How Risky is Nonviolent Dissent?
Mass Killings and the Dynamics of Popular Uprisings

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Abstract: Why do mass killings occur during some popular uprisings but not others? From anti-Soviet uprisings in Cold War Eastern Europe to the Arab Spring, some civil conflicts have elicited state-led massacres while others have faced much lower-intensity levels of state coercion. In this article, we show how focusing on characteristics of the uprising itself help to predict this variation better than focusing solely on the characteristics of the regimes they oppose. We identify the factors associated with mass killings that occur during and after major episodes of contention (MECs). Drawing on data from 1955-2014, we develop a series of models that (1) identify the structural and campaign-level correlates of mass killings during and after popular uprisings; and (2) validate those models by forecasting out-of-sample atrocities. Structural variables associated with mass killings during national uprisings are generally consistent with those identified by prior literature on atrocities more generally. However, characteristics of the campaigns—such as whether the episode is primarily nonviolent, the elicitation of foreign support for the campaign or the regime, and the behavior of the military during the episode—also play a crucial role. While campaign-level factors play less of a role in post-conflict mass killings, we find that the duration of the preceding episode continues to influence whether a mass killing takes place after the crisis as well. These findings further demonstrate the case for observing the behavior of various actors in the midst of popular uprisings as a way to better explain, anticipate, and prevent atrocities. We conclude by briefly identifying the implications of this study for scholars, human rights advocates, and dissidents themselves.

Key Words: repression, mass killing, atrocities, dissent, contention, civil war, nonviolent resistance

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Why do some popular uprisings experience mass killings[1] while others do not? For instance, in Tunisia, where the Arab Spring began, ruling dictator Zine El Abidine Ben Ali ordered his military to crack down on peaceful protestors in early 2011. Although security forces did use lethal repression against the opposition, it was limited relative to the impressive scale of popular mobilization. Instead, the military resisted Ben Ali's orders to escalate and averted a mass killing. Since then, Tunisia has emerged as a relatively stable society with promising trends toward democratic consolidation.

In Syria, however, we see the opposite: primarily nonviolent uprisings in March 2011 turned into an armed struggle by July 2011. Mass killings commenced the same year, followed by a full-fledged civil war, de facto state collapse, and continuing mass violence against rebels and civilian noncombatants alike. In Bahrain, a nonviolent uprising ended without success but also without mass slaughter. In Yemen and Libya, on the other hand, major upheavals have been followed by mass killings, along with civil war, state collapse, and continuing contestation of sovereign power.

Extant studies of mass killings generally focus on how structural factors – like long-standing subgroup discrimination, state capacity, and authoritarianism – and violent conflict interact to create the motivation and opportunity for states to commit atrocities (Mukherjee and Koren 2019; Goldsmith, et al 2013; Valentino, et al 2004; Kalyvas 2006; Sullivan 2016; Davenport 2008; Downes 2008; Valentino 2004; Hill & Jones 2014; Davenport 2007). But for policymakers, this creates two problems: first, slow-moving structural indicators provide little explanatory leverage over the precise timing of mass atrocities, and they are also relatively difficult to influence in the short-term. Second, our understanding of mass killings is primarily limited to cases of violent conflict. As with Tiananmen Square, the Iranian Revolution, and the Saffron Revolution in Myanmar, mass killings can occur during or after nonviolent uprisings as well (Eck and Hultman 2007; Sutton, Butcher, and Svensson 2014). Nonviolent uprisings have supplanted armed insurrections as the dominant mode of mass mobilization over the past three decades (Chenoweth 2020), yet we still know little about when, where, and why states escalate from limited levels of repression to brutal and widespread crackdowns in some cases but not others.

In this article, we refocus attention away from exclusively state-oriented factors and toward the characteristics of contentious action that influence the likelihood of mass killings. This includes the primary mode of contention (e.g. nonviolent or violent), whether external sponsors supporting dissidents or the regime, the dissidents' goals, and the defection or cohesion of the armed forces. To evaluate the utility of such dynamic indicators in anticipating mass killings, we employ out-of-sample forecasting techniques to study the universe of popular uprisings between 1955 and 2014. As we elaborate in the following pages, forecasting has many benefits that make it is particularly useful from a policy perspective. For instance, while correlational analyses can identify factors that are historically associated with mass killings across time, forecasting strategies can identify factors that have the greatest effect on our ability to predict them. Our interest is in prediction with an eye towards prevention.

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[1] We borrow this definition from Ulfelder and Valentino (2008), whose data on mass killings we use in the coming analyses. We define mass killings as the intentional killing of 1,000 or more civilian noncombatants by government led or directed forces in a sustained event. For a further discussion of this definition, refer to their article.

Our findings reveal that that campaign characteristics[2]—such as whether the dissidents remain primarily nonviolent, whether military agents defect, and the degree of external involvement in the crisis—play important roles in predicting when and where mass killings occur. In some models, we even find that campaign-level factors outperform structural models alone. This suggests that dynamics unfolding during these episodes strongly shape the motivation, opportunity, and constraints for atrocities to occur. Our results also reveal a counterintuitive finding: that unarmed dissidents with an exclusively local support base may appear to be the most vulnerable to state violence, but they are the least likely to provoke it.

Taken together, this paper demonstrates the utility of forecasting methods from an applied policy perspective, and in the value in combining both slow-moving structural and fast-moving dissent dynamics into our theoretical and statistical models. These findings also advance our understanding of mass killings and the dynamics of repression. As such, they are especially useful for those seeking to prevent and forestall atrocities. Barack Obama noted, "Preventing mass atrocities and genocide is a core national security interest and a core moral responsibility of the United States" (The White House, 2011). And even as Donald Trump's administration weakens support for international institutions that might help to prevent mass killings, our findings show that those active in resistance movements also have agency in forging the trajectory of these conflicts.

The Puzzle: Variation in Mass Killings in the Context of Mass Mobilization

Mass killings[3] refer to events where "state agents result in the intentional death of at least 1,000 noncombatants from a discrete group in a period of sustained violence" (Ulfelder and Valentino 2008, 2).[4] This definition includes acts of genocide, where particular ethnic or social groups are targeted with violence, as well as acts of politicide that target political rivals and oppositionists.[5] In all cases, the casualties result from intentional state violence that is directed at civilians.

Government-led mass atrocities are not uncommon. The Political Instability Task Force (PITF) identified 156 mass killings between 1955 and 2013, representing ongoing atrocities in 1,307 country-years. Figure 1 plots the frequency of ongoing mass killings over time. This shows that mass killings spiked in the early 1990s but remain an enduring problem. Although data for the most recent years has not yet been compiled, reports suggest that governments in Syria, China, Egypt, Yemen, and Iran have committed mass atrocities since 2013.

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[2] Defined in detail below. We use the terms "campaigns," "uprisings," "episodes" and "struggles" interchangeably. We use the words "nonviolent," "civil," "peaceful," and "unarmed" interchangeably. We use the terms "violent" and "armed" interchangeably. The term "dissidents" refers to both armed and unarmed resistance actors, although we use the term "activists" to refer specifically to nonviolent dissidents.

[3] We use the terms "mass killings" and "mass atrocities" interchangeably to refer to the same underlying events defined on page 2.

[4] Definitions of mass killings vary across data sets. For instance, some require civilian deaths to be intentional while others do not, and the threshold for inclusion similarly varies. For instance, UCDP data on one-sided violence against civilians has no lower bound. We therefore utilize data from Ulfelder and Valentino owing to the intentionality and the relatively high threshold of 1,000 civilian deaths in a sustained event in order to clearly distinguish it from lower-level violence.

[5] Our definition would also include other forms of one-sided violence as long as they meet our basic criteria.

Figure 1. Distribution of Mass Killings across Time and Across Campaigns[6]

