

Revolutionary mass uprisings in authoritarian regimes

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Abstract

This article explores the conditions under which revolutionary mass uprisings are likely to occur. We offer a probabilistic explanation of the social and political conditions that make people rise against autocrats. The article presents a medium-*n* dataset of 79 revolutionary mass uprisings in 165 autocracies since 1945. Since revolutions are rare events, a combination of factors must come together to trigger them. Drawing on the extant literature on revolutionary change, we find initial support for a range of discrete factors. Our findings suggest that four such factors are particularly powerful explanations of revolutionary mass uprisings—and a combination of those factors will go a long way in predicting revolutionary change: a history of protracted low-level popular contention; the presence of personalist regimes; long tenure of incumbents in office; and the showroom effect of uprisings in the temporal and spatial vicinity of states. In a broader theoretical perspective, these findings give rise to a breaking-point explanation of revolutionary situations, emphasizing that mass uprisings build up over time, whereas structuralist theories or grievance-based approaches fare less well in predicting revolutionary ruptures.

Keywords

Revolutions, popular mass uprisings, authoritarian regimes, relative deprivation, learning, diffusion

Introduction

Revolutions have emerged as a perennial subject for social scientists keen on producing prognostic analyses. This holds true in particular for scholars of politics in Eastern Europe and the Middle East who have been unable to predict the fall of the Iron Curtain and the Arab Spring, respectively. Most

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systematic studies have been hampered by two interrelated challenges: scholars hardly ever agree on what revolutions actually are; and revolutions do not happen very often. They are rare events, which has consequences for both theorizing about the causes of revolutions as well as the application of systematic social science methodology. Observing individual revolutionary episodes does not help much in gaining a more systematic understanding, for the agents of revolutionary change typically invoke a whole range of grievances. A telling example is the main battle cry of Egyptians when taking to the streets in January 2011. ‘Bread, Freedom, Dignity!’ implies very different social grievances that may have served as causal factors for revolutionary action: economic deprivation and poverty; opposition against political oppression; and broader sentiments against the mechanisms of daily state–citizen interactions. We believe that people embrace such broad demands in public discourse once a revolutionary situation unfolds. Yet, we are more interested to learn which social, political, and economic factors serve as the most effective drivers of revolutionary action.

This article contributes to a better understanding of the conditions under which revolutionary mass uprisings are likely to occur. Our aim is modest in that we offer a probabilistic explanation of the social and political conditions that make people rise against autocrats. This falls short of predicting revolutions—processes of substantial social and political change—because we look at the moment in time when the masses are seen in the streets, rather than longer-term trajectories. Our theoretical contribution concerns the conditions under which people take to the streets across a broad range of social strata and cleavages to confront authoritarian incumbents and demand change. In so doing, we focus on what Charles Tilly called ‘revolutionary situations’ (Tilly, 1978), that is, the necessary condition for the break-down of states and fundamental social and political change driven by the masses. For, as Arthur Stinchcombe has noted, a ‘theory of revolution ought not expect to be able to tell who will win in a revolutionary situation, but to tell that there will be a fight with unlimited means’ (Stinchcombe, 1965: 170).

On the other hand, our contribution is far-reaching in that it presents an original, medium-n dataset of revolutionary mass uprisings in autocracies since 1945 that is different from large-n data collections confusing revolutionary situations with more mundane contentious episodes. Our aim is to unpack the causal mechanisms leading to the outbreak of such revolutionary situations. Accepting the premise that revolutions are rare events encourages us to assume a complex explanation for the heavy-lifting of a causal interpretation: a combination of factors must come together to trigger events that do not occur often. Simply speaking, if a single factor was to be largely responsible for the outbreak of revolutionary mass uprisings, one would witness the empirical phenomenon more frequently.

Drawing on the extant literature on revolutionary change helps us establish testable hypotheses. Accounting for structural, socio-psychological, and institutionalist explanations, we find initial support for a range of different factors emphasized in that literature. Our findings suggest that four such factors are particularly powerful explanations of revolutionary mass uprisings—and a combination of those factors will go a long way in predicting the phenomenon: a history of protracted low-level popular contention; the presence of personalist regimes; long tenure of incumbents in office; and the showroom effect of uprisings in the temporal and spatial vicinity of states. In a broader theoretical perspective, the results of our inquiry give rise to a breaking-point explanation of revolutionary situations, emphasizing that mass uprisings build up over time, whereas structuralist theories or grievance-based approaches fare less well in predicting revolutionary ruptures.

