of that model. I examine data on military intervention in dictatorships in section 4. I conclude by discussing the implication of my argument for our understanding of the institutional organization of dictatorships and the survival of new democracies.

2 Contracting on Violence

The defining feature of dictatorships is that their governments rule without the regular and institutionalized consent of a majority of their population. In turn, authoritarian
governments frequently face threats to their position from those excluded from power. In principle, such threats may take a range of forms. However, existing research on authoritarian politics suggests that one prominent, structural source of political conflict – economic inequality – favors the employment of the military in responding to threats from those excluded from power.

In highly unequal dictatorships, a major threat to a rich ruling elite’s hold on power comes from poor peasants or workers who desire a more even distribution of wealth and political power (Boix 2003; Acemoglu and Robinson 2005). Indeed, economically unequal dictatorships frequently confront social unrest, labor strikes, land invasions, and guerilla attacks (Drake 1996; Wright 2001). The military’s size and labor intensive nature thus make it both well-suited and often the only force capable of repressing a large mass of organized and possibly armed opponents. Cross-national research finds that economic inequality is related to the tendency toward and – conditional on the level of state capacity and repression – the occurrence of mass political violence (Muller and Seligson 1987; Goodwin 2001; MacCulloch 2005). Meanwhile, historical and case study research on Latin America and Southern Europe provides rich accounts of how the threat of social unrest leads to an alliance between the military and a landed elite or the bourgeoisie (O’Donnell 1973; Stepan 1985; Drake 1996; Paige 1997).

An explanation of why the military intervenes in politics must account for why such an alliance between an authoritarian government and the military fails, even when both sides want to maintain it. I argue that contracting on violence – the cooptation of the military for domestic political repression – is complicated by an important moral hazard problem.

Brooks (1998) discusses several Middle Eastern dictatorships in which the military’s participation in domestic repression was crucial after internal security services failed to suppress riots or challenges from competitors. Thus in dictatorships, the military often serves as a repressive agent of last resort.
As David Hume (1748, 16) observed, a ruler cannot use the threat of violence against those who are in charge of dispensing it:

“The soldan of Egypt, or the emperor of Rome, might drive his harmless subjects, like brute beasts, against their sentiments and inclination: but he must, at least, have led his *mamelukes*, or *praetorian bands*, like men, by their opinion.”

Thus we frequently observe that in return for the military’s support of the government against mass domestic opposition, the government concedes greater institutional autonomy, resources, and a say in policy to the military. A classic example of such concessions are the donativa and privileges that Roman emperors gave the praetorian guards and the army in return for their support against rivals and the Senate (see e.g. Campbell 1994, Chapter 7). A modern counterpart is the autonomous sources of revenue that the military enjoyed in some dictatorships, such as the military-run enterprises in Indonesia (Crouch 1978) or its monopoly over illicit activities in Paraguay (Miranda 1990). But more frequently, the military demands and obtains greater institutional autonomy, in the form of self-rule over personnel, budgetary, and procurement decisions, as well as political influence via legislation that gives it control over internal security and places limits on the prosecution of military personnel (Pion-Berlin 1992).

Importantly, a greater amount of resources and autonomy make it easier for the military to threaten to intervene against the government should it renege on any agreement on policy or attempt to withdraw previously granted privileges from the military. Hence authoritarian contracting on violence entails a fundamental moral hazard: the very autonomy and resources that empower the military to act against any regime opposition

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5See also Tullock (1987, 21).
also empower it to act against the regime itself.

Why would the military ever intervene in politics when, given the military’s autonomy and resources, the threat of intervention alone should be sufficient to safeguard its institutional or political interests? I show that once economic inequality exceeds a particular threshold, the contract between the government and the military fails with a positive probability. Importantly, it fails even when both sides want to avoid an intervention by the military and despite the fact that the military’s primary interest is not in running the government.

Two factors contribute to the failure of contracting on violence. First, because of its limited policy expertise and bureaucratic distance from policy making institutions, the military cannot perfectly monitor whether the government is complying with any policy compromise to which it agreed. Second, from the military’s point of view, overt intervention in politics is costly. It is costly not only because it may fail – resulting in the imprisonment or death of the participants – but also because even a successful intervention will highlight political differences within the armed forces or even trigger purges of officers who opposed the intervention and therefore undermine the military’s cohesion (see Finer 1962; Huntington 1957; Nordlinger 1977; Stepan 1988; Geddes 2005).

In the next section, I develop a game theoretic model of contracting on violence. I show that the likelihood that it fails – observed as an overt military intervention in politics – has a non-monotonic relationship to the magnitude of the threat posed by those excluded from power and the autonomy and resources subsequently conceded to the military. Jointly, the informational asymmetry between the government and the military as well as the costliness of intervention to the military create both a temptation for the government to depart from its compromise with the military and a reason for the military to suspect that the
government is indeed reneging on it. I show that the military will not intervene at low levels of threats from those excluded from power, when it enjoys only a correspondingly small amount of autonomy and resources. But once threats to the government from those excluded from power exceed a particular threshold, the likelihood that the military intervenes is greatest and declines as the magnitude of those threats grows. At extreme levels of threats posed to the government, the military commands so much autonomy and resources that the possibility of intervention almost entirely deters any temptation that the government may have to depart from a policy compromise. Thus I explain why the military has no political influence in some dictatorships, why it overtly intervenes in others, and why it influences politics from behind the scenes elsewhere. In extensions of the model, I examine how a divergence in policy preferences between the government and the military affects the likelihood of military interventions and explain why – after a successful intervention – military dictatorships are subsequently vulnerable to interventions by other factions from the military.

Of course, a high level of polity-wide economic inequality does not exhaust the set of circumstances that may privilege the military in domestic repression; weak state authority, imminent foreign threats, ethnic tensions, natural resource wealth, and recent wars of independence or civil wars may also elevate the military to a prominent political role and thus enhance its capacity to intervene in government. Unfortunately, due to data paucity, measurement problems, and space constraints, I am either unable to control for most of these factors in a time-series cross-sectional analysis or can only include them as dummy variables and thus obtain only a rough estimate their effect on the likelihood of military interventions.

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6Consider, for example, South Korea after the Korean War, Nigeria in the 1960s (Luckham 1971), Equatorial Guinea after 1996 (Ghazvinian 2008), Indonesia in the 1950s (Crouch 1978), and Greece after the Civil War (Gerolymatos 2009).
intervention. I do, however, rigorously examine the effect of economic inequality on military intervention in my empirical analysis in section 4.

Nonetheless, even dictatorships without structural conditions that privilege the use of the military in domestic repression must still resolve the generic political problem of deterring those who are excluded from power from challenging the regime. In the absence of such structural conditions, however, threats to the ruling elite come predominantly from either defectors within the political elite itself or from tight-knit networks of ideological dissenters. Rather than by brute repression, this kind of potential challenge is better countered by intelligence-gathering security services. In turn, the military does not acquire the politically pivotal role that it does in economically unequal dictatorships and thus can be effectively controlled by the civilian leadership. One example of the dynamics of contracting on violence under these conditions is the subordination of the armed forces to the Communist Party throughout the existence of the Soviet Union. The Communist Party successfully controlled the military via a system of political commissars that mirrored the military command structure and directed the selection, surveillance, and indoctrination of the latter’s officer corps (Kolkowicz 1967; Taylor 2003).