Figure 1. Distribution of Mass Killings across Time and Across Campaigns. Legend: Yearly Mass Killings (MKs); % Violent Campaigns with MKs; % Nonviolent Campaigns with MKs.
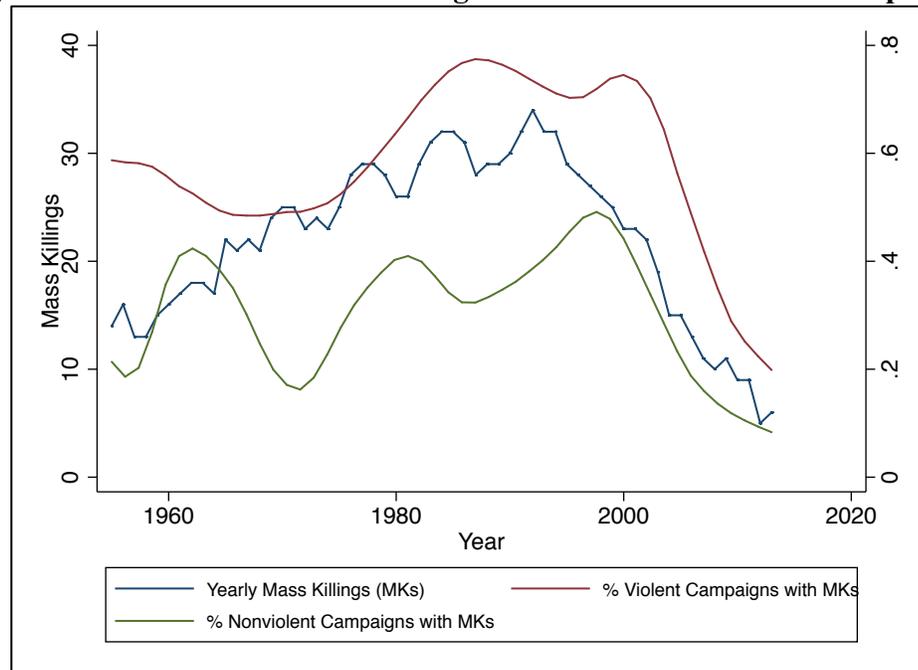
While mass killings have taken place during periods of relative peace, they more commonly occur during and immediately following popular uprisings. We define popular uprisings as periods of sustained mass mobilization of at least 1,000 people who are demanding maximalist goals—the removal of the incumbent national leader or territorial independence. Popular uprisings can be violent, as with insurgencies and civil wars (e.g. recent events in Syria); or nonviolent, as with campaigns of civil disobedience that might include protests, strikes, and sit-ins (e.g. recent events in Bahrain).[7]

In the context of any popular uprising, states almost always resort to some degree of violent repression against dissidents and their perceived supporters. In our dataset, states commit large-scale atrocities against civilians who are suspected participants or supporters in just under half – 42.5% – of all popular uprisings, and about ten percent fewer commit atrocities after campaigns end. However, the data also suggest that uprisings do not face an equal threat of mass violence: atrocities are nearly three times more likely when dissidents employ violent as compared to nonviolent strategies of resistance (68% to 23%).[8]

When it comes to explaining why mass killings occur during some uprisings but not others, existing research has little to say. This is because the vast majority of studies focus solely on atrocities in the context of armed challenges to the state (Strauss 2008; Harff 2003; Krain 1997; Valentino, Huth, and Balch-Lindsay 2004; Ulfelder and Valentino 2008; Koren 2017). Strauss (2008, p. 7), for instance, concludes that "without a war in Rwanda, genocide would not have happened." In this context, mass killings are employed strategically when states' security (Strauss 2008) or vital interests (Valentino 2000) are threatened, serving as "a brutal strategy

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[6] Figure 1 uses a country-year unit of analysis and shows the degree of change over .
[7] Of course, not all popular uprisings adhere to one of these two ideal types, and radical flanks can complicate this neat dichotomy. See Chenoweth and Shock 2015; Chenoweth 2020.
[8] These findings are based on new data that we describe in the coming pages.

designed to accomplish leaders' most important objectives, counter their most dangerous threats and solve their most difficult problems" (Valentino 2000, p. 3). Indeed, the fear of being toppled has repeatedly motivated regime elites to order mass killings. Kuperman notes that Rwanda's Hutu elite "perceived the mass killing of the Tutsi as the only way to retain power and avoid retribution" (Kuperman 2001, page 110), and similar processes have unfolded in Libya, Syria, and Egypt under al-Sisi.

By focusing overwhelmingly on violence, existing scholarship leaves unanswered the question of how nonviolence affects the regime's decision to engage in mass killings, and why only some nonviolent and even violent movements are repressed. While some studies do focus on protest massacres, they tend to evaluate only those cases where massacres occurred, and not on the full universe of possible cases (Anisin 2019). This is a particularly problematic lacuna because nonviolent uprisings significantly outnumber violent ones in the current global system. Between 2010-2019, fewer than twenty new armed uprisings set on around the world compared with nearly one hundred nonviolent ones (Chenoweth 2020).

Existing research also has little to say about how other characteristics of an uprising beyond the method of contention may affect the odds of atrocities. For example, incumbent leaders may be especially fearful of dissidents who are supported by powerful foreign allies, or by uprisings taking place amid a global wave of upheaval like the Arab Spring. This is a recurring theme among speeches by Syria's President Bashar al Assad. Consider his 2013 Opera House speech where he described the uprising in the following way:

> It is not a matter of loyalists against opposition, nor an army vis-à-vis gangs and criminals…We are repelling a fierce outside aggression in a new disguise, which is more lethal and dangerous than a traditional war, because they do not employ their tools to strike us; instead, they have us implement their projects, and target Syria using a bunch of Syrians and a lot of foreigners (Al-Assad 2013).

Regardless of the dubious nature of Assad's claim, this shows how outside interference can potentially exacerbate how threatened leaders feel while also serving as a powerful justification for more extreme response to domestic challenges.

Apart from violent challenges to the state, there is also a sizable body of research that examines how structural conditions and regime type affect rates of mass atrocities. Davenport (2008) identifies authoritarianism as a key scope condition for mass killings to take place, whereas the potential electoral consequences of such actions yield something of a "domestic democratic peace" in democracies (ibid). Yet, even autocracies are not all the same. Koren (2014) suggests that military and single-party regimes are more likely to yield security forces' compliance with mass killings in the face of an ongoing national crisis. Security forces that operate in such regimes typically depend directly on the survival of their leaders, such that state collapse would also mean removal of the security forces' own security and livelihoods. Research also links mass killings with political instability (particularly state collapse; Ulfelder and Valentino 2008; Straus 2008), institutionalized discrimination (Koren 2014), and severe ethnic divisions (Valentino 2004).

Taken together, extant research is ill-prepared to help guide practitioners and policymakers seeking to prevent violence in the face of contemporary, fast-moving popular uprisings. On the one hand, the structural predispositions for mass killings may provide policymakers and researchers with a baseline probability for expecting mass violence in a particular state. Yet, many of these same factors are nearly static for decades and they can be virtually impossible to influence in the short-term. On the other hand, the overwhelming focus on violent resistance tells

us little about when to anticipate mass killings in the context of nonviolent resistance, or which features of a violent movement are most likely to elicit crackdowns. We aim to rectify these shortcomings that undermine our ability to anticipate and perhaps prevent mass violence.

Structural Dynamics, Campaign Dynamics, and the Onset of Mass Violence

How might the features of popular uprisings affect the odds of mass violence? To understand, we begin by proposing a simple model that conceptualizes mass killings as a coordination game between regime elites and the armed forces, represented in Figure X. This relies on a basic assumption: that mass killings are a governmental response, and neither a solely individual or organizational action.[9] That is, while the decision to repress may originate from regime elites, the cooperation of the armed forces is needed for repression is to be carried out. In this sense, we conceptualize regime elites as those individuals holding positions of power whose support is either necessary or sufficient to order state agents to engage in systematic mass violence. This could be a dictator who alone holds sufficient authority, members of a politburo with essential voting power, or commanders of a military junta in a state lacking civilian control. Accordingly, this model predicts that mass killings are most likely when regime elites decide to order them and when the military – having received those orders – agrees to execute them. [10]

Figure 3: When to Expect Mass Killings

	Mass Killing Ordered	Mass Killing Not Ordered
Military Cooperation	(1) Mass Killing Likely	(2) Mass Killing Unlikely
No Military Cooperation	(3) Mass Killing Unlikely, Military Disobedience Likely	(4) Mass Killing Unlikely

In cases where the military does not cooperate with regime elites, mass killings should not occur.[11] Although an incumbent might green-light a massive crackdown, the military's refusal to follow orders can effectively avert violence. This possibility has two consequences. First, anticipating and fearing a lack of cooperation, leaders may preemptively refrain from putting their armed forces in a situation where disobedience might occur. This was the case in X. Second, leaders may nonetheless order a mass killing, perhaps viewing it as essential to their

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[9] With some exceptions, existing research on mass killings tends to black-box the inner workings of the state. DeMeritt (2015) relaxes the unitary actor assumption by using a principal-agent approach to assess the effects of international intervention on mass killing. She finds that when international actors intervene on behalf of the government, it is less likely that the government orders mass killings. When international actors intervene against the government, security forces seem to kill civilians at lower rates, suggesting a pattern of defection. Similarly, Mitchell, Carey, and Butler (2014) employ a principal-agent framework to assess the impacts of pro-government militias on human rights violations more generally.

[10] It is possible that regime elites could attempt to implement mass killings by bypassing the military and instead delegating such tasks to pro-government militias, paramilitaries, or other, less formal agents (Carey, et al 2015). We evaluate this possibility in Tables A12 and A13 in the Appendix and find that the presence of pro-government militias does not appear to increase the probability that mass killings occur. Our finding is consistent with more skeptical views about the incidence of delegation of mass killings to pro-government militias (e.g., Cohen and Nordås 2015; Stanton 2015).

[11] Faltering cooperation within the government is shown to have many effects (Bueno de Mesquita and Smith 2011; Lee 2009; Chenoweth and Stephan 2011; Nepstad 2015).

survival, and military disobedience will prevent it from it taking place. This occurred in Tunisia when Ben Ali ordered Army Chief of Staff Rachid Ammar to fire on protesters. However, "the army not only refused…but withdrew itself from key locations or even placed itself between protesters and the police to protect the former, indicating to Ben Ali that he was now effectively on his own (Murphy 2011, p. 302). Understanding when mass killings will occur therefore hinges on two questions: when mass killings will be ordered, and when those orders will be carried out.