Theorizing revolutionary change

Theories of revolutions suffer from two interrelated problems, which renders their systematic treatment in quantitative analysis—and hence prediction—particularly challenging. *Empirically* they are

rare events, and *conceptually* their analytical treatment suffers from the lack of a universally agreed-upon definition of the subject field. In this section, we address these methodological challenges, focusing first on the fact that revolutions are rare events and then turning to how revolutions have been defined in extant scholarship. Building on these contributions, we then propose to focus on revolutionary situations instead of the revolutionary content of long-term social and political change. While the explanatory power of such an approach is modest, its particular value is that, empirically, we are able to identify a clear set of episodes, and theoretically, we explore the core necessary condition for revolutionary trajectories, that is, popular mass uprisings against authoritarian rule.

Why we cannot predict revolutions

The study of rare events poses methodological restrictions on social science treatments of revolutions and encourages scholars to engage in single case studies or small-n comparison. As Theda Skocpol famously observed in her *States and Social Revolutions: A Comparative Analysis of France, Russia and China*, ‘comparative historical analysis is, in fact, the mode of multivariate analysis to which one resorts when there are too many variables and not enough cases’ (Skocpol, 1979: 36). Most influential works in the social science body of literature on revolutions have followed this methodological advice and have used controlled comparisons of few cases (Goldstone, 1986; Hale, 2005; Nepstad, 2011; Paige, 1975; Russell, 1974; Tilly, 1978; Trimberger, 1978; Weyland, 2012) or comprised collections of single case studies (for instance; DeFronzo, 1991) that—in the tradition of Crane Brinton’s classical treatment (Brinton, 1952)—narrate *how* revolutions unfold, rather than explain *why* they occur. Only few authors employed systematic, set-oriented methods for medium-n studies of revolutionary episodes (Alamos-Concha, 2014; Wickham-Crowley, 1992). Few exceptions among the early literature notwithstanding (for instance; Paige, 1975), it is only in recent years that an increasing number of scholars studied revolutions using large-n methods, typically in the broader context of authoritarian regime change (Acemoglu and Robinson, 2001; Bueno de Mesquita and Smith, 2017; Casper and Tyson, 2014; Escriba-Folch, 2013; Goemans, 2008; Shadmehr, 2014; Ulfelder, 2005).

A challenge for such quantitative studies of revolutions is that they are vulnerable to conceptual stretching. This is indicated by the fact that most of these accounts hardly ever provide a definition of what is meant by a revolution, or perceive of the term as more or less an equivalent of popular contentious activism in the perspective of social movement theory, or unrest more broadly (Paige, 1975). Moreover, in the established literature on revolutions, scholars tend to remain unsatisfied with the mere observation of popular mass contention and are therefore concerned with the, often long-term and substantive, *outcome* of such contentious episodes (Baev, 2011). Yet again, no scholarly agreement exists on what type of trajectory defines an event as revolutionary. Scholars of ‘social revolutions’ (Skocpol, 1979; Trimberger, 1978) or ‘systemic revolutions’ (Bauman, 1994) are interested in fundamental social, long-term change brought about by popular mass uprisings, a perspective that often invokes a (neo-)Marxist understanding of class-based societal cleavages. Scholars of ‘political revolutions,’ in turn, are primarily concerned with state break-down, the demise of political regimes, and the destruction of those regimes’ institutional infrastructure (Goldstone, 1986; Tilly, 1978; Wickham-Crowley, 1992). Terms such as ‘rebellion’ and ‘insurgency,’ are typically introduced where scholars of revolutions observe an unusually high degree of violence (Gurr, 1970; Paige, 1975; Wickham-Crowley, 1992). And, in turn, the notion of ‘non-violent revolutions’ emphasizes peaceful means of mass opposition to political incumbents (McAdam et al., 2001; Nepstad, 2011).

Another conceptual problem with the extant scholarship of revolutionary change is that the specific empirical subject field—for example, Grand Revolutions, agrarian rebellions, class-based

revolutions—has often informed the way in which the term ‘revolution’ is employed and defined, with very different scholarly expectations about the means (violent vs. peaceful), agents (workers, farmers, youth, and urban middle classes), and outcomes (fundamental social change, regime break-down, and fall of incumbents) of contentious processes. Scholars have therefore identified regional or historical clusters of revolutionary events (Hess, 2016; Webb, 2006), including the ‘Great Revolutions’ (England 1688, France 1789, Russia 1918, and China 1949); prominent ‘periphery revolutions’ (Kowalewski, 1991; Paige, 1975) (Mexico 1910, Cuba 1959, and Iran 1979); the revolutions in Eastern Europe that triggered the fall of the Iron Curtain in the late 1980s (East Germany, Hungary, and Poland) (Kuran, 1991; Lohmann, 1994); the ‘Color Revolutions’ in Eastern Europe and Central Asia during the 2000s (Serbia, Ukraine, Georgia, and Kyrgyzstan) (Beissinger, 2007; Baev, 2011; Hale, 2005); and the ‘Arab Spring’ in 2011 (Egypt, Tunisia, Libya, Yemen, Syria, and Bahrain) (Beissinger et al., 2015; Brownlee et al., 2015; Weyland, 2012).