A large literature identifies the origins of military interventions more narrowly in the military’s institutional or political interests (Janowitz 1964; O’Donnell 1973; Nordlinger 1977), professionalization (Stepan 1973) or the lack thereof (Huntington 1957; Perlmutter 1977), the erosion of a political culture (Finer 1962), and the operational aspects of interventions (Luttwak 1968). Importantly and by contrast, I show how an underlying, polity-wide conflict over the distribution of wealth may place the military in a politically pivotal role. Only once such preeminence translates into the military’s ability to garner

\[\text{7See Feaver (1999) for a review.}\]
greater autonomy and resources is the military in a position to intervene in politics should its political preferences or institutional interests be undermined.

These findings are based on a game-theoretic model of contracting on violence that I develop in the next section. This model builds on the growing literature on moral hazard problems in authoritarian governance. Debs (2008) and Egorov and Sonin (2005) examine the possibility of treason by a dictator’s subordinates and study its implications for the bureaucratic organization of dictatorships. Bueno de Mesquita et al. (2003) and Besley and Kudamatsu (2007) build models of accountability between a dictator and his selectorate and examine data on economic performance and leadership turnover in authoritarian regimes. Meanwhile, Myerson (2008), Boix and Svolik (2007), Gehlbach and Keefer (2008), and Svolik (2009) study commitment problems between a dictator and his ruling allies and argue that political institutions in dictatorships, such as legislatures and political parties, are devised to alleviate those commitment problems.

My motivation and conceptual claims are closest to those in Acemoglu et al. (2008), who also relate the emergence of military dictatorships to moral hazard problems in authoritarian repression and economic inequality. However, their formulation of the moral hazard problem between a dictator and the military differs from mine and leads to different empirical predictions: whereas Acemoglu et al. (2008) predict that the likelihood of military intervention should be increasing in economic inequality, my analysis instead suggests a non-monotonic relationship between the two, and I find strong empirical support for the present model in the original data that I examine in section 4.
3 A Formal Model

Consider an authoritarian *government* that faces threats to its hold on power from those excluded from power. Denote the magnitude of these threats by $R$, $R > 0$. In order to counter these threats, the government recruits the *military* and endows it with resources and autonomy of size $r$, $r \geq 0$. For any threat $R$, there is a level of autonomy and resources $\tau(R)$ that is sufficiently large to deter or defeat the threat; $\tau(R)$ is increasing in $R$. For now, suppose that the government chooses $r = \tau$ and thus the military defeats the threat $R$. Later I examine the government’s choice of $r$ in light of the trade-off between the vulnerability to threats from those excluded from power and the moral hazard in contracting on violence.

In return for supporting it against domestic threats, the government agrees to share power with the military as follows. Suppose that the polity can be in two *states* of the world, $\theta = \{A, B\}$, where state $A$ occurs with probability $\gamma$, $\gamma = Pr(\theta = A)$. The government adopts one of two *policies* $p = \{p_A, p_B\}$. Ideally, the government would adopt policy $p_A$ regardless of the state $\theta$. However, as a policy compromise with the military, the government agrees to adopt policy $p_A$ only in state $A$ and to adopt policy $p_B$ in state $B$. That is, the government agrees to adopt its preferred policy under a narrower set of circumstances than it would if it did not need the military’s support. In turn, the probability $\gamma$ measures the extent to which this policy compromise favors the government. For instance, the states $A$ and $B$ may correspond to different levels of public unrest caused by a union strike, and the policies $p_A$ and $p_B$ may correspond to the concession and rejection of the union’s minimum wage demand, respectively. Importantly, this general formulation places no restriction on the particular content of the policy preferences of the government and those of the military nor on the extent to which the policy compromise
The military prefers that the government comply with the policy compromise, but understands that the government may be tempted to renege on it by adopting its preferred policy $p_A$ regardless of the state $\theta$. It may therefore threaten to intervene, should the government renege on the policy compromise. Such an intervention – typically manifest in a coup d’état and resulting in the replacement of the civilian, authoritarian government by the military – succeeds with probability $\rho$, where $\rho$ is an increasing function of the military’s resources $r$. Alternatively, the military may acquiesce to the policy adopted by the government.

In turn, the payoffs to the government and the military depend on the policy that the government adopts, and – if the military intervenes – the outcome of the coup. In order to simplify the exposition, I normalize the government’s payoffs to $g > 1$ and 1 when the adopted policy is $p_A$ and $p_B$, respectively, and the military acquiesces or intervenes but the coup fails. The worst outcome for the government is when the military intervenes and the coup succeeds, in which case the military removes the current government. The government’s payoff in this instance is 0.

On the other hand, the military prefers that the government comply with the policy compromise. I normalize the military’s payoffs to 1 and 0 when the government complies and reneges, respectively, and the military acquiesces. As I discussed earlier, intervention is costly for the military both because it may fail and because involvement in politics may undermine its cohesion. This latter cost is borne by the military regardless of the success of a coup; I denote it by $c$, $c \in (0, 1)$. So if the military intervenes, a successful coup ensures that its preferred policy is adopted and the military receives the payoff $1 - c$. By contrast,

\footnote{Thus this model is general enough to account for the empirical variation in the governments’ and military’s preferences, see e.g. Remmer (1989).}
if the military intervenes but the coup fails, it receives the payoff $-c$. Note that the assumption that intervention is costly ensures that the military’s only motive to intervene is to deter the government from reneging on the policy compromise. That is, the military does not intervene because of a desire to rule.

Given these payoffs, the military prefers to intervene if the government reneges on the policy compromise and to acquiesce if the government complies. Crucially, however, the military only observes an imperfect signal $s = \{a, b\}$ of the state $\theta$. This assumption reflects the military’s lack of expertise in assessing complex, policy-relevant circumstances as well as its bureaucratic distance from the process of policy-making. Thus when deciding whether to acquiesce or intervene, the military bases its decision on the observed government policy $p$ and only an imperfect signal $s$ of the state $\theta$. In other words, the military knows what policy is in place but not whether that policy is being implemented according to its compromise with the government. More precisely, the probability that the military observes the signal $s$ when the state is $\theta$ is $\pi_{\theta}$. I assume that the signal $s$ is informative about the state $\theta$ in the sense of the monotone likelihood ratio property, $\pi_{aA} > \pi_{bA}$ and $\pi_{bB} > \pi_{aB}$.

I now examine a perfect Bayesian equilibrium of this extensive game with imperfect information. The timing of actions is as follows. First, the government observes the state $\theta$ and either complies or reneges on the policy compromise by choosing a policy $p$. Then the military observes the policy $p$, an imperfect signal $s$ of the state $\theta$ (but not the actual state $\theta$), and either acquiesces or intervenes. If the military intervenes, the coup either succeeds or fails with probability $\rho$.

The following is a key feature of the moral hazard problem in contracting on violence: because the military has only imperfect information about the state of the world $\theta$ and
intervention is costly, it will not be able to completely deter the government from reneging on any compromise. That is, this game does not have an equilibrium in pure strategies in which the military conditions the threat of intervention on the signal $s$ and the policy $p$ and the government complies. This is why: since the government would only want to renege by adopting policy $p_A$ in state $B$, the military may consider threatening to intervene when it observes policy $p_A$ but signal $b$ and acquiescing otherwise. Were the government to believe such a threat, it would always comply with the compromise. In turn, the military would conclude that if it observes policy $p_A$ but signal $b$, it must be due to the imperfection of the signal $s$ rather than the government’s choice of policy; the military would therefore never intervene. However, such a strategy would create a temptation for the government to renege, contradicting our original premise that the government would comply.