With this in mind, we expect cooperation to prevail and mass killings to be both ordered and executed when uprisings threaten regime elites and the armed forces alike.[12] Not all popular uprisings will manage to this, however: while all dissent is typically threatening to regime elites (Davenport 2007), only some is equally threatening to the the state's *agents* of repression (Salehyan, Siroky, and Wood 2014)—members of the military, police, special operations, and paramilitary forces. In cases where military agents are unthreatened, there is little reason for them to cooperate with regime elites and to carry out orders to kill their fellow citizens. For the armed forces, enacting severe repression is costly: doing so risks individual survival as it can cause the conflict to escalate either from nonviolent to violent resistance (as occurred in Syria) or from low to high-intensity conflict (as occurred in Algeria's civil war). However, severe repression also jeopardizes the military's organizational survival and long-term reputation – what Grewal (2019) calls their "corporate interest."[13] If ordered to repress against their will, the military may even withdraw its support and leave the regime further vulnerable. While this occurred in Tunisia, another example comes from the Bulldozer Revolution in Serbia. Slobodan Milosevic ordered the army to crack down on civilians, but upon receiving these orders, Army General Nebojsa Pavkovic "…replied that the state was not under threat, that the constitutional order was not endangered and neither was the army" (Bujosevic, 103). He refused to crack down and thereby accelerated Milosevic's downfall.[14]

Accordingly, we focus on situations in which popular uprisings threaten both regime elites and the military, causing interests to converge around mass violence. In this regard, several factors should be significant. First, the method of contention: when dissent is primarily violent security forces will tend to protect themselves by allying with the regime. This is because violent oppositions pose short-term, existential threats to regime elites and military agents alike (Perkoski 2018), incentivizing them to work together in the face of a shared threat. Chenoweth

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[12] By "threatening," we mean that the uprising's success will jeopardize the survival, power, privilege, and/or continuity of individuals or institutions.

[13] Using mass violence can generate new threats in the form of external intervention (e.g. Libya), post-conflict tribunals and human rights commissions, and by causing dissidents to take up arms.

[14] Of course, this should not imply that the military's behavior during a popular uprising is solely determined by their interaction with dissidents or their orders to repress. The extensive research on both coups and security force defections make it clear that numerous factors are at work, and many of these will affect the baseline level of cohesion between regime elites and their military agents (Koren 2014; Lee 2009; Shils and Janowitz 1948; Bellin 2012; Silverman 2012; Gause III 2011; R. Brooks 2013; Droz-Vincent 2014; Stepan and Linz 2013; Sayigh 2011; Plana 2017; Kruger 2013; Grewal 2019). Our contention is that campaign dynamics operate in addition to, and not in place of, these other factors. For this reason, we expect to find patterns in the relationship between defections and mass violence. But, when it comes to explaining or forecasting a single case, information on the particular institutional arrangements is critical. In addition, military cooperation will not be perfectly binary, either. Some units, for reasons cited above, may be more or less likely to cooperate. However, we contend that the fear of insubordination, even if uneven, will shape a leader's decision-making, and this should still encourage defection if violence is ordered.

and Stephan (2014) also find that military cohesion prevails, and defections are less likely, during violent uprisings, while Carey (2010), Conrad and Moore (2010), and Chenoweth, Lewis, and Pinckney (2018) suggest that violent dissent is also more likely to elicit violent, continual repression.

Second, regime elites and security forces should jointly perceive a threat when foreign powers actively support dissidents. Foreign backing could make an uprising seem stronger and more capable, and it may also raise suspicions of the uprising – even if nonviolent – escalating. This has been the case recently in Hong Kong. One editorial published in 2019 in the state-owned Global Times cautions that "The United States will use the mobs in Hong Kong as guns and abandon them like puppets if necessary" (Social Comment 2019). In addition, the perception of foreign meddling may detract from the benefits of grassroots organizing. Dissidents could lose legitimacy which might cause the military to unite behind the regime. Foreign involvement could further alienate defectors owing to the uncertainty of how the regime would treat allies of foreign-backed campaigns. This could further solidify the bond between regime elites and their military agents.

Third, and relatedly, we also expect mass killings to be more likely when states obtain the backing of powerful foreign sponsors. This might allow state agents to act, or to believe they are acting, with relative impunity when it comes to the use of force.[15] For example, Russia's diplomatic and military support for Syrian President Bashar al-Assad during the Syrian Civil War all but ensured that the United States and other European countries would stay on the sidelines while the regime and its *mukhbarat* engaged in mass violence against civilians. This essentially inoculated regime loyalists from apprehension and prosecution by human rights courts in the short term. In addition, foreign support might bolster confidence in the regime's survival. Military and security forces might be hesitant to defect or disobey orders if they expect the regime to endure.

Fourth, the campaign's goals matter. We expect cohesion to prevail and interests to align when the campaign is seeking wholesale regime removal and transformation. While regime change motivations threaten the incumbent's hold on power, the armed forces may fear the security-sector reform that follows. This has been a major point of contention in Sudan: following the country's successful nonviolent uprising that ended on April 11, 2019, civilians have pressed for reforms to subordinate the armed forces to elected officials. The military, however, has tried to staunchly resist. Accordingly, some worry that "if the civilian side moves too quickly to reform or dissolve any one of these military institutions, civil war might be the result" (Zaidan 2019). Relatedly, we expect cohesion to prevail when dissidents are seeking territorial secession. These conflicts often possess ethnic dimensions that pit security forces (and regime elites) from the ethnic majority against the underrepresented minority, thereby reducing the possibility for effective fraternization (Thurber 2015) and defection.

When will the interests between the security forces and regime leadership diverge? As before, the most notable factor appears to be the method of contention: because strategies of civil resistance openly and deliberately avoid causing harm, then soldiers, police, and presidential guards are less likely to perceive a threat from nonviolent dissent (Chenoweth and Stephan 2011). In fact, many such movements intentionally fraternize with security forces to appear less threatening and to elicit defections (Binnendijk and Marovic 2006). In Egypt in 2011, protestors

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[15] Of course, there is significant variation in foreign sponsors and some may have a restraining effect. Future research should disaggregate the type of foreign support and characteristics of foreign sponsors to better understand their effects.

shouted slogans such as "The people and the Army are one hand!" providing space for the military to balk and ultimately to force out Hosni Mubarak—a rather overt form of defection. Confirming this expectation, research finds that disputes between the leadership and the military can often lead the military to back the opposition (Lee 2009), and Chenoweth and Stephan (2011), Nepstad (2015), and Perkoski (2018) argue that these disputes are most likely when facing nonviolent movements. In addition, when leaders do command security forces to eliminate nonviolent dissidents, defections tend to occur about 40 percent of the time (Chenoweth and Stephan 2011). This was particularly clear in Serbia when the head of Milosevic's notorious Red Berets told Otpor activists that he would refuse orders to crack down: "if the demonstrators would not shoot at his police or attack their headquarters, his men would not intervene" (Sell 2003, 345).

We therefore expect that the dynamics of dissent will be strongly linked to the odds of mass violence. These dynamics – from the method of resistance to foreign support to campaign goals – shape the strategic calculus of regime elites and their agents of repression. Some dynamics will cause interests to conform and the strategic calculus to converge, while others will result in divergence. Only in the former, when both cooperation and repression are in the interest of both regime elites and their military agents, do we expect mass killings to occur.

Figure 4: The Precipitants of Mass Violence

	Regime Elites Threatened
Armed Forces Threatened and Cooperation Prevails	• Violent Methods • Foreign involvement • Anti-government campaigns
Armed Forces Unthreatened and Cooperation Subsides	• Nonviolent Methods • Nonviolent Uprising & Orders to Repress

Why Forecasting? An Effort in Early Warning

To evaluate how the characteristics of popular uprisings shape the odds of mass violence, we utilize statistical forecasting techniques. In recent years, researchers have embraced forecasting to substitute or even to complement more traditional correlational analyses (that still represent the majority of statistical research). In our context, a correlational analysis might seek to understand the factors associated with mass killings (e.g. regime type, poverty) over a relatively long time period (e.g. 1970 to 2010) to evaluate which types of states have historically engaged in mass killings. However, traditional correlation analysis, or parameter tests, are limited in key ways: although they provide plausibility tests to see which factors might be associated with particular outcomes across time, using p-values and model fit metrics do not necessarily provide confidence that these factors are causally related; that the combined models will yield meaningful explanatory or predictive power; or that the identified relationships can explain more recent episodes of violence.

Statistical forecasting, in contrast, is less concerned with historical trends and broader correlations and is more focused on the factors that can best predict recent episodes of mass violence. Under this approach, a researcher might study data from 1970 to 2000, but then use this to generate predictions for when and where mass killings should occur from 2000 to 2019 (e.g.