In sum, the debate on what actually constitutes a revolution is as old as the study of the phenomenon and has produced a wealth of scholarship (Bauman, 1994; Kimmel, 1990). Yet, extant scholarship has not presented conclusive results, which presents fundamental challenges for attempts at presenting causal explanations, let alone probabilistic prediction: how do we know it when we see a revolution?

Identifying revolutionary situations

Owing to the lack of a commonly agreed upon definition of what constitutes a revolution, we focus on the constitutive element of revolutionary change: popular mass uprisings. Rather than studying outcomes of revolutions, and hence long-term developments, we are intrigued by what Charles Tilly has referred to as *revolutionary situations* (Tilly, 1978): sustained, socially inclusive mass uprisings that constitute threats to the elites, institutional infrastructure, and dominant policy directions of existing political regimes. Since mass uprisings may occur without bringing about long-term revolutionary trajectories—and might actually just falter as a consequence of successful statist countermeasures—our aim cannot be to explain revolutions, but rather the core *necessary condition* for revolutions to take place. Yet, our approach allows us to differentiate revolutionary situations from more low-level instances of collective action and therefore to avoid the problem of conceptual stretching, which besets many extant large-n studies.

While our empirical subject introduces limitations in explanatory outreach, this approach allows us to solve a major analytical problem that arises with the interplay of political revolutions (aimed at regime break-down) and social revolutions (aimed at fundamental social and political change). In fact, those social forces bringing down a regime often do not necessarily gain from, or even determine the paths and characteristics of long-term social and political change. ‘The first stage of the systemic revolution—the overthrow of the old rulers who hold to the past order of society—bears all the marks of the “systemic crisis,” (that is, of the system failing to generate the physical and moral resources needed for its reproduction), but does not, by itself, determine the alternative to the system that failed’ (Bauman, 1994: 17). In other words, the social agents that bring about state break-down through revolutionary action are different from those agents engineering fundamental social and political change. Analyzing political revolutions means to explain destruction *of* the state, whereas social revolutions will see those social forces take over and therefore act *as* a state.

A complex theory of revolutionary situations: learning to rebel

In developing our theory of revolutionary situations, we start from two core premises. First, popular mass mobilization typically triggers a repressive backlash by political authorities in both

democracies and authoritarian regimes (Carey, 2006; Davenport, 1995a; McAdam, 1986). Yet, the personal risk involved in contentious participation is particularly high in the latter, for autocracies seldom ever hold back from deploying the full menu of coercive capacities, resulting in prolonged jail time, torture, or death (Li, 2019). The threat of such repressive actions is severe and certain, and overcoming personal risk perceptions remains the key factor in explaining popular mass mobilization (Kuran, 1991).

The second premise draws on our earlier suggestion that revolutions do not occur often. Given that they are rare events, it is intuitively compelling to assume that various factors will have to come together to trigger revolutionary mass uprisings. If we were to search for a single causal variable, we would likely witness the phenomenon more often. We are therefore searching for a rather complex causal explanation, hence asking which core factors will need to join forces to render revolutionary mass uprisings *feasible* and *effective*.

Our concern about the *feasibility* of revolutionary episodes refers directly to the increased personal risk involved with contentious action in authoritarian regimes. Individual participants will expect authorities to unleash the full potential of their available coercive capacities once they understand the extent of the political crisis. Individuals are therefore more likely to participate in revolutions if they can rely on prior experience with contentious activism. Participants in protracted low-level contentious activism learn about degrees of personal risks involved with specific types of activism as well as about the capacities and strategies of the coercive forces. Prior contentious activism therefore serves as a viable ‘practice run,’ which helps reduce personal risk. Revolutionary situations therefore should be seen as the end of contentious cycles long in the making. Empirically, we should find a number of factors with a positive impact on the revolutionary learning curve, including—most notably—protracted conventional protests prior to the uprising, but also revolutionary movements in neighboring countries.