I therefore examine whether the military may nonetheless use the threat of intervention in order to compel the government into at least partially complying with the policy compromise. Consider, then, the following equilibrium in mixed strategies: Denote by $\alpha$ the probability with which the government reneges by adopting policy $p_A$ in state $B$ and by $1 - \alpha$ the probability with which the government complies by adopting policy $p_B$ in state $B$. Since the government prefers policy $p_A$ to $p_B$, it would not renege by adopting policy $p_B$ in state $A$. Thus by default, the government always complies in state $A$. Furthermore, denote by $\beta$ the probability with which the military intervenes if it observes policy $p_A$ and signal $b$. The military acquiesces after observing any other combination of policies and signals.

First, consider the government’s equilibrium strategy. There is a range of low values of $\rho$ according to which the likelihood of a successful intervention is so low that the military would not want to intervene even if it knew that the government reneged. To see this, recall that the military’s payoff from acquiescing after the government reneges is 0, whereas
its expected payoff from an intervention is

\[ \rho(1 - c) + (1 - \rho)(-c) = \rho - c. \quad (1) \]

In turn, the military acquiesces and the government reneges for any \( \rho < c \).

Now consider a scenario in which \( \rho \geq c \). That is, the likelihood of a successful intervention is large enough so that the military would be willing to intervene if it knew that the government reneged on the compromise. In equilibrium, the military is indifferent between acquiescing and intervening after observing policy \( p_A \) and signal \( b \). The military’s expected payoff from acquiescing is

\[ Pr(\text{renege}|p_A, b)_0 + [1 - Pr(\text{renege}|p_A, b)]_1, \]

where \( Pr(\text{renege}|p_A, b) \) denotes the military’s belief that the government reneged after observing policy \( p_A \) and signal \( b \). This belief is consistent with the government’s strategy \( \alpha \) according to Bayes’ rule when

\[ Pr(\text{renege}|p_A, b) = \frac{\pi_{bB}\alpha}{\pi_{bB}\alpha + \pi_{bA}(1 - \alpha)}. \]

Recall from (1) that the military’s expected payoff from intervening is \( \rho - c \). Then the military is indifferent between acquiescing and intervening after observing policy \( p_A \) and signal \( b \) as long as

\[ \alpha^* = \frac{\pi_{bA}(1 - \rho + c)}{(\pi_{aA} - \pi_{aB})(\rho - c) + \pi_{bA}} > 0. \quad (2) \]

Now consider the military’s equilibrium strategy \( \beta \) when \( \rho \geq c \). In equilibrium, the government is indifferent between complying and reneging. Since the government always
chooses policy $p_A$ in state $A$, we must only consider the government’s expected payoff in state $B$. In state $B$, the government’s expected payoff from complying is $1 - \gamma$, whereas its expected payoff from reneging is

$$(1 - \gamma) \left( \pi_{aB} g + \pi_{bB} \left[ \beta (\rho 0 + (1 - \rho) g) + (1 - \beta) g \right] \right) = (1 - \gamma) \left( \pi_{aB} + \pi_{bB} [1 - \rho \beta] \right) g.$$ 

Then the government is indifferent between complying and reneging as long as

$$\beta^* = \frac{g - 1}{\pi_{bB} \rho g} > 0. \quad (3)$$

In order to focus exclusively on plausible political scenarios, we must exclude large values of $g$ according to which the government would be so attracted to its preferred policy $p_A$ that it would renege even if it knew that an intervention would certainly follow. Such implausible behavior is precluded as long as $\beta^* < 1$, or equivalently

$$g < \frac{1}{1 - \pi_{bB} \rho} = \overline{g}.$$ 

We therefore expect the following equilibrium behavior:

**Proposition 1** (Military Intervention in Authoritarian Politics). In a perfect Bayesian equilibrium,

$$\alpha^* = 1, \beta^* = 0 \quad \text{if} \quad \rho \in [0, c); \quad \text{and}$$

$$\alpha^* = \frac{\pi_{bA}(1 - \rho + c)}{(\pi_{aA} - \pi_{aB})(\rho - c) + \pi_{bA}}, \quad \beta^* = \frac{g - 1}{\pi_{bB} \rho g} \quad \text{if} \quad \rho \in [c, 1].$$

In substantive terms, when the military’s resources are limited and the ensuing
likelihood of a successful intervention is low, the threat thereof is not credible. The military therefore cannot deter the government’s adoption of its preferred policy $p_A$, regardless of the state of the world $\theta$. However, once the likelihood of a successful military intervention is past the threshold $\rho = c$, the threat to intervene gains credibility and the military can check the government’s temptation to renege on the policy compromise, albeit imperfectly.

Furthermore, observe that once $\rho \geq c$, then both $\alpha^*$ and $\beta^*$ decrease in the probability of a successful intervention $\rho$.\(^9\) That is, the equilibrium probability of both the government reneging and the military intervening declines as the deterrent effect of an intervention grows. In fact, the equilibrium likelihood of military intervention is

$$\gamma p_B \beta^* + (1 - \gamma) \alpha^* p_B \beta^*, \tag{4}$$

and we may confirm that this likelihood is positive and decreasing in $\rho$ when $\rho \in [c, 1]$. The same is true about the likelihood of successful military intervention, which is \(4\) multiplied by $\rho$. Since this latter outcome is directly observable, the implications of this theoretical model can be empirically evaluated.

In turn, this equilibrium analysis suggests that the military will not intervene in politics at low levels of threats to the government - that is, in economically equal dictatorships - even if it is allocated a positive amount of resources. The likelihood of military intervention will be greatest when the military’s resources and the corresponding likelihood of a successful intervention is immediately past the threshold $\rho = c$. In that case, the military is strong enough to convince the civilian government that an intervention would occur if it reneged, but asymmetries of information and the costliness of intervention prevent the military from completely deterring the government’s temptation to renege. As the

\[ \frac{\partial \alpha^*}{\partial \rho} = \frac{-\pi_{bA} \pi_{bB}}{[\pi_{aB} - \pi_{aA}] (\rho - c) + \pi_{aA} \rho^2} < 0 \text{ and } \frac{\partial \beta^*}{\partial \rho} = -\frac{\pi_{bB} \rho^2}{\pi_{aB} \rho^2} < 0. \]
military’s resources further increase, the deterrent effect of any threat of intervention correspondingly grows. The result is increasing government compliance and thus a declining likelihood of military intervention. Figure 1 illustrates this equilibrium dynamic.