Goldsmith, et al 2013). Since we already know the answer, we can easily measure the accuracy of our predictions and then assess which variables provide the most predictive power. In effect, we learn less about the factors historically connected to mass killings, and more about the factors that allow us to anticipate them in the present day.

Consequently, forecasting offers several benefits to policymakers and activists. First, by tuning their estimates to the most recent data, forecasting does a better job of approximating contemporary political dynamics and relationships. This is not to say that correlational analyses cannot do the same,[16] but with statistical forecasting it is common to focus one's efforts and calibrate one's models to the past five or ten years of data. In practice, this means that researchers are developing their insights against mass killings that have happened in only the last few years. This is important because the dynamics precipitating mass violence in 2020, for instance, are likely to be more similar to those in 2018 than they were for the entire time period from 1970 to 2018. Of course, sometimes even a one-year difference can make a drastic difference in political dynamics, and the end of the Cold War is an excellent example. But apart from these black swan events, today's political dynamics tend to be a good representation of tomorrow's (Hegre et al 2017).

Second, forecasting is less affected by concerns about endogeneity. This is because the primary goal is not necessarily to isolate the effects of certain variables as it is with correlational analysis. In this context, endogeneity can lead one to draw fundamentally incorrect conclusions about how and why mass killings occur.[17] With forecasting, however, the goal is to produce models with increasingly accurate predictions. Even if the covariates are endogenous to mass killings, knowing that they are powerful predictors of violence and will still provide actionable insight for policymakers and activists alike.[18]

Third, forecasting sheds light on the factors and model specifications that improve our ability to predict particular events. Rather than aiming to uncover patterns in their onset over time, our goal is to generate the best, most accurate forecasts possible for when and where mass violence will occur. This is critical for policy-making in a world where states have accepted some of the burden for preventing mass violence no matter where it occurs. This is most clearly evidenced by the Responsibility to Protect, a doctrine establishing the importance of international support to prevent or respond to episodes of mass violence against civilians. If one examines cases where R2P has been activated, it is primarily in situations of violent subnational conflict where world leaders recognize the signs of an impending crackdown. But being able to predict mass violence outside the context of violent conflict, and particularly amid increasingly-common nonviolent strategies, is critical to effective atrocity prevention. Regarding the United States in particular, President Obama made a concerted effort to study and eventually prevent mass violence, and President Trump has similarly taken steps to forestall violence in some cases – as with the use of chemical weapons in Syria. While forecasting is not – and should not be – the sole method to help policymakers anticipate these events, it can be used to generate lists of states that are most likely to experience mass violence that, in conjunction with regional and local experts, can reduce the chances of being caught off guard.

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[16] Although this is not always possible when the restricted time period offers fewer observations. And, even if one does take this approach, the results yield insight into correlation and not prediction.

[17] Relatedly, as evidenced by the commonly-observed instability of findings across model specifications, the estimated influence of each variable in correlational analysis may be highly contingent, interactive, and, in some cases, idiosyncratic to specifics of the model being used (Chenoweth and Ulfelder 2017).

[18] We further discuss the issue of endogeneity in the appendix.

Empirical Strategy

We evaluate government-led mass killings taking place at two distinct phases of an uprising: (1) in its final year (which we call "crackdowns"); and (2) within three years after its termination (which we call "reprisals").[19] We find that crackdowns occur in nearly 40% of cases (117 of 294), and reprisals in 30.6% (90 of 294). There are nine cases in which reprisals occurred without crackdowns: eight took place in Russian and former Soviet territories, and the other two were in Yugoslavia and Pakistan. Mass killing data comes from Ulfelder and Valentino (2018) and events are coded dichotomously (as present or absent) according for each country-year.

As discussed earlier, our methodological approach focuses not on the strength of correlations but on predictive power. That is, we adopt Ward, et al's (2013) approach of using out-of-sample forecasting with stepwise deletion (see also Chenoweth and Ulfelder 2017; Hill and Jones 2014). While the broader forecasting approach is useful to developing statistical models that can generate increasingly accurate predictions of mass violence, the stepwise deletion component allows us to identify the marginal predictive power of individual covariates. In practice, this means that we begin by drawing upon existing research to develop statistical models of mass violence. We then stratify our data into two samples: 1955 to 2000, and 2000 to 2014. We analyze the older time period and we use these findings to generate predictions of when and where mass violence will occur for the newer data. Since we already know when and where mass violence occurred during this period, we can measure the accuracy of our predictions. The next component is stepwise deletion of individual variables: after gaging our overall predictive power, we then remove one variable at a time from the statistical models to see how our predictive power changes. If predictive power increases when a variable is removed, then it suggests that the variable is dragging down our predictive power and it should be omitted. By doing this for each variable and dropping those that bring down predictive power, we can ultimately refine our models and generate even more accurate predictions.[20]

Major Episodes of Contention: A New Data Set on Popular Uprisings and their Attributes

We test our expectations about when mass killings will occur using data from the Major Episodes of Contention (MEC) project that catalogues maximalist nonviolent and violent mass uprisings between 1955 and 2014.[21] The MEC Data Project defines an episode as a series of observable, continuous, coordinated, purposive mass events in pursuit of a political objective. For our current purposes, we focus only on episodes that involve multiple contentious events of at least 1,000 observed participants occurring within one week of one another and enduring longer than one week. The events must explicitly possess maximalist goals of the removal of the incumbent government, secession, or the removal of a foreign occupying military. Moreover, there must be evidence of coordination across those events—as with a shared name, slogan, leadership, or umbrella group—distinguishing them from one-off events or spontaneous actions.

MEC represents an improvement over similar data sets. NAVCO, for instance, identifies campaigns based on a consensus method where country and region expert helped to identify

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[19] Since it is difficult to know precisely when military defections and mass killings occur, these two time periods give us the greatest confidence in our inferential ability.

[20] Here, one should not discard concerns about over-fitting the models to the time period under investigation. This is a valid concern and is particularly relevant in cases where watershed historical moments have fundamentally altered political dynamics. This is why forecasting should be one tool among many to anticipate mass killings.

[21] See the technical appendix for further description about the MEC data, the variables and codebook, and source materials.

relevant cases (Chenoweth and Lewis 2013). MEC takes a broader approach: research assistants identified popular uprisings through detailed review of Associated Press and Agence France Press news stories within Factiva and Lexis-Nexis using the following search string: "protest" or "strike" or "riot" or "violence" or "attack" or "fight" or "clash."[22] Research assistants also consulted existing data sets, like Banks, et al. (2013), Chenoweth and Lewis (2013), Gleditsch (2004), Lyall and Wilson (2008), and Salehyan, et al. (2012). When they identified events in these sources, they corroborated these records and entered qualifying cases into the database. This broader data collection strategy yields many more campaigns than are included in NAVCO 2.0 (335 compared to 224 during this timeframe), primarily because the data are extended through 2014 and so include the Arab Uprisings. Consequently, these data yield more valid insights pertaining to the dynamics of dissent and repression.

We identified 335 major episodes of contention between 1955 and 2014. Figure 3 shows that the frequency of campaign onsets jumped sharply in the late 1980s (mainly due to events associated with the breakup of the Soviet Union), returned to modest levels in the 1990s, and remained consistently high after the mid-2000s. We coded each variable based on historical sources, government and NGO reports, existing databases, first-person accounts, and extensive searches of news archives.[23]

Figure 3: Onsets of Major Episodes of Contention Worldwide, 1955-2014
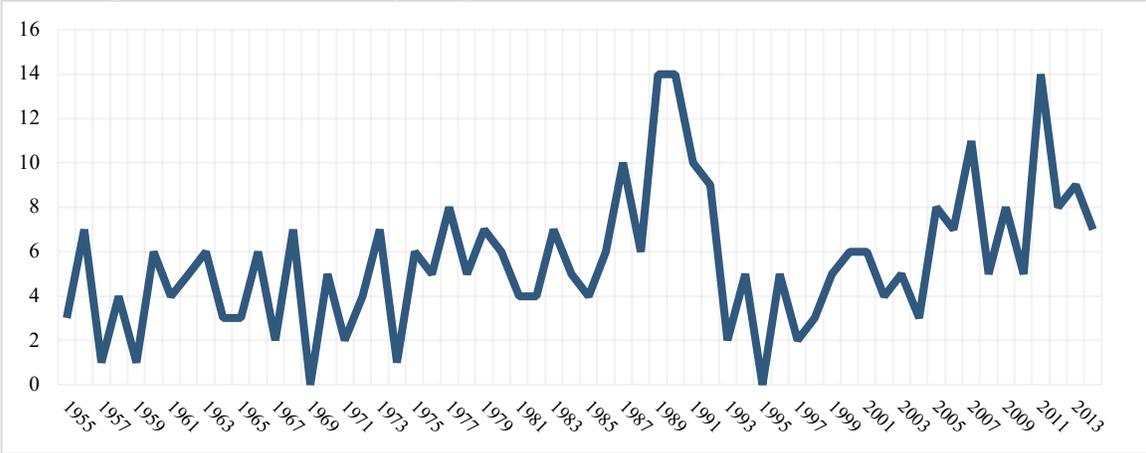
Operationalizing Structural Factors and Campaign Dynamics

We draw upon existing research and our expectations developed earlier to specify our models of mass killings.[24] We aggregate these covariates into two categories: uprising and structural dynamics. These are not perfect conceptual categories, but our intent is to distinguish between features of dissent and the state responses to it on the one hand, and attributes of government, society, and the international system on the other.