Learning through protracted contentious activism does not only contribute to the feasibility of revolutions, it can also establish widespread perceptions that a massive outbreak of popular discontent remains the only *effective* means to bring about change. Conventional political participation and activism either leads to changes in policies and government personnel, or frustration. The longer conventional activism endures, the more will people understand that such regular means of political participation remain ineffective. Empirically, we expect popular frustration to run particularly high in the case of both continued protests and stability in authoritarian regimes, in particular at the helm of the polity: the longer an incumbent remains in power, the more will people grow frustrated with their continued but futile activism. We therefore expect the combination of protracted conventional protests and long duration of incumbents in office to constitute the most important predictor of revolutionary situations.

Various empirical episodes forcefully illustrate our argument. Examples of protracted low-level opposition movements with a clear anti-incumbency agenda include the ‘Trop-c’est-Trop Movement’ in Burkina Faso and Egypt’s ‘Kefaya’ initiative in 2005 (El-Mahdi, 2009; Harsch, 1999). Both movements led to revolutionary mass uprisings in 2011 and the ousting of the two countries’ long-term autocrats Hosni Mubarak (29 years in office) and Blaise Campaoré (27 years in office). The 2005 ‘Tulip Revolution’ in Kyrgyzstan was preceded by unrest in the restive Fergana valley in the country’s southwestern corner. The revolutionary situation there resulted in the rise of previously sidelined leaders, such as Kurmanbek Bakiyev, Roza Otunbayeva, and Felix Kulov, and ultimately in the fall of president Askar Akayev who had served for 15 years (Radnitz, 2006). Finally, the ‘8888 Uprising’ in Myanmar that saw its peak on 8 August 1988, was preceded by a dissident student movement and protest activities in the country’s capital Rangoon and Mandalay (Boudreau, 2004: 193). Long-term dictator Ne Win, who had ruled the country for 19 years, was finally deposed, even though a subsequent coup brought the military back to power.

The empirical playing field

For our systematic inquiry, we compiled a dataset that comprises the complete universe of revolutionary situations in non-democratic regimes since 1945.¹ Revolutionary situations in autocracies are characterized by distinct causal dynamics compared to popular mobilization in democracies. Limiting ourselves to non-democratic regimes, we thus define our universe of revolutionary situations as all those episodes in which *sustained, cross-sectoral episodes of popular mass mobilization create a fundamental challenge to the means of power maintenance in non-democratic regimes*. This definition is independent of the medium or long-term results of revolutionary mobilization. It also includes important elements allowing us to distinguish revolutionary mass mobilization from more mundane and regular forms of popular dissent, namely the power in numbers, social inclusion, and the sustenance of contentious mass action required to pose a significant threat to authoritarian power maintenance.

Inspired by these premises, we use four operational criteria to identify revolutionary situations in non-democratic regimes: (a) protests are large in terms of *numbers*, exceeding 50,000 participants, or 3% of the population; (b) protests are *sustained*, lasting at least one week and possibly several months, unless they are cut short by the resignation of the state's chief executive or violent repression; (c) protests are socially inclusive and *cross-sectoral*, representing more than one particular social group (tribe, clan, religious community, class, and interest group); and (d) the *target* of the protests is the regime incumbent in a sovereign, non-democratic state.

These four criteria taken together discard instances of conventional contentious politics and make sure that we only capture protest episodes that threaten regime survival, irrespective of whether or not the regime survives the challenge. We do not discriminate between peaceful and violent protests for two reasons. First, most observed protest episodes will have started as largely non-violent incidents of popular mobilization; and increased militancy on the side of protesters will be the result of the regimes' violent repression tactics, rather than the causes for mass mobilization. Second, non-democratic incumbents may perceive largely peaceful mass demonstrations as equally threatening to their hold on power as violent incidents of opposition and rebellion.

Our conceptualization of revolutionary situations emphasizes a relatively large number of defining criteria. Hence, empirically we work with a limited number of observations in comparison to other datasets such as, for instance, the Nonviolent and Violent Campaigns and Outcomes (NAVCO) 2.0 data on contentious episodes (Chenoweth and Lewis, 2013); and both the method and results of our inquiry differ in some prominent ways from other approaches drawing on a larger number of protest episodes (see, for instance; Acemoglu and Robinson, 2001; Bueno de Mesquita and Smith, 2017; Casper and Tyson, 2014). The rationale for employing a rather narrow definition is straightforward: opposition activism and mobilization for public protests are regular occurrences in politics, certainly in democracies, but also in many of the more liberal non-democratic regimes. Hence, incumbents across regime types will have developed routine measures to respond to, and contain, such events, including swift repression using regular police forces, tactical concessions, or the simple ignoring of popular demands (Bishara, 2015; Franklin, 2009). Revolutionary mass uprisings are rare incidents. It is only in a small number of cases that popular mobilization will overcome such containment capacities and turn into a systemic political crisis.