3.1 Extensions

I now extend the above, basic model in order to address several, prominent puzzles in the literature on military intervention in politics. I examine i) the choice of the amount of resources and autonomy that a government concedes to the military when it anticipates that the use of the military to repress mass challenges may result in its subsequent intervention in politics; ii) military intervention in military dictatorships; and iii) the effect of a divergence in policy preferences between the government and the military on the likelihood of military intervention.
Endogenous Choice of the Military’s Resources and Autonomy

Consider a government that anticipates that the use of the military for repression may lead its subsequent intervention in politics. This government may therefore weigh that risk against the risk of being overthrown by those excluded from power.\textsuperscript{10} In order to examine such an endogenous choice of the military’s resource allocation, we may modify our basic model to allow the government to choose any resource level \( r \) after observing a threat of magnitude \( R \) at the beginning of the game, and let those quantities determine whether the military defeats the threat at the end of the game. Accordingly, denote by \( \phi(r|R) \) the probability that the military defeats a threat of magnitude \( R \) when it has resources \( r \). Furthermore, suppose that \( \phi(r|R) \) is decreasing in \( R \) but increasing in \( r \), \( \rho(r) \) is increasing in \( r \), and recall that \( \tau(R) \) is increasing in \( R \). For instance, we may assume that

\[
\phi(r|R) = \begin{cases} 
\frac{r^2}{r^2+R^2}, & \text{for } r < \tau, \\
1, & \text{for } r \geq \tau,
\end{cases}
\]  

(5)

\[
\rho(r) = \frac{1}{1+e^{-r}} - \frac{e^{-r}}{2}, \text{ and } \tau(R) = R \sqrt{\frac{m}{1-m}}, \text{ where } m \in (0, 1). \textsuperscript{11}
\]

Our basic model implies that the government obtains the equilibrium payoff \( g \) when \( \rho < c \). In order to compute the government’s equilibrium payoff when \( \rho \geq c \), substitute \( \beta^* \) into the government’s expected payoff from complying

\[
\gamma \left( \pi_A g + \pi_B \left[ \beta^* \left( \rho \theta + (1-\rho)g \right) + (1-\beta^*)g \right] \right) + (1-\gamma),
\]

which equals the government’s expected equilibrium payoff in a mixed strategy equilibrium.

\textsuperscript{10}Bowman (2002, Chapter 5), for instance, documents this concern in the public debate over the extension of resources and privileges to the Honduran military in the 1950s, at a time of growing labor unrest in neighboring Guatemala and worries about its spillover into Honduras.

\textsuperscript{11}Hirshleifer (1989) discusses alternative functional forms appropriate for \( \phi(r|R) \) in (5).
Then the government’s expected equilibrium payoff is

\[
\hat{g} = 1 + \frac{\gamma (g - 1)(\pi_a - \pi_B)}{\pi_{bB}} < g,
\]

which does not depend on \( \rho \) and therefore remains unaffected by the choice of \( r \), as long as \( \rho \geq c \).

In turn, a government that wants to deter a threat of magnitude \( R \) should choose \( \pi(R) \) if \( \rho(\pi) < c \). That is, the government should ideally endow the military with enough resources to defeat the threat that it faces as long as that level of resources is consistent with perfect control over the military. But if \( \rho(\pi) \geq c \), the government may be willing to accept some vulnerability to any mass threat in exchange for immunity to military intervention. This trade-off will be worthwhile as long as \( \phi(r|\pi)g \geq \hat{g} \), which will hold for moderate threats that require resources \( \pi(R) \) just above the threshold \( \rho(\pi) = c \) and will depend on the functional forms for \( \phi(r|\pi) \), \( \rho(r) \), and \( \pi(R) \).

Thus when the government anticipates that the use of the military for repression will empower the latter to subsequently intervene in politics, it may endow the military with fewer resources and autonomy than are necessary to completely deter threats from those excluded from power. Importantly, this generalization does not change the non-monotonic relationship between the magnitude of those threats and the likelihood of military intervention that I examined earlier.

**Military Intervention in Military Dictatorships**

Our basic model also helps us understand the vulnerability of military dictatorships to intervention by other factions from within the military. Empirically, military dictators are more likely to be removed from office earlier than are civilian dictators and these removals
are typically carried out by other professional soldiers (Nordlinger 1977; Geddes 2005; Gandhi 2008; Debs 2009). This particular vulnerability may account for the serial correlation in the likelihood of coups in some dictatorships, as estimated by Londregan and Poole (1990). In their words, “once the ice is broken, more coups follow” (Londregan and Poole 1990, 152).

Suppose, therefore, that instead of a civilian government, it is a military government that relies on the rest of the military for the repression of mass opposition. As in the basic model, we assume that the officers in government may differ in their preferences over policies from officers who function strictly within the military. Barros (2002, Chapter 2), Fontana (1987, Chapter 2), and Stepan (1974) describe such differences within the Chilean, Argentine, and Brazilian military dictatorships.

However, when it comes to contracting on violence, military and civilian dictatorships differ from each other in three ways. First, military governments typically lack institutions and norms that facilitate information sharing. We may in turn expect that the policy making process will be less transparent under military than civilian dictatorships. Formally, this corresponds to an increase in $\pi_{bA}$ and $\pi_{AB}$. Second, following its intervention in politics, the military proper is less autonomous from the government and more factionalized. We may therefore expect that an intervention is more likely to fail than when the military acts as an autonomous, unified institution against a civilian government. In terms of our model, the value of $\rho$ declines. Third, the institutional cost of further intervention $c$ will be much smaller – essentially zero – after an initial intervention that brings the military to power and thereby diminishes its institutional integrity.

The earlier equilibrium analysis implies that two of these three factors – reduced transparency of the policy making process and greater factionalization – unambiguously
exacerbate the moral hazard problem in contracting on violence and thereby raise the likelihood of subsequent military intervention.\textsuperscript{12} Meanwhile, the effect of the decrease in the institutional cost of intervention is more nuanced: On the one hand, it bolsters the credibility of the threat of intervention and thus reduces the temptation of the military government to renege on any policy compromise with their counterparts within the military proper.\textsuperscript{13} On the other hand, intervention now occurs with a positive probability for any value of $\rho$. The present model therefore identifies three, key differences between civilian and military dictatorships in contracting on violence, two of which unambiguously imply that military dictatorships should be more vulnerable to military interventions than civilian ones.\textsuperscript{14}

**Divergence in Policy Preferences**

Finally, what is the effect of a divergence in policy preferences between the government and the military on the likelihood of military intervention? We may consider the government’s payoff $g$ from its favorite policy to be a measure of the intensity of its preference for its favorite policy $p_A$ relative to the military’s favorite policy $p_B$. On the other hand, denote the payoff that the military receives when the government complies with the policy compromise by $m$ instead of 1. Recall that $g$ is at most $\overline{g}$, which we derived in (3).

Correspondingly, $m$ can be at most $\overline{m} = c/\rho$, which ensures that the military prefers the

\begin{align*}
\frac{\partial \alpha^*}{\partial \pi_{\overline{m}}} = \frac{\pi_A (1-\rho+c)(\rho-c)}{|\pi_A - \pi_B|} > 0, \quad \frac{\partial \beta^*}{\partial \pi_{\overline{m}}} = -\frac{\pi_B (1-\rho+c)(\rho-c)}{|\pi_A - \pi_B|} < 0, \quad \text{and} \quad \frac{\partial \gamma^*}{\partial \pi_{\overline{m}}} = \frac{g-1}{\pi_B m} > 0.
\end{align*}

We have seen earlier that both $\alpha^*$ and $\beta^*$ decrease in $\rho$ for $\rho \geq c$. In turn, the likelihood military intervention in (4) increases after a decline in $\rho$.

\begin{align*}
\frac{\partial \alpha^*}{\partial \rho} = \frac{\pi_A \pi_B}{|\pi_A - \pi_B|} > 0.
\end{align*}

\textsuperscript{12}For $\rho \geq c$, $\frac{\partial \alpha^*}{\partial \pi_{\overline{m}}} = \frac{\pi_A (1-\rho+c)(\rho-c)}{|\pi_A - \pi_B|} > 0, \quad \frac{\partial \beta^*}{\partial \pi_{\overline{m}}} = -\frac{\pi_B (1-\rho+c)(\rho-c)}{|\pi_A - \pi_B|} < 0, \quad \text{and} \quad \frac{\partial \gamma^*}{\partial \pi_{\overline{m}}} = \frac{g-1}{\pi_B m} > 0. \quad \text{We have seen earlier that both $\alpha^*$ and $\beta^*$ decrease in $\rho$ for $\rho \geq c$. In turn, the likelihood military intervention in (4) increases after a decline in $\rho$.}

\textsuperscript{13}Debs (2009) offers an alternative explanation for why military dictators lose power sooner and more violently than civilian ones: military dictators are unable to credibly share power if they temporarily lose support. If a military dictator temporarily loses support and needs to recruit allies, a potential ally suspects that a military dictator would use his capacity for violence to get rid of him later, once the ally’s support is not longer needed. In turn, military dictators are more likely to lose power and be eliminated after a temporary loss of influence than to overcome such a crisis by sharing power.