We begin by modeling the dynamics of popular uprisings to understand how they affect the odds of mass violence. In line with our expectations outlined above, we evaluate the following factors. First, we classify the *method of contention* as 1 if the uprising was primarily

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[22] While media bias is a perpetual concern, our method of triangulating campaigns from multiple sources gives us greater confidence in our ability to detect campaigns even in countries with low levels of media freedom, compared with replying on news-based events data alone.

[23] Coding rules can be found in the appendix.

[24] Table A1 in the appendix lists each of the covariates, their source, and their anticipated effect.

nonviolent and 0 if otherwise. We code it uprisings as primarily nonviolent[25] if unarmed civilians prosecuted them relying on protests, demonstrations, strikes, and other forms of noncooperation. We code them as primarily violent if they were prosecuted by armed actors relying on armed action, guerrilla attacks, assassinations, bombings, and other forms of armed dissent resulting in at least 1,000 battle deaths (Gleditsch 2004).

Second, we code *security force defections* as 1 if any of the security forces (which includes the military, police, and special operations forces) visibly refused to obey orders to crack down on dissidents or even joined the dissidents during the course of the uprising, and 0 if otherwise. In coding this variable we look beyond individual defections for evidence of large-scale, systematic breakdowns. For example, we code this variable as a 1 for the 2000 popular uprising in Serbia, where security forces refused to shoot on demonstrators in Belgrade. We also code it as a 1 for Syria in 2011, where some (but not all) security forces refused orders to shoot on protestors. We code this variable as a 0 in Burma in 2007, where security forces remained loyal to the regime in crackdowns against dissidents during the Saffron Revolution.

Third, we code external support. This includes foreign support to the uprising, coded as 1 if it receives overt and direct material support from an outside state and 0 otherwise. This includes financial assistants for nonviolent uprisings, as the United States provided to the EuroMaidan dissidents during the 2014 Ukrainian uprising, or guns, money, personnel, or sanctuary, as Russia provided to the rebels in East Ukraine during the 2015 Ukrainian civil war. We also include *regime support*, coded as 1 if the regime receives overt and direct material support against the uprising from an outside state and 0 otherwise.[26] We also interact these variables to capture situations in which both regimes and dissidents receive foreign backing simultaneously, since such dynamics may operate differently from when only one side or the other is supported.

Finally, we include a dummy variable for whether the uprising made *anti-government* or *secessionist* claims (relative to *anti-colonial* claims); and a count of the *duration* of the uprising in years, since longer campaigns and those occurring simultaneously with others may seem more threatening.

While our main interest is how the dynamics of uprisings affect the odds of mass violence, we also expect structural factors to be meaningful. First, existing research suggests that *regime type* is critical. We therefore include a measure of the democratic nature of states using Polity's indicator of regime type, a 21-point scale from -10 (totalitarian regime) to +10 (full democracy) during the first year of the MEC as an indicator of democracy (Marshall, Gurr, and Jaggers 2014).[27] Then, to disaggregate autocracies, we rely on Geddes, Wright, and Frantz's categorization of authoritarian regime types to generate dummy variables regarding *monarchical, military, single-party*, and *personalist* regime types (2014). These are coded as 1 if the target country possesses the regime type and 0 if otherwise.

Second, to construct a variable for *recent history of mass killings*, we generate a dichotomous indicator coded as 1 if a mass killing occurred during the 5 years prior to an MEC's onset and 0 if otherwise. A recent history of violence may predispose countries to violence again

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[26] This is coded independently of alliances and existing interstate relationships, and it could be allies or non-allies who aid a regime. As such, the coding of this variable is focused not on treaties and standing commitments, but on observed behavior amid the uprisings.

[27] In the appendix we re-run the analyses using Vreeland's X-Polity. The results are nearly identical.

in the near future, and regime elites may have learned that their military agents will obey such commands.

In addition, we include a host of other controls. We use an indicator of *leader tenure* drawn from the Archigos dataset (Chiozza, Gleditsch, and Goemans 2009), which is coded as the number of years the incumbent leader has been in power. The longer a particular leader is in office, the less likely security forces are to indefinitely support the leader (Chenoweth and Ulfelder 2017). We also draw on the PITF measure of the *number of coup attempts* in the past five years which may signal to security forces that loyalty among their comrades is not permanent, thereby reducing their willingness to engage in high-risk behavior at the leader's behest. We also use the PITF's indicator of the number of *bordering civil wars* during an MEC's end-year. The potential for dissidence to erupt in one's own country due to the presence of civil wars in bordering states may heighten perceptions of threat by dissidents at home. We draw on the PITF's indicator of *subgroup discrimination*, which is coded as 1 if there was any state-led discrimination against a particular political, ethnic, or social group within the country during the final year of the MEC, and 0 if otherwise. A long-standing history of subgroup discrimination in the country may create conditions where marginalized communities become easy targets for mass killings (Koren 2014). We rely on the Ethnic Power Relations (EPR) database for our indicator of *ethnic fractionalization*, which is an index of the level of ethnolinguistic fractionalization during the first year of an MEC (Cedermann, Wimmer, and Min 2010). Severe ethnic divisions within a society may generate expectation of latent conflict—particularly when the ethnicity of the leadership is politically salient (Valentino 2004). Our indicator for poverty is the World Development Indicators' measure of a country's *infant mortality rate* (IMR) relative to the global average rate, and we rely on the Penn World Tables' indicator of *population size*. We also create a dummy indicator for *Post-Cold War*, which is coded as 1 if the year is after 1989 and 0 if otherwise. We used the MEC data to generate variables for demonstration effects—particularly a count of the *number of ongoing uprisings worldwide* during a MEC end-year. We expect national crises to be more threatening when a contentious episode is taking place in the context of a global wave.

The Determinants of Government Crackdowns

We now turn to the results from our analysis of government-led mass killings in an uprising's final year, which occur in nearly 40% of all uprisings. Table 2 contains the results from the logistic regressions, where each successive model as additional covariates.

Regarding the structural variables, as expected the results suggest that regime type plays a key role. While the negative effect of democracy is consistent with prior findings (Davenport 2008), there is also variation within authoritarian regimes: crackdowns are more likely with military-led regimes, perhaps due to the close connection between regime elites and security forces, but less likely in party-based regimes. Not surprisingly, we also see that a recent history of mass killings – whether or not one occurred in the five years preceding a MEC – is positively associated with a crackdown. Subgroup discrimination also has a positive effect. Somewhat surprisingly, the number of bordering civil wars is also negatively, albeit weakly, correlated with government crackdowns, which may also indicate hesitancy on the part of regime leaders to use massive force to quell protests lest the conflict escalate to a civil war.

Additionally, we find that characteristics and decisions of the campaign matter. First, campaigns seeking to force out the incumbent regime experience a sizable increase in the odds of a mass killing compared to other campaigns such as anti-colonial campaigns (with all other

factors being held constant). Second, campaign strategy—specifically reliance on nonviolent resistance—is correlated with about an 86% drop in the likelihood of the campaign encountering a mass killing. Interestingly, this effect is nearly the same regardless of whether or not defections occur, which is also highly significant and negative. Third, internationalized conflicts appear particularly dangerous: regardless of whether the campaign, the regime, or both parties simultaneously receive outside backing, the odds of a mass killing increase. Yet, fully-internationalized campaigns are linked with the highest odds of violence. Fourth, multiple ongoing uprisings within the country also push up the odds of a mass killing significantly, meaning that governments facing multiple threats (one of which is often violent) are substantially more likely to crack down.

Next, we turn to out-of-sample validation that assess the predictive power, and not correlational strength, of these variables. To reiterate, we divide the data into a training set (1955-1999) and an out-of-sample set (2000-2014). We then utilize four separate model specifics to analyze the training set and generate predictions for the out-of-sample set. The first model includes only a country's population and its recent history of mass killings; the second adds structural characteristics to the baseline model; the third combines only campaign characteristics with the baseline model; and the fourth contains the baseline, structural, and campaign-level variables.[28] We evaluate the accuracy of their predictions by plotting the Area under the Receiver Operating Characteristic Curve (AUC), a metric of logistic regression accuracy. The AUC score calculates the ability of the logistic regression to accurately classify true positives and negatives based on its predicted probabilities. Simply put, the AUC score tells us how good our predictions are. An AUC score of .50 represents the performance statistic of random chance; the closer the AUC score is to a value of one (or graphically, towards the upper-left quadrant), the more accurate the model. Figure 4 displays these results. Strikingly, we find that the campaign-level factors alone outperform the structural factors alone, achieving an AUC of 0.882 (suggesting that we accurately predict 88.2% of cases) compared to an AUC of 0.780. Yet, the combined model performs best with an AUC of 0.961, suggesting that a combination of both campaign and structural factors yield the most predictive power. This is strong evidence that the dynamics of subnational dissent shape states' proclivity for mass violence.