Our understanding of non-democratic revolutionary situations therefore excludes cases in which political elite coalitions would face conventional incidents of political crises, including those that would drive people to organize public protests which, however, remain limited in size, duration, threat potential, and social inclusiveness. Examples for episodes of limited popular mobilization include elitist protest movements—such as the aforementioned 'Trop-c'est-Trop Movement' in Burkina Faso, Egypt's 'Kefaya' initiative in 2005, and Russia's 'pocket protest' (El-Mahdi, 2009;

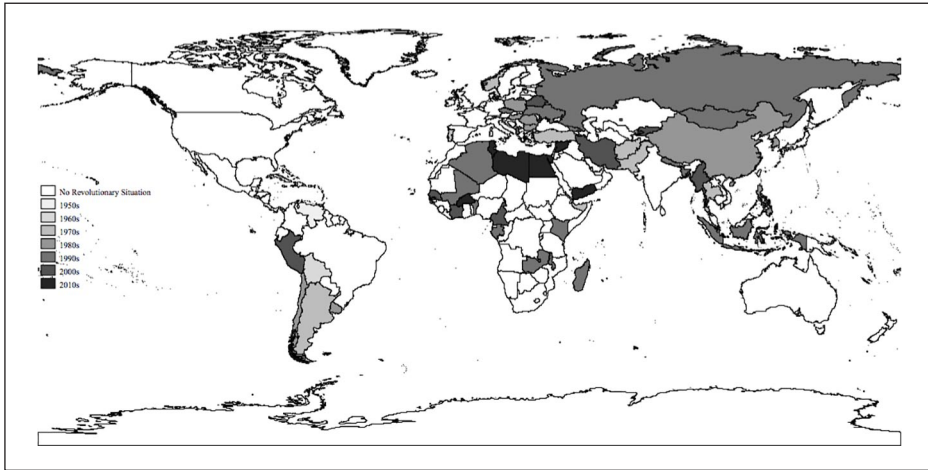


Figure 1. Revolutionary situations, 1945–2014.

Harsch, 1999; Lyall, 2006)—or sectoral mobilization, such as labor strikes. Obviously, a major difficulty with this approach is to capture unsuccessful revolutionary situations that did not lead to leadership change or long-term social and political change. In order to reduce the chance of missing major episodes of contention, we relied on existing data covering different aspects of protest events and domestic instability to compile a candidate list of potential revolutionary situations.² We then examined each candidate case individually and coded them on the basis of the four criteria outlined above.

Through this procedure we identified a total of 79 revolutionary situations in the universe of 165 non-democratic regimes between 1945 and 2014 (see Figure 1 and the Appendix Table A5). Drawing on the Archigos data on political leaders (Goemans et al., 2009), we further identified cases in which revolutionary situations resulted in the exit of authoritarian leaders and complemented these data for cases after 2008. Of our 79 revolutionary situations, roughly 70% (56 episodes) were successful in that they led to the exit of the executive incumbent, while in the remaining 30% (23 episodes), mobilization was either repressed or petered out without leading to leadership exit or subsequent revolutionary transitions.

As we can see in Figure 1, after the end of WWII, revolutions happen in the non-democratic regimes of the Global South. With few exceptions, no popular mass uprisings that would qualify as revolutionary situations have been witnessed in Western Europe, North America, or Australasia.

Individual explanations of revolutionary situations: a plausibility probe

While the literature on revolutionary change does not offer much agreement on what revolutions are and why they occur, there is a wealth of explanations providing testable hypotheses for a systematic inquiry based on our observations of revolutionary situations. We follow an approach similar to Goldstone et al. (2010), who predict the conditions for political instability more broadly, and expect that various factors, and most likely combinations of individual factors, will provide valuable explanations on the likelihood of revolutionary situations to emerge. Methodologically, our case selection approach results in a degree of freedom problem, with a large number of possible causal factors meeting a small number of empirical cases. This poses constraints on the methodological approach

used to test proposed hypotheses. In essence, the empirical complexity of the phenomenon of revolutions—and their causal underpinnings—requires a somewhat simplistic methodological inquiry.

In this section, we take one step back from our proposition to develop a complex theory and identify individual causal claims prevalent in the extant literature on revolutions. Taking into account the small number of empirical observations, we will develop testable hypotheses used in rare events logistic regression models. Our aim here is twofold: first, we reduce complexity in this body of literature by determining which causal explanations receive initial empirical support in our data and which ones do not. Some of those explanations will rival our assumptions, while others will be more in line with them. The section therefore serves as an initial plausibility probe of our theoretical claims; and second, we derive hypotheses and variables that can be used to systematically test our theory.