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policy compromise to intervening in order to govern the polity; this follows from (1).

Given these modifications, the equilibrium probability $\beta^*$ with which the military intervenes remains the same. However, the government now reneges with the equilibrium probability

$$\alpha^* = \frac{\pi_{bA}[m(1 - \rho) + c]}{(\pi_{aA} - \pi_{aB})(m\rho - c) + \pi_{bA}}.$$  

Following (4), we can confirm that the equilibrium likelihood of military intervention is increasing in the divergence of policy preferences between the government and the military.\(^{15}\) The present model therefore implies that military intervention is more likely to occur when policy preferences differ greatly between the government and the military. In fact, a large empirical literature identifies policy differences between the government and the military as one, immediate cause of military interventions (see e.g. Stepan 1974). Crucially, the present, extended model also explains why contracting on violence fails even if both the government and the military prefer to avoid military intervention despite those policy differences. In turn, military recruitment based on tribal or religious loyalties that we observe in some dictatorships may be seen as an attempt to minimize the negative effect that a divergence in preferences between the military and the government has on the likelihood of military intervention. In the context of our model, the preferential treatment of Alawis in Syria under Hafiz al-Asad (van Dam 1979, Chapter 9) and the Tikritis in Iraq under Saddam Hussein (Batatu 1978, Chapter 58) brought the preferences of the military closer to those of the government.

\(^{15}\) $\frac{\partial \beta^*}{\partial \rho} = \frac{1}{\pi_{bB}\rho^2} > 0$; $\frac{\partial \Pr(\text{military intervention})}{\partial m} = \frac{(1 - \gamma)\pi_{bA}\pi_{aB}(g - 1)}{\rho g[(\pi_{aA} - \pi_{aB})(m\rho - c) + \pi_{bA}m]^2} > 0$. 

23
4 Empirical Analysis

I now examine empirical evidence for the non-monotonic relationship between economic inequality and military intervention in authoritarian politics that I predict. My theoretical argument implies that the military will enjoy greater autonomy and resources in highly unequal dictatorships. However, my argument also implies that the *observed* empirical association between military intervention and inequality should be non-monotonic. At low levels of economic inequality, military interventions should be rare. As inequality grows, the threat of military intervention should become more credible, and we should observe more unequal dictatorships experience more military interventions. But at a certain point, this relationship should revert: fewer military interventions will occur at extremely high levels of inequality. This is because at a high level of inequality, the military enjoys a great amount of institutional autonomy and material resources. Were the government tempted to depart from any policy compromise, an intervention would almost certainly succeed if it were staged. The strong credibility of this threat thus obviates the need for an overt intervention.

In order to thoroughly evaluate my theoretical claims, I use two different measures of military intervention: the participation of the military in the *entry* and *exit* of leaders. My original data on these measures of military intervention covers leadership change in all authoritarian regimes throughout the period 1946-2002.\(^{16}\) The data consist of 738 leaders from 139 countries, with between 1 and 47 annual observations per leader and between 1 and 24 leaders per country. The military has intervened in the entry of 291 and in the exit of 224 of the 738 authoritarian leaders. In the analysis below, I find strong support for the

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\(^{16}\)My coding of regime type is based on my own data collection as well as a revision of regime type data compiled by Przeworski et al. (2000), Boix and Rosato (2001), and Cheibub and Gandhi (2005).
predicted, non-monotonic relationship between economic inequality and military intervention. Notably, this association holds regardless of the measure of military intervention that I employ.

The two outcomes that I consider—military intervention in the entry and exit of leaders—capture key aspects of military intervention in authoritarian politics. The most frequent form of leadership change in authoritarian regimes is the coup d’etat: it accounts for about 28% of all leader entries and exists overall and for more than 60% of leader entries and exists when we exclude constitutional leader changes, such as elections, natural deaths, or hereditary successions. Militaries have staged about 86% of the coups that have installed new leaders, and 59% of military leaders come into office via a coup. Yet as these frequencies imply, military interventions often occur in forms other than that of a coup and many leadership transitions in dictatorships do not involve the military. The two measures of military intervention I use therefore correspond to distinct ways in which the military may intervene and together provide a comprehensive measure of military intervention in authoritarian politics. As a summary of the worldwide pattern of military interventions throughout the period 1946-2002, I plot the average annual frequency of military interventions in leader entry or exit by country in Figure 2.

In order to test my arguments rigorously, I also employ two, distinct measures of economic inequality: the Gini coefficient and the Theil statistic. My data on Gini coefficients come from Babones (2008); this is a cleaned and standardized version of the frequently used data by Deininger and Squire (1996) and UNU-WIDER (2008). The Theil statistic is an alternative, entropy measure of inequality collected by the University of Texas Inequality Project (UTIP-UNIDO 2008). Although the two inequality measures are not directly comparable, both increase with the level of a country’s inequality. For
dictatorships, the Gini coefficient ranges from 16 (Bulgaria in 1968) to 68 (Sierra Leone in 1989), whereas the Theil statistic is between 20 (Czechoslovakia in 1988) and 64 (Paraguay in 1991). According to both measures, communist regimes are the most economically equal of dictatorships; both measures list oil-rich Middle Eastern monarchies as well as some South American and sub-saharan African countries as the most unequal of dictatorships. The correlation coefficient of the two inequality measures is 0.76.

Although both measures of economic inequality represent the most extensive coverage available, missingness severely impacts the data on dictatorships: either measure is available for at most 34% of the 5,393 country-years in these data. In order to examine as representative a sample as possible, I work with two modifications of these data. First, I use the polynomial intra- and extrapolations of the Gini coefficient conducted by Babones (2008). Second, in order to expand the coverage of the Theil data, I perform a multiple imputation of missing values (Rubin 1987; King et al. 2001). This second approach is a statistically superior one; estimates based on multiple-imputed data account for the uncertainty associated with missing values (Rubin 1987).
Table 1: Military Intervention in Dictatorships by Level of Economic Inequality

<table>
<thead>
<tr>
<th>Form of Mil. Intervention</th>
<th>Inequality (Gini)</th>
<th>Leader Entry</th>
<th>Leader Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 34.89</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>35.51-42.47</td>
<td>45%</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>42.49-47.01</td>
<td>49%</td>
<td>39%</td>
</tr>
<tr>
<td></td>
<td>47.08-53.44</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Above 53.61</td>
<td>31%</td>
<td>27%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of Mil. Intervention</th>
<th>Inequality (Theil)</th>
<th>Leader Entry</th>
<th>Leader Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below 39.74</td>
<td>33%</td>
<td>29%</td>
</tr>
<tr>
<td></td>
<td>39.74-42.89</td>
<td>38%</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>42.89-45.37</td>
<td>37%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>45.37-48.28</td>
<td>36%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>Above 48.28</td>
<td>32%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Note: Inequality intervals correspond to the quintiles of each measure. The unit of observation is a leader-year.


imputations, I use statistical routines developed by Honaker and King (2009), which are appropriate for cross-sectional time-series data and lead to very sensible imputed values.\(^{17}\)

As a preliminary test of the predicted, non-monotonic relationship between military intervention and inequality, consider the frequency of the two measures of military intervention at different levels of economic inequality. These relationships are summarized in Table 1. The five inequality intervals correspond to the quintiles of each measure. With one exception, we see that the frequency of military interventions is first increasing and then decreasing in inequality, as my theoretical model predicts. This pattern holds across the two, distinct measures of military intervention and for both measures of economic inequality.