Finally, we conduct one additional test to evaluate the predictive power of individual variables. The previous exercise reveals which combinations of variables offer the most predictive accuracy, but now we seek to understand which, in particular, are doing the most work. Table 3 displays the effect of removing each covariate, one at a time, on the model's predictive accuracy. The "percent change when removed" column is ultimately most important: it tells us how much our predictive power changes when that single variable is dropped from the equation. The larger the decrease, the more our predictive power decreases when that factor is removed. This is indicative of a useful predictor. The inverse is also true: the larger the increase, the more our predictive power increases without that variable, and this suggests that the variable actually harms our predictive power. We then use this information to rank how much each individual variables contributes to the model's predictive power.

Judging by changes in AUC scores, the variable most contributing to our predictive capacity is the recent history of mass killings. Dropping it decreases predictive power by 4.725%. The next five top predictors all relate to campaign dynamics: whether multiple campaigns are taking place simultaneously (-2.040%), whether the campaign is nonviolent (-

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[28] In these exercises we drop the region and post-Cold War fixed effects that we use in the logistic regressions to focus on the structural and campaign-level covariates.

1.832%) seeking regime change (-1.717%), whether dissidents receive foreign support (-1.395%), and whether both dissidents and the state simultaneously have foreign support (-1.072%). Among the top six predictors for mass violence during a popular uprising, five relate to campaign dynamics. Although the indicator of nonviolent campaigns with defections is further down the list, it is estimated to contribute .426% predictive power. When combined with the indicator of nonviolence, however, the two become second only to the recent history of mass violence. This is strong evidence that both resistance strategies and the behavior of the armed forces strongly influence whether mass killings occur.

On the other end of the spectrum, the variable that brings down our predictive power the most (by 1.176%) is a state's IMR. This is an excellent demonstration of how the findings from forecasting and correlational analyses can diverge: while IMR is statistically significant and generates a large coefficient, it has a starkly negative influence on predictive power. Similarly, our indicator of whether a campaign has regime-change goals generates a weakly-significant correlation (p<.10) but is ranked fourth worst in terms of predictive power. Yet their findings can also converge, as with a recent history of mass killings.

Taken together, these findings are instructive. They show how structural factors alone are insufficient to explain mass violence. And when it comes to dissent, it is not just its onset or method of contention matter, but particular dynamics – like whether or not foreign powers get involved and what the campaign is seeking – also shape states' behavior. Methodologically, we also find starkly different results when using correlational and predictive methods. This indicates that researchers should think carefully about what findings they hope to uncover when making statistical choices, and that the nuances of popular dissent affect the decisionmaking of states.

Table 2: Modeling Government Crackdowns with
Correlational Analysis (Logistic Regression)

	(1)	(2)	(3)
Polity 2	-0.123***(0.039)	-0.118***(0.042)	-0.110**(0.053)
Monarchical Regime^{CS}	-1.193(1.642)	-1.520(1.708)	0.134(2.040)
Military Regime^{CS}	0.577(0.839)	0.774(0.858)	1.862*(1.008)
Party Regime^{CS}	-2.050***(0.540)	-2.132***(0.710)	-1.627*(0.895)
Personalist Regime^{CS}	0.414(0.543)	0.853(0.656)	1.189(0.815)
Years Leader in Office	0.023(0.029)	0.001(0.036)	0.059(0.044)
Recent Mass Killing^{CS}	2.752***(0.388)	2.602***(0.404)	2.973***(0.508)
Subgroup Discrimination		1.867***(0.450)	1.805***(0.583)
Ethnic Fractionalization^{CS}		0.322(0.898)	-0.110(1.324)
IMR^{CS}		0.714(0.466)	1.275**(0.566)
Population^{CS}		0.098(0.208)	0.307(0.249)
Recent Coup Attempts		-0.222(0.611)	-0.825(0.679)
# of Bordering Civil Wars		-0.143(0.200)	-0.356*(0.211)
# MECs Worldwide		0.018(0.012)	0.003(0.020)
MEC Duration			0.033(0.053)
Nonviolent			-2.048**(0.878)
Defections			-0.627(0.930)
Nonviolent & Defections			-2.083**(0.922)
Campaign Support			2.236***(0.862)
Regime Support			1.621***(0.612)
Regime & Campaign Support			2.482**(1.064)
Goal: Secession			1.584(1.456)
Goal: Regime Change			2.029*(1.176)
Multiple Ongoing MECs			2.136***(0.608)
Post Cold War	-0.189(0.366)	-0.377(0.443)	-0.103(0.643)
Constant	-2.178***(0.611)	-3.290***(0.833)	-5.002***(1.199)
Observations	251	244	244

Standard errors in parentheses (clustered by country).
* p.1, ** p.05, *** p.01
Variables denoted with "^{CS}" measured at campaign start.
Region fixed effects included in every model but omitted from table.

Table 3: Predicting Government Crackdowns and Assessing Variable Predictive Power

	AUC with Var. Omitted	SE	Effect on AUC when Removed	% Change when Removed
Full Model	0.9608	0.0221		
Recent Mass Killing*	0.9154	0.0341	-0.0454	-4.7252
Multiple Ongoing MECs	0.9412	0.0294	-0.0196	-2.0400
Nonviolent	0.9432	0.0314	-0.0176	-1.8318
Goal: Regime Change	0.9443	0.0285	-0.0165	-1.7173
Campaign Support	0.9474	0.0324	-0.0134	-1.3947
Regime and Campaign Support	0.9505	0.0284	-0.0103	-1.0720
Party Regime*	0.9515	0.0261	-0.0093	-0.9679
Polity 2	0.9546	0.0236	-0.0062	-0.6453
Military Regime*	0.9546	0.0247	-0.0062	-0.6453
Subgroup Discrimination	0.9546	0.0244	-0.0062	-0.6453
Recent Coup Attempt	0.9546	0.0245	-0.0062	-0.6453
Ethnic Fractionalization*	0.9556	0.0265	-0.0052	-0.5412
Years Leader in Office	0.9567	0.0220	-0.0041	-0.4267
Nonviolent & Defections	0.9567	0.0247	-0.0041	-0.4267
Personalist Regime*	0.9577	0.0224	-0.0031	-0.3226
Regime Support	0.9577	0.0236	-0.0031	-0.3226
Goal: Secession	0.9577	0.0230	-0.0031	-0.3226
Monarchical Regime*	0.9587	0.0229	-0.0021	-0.2186
Population*	0.9608	0.0235	0.0000	0.0000
# MECs Worldwide	0.9608	0.0216	0.0000	0.0000
MEC Duration	0.9618	0.0215	0.0010	0.1041
Defections	0.9639	0.0199	0.0031	0.3226
# of Bordering Civil Wars	0.9659	0.0192	0.0051	0.5308
IMR*	0.9721	0.0174	0.0113	1.1761

Note: Variables denoted with "CS" measured at campaign start.

Figure 4: Out-of-Sample AUC Scores for Government Crackdowns
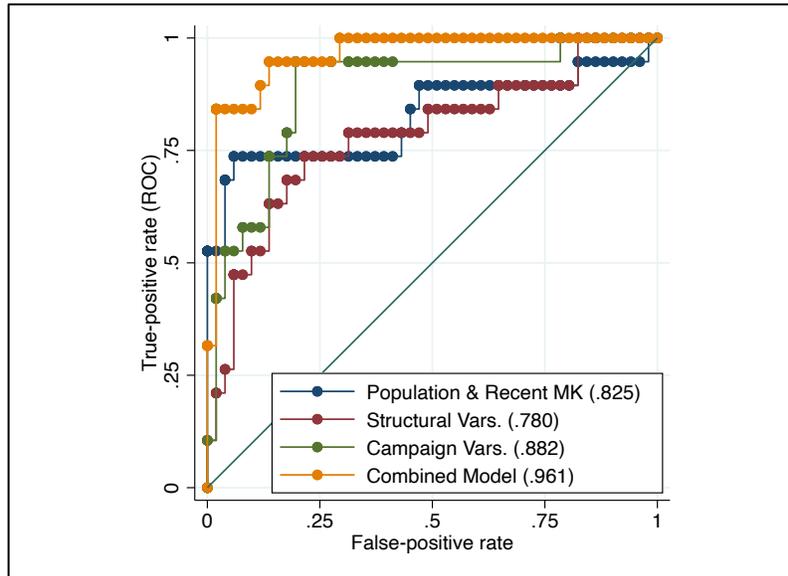
The Determinants of Post-Uprising Mass Killings

Next we examine government-led mass atrocities in the aftermath of national crises—specifically, mass killings within three years of an uprising ending. While crackdowns occur in nearly 40% of all uprisings, only 30% of cases experience a mass killing in the campaign's immediate aftermath. As to why they occur, regimes typically perpetrate such atrocities to eliminate or take revenge against remaining opponents to prevent them from challenging the regime again (Valentino 2004). The post-conflict setting means that in addition to the dynamics outlined above, the termination of a resistance campaign might create "losers" with the potential to launch a counter-challenge against the new regime, thereby leading the new leaders to crack down on them (as happened in Egypt in 2013).