In order to organize the extant literature on revolutionary change, we distinguish between three distinct perceptions that are largely consistent with the meta-theories of revolutionary change: structuralist (social configuration); socio-psychological (breaking point); and institutionalist (regime type) explanations.

Social configuration theories would lead the scholar to study agents of revolutions, emphasizing specific social classes or strata believed to be particularly prone to revolutionary action. Often embedded in modernization and *dependencia* theories, this perspective would emphasize economic underdevelopment and in particular social and political inequalities favoring those in control of economic resources and political institutions, at the expense of disenfranchised members of society expected to take to the streets to demand substantial change. *Breaking point theories*, in turn, emphasize the timing of revolutionary events and the fact that such situations are extraordinary, rare events. While economic development, social inequality, and political disenfranchisement are part of the analysis here, breaking point theories seek to explain under which conditions such socio-economic factors—typically present in non-democratic states of the Global South—give way to a revolutionary situation. Finally, proponents of *regime type theories* look at the types and properties of states where revolutions happen in order to determine the likelihood of their occurrence and success.

Structuralist explanations: social configuration and inequality

Structuralist explanations of revolutions emphasize broader socio-economic conditions in a society and assumed cycles in global developments as factors rendering revolutions more likely. Scholars in Marxist and post-Marxist traditions share the belief that societal class configurations will lead specific classes to rise against exploitative modes of production through revolutionary means: the bourgeoisie in feudal societies; and labor in capitalist societies. These scholars, despite significant differences, emphasize as a common denominator the importance of specific strata in society assumed to turn into revolutionary agents: workers; urban middle classes; youth; and peasants (Paige, 1975; Scott, 1977; Skocpol, 1979; Wickham-Crowley, 1992). Hence, the underlying core assumption is that revolutions occur where the societal strata assumed to be particularly prone to revolutionary action, suffer from socio-economic marginalization, exploitation, and repression.

Another group of scholars in this tradition emphasizes broad economic development or specific socio-economic structures—industrialization in late capitalist societies; quasi-feudal means of production in peripheral societies; and population growth—as factors conducive to revolutionary upheavals (Davies, 1962; Gurr, 1970; Kurer et al., 2019). This point of departure often produces narratives of world development as a life cycle of sorts creating moments in history that make revolutions particularly likely or unlikely (Goldstone, 1991; Kowalewski, 1991; Webb, 2006). Most influential among structuralist explanations of revolutions are those brought forward by

modernization theorists (Huntington, 1968; Trimberger, 1978) who believe that revolutions are most likely to happen in modernizing societies where crises and shocks slow down or halt socio-economic development. Revolutions in these societies would be a consequence of dashed hopes of the rising middle classes. Ted Gurr picks up on this understanding when developing the theory of 'relative deprivation,' emphasizing that not poverty and underdevelopment themselves would turn citizens into revolutionaries, but rather expectations of a better life irrespective of the level of development (Gurr, 1970). In this perspective, James C. Davies concludes: 'Revolutions are most likely to occur when a prolonged period of objective economic and social development is followed by a short period of sharp reversal' (Davies, 1962: 6).

We draw on two different sets of variables to operationalize these claims. While class conflict is difficult to measure directly, we use the share of agriculture and industry in a country's gross domestic product (GDP, both from the World Bank's World Development Indicators) to approach a measure of the relative importance of peasants and the industrial proletariat, respectively, as supposed drivers of revolutions. If peasants or workers were the main revolutionary forces, we would expect the probability of a revolutionary situation to be systematically higher in more agricultural or more industrial economies, respectively. This leads us to consider the following hypotheses:

H1: The greater the share of agriculture in the economy, the more likely the emergence of a revolutionary situation.

H2: The greater the share of industrial production in the economy, the more likely the emergence of a revolutionary situation.

We draw on a second set of factors to test modernization theoretical arguments. Based on the J-curve hypothesis, most forcefully formulated by Davies (1962), we test the degree to which relative economic deprivation can explain the occurrence of revolutionary situations. According to this argument, economic deprivation only leads to revolutionary activity when it occurs against the backdrop of expectations to the contrary. Hence the idea of a curve in the form of an inverted J: revolutionary situations should occur where periods of social and economic development are followed by a decrease in, or even negative, growth.

H3: Revolutionary situations are the result of relative deprivation caused by interrupted social and economic development.

We test this idea by creating a dummy variable that captures such crises based on GDP growth: whenever a period of sustained growth within the 6 years preceding a revolutionary situation is followed by an economic downturn, the variable is coded 1. We operationalized economic downturns as at least 1 year of zero or negative growth. About half of all revolutionary situations occurred in such contexts.