I now investigate the relationship between economic inequality and military intervention in dictatorships statistically, accounting for covariate effects and estimation concerns that are specific to cross-sectional time-series data on dictatorships. My earlier, theoretical

\(^{17}\)I properly impute 40 datasets. Given the current rate of missingness, the relative efficiency (Rubin 1987, 114) of this number of imputations exceeds 99%. Further details about the multiple imputation procedure along with the imputed data are available at the author’s website.
discussion as well as existing research suggest that several factors other than economic inequality may be associated with military intervention in authoritarian politics. Among economic factors, poverty and economic recessions may facilitate military intervention (see e.g. O’Kane 1981; Londregan and Poole 1990). Thus I control for GDP per capita and GDP growth. On the other hand, a dictatorship’s integration in the world economy may deter military intervention; I therefore control for trade openness. In dictatorships that are rich in natural resources, conflict over control of those resources may increase the likelihood of military intervention. I measure natural resource wealth with the dummy variable fuel and ore exports that takes the value one if a country’s annual fuel or ores and metal exports amount to more than 10% of its merchandise exports and zero otherwise. These data come from Eichengreen and Leblang (2008), Maddison (2008) and the World Bank (2008).

In order to account for the possibility that the military enjoys a privileged political position in dictatorships that have recently fought a war, I create two dummy variables interstate war and civil war, which take the value one if a country has fought or intervened in the corresponding war during any of the last three years and zero otherwise. These variables are based on the Correlates of War data (Sarkees 2000).

I also control for a dictatorship’s ethnic and religious composition, given that the potential for ethnic or religious strife may affect the likelihood of military intervention. I therefore include a measure of ethnic and linguistic fractionalization as a control variable; these data come from La Porta et al. (1999).

Furthermore, international factors, such as the Cold War struggle between the United States and the Soviet Union or the prevalence of democracy in the world, may independently affect the likelihood of military intervention in dictatorships. Accordingly, I include a dummy variable for the Cold War, which takes the value one between the years
1945 and 1990 and zero otherwise, as well as a covariate that measures the proportion of democracies among a dictatorship’s neighbors in any given year. I created these data by combining regime type data with the contiguity data in the Correlates of War (2006).

In an extension of my theoretical model, I explained why military dictatorships are vulnerable to intervention by other factions within the military. In fact, Geddes (2005), Gandhi (2008, Chapter 6), and Debs (2009) found that leaders of military dictatorships are less likely to survive in office than are leaders of civilian dictatorships. In order to avoid conflating military intervention in authoritarian politics in general with the political instability that may be particular to military dictatorships, I control for whether the previous or current authoritarian leader came from the military. More specifically, in models for leader entry, I control for whether the preceding leader’s primary position prior to taking office was in the military. In models for leader exit, I control for whether the current leader’s primary position prior to taking office was in the military. About 31% of all leaders, or those in 1,667 out of the 5,393 country-years that the data cover, held a primarily military position prior to taking office.

Finally, in order to account for potential serial correlation in military interventions, I include the log of time since the last military intervention within a country. That is, I control for the possibility that coups may breed further coups (see e.g. Londregan and Poole 1990). I lag each covariate by one year in order to maintain their exogeneity with respect to military intervention. In order to facilitate exposition, I suppress time subscripts for all covariates.

The two measures of military intervention that I employ – intervention in the entry and exit of authoritarian leaders – are dichotomous outcomes: in any country-year, either a military intervention occurred or not. I therefore estimate a logistic regression model for
each measure. However, the standard logistic model assumes that, after accounting for covariates, observations on any two authoritarian leaders are independent. That is unlikely to be the case in the present setting, since we may reasonably expect that even after accounting for available covariates outcomes for leaders from the same country will be correlated. For instance, based on our qualitative knowledge of PRI-era Mexico, we may anticipate that factors specific to Mexico, which cannot be readily included as covariates, reduce the chances that any Mexican leader will be removed by the military. On the other hand, country-specific unobserved factors may affect the likelihood of military intervention in Myanmar in the opposite direction. In order to avoid any estimation bias resulting from such unobserved, country-specific heterogeneity, I estimate a country-level random-intercept logistic regression model of military intervention.\footnote{A fixed-effects model is not suitable here because several of the country-level covariates do not vary over time, and several countries either contribute only a few observations or do not experience a military intervention; see Beck and Katz (2001) and Cameron and Trivedi (2005, 701-2).}

In a random-intercept logistic regression model, intercepts are allowed to vary across groups of observations according to a probability distribution.\footnote{See Rabe-Hesketh and Skrondal (2008), Gelman and Hill (2006), and Cameron and Trivedi (2005) for a discussion of multilevel models.} In the present context, I assume that leaders from the same country will share a common random effect $\alpha_{j[i]}$ that is distributed normally with a mean of zero and variance $\sigma^2_\alpha$, which I will estimate. Thus $\alpha_{j[i]} \sim N(\alpha, \sigma^2_\alpha)$, where I denote leaders by $i$ and countries by $j$. A positive $\alpha_j$ implies that leaders from country $j$ are more likely to experience military intervention. In turn, random effects $\alpha_j$ capture the combined effect of unobserved or omitted country-level factors.

I present estimation results based on the random-intercept logistic regression model in Table 2. In order to evaluate the predicted, non-monotonic relationship between military intervention and economic inequality, I include a quadratic term for the latter factor. Accordingly, the likelihood of military intervention is first increasing and then decreasing in
economic inequality when the linear term is positive and the quadratic term is negative. Indeed, this is the case for both forms of military intervention, as predicted. Importantly, the non-monotonic association between economic inequality and military intervention is statistically significant in all specifications. Furthermore, a likelihood-ratio test indicates that including the quadratic term for economic inequality significantly improves the fit of two out of the four specifications and provides a comparable fit in the remaining two. Thus we see strong support for the predicted, non-monotonic association between economic inequality and military intervention in dictatorships.