Table 4 displays the results from the logistic regressions. Models One, Two, and Three replicate their counterparts in Table 2 for easy comparison with government crackdowns.[29] As before, subgroup discrimination, military regimes, infant mortality rates are positively associated with violence, but a country's polity score and the indicator of party-based regimes are no longer meaningful. Interestingly, these models now find that a leader's tenure is positively associated with mass killings, as is the country's population. As for the former, it makes sense that more entrenched elites, especially those in charge of military-led regimes, have greater incentives to hold onto power. Regarding campaign dynamics, the results are largely consistent. The post-conflict environment is much less likely to witness a return to mass killing when it follows a nonviolent uprising where the armed forces sided with dissidents. However, this likelihood goes up when the campaign sought regime change, when multiple MECs occurred simultaneously, and when either the campaign alone receives support or when both the campaign and the state receive support. Taken together, the correlational results imply that there are indeed different dynamics at work when it comes to government reprisals, although a host of factors nonetheless exert similar effects.

Next, we replicate the out-of-sample validation exercise and we plot the relative AUCs in Figure 5. Interestingly, we find that the sparsest model does almost as good as the combined model: when we only account for a recent history of mass killings and population size, we generate an AUC of 0.926. In other words, these two variables alone can predict nearly 93% of post-campaign mass killings since the year 2000. Otherwise, the full model comes out on top with an AUC of 0.935. Structural factors alone yield an AUC of 0.805 and the campaign model at 0.837.

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[29] In these analyses we do not control for the campaign's outcome – i.e. whether it succeeded or failed – or whether mass killings occurred during the campaign. We do this to facilitate comparison with the crackdown model. And, since campaign dynamics are strongly linked to campaign outcomes, including both on the right-hand side of the equation could prove problematic. However, in the appendix we replicate the models here while controlling for campaign outcomes, specifically full success and limited success (with the reference being failure). Neither indicator is statistically significant and the other findings remain consistent.

Table 4: Modeling Government Reprisals with
Correlational Analysis (Logistic Regression)

	(1)	(2)	(3)
Polity 2 [CS]	-0.043(0.035)	-0.016(0.036)	0.050(0.040)
Monarchical Regime [CS]	-0.835(1.404)	-0.744(1.360)	0.961(1.096)
Military Regime [CS]	0.419(0.720)	0.668(0.846)	2.326**(0.933)
Party Regime [CS]	-1.703***(0.595)	-1.831**(0.877)	-0.906(1.001)
Personalist Regime [CS]	0.302(0.447)	0.520(0.459)	0.867(0.653)
Years Leader in Office	0.061**(0.027)	0.047(0.034)	0.082*(0.042)
Recent Mass Killing [CS]	1.945***(0.350)	1.688***(0.391)	2.328***(0.461)
Subgroup Discrimination		1.411***(0.431)	1.536***(0.547)
Ethnic Fractionalization [CS]		-0.046(0.923)	-0.591(1.063)
IMR [CS]		0.900*(0.477)	1.415**(0.706)
Population [CS]		0.282(0.185)	0.435*(0.236)
Recent Coup Attempt		0.171(0.532)	-0.135(0.572)
# Bordering Civil Wars		0.137(0.179)	0.190(0.195)
# MECs Worldwide		0.010(0.015)	-0.003(0.019)
MEC Duration			-0.016(0.050)
Nonviolent			-1.015(0.683)
Defections			-0.355(0.720)
Nonviolent & Defections			-2.290***(0.627)
Campaign Support			2.783***(0.626)
Regime Support			0.560(0.706)
Regime & Campaign Support			2.537***(0.844)
Goal: Secession			-0.634(0.933)
Goal: Regime Change			1.831**(0.815)
Multiple Ongoing MECs			2.622***(0.651)
Post Cold War	-0.454(0.388)	-0.567(0.525)	-0.479(0.622)
Constant	-2.340***(0.622)	-3.168***(0.918)	-5.321***(1.167)
Observations	251	244	244

Standard errors in parentheses (clustered by country).
* p.1, ** p.05, *** p.01
Variables denoted with "[CS]" measured at campaign start.
Region fixed effects included in every model but omitted from table.

**Table 5: Predicting Government Reprisals and
Assessing Variable Predictive Power**

	AUC with Var. Omitted	SE	Effect on AUC when Removed	% Change when Removed
Full Model	0.9349	0.0289		
Recent Mass Killing [CS]	0.9043	0.0358	-0.0306	-3.2731
Multiple Ongoing MECs	0.9056	0.0382	-0.0293	-3.1340
Military Regime [CS]	0.9196	0.0355	-0.0153	-1.6365
Years Leader in Office	0.9260	0.0309	-0.0089	-0.9520
Campaign Support	0.9273	0.0321	-0.0076	-0.8129
Goal: Regime Change	0.9286	0.0311	-0.0063	-0.6739
# of Bordering Civil Wars	0.9298	0.0308	-0.0051	-0.5455
Nonviolent	0.9298	0.0307	-0.0051	-0.5455
Monarchical Regime [CS]	0.9311	0.0306	-0.0038	-0.4065
# MECs Worldwide	0.9324	0.0299	-0.0025	-0.2674
Personalist Regime [CS]	0.9337	0.0294	-0.0012	-0.1284
Nonviolent & Defections	0.9337	0.0302	-0.0012	-0.1284
Polity 2	0.9349	0.0295	0.0000	0.0000
Subgroup Discrimination	0.9349	0.0296	0.0000	0.0000
Ethnic Fractionalization [CS]	0.9349	0.0289	0.0000	0.0000
Recent Coup Attempt	0.9349	0.0289	0.0000	0.0000
Defections	0.9362	0.0285	0.0013	0.1391
Regime Support	0.9362	0.0285	0.0013	0.1391
Goal: Secession	0.9362	0.0288	0.0013	0.1391
Party Regime [CS]	0.9375	0.0284	0.0026	0.2781
Population [CS]	0.9426	0.0270	0.0077	0.8236
IMR [CS]	0.9477	0.0255	0.0128	1.3691
MEC Duration	0.9515	0.0253	0.0166	1.7756
Regime & Campaign Support	0.9579	0.0229	0.0230	2.4602

Note: Variables denoted with "[CS]" measured at campaign start.

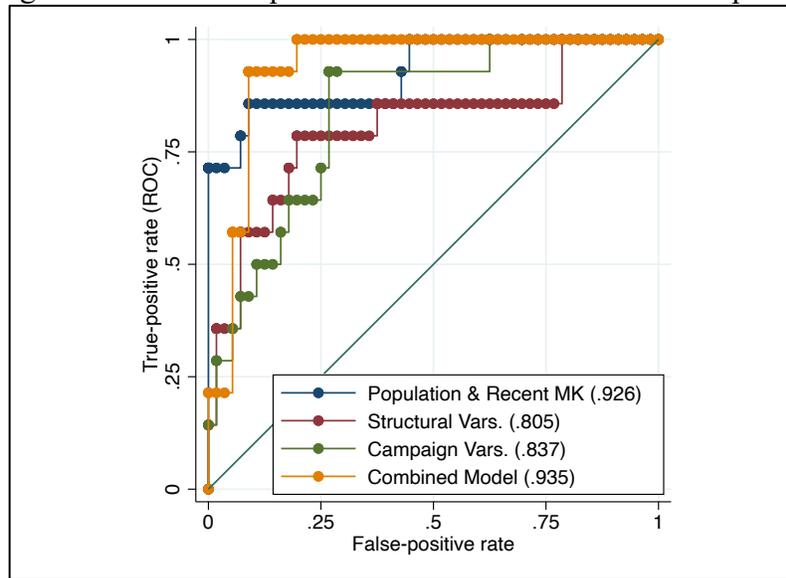Figure 2: Out-of-Sample AUC Scores for Government Reprisals

Table 5 displays the results of the stepwise-deletion. Once again, the recent history of mass killings is our best single predictor, raising predictive capacity by 3.27%. In second place is the indicator of whether multiple MECs were taking place simultaneously. Then, in contrast to the crackdown models, we find that next two top-performing variables are structural: whether the regime is controlled by the military and how long the incumbent leader has been in office. Comparing the top predictors overall,[30] we now see more structural factors are represented (five of ten) compared to the crackdown model (four of ten, and all were at the bottom of the list). Interestingly, campaign strategies rank among the top ten in both models. In terms of reprisals, our indicator of a nonviolent strategy adds roughly 0.5% to our predictive capacity, and nonviolence with defections adds another 0.12%. While together they are in the top ten, it appears that the effects of campaign strategy and military behavior are strongest during the contentious period.