Our universe of cases is composed of all non-democratic regimes between 1945 and 2015. Since revolutionary situations are rare occurrences, we estimate rare events logit models to test our hypotheses (King and Zeng, 2001). Table 1 shows the results of three different models: in Model 1 we regress the revolutionary situation variable on our independent variables of interest alone; Model 2, in turn, adds GDP and growth controls to account for the fact that all three of our variables might pick up the general effects of economic development, rather than the more specific dynamics expressed in our hypotheses; and Model 3 controls for unobserved country-level heterogeneity by including country fixed effects (see Appendix Table A1 for alternative model specifications).

The results in Table 1 suggest that of the three structural variables, only the share of industry in GDP affects the likelihood of revolutionary situations. The industry variable is the only factor that

Table 1. Structural factors.

Dependent variable = revolutionary situation	(1)	(2)	(3)
Agriculture	0.0189** (0.0079)	0.00529 (0.0113)	-0.0183 (0.0299)
Industry	0.0281*** (0.0094)	0.0323*** (0.0096)	0.114*** (0.0402)
Crisis	-0.268 (0.354)	-0.379 (0.370)	-0.0375 (0.374)
Gross domestic product/capita (lag)		-7.05e-05** (3.34e-05)	-0.0001 (0.0001)
Growth (lag)		-1.813 (1.255)	-1.585 (2.328)
Constant	-5.549*** (0.529)	-4.924*** (0.611)	
Observations	3911	3911	1101
Country fixed effects?	No	No	Yes

Notes: Models 1 and 2 are rare events logit models, Model 3 is a country fixed effects logit. Standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

remains significant across all three different specifications, suggesting that more industrial economies are more vulnerable to revolutionary situations even if the level of economic development, economic growth, and other forms of heterogeneity are controlled for. In fact, moving from the 10th to the 90th percentile on the industry variable increases the probability of a revolutionary situation by a factor of 1.8. This lends support to arguments which, in a classical Marxist tradition, see economic modernization as a driving force of revolutionary change and emphasize the role of industrial workers in such episodes. The agriculture variable, by contrast, is only significant in the first model, but the effect disappears as controls are introduced.

We do not find support for more specific modernization theoretical arguments, however. The crisis variable is not significant and the effect even points in the opposite direction. In order to explore whether this is due to the way in which we specified this measure, we further explore potential effects here.³ Figure 2 is a graphical representation of average economic developments in the decade preceding each of our 77 revolutionary situations. We used the eleventh year before the revolutionary situation as a base year and calculated changes in real GDP with respect to this base year for all subsequent years up until the revolutionary situation. As Figure 2 illustrates, on average we do not find empirical evidence for the characteristic J-curve pattern noted by Davies (1962). Rather, GDP per capita on average increases weakly, but steadily in the 10 years preceding a revolutionary situation. In the year prior to an uprising, GDP per capita is on average about 700 US dollars higher in real terms than a decade before.

That said, the average hides substantial variation. Figure 2 also illustrates that growth patterns differ widely. Iran between 1969 and 1979, for example, displays a pattern broadly compatible with the J-curve hypothesis: continuous growth over 8 years is followed by an economic downturn that reduces net gains compared to 10 years prior to below zero within 3 years before the Iranian revolution. The two remaining illustrative cases in Figure 2, however, the German Democratic Republic (GDR) in 1989 and Gabon in 1990, show markedly different developments. The GDR experienced steady growth between 1979 and 1989, while Gabon saw dramatic economic decline throughout the 7 years prior to its revolutionary situation (1983–1990). As the

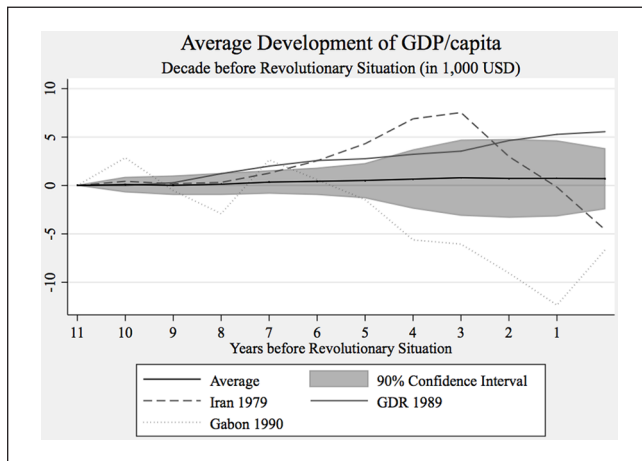


Figure 2. The J-curve hypothesis.

confidence interval in Figure 2 indicates, less extreme forms of variation are very common. In sum, while relative deprivation may have played a role in bringing people to the streets in individual cases, there is no general support for the assumption that revolutionary situations are driven by a J-curve dynamic.