In order to illuminate the substantive implications of these results, I plot the estimated effect of economic inequality on military intervention in Figure 3. These plots are based on the Gini data; corresponding plots based the Theil statistic are almost identical. Recall that the likelihood of military intervention depends on both the covariates and the unobserved, country-level random effects, the size of which is not directly estimated. However, we can treat the random effects as parameters and estimate their size using empirical Bayes methods (see e.g. Gelman and Hill 2006; Rabe-Hesketh and Skrondal 2008). Accordingly, the grey lines in Figure 3 trace the estimated relationship between military intervention and economic inequality for each country in the data, conditional on the size of its random effect; the remaining covariates are held at their sample medians. The black line corresponds to a country with the median random effect. Thus we see, for instance, that for the median country, an increase in the Gini coefficient from 25 (e.g. Bulgaria in the 1980s) to 40 (e.g. Morocco in the 1980s) raises the likelihood of military intervention in leader entry by about eightfold, from 0.05 to 0.40. This likelihood peaks at

---

20 I follow Li et al. (1991) when computing likelihood-ratio tests for multiple imputed data.
21 These medians correspond to a country during the Cold War with the annual GDP per capita of $1,542, GDP growth of 1.67%, log of trade openness of -0.84, an index of ethnolinguistic fractionalization of 0.35, 20% democratic neighbors, that had its last military intervention 37 years ago, is not a major fuel exporter, and is not engaged in an interstate or civil war.
Table 2: The Impact of Economic Inequality on Military Intervention in Dictatorships

<table>
<thead>
<tr>
<th>Inequality Measure:</th>
<th>Form of Military Intervention</th>
<th>Leader Entry</th>
<th>Leader Exit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gini</td>
<td>Theil</td>
<td>Gini</td>
</tr>
<tr>
<td>Inequality</td>
<td>0.460**</td>
<td>0.462*</td>
<td>0.331**</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.278)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>Inequality²</td>
<td>-0.005**</td>
<td>-0.005*</td>
<td>-0.003**</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.003)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Log of GDP per capita</td>
<td>-0.075</td>
<td>-0.140</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>(0.315)</td>
<td>(0.272)</td>
<td>(0.237)</td>
</tr>
<tr>
<td>GDP growth</td>
<td>0.012</td>
<td>0.013</td>
<td>-0.016</td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td>(0.024)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Log of Trade of Openness</td>
<td>0.005</td>
<td>0.014</td>
<td>-0.068</td>
</tr>
<tr>
<td></td>
<td>(0.139)</td>
<td>(0.090)</td>
<td>(0.083)</td>
</tr>
<tr>
<td>Fuel and Ore Exports</td>
<td>-0.632*</td>
<td>0.040</td>
<td>-0.139</td>
</tr>
<tr>
<td></td>
<td>(0.370)</td>
<td>(0.445)</td>
<td>(0.271)</td>
</tr>
<tr>
<td>Cold War</td>
<td>-1.203*</td>
<td>0.557</td>
<td>0.494</td>
</tr>
<tr>
<td></td>
<td>(0.632)</td>
<td>(0.419)</td>
<td>(0.435)</td>
</tr>
<tr>
<td>Democratic Neighbors</td>
<td>-1.539**</td>
<td>-0.488</td>
<td>-0.431</td>
</tr>
<tr>
<td></td>
<td>(0.599)</td>
<td>(0.622)</td>
<td>(0.514)</td>
</tr>
<tr>
<td>Ethnic Fractionalization</td>
<td>-1.196</td>
<td>-0.016**</td>
<td>-0.848</td>
</tr>
<tr>
<td></td>
<td>(0.984)</td>
<td>(0.008)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Interstate War</td>
<td>-1.146**</td>
<td>-0.574</td>
<td>-1.809*</td>
</tr>
<tr>
<td></td>
<td>(0.550)</td>
<td>(0.788)</td>
<td>(1.076)</td>
</tr>
<tr>
<td>Civil War</td>
<td>0.054</td>
<td>0.374</td>
<td>-0.009</td>
</tr>
<tr>
<td></td>
<td>(0.489)</td>
<td>(0.412)</td>
<td>(0.155)</td>
</tr>
<tr>
<td>Military Leader</td>
<td>0.066</td>
<td>0.646**</td>
<td>0.054</td>
</tr>
<tr>
<td></td>
<td>(0.415)</td>
<td>(0.321)</td>
<td>(0.375)</td>
</tr>
<tr>
<td>Log of Time</td>
<td>-0.339***</td>
<td>-0.402**</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.120)</td>
<td>(0.158)</td>
<td>(0.155)</td>
</tr>
<tr>
<td></td>
<td>(4.740)</td>
<td>(7.229)</td>
<td>(4.162)</td>
</tr>
<tr>
<td>S.d. of the random effect, $\sigma_\alpha^a$</td>
<td>1.253***</td>
<td>1.400***</td>
<td>0.980***</td>
</tr>
<tr>
<td>LR test of quadratic fit, $\chi^2_1$</td>
<td>4.18**</td>
<td>1.79</td>
<td>4.08**</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-176.98</td>
<td>-231.181</td>
<td>-426.918</td>
</tr>
<tr>
<td>Observations</td>
<td>307</td>
<td>409</td>
<td>2436</td>
</tr>
<tr>
<td>Leaders</td>
<td>307</td>
<td>409</td>
<td>350</td>
</tr>
<tr>
<td>Countries</td>
<td>71</td>
<td>95</td>
<td>74</td>
</tr>
</tbody>
</table>

$^a$Standard deviation of the country-level, random effect; significance levels are based on the $\frac{1}{2} \chi^2_0 + \frac{1}{2} \chi^2_1$ likelihood ratio test statistic.

Note: Estimation results for a country-level, random-intercept logistic regression model. Unit of observation is a leader in the models for entry and a leader-year in the models for exit. Robust standard errors (clustered by country) in parentheses. Significance levels *10%, **5%, ***1%, one-sided hypothesis tests for Inequality and Inequality².

Data Sources: See text. All covariates are lagged by one year.
0.50 when the Gini coefficient is around 50 and declines thereafter. But note that the effect of inequality on military intervention may be much larger or smaller depending on the values of the country-specific random effects, as this plot indicates. We see a similar effect of economic inequality on military intervention in leader exit, although the extent of the unobserved, country-level heterogeneity in this model is larger.

In addition, we may use the estimated random effects as a diagnostic of model fit. More specifically, we can use our qualitative knowledge of the data to try to identify the unobserved, country-level factors that may explain those random effects that depart the furthest from the population mean. In all of the specifications in Table 2, Mexico ranks near the bottom of the distribution of the predicted random effects, whereas Greece ranks near the top. That is, given their levels of economic inequality and other covariate values, these two countries experienced too little and too much military intervention, respectively. The unique institutional features of Mexican politics during the hegemony of the
Institutional Revolutionary Party (Magaloni 2006; Greene 2007) and the legacy of the Greek civil war (Gerolymatos 2009) figure prominently in the political history of the two countries and may therefore be just such country-level factors that account for their deviations. This close match between the estimated random effect size and our qualitative, country-specific knowledge provides an informal indication that the present, random-intercept specification fits the data well.

The estimated effects of the remaining covariates on the likelihood of military intervention are as expected for a majority of covariates and specifications. However, only a few of these covariates are significant at conventional levels of statistical significance across all four specifications. A positive coefficient implies an increase in the likelihood of the associated form of military intervention. Thus we see, for instance, that the likelihood of military intervention in leader entry decreases in the time since the last military intervention within a country. Yet contrary to the findings in the existing large-N research on coups d’état (O’Kane 1981; Londregan and Poole 1990), a decrease in GDP per capita or GDP growth does not consistently raise the likelihood of military interventions. Importantly, however, previous studies did not account for the possible effect of economic inequality on the likelihood of military interventions. My results suggest that in terms of both the direction of the effect and statistical significance, economic inequality is a more robust predictor of military intervention in authoritarian politics than economic recessions or low levels of economic development.