On the other end of the scale, variables bringing down predictive power include our indicator of regime and campaign support, the MEC duration, IMR, population, and party-based regimes. Since population size brings down predictive power, it appears that the recent history of mass killings is doing most of the work in the baseline model. While it is noteworthy that some of the variables identified here also bring down our ability to predict government crackdowns, some reverse course entirely. Most notably, our indicator of simultaneous campaign and government support: this ranked among the top 5 predictors of government crackdowns, but among the bottom five for government reprisals. Taken together with other findings, this suggests that some campaign dynamics will exert an effect on the strategic environment even after they end, but knowing which are likely to do so ex ante is difficult.

Comparing and Interpreting the Results

Table 6 presents the ten covariates across both dependent variables – crackdowns and post-campaign mass killings – that most contribute to predictive power according to our process of stepwise deletion. Interestingly, the majority of covariates (six of ten) are common to both

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[30] And excluding a recent history of mass killing which is neither a purely structural or campaign-level factor.

outcomes, with four variables unique to both. The common variables include nonviolent resistance, recent mass killings, foreign campaign support, anti-government goals, military regimes, and multiple ongoing MECs. On their own, neither campaign nor structural factors clearly prevail when it comes to predictive capacity, but they are most effective when combined.

As such, while the conventional wisdom is that the best way to avoid a mass killing is to avoid a conflict (Straus 2008; Valentino 2004), our findings suggest that particular attributes of the conflict play important roles once it begins. All else being equal, primarily nonviolent upheavals, and especially those that elicit defections from the security forces, do not yield the same risk of mass killings as their violent counterparts. Dissidents seeking to overthrow the incumbent regime are particularly susceptible as well, as are those who receive foreign material assistance. This represents a potential conundrum for states: all else being equal, their efforts to aid a campaign and diplomatically isolate the regime may increase the likelihood that mass violence occurs.[31] Likewise, regimes appear particularly likely to resort to violence when facing multiple domestic challenges. This finding is consistent with other work that depicts atrocities as an option of last resort to maintain regime survival. Overall, our findings related to campaign dynamics imply that it is not solely the onset of an armed insurrection that matters when it comes to mass violence. Particular features of both violent and nonviolent campaigns are meaningful to explaining variation in the onset of atrocities.

Our findings also comport with existing research on the link between regime type and state violence. In particular, we find that military regimes are the most likely to commit mass killings. Our initial theoretical intuition hinged on the cooperation between security forces and regime elites, and in these countries that link appears especially strong. Finally, we also find that countries committing mass killings in the recent past, and that openly discriminate against particular subgroups, are likely to experience mass atrocities. These both indicate that states are willing and able to single out particular communities and utilize violence against them.

Notably, our insights would like quite different if we relied solely on correlational analysis. While both methods would identify some of the same factors as meaningful, they also diverge quite substantially. And, we find that some of the factors with meaningful p-values and substantial coefficient estimates, implying strong correlations, actually degrade our predictive ability when it comes to the most recent cases of mass violence. IMR, for instance, is statistically significant in nearly every logistic regression but has one of the worst effects on predictive power. Ultimately, the logistic regressions only tell us which factors are *correlated* with mass killings, and not which factors help us *anticipate* them. We believe the latter is a powerful metric for both inferential and applied analysis.

Of course, this exercise also reveals the necessity of multi-method research. Forecasting, for instance, can tell us that resistance methods and military defections are important, but it alone cannot tell us what effect these factors have – making mass violence more or less likely – or what mechanisms link the two. Correlational analyses, theory, and case studies can help fill in these gaps.

Table 6: The Top 10 Variables that Contribute to Predictive Performance

	Crackdowns	Reprisals
1	**Recent Mass Killing**	**Recent Mass Killing**

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[31] This finding contrasts with that of DeMeritt (2015), perhaps because of her focus on mass killings during civil wars rather than on all contentious episodes.

2	**Multiple Ongoing MECs**	**Multiple Ongoing MECs**
3	**Nonviolent**	**Military Regime**
4	**Goal: Regime Change**	Years Leader in Office
5	**Campaign Support**	**Campaign Support**
6	Regime and Campaign Support	**Goal: Regime Change**
7	Party Regime	# of Bordering Civil Wars
8	Polity 2	**Nonviolent**
9	**Military Regime**	Monarchical Regime
10	Subgroup Discrimination	# MECs Worldwide

Note: factors in bold are top predictors of both crackdowns and reprisals.

Conclusions

Why do mass killings occur during some popular uprising but not others? Using statistical forecasting techniques, we are able to identify the factors that are most useful in predicting when mass killings will occur during popular uprisings that took place between 2000 and 2014. We find that characteristics of the dissent—such as whether the episode is primarily nonviolent, whether the dissidents elicit foreign assistance, and the behavior of the security forces—play a previously unappreciated role in explaining and predicting dissidents' fate. In fact, including basic information about an uprising's core characteristics allows us to estimate among the best-performing predictive models of mass killings currently developed.

Understanding how we can predict mass atrocities is central to how can prevent them. Our analysis suggests that some factors associated with mass killings are relatively static and unalterable by outside actors and especially in the short-term (regime type, poverty, subgroup discrimination, and coups). There are other factors, however, that can be influenced like the campaign's strategic choices (maintaining nonviolent discipline), coordinating efforts to isolate the incumbent regime and not fully internationalize the conflict, and facilitating defections among security forces. This is not to say that other factors should not or cannot be addressed – for instance, states can promote policies to reduce subgroup discrimination and bolster democratic institutions – but they provide fewer opportunities for immediate action.

From a scholarly perspective, these findings suggest that the processes and dynamics of major upheavals may be as important as the institutional, demographic, and geopolitical environments in which they emerge. When we relax assumptions that the state is a monolithic actor, the divergent interests of regime elites and their repressive agents can result in unanticipated outcomes and drive unexpected patterns of state behavior. Compared with much extant scholarship that focuses on structural factors, our research suggests greater attention to the disposition and dynamics of contention in explaining how these episodes unfold and resolve. To move this scholarship forward, we recommend several next steps. First, scholars should generate models to examine the ways that combinations of variables impact our predictive ability and test these against different subsets of cases. For instance, while our overall predictive capacity might be good, it could perform significantly poorly among certain types of uprisings, like those with and without security force defections, or those with and without foreign support to the incumbent regime. It is also worth exploring how findings change across different thresholds of violence. While our cutoff here is 1,000 civilian deaths, how do the results change for violence below – o even far above – this specific point? Second, scholars should continue to disaggregate security force defections to see whether particular security institutions are more inclined to defections than others, and whether some have a greater effect on regime behavior than others. Scholars

could also assess defections among different regime institutions—such as civilian bureaucrats, economic or business elites—to see whether shifts in those pillars are influential in preventing violence. Third, scholars should attempt to identify whether certain sequences of events—such as the introduction of external support—are proximate causes of mass killings (Kuperman 2008), or whether such interventions help to mitigate mass killings that have already begun (Krain 2005). Careful qualitative cases studies involving sequential analysis and process tracing could be especially helpful in this regard.

From the dissident's perspective, this research suggests that their strategic choices matter. Maintain nonviolent discipline, eliciting foreign support, and fraternizing with soldiers can all have important effects but in somewhat counterintuitive directions. For one, internationalizing an uprising can make it more threatening to both security forces and regime elites in ways that can make their interests converge and make mass killings more likely. Dissidents should view with caution any attempts from foreign state donors to provide them with direct material support. In addition, these findings imply that nonviolent resistance—even against states prone to mass killings—is less likely to elicit the bloodiest crackdowns. Contrary to skeptical views that nonviolent resistance is impossible because of the willingness of threatened regimes to resort to greater and greater repression (e.g. Goodwin 2001; Lehoucq 2016), we find that nonviolent episodes are much less likely than violent ones either to conclude with mass killings or to experience them soon afterwards. Paradoxically, this means that despite the tendency of nonviolent resistance to succeed more often than violent resistance—which should therefore threaten the regime leadership more—nonviolent resistance may be generally "safer" than violent resistance. And when states are willing to use mass violence to subdue a nonviolent uprising, they would likely do the same against armed challengers as well.

From an applied forecasting perspective, the fundamental implication of this analysis is that analysts, observers, and NGOs have much to gain from watching how an uprising evolves rather than solely on the characteristics of the regime that it is challenging. Despite structural factors that might predispose countries to violence—such as prior mass killings, institutionalized discrimination, and regime type—there are also more proximate factors that are strongly linked to the onset of atrocities, such as resistance methods and security force behavior. This research increases confidence that certain conflict processes that are observable in real-time can shed light on the changing likelihood of regime crackdowns.

Finally, there are also implications for governments interested in preventing atrocities. States should support movements that seek to maintain nonviolent discipline, but doing so through material aid risks escalating tensions. Offering information, advice, and training materials may be more appropriate. It could also be useful to work through international institutions or engage in bilateral talks with foreign governments to prevent the escalation of repression and ameliorate incumbents' and security forces' concerns about personal safety in the context of a crisis. However, direct international assistance could undermine a nonviolent movement's claim to legitimacy at home while encouraging security forces to remain united and loyal to entrenched power.

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