Finally, the estimation results that I have presented are robust to alternative estimation methods. Estimates based on the standard, pooled logistic model are identical in their qualitative implications, with coefficient estimates statistically significant at even higher levels. Nonetheless, a likelihood-ratio test of the estimated random effect variance suggests
that between-country unobserved heterogeneity is large enough to warrant the random-intercept approach in all four models. We may further assess whether a more complex, random-coefficient model is appropriate. That is, we may model the effect of country-level, unobserved factors on the likelihood of military intervention via both a random effect on the intercept as well as a separate, random effect on the coefficients associated with inequality and resource wealth. Estimates based on this model confirm the non-monotonic effect of inequality on the likelihood of military intervention. However, a likelihood-ratio test of the estimated variance of the random coefficients suggests that this more complex model does not improve the fit of the random-intercept model that I have examined.\footnote{The present results are also robust to alternative specifications and measures of military intervention. I obtain qualitatively identical results when using Geddes’s (2005), Cheibub and Gandhi’s (2005), or Banks’s (2001) coding of military dictatorships as a measure of military intervention. Similarly, estimation results do not significantly change when I only consider military interventions against civilian leaders, or when I estimate the models for leader exit using only the last observed year per leader.}

To summarize, the empirical analysis in this section provides strong support for the theoretical arguments that I have presented. Both the descriptive statistics and estimation results support the predicted, non-monotonic association between economic inequality and military intervention in dictatorships. I have examined original, detailed data that distinguish between military interventions in the entry and exit of leaders. I furthermore employed two different measures of economic inequality, the Gini coefficient and the Theil statistic. In order to account for the limited availability of cross-national data on inequality in dictatorships, I performed a multiple imputation of missing values. I also estimated a country-level, random-intercept logistic regression model in order to control for the effect of unobserved or omitted country-level factors, and I obtained similar results using alternative specifications. Thus the results of this empirical analysis strongly support my theoretical claims and are robust to different measures of economic inequality, a range of statistical
specifications and estimation methods, and hold for two distinct forms of military intervention.

5 Conclusion

In this paper, I present a new explanation for why the military intervenes in authoritarian politics. Some dictators must rely on the military in order to deter challenges to their rule. This occurs when an underlying, polity-wide conflict results in threats to those in power that take the particular form of mass, organized, and potentially violent opposition; such threats characteristically emerge in economically unequal dictatorships. Once the military acquires this pivotal political role, it demands autonomy, resources, and influence over policies from the authoritarian regime in return for its support. We may say that the dictatorship is “contracting on violence” when it concedes to the military’s demands in exchange for its repression of mass threats.

I show that contracting on violence entails a fundamental moral hazard problem, which may result in overt military intervention in authoritarian politics: the very autonomy and resources that empower the military to repress any regime opposition also empower it to act against the regime itself. More precisely, contracting on violence fails with a positive probability when the magnitude of threats from those excluded from power surpasses a particular threshold. Once threats to the government exceed that threshold, the likelihood that the military intervenes is greatest and declines as the magnitude of those threats grows.

Importantly, any contract on violence may fail in spite of the fact that both the military and the authoritarian government prefer to avoid an overt military intervention in politics. Thus I explain why the military repeatedly intervenes in the politics of some dictatorships
but remains under firm civilian control in others. Since overt military interventions frequently result in the establishment of military dictatorships, I thereby explain the origins of this conceptually and empirically prominent category of dictatorships.

My arguments therefore imply that, in general, dictatorships counter threats from the masses only by incurring the cost of being vulnerable to challenges from within the ruling apparatus – in this case, military intervention. This trade-off suggests an explanation for the following, seemingly counterintuitive pattern in leadership change in dictatorships: despite the fact that dictatorships entail the rule of a minority over a majority without its consent, we observe few dictatorships that are overthrown by a mass, opposition movement while many are undermined by others from within the ruling apparatus (see e.g. Svolik 2009). My argument explains why the generic conflict between the elites in power and the masses excluded from power may be overshadowed by the moral hazard problem of contracting on violence between the elites in power and the repressive agents of the regime. Thus military intervention in politics can be considered an indirect, political cost of authoritarian repression.

Throughout this paper, my theoretical and empirical analysis has focused on the problem of contracting on violence in authoritarian regimes. My arguments, however, do imply an account of military interventions in democracies: such interventions will most likely occur in new democracies that emerged from either economically unequal dictatorships or those in which the military intervened prior to the democratic transition. These democracies inherited militaries with substantial autonomy and resources. When new democratic majorities attempt to limit these privileges or adopt policies that depart radically from the military’s preferences, the military therefore has both an incentive and – by virtue of its particular authoritarian past – a sufficient capacity to intervene.
These implications are consistent with historical, case-research as well as large-N studies of democratic survival. Consider, for instance, the case of the Thai Prime Minister Chatichai Choonhavan: Chatichai’s democratically elected government was deposed by the military in 1991, after he replaced the commander of the armed forces without first consulting the military and attempted to establish stronger civilian control over the military. Moreover, Thailand’s 1990 Gini coefficient of 48.8 places it in the top quintile of the worldwide inequality distribution and several of Thailand’s elected governments have been removed by the military both before and after the coup against Chatichai.

Statistical analyses of democratic survival indicate that the link between economic inequality, the military’s autonomy under dictatorship, and its subsequent intervention in the politics of new democracies holds for a world-wide cross-section of countries. Boix (2003) and Houle (2009) find that authoritarian reversals are more likely in unequal democracies. Cheibub (2007) finds that countries that were governed by the military before becoming democracies are more likely revert to a dictatorship. Svolik (2008) shows that a military, authoritarian past impedes democratic consolidation. In fact, in my empirical analysis I examined military interventions in the entry of leaders that include dictators that entered office after military interventions in the tenure of both authoritarian as well as democratic leaders. These empirical findings thus provide preliminary support for an important extension of the theoretical model that I presented: Democracies whose militaries had acquired substantial autonomy and resources prior to their democratic transition are more likely to experience military interventions in politics.

Finally, my arguments suggest that the institutional make-up of dictatorships is endogenous to underlying, structural factors within these polities. Such structural factors –

\[23\text{See “Seventeenth time unlucky,” } \textit{The Economist}, \text{ March 2, 1991.}\]
in this case, economic inequality – then determine the form and magnitude of the
polity-wide political conflict and, in turn, the dictatorship’s optimal institutional response
to any resulting threat to its hold on power. Thus I demonstrate how structural factors in
dictatorships determine the institutional features and form of leadership change in these
regimes: these two outcomes result against this structural backdrop from an equilibrium
interaction between those in power, those excluded from power, and the pivotal, repressive
agents of the regime.

References


Acemoglu, Daron, Davide Ticchi, and Andrea Vindigni. 2008. “A Theory of Military Dicta-


Beck, Nathaniel and Jonathan N. Katz. 2001. “Throwing out the Baby with the Bath Water:

Paper*.


Debs, Alexandre. 2009. “Living by the Sword and Dying by the Sword? Leadership Transi-


Stepan, Alfred. 1985. “State power and the strength of civil society in the Southern Cone of Latin America.” In Evans, Peter B., Dietrich Rueschemeyer, and Theda Skocpol (Eds.), “Bringing the state back in,” Cambridge University Press.


Svolik, Milan and Seden Akcinaroglu. 2006. “Government Change in Authoritarian Regimes.”