Socio-psychological explanations: breaking-point theories

Rather than holding broader socio-economic structures responsible for revolutionary action, other scholars have looked at socio-psychological dynamics among those people taking to the street to explain, for instance, how and why conventional episodes of contestation from below turn into revolutionary mass movements. Drawing on the premise of revolutionary action as rational individual behavior (Roeder, 1982), scholars here inquire into the ties that bind ordinary people together for revolutionary action beyond the public call for regime change and democracy (Beissinger, 2013). Timur Kuran took the study of revolutionary mobilization to the individual level by explaining how protestors overcome the threat of state repression and their own ‘preference falsification’ to create a mass movement (Kuran, 1991). Susanne Lohmann (1994) emphasizes the critical importance of information in cascading contentious mass mobilization.

Scholars of contentious activism concentrate on processes and repertoires of opposition groups and the charisma of their leaders (McAdam et al., 2001; Tarrow, 1998; Tilly, 2006). Paul Almeida (2003), for instance, found that existing opposition groups in the face of state repression develop ‘opportunity holdovers’ that can be deployed for collective action. The readiness and ability to learn from past experiences and concurrent revolutionary events is in the center of an increasingly influential strand in the literature on the diffusion of revolutionary activism, which—according to its proponents—at least in part explains revolutionary waves, temporal, and geographic (Beissinger, 2007; Hess, 2016; Koesel and Bunce, 2013; Weyland, 2012).

Individual-level effects are difficult to measure systematically since we are working with country-level data. We nevertheless derive two operational hypotheses from the socio-psychological school. If revolutionary mobilization is driven by a cascading dynamic, we expect to find a significant effect of prior contentious mobilization. We use two different variables based on different data

Table 2. Socio-psychological factors.

Dependent variable = revolutionary situation	(1)	(2)	(3)
Prior campaigns	1.423*** (0.285)		
Prior protests		0.193*** (0.0416)	
Diffusion			0.396*** (0.0558)
Gross domestic product/capita (lag)	7.89e-05** (3.62e-05)	4.58e-05 (3.60e-05)	8.32e-05** (3.60e-05)
Growth (lag)	-0.487 (0.842)	-0.266 (0.918)	-0.290 (0.975)
Polity (lag)	-0.0340 (0.0332)	-0.0252 (0.0322)	-0.0243 (0.0328)
Constant	-5.019*** (0.352)	-4.528*** (0.275)	-4.722*** (0.322)
Observations	3338	3338	3338

Notes: All models are rare events logit models. Standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

sources to account for this effect, a variable counting the number of anti-government demonstrations from the cross-national time series data archive (Banks and Wilson, 2013), and a variable recording the presence of a contentious episode as coded in the NAVCO 2.0 dataset (Chenoweth and Lewis, 2013).

H4: If revolutionary situations are the results of protest cascades, we should find a positive effect of prior mobilization.

Second, learning might also occur across borders. Since revolutionary situations tend to occur in regionally as well as temporally clustered waves (Beissinger, 2007; Hess, 2016; Weyland, 2012), it seems plausible to assume that diffusion dynamics might play a role. We account for this idea by constructing a variable that records the number of prior revolutionary situations in the same region and within a 5-year span.

H5: If revolutionary situations are driven by diffusion, instances of revolutionary mobilization in close geographic and temporal proximity should increase the likelihood of a revolutionary situation.

As Table 2 demonstrates, we find strong support for both H4 and H5 (see Appendix Table A2 for alternative model specifications). The prior mobilization variables are positive and significant in both versions, the specification based on NAVCO 2.0 (Model 1) and the one based on the Banks data (Model 2).⁴ The presence of a protest campaign increases the probability of a revolutionary situation in the following year by more than a factor of 2.5. Similarly, a move from the 5th to the 95th percentile in the number of protests increases the chances of a revolutionary situation in the following year by 23%. We also find a diffusion effect in support of H5. The probability of a revolutionary situation more than doubles (an increase of 130%) if a case witnessed two such events in its geographic and temporal vicinity, compared to a case that did not see any other revolutionary situations in the region.⁵

Institutionalist explanations: regime type

Institutionalist explanations, finally, focus on the target of revolutionary actions, rather than the agents: states; regimes; and incumbents. The aim in this research program is to find commonalities among specific states, political regimes, and incumbencies assumed to be particularly vulnerable to revolutions. Timothy Wickham-Crowley posits that ‘it was the nature of the regimes themselves that increased the likelihood that the opposition would unite across classes and despite ideological differences’ (Wickham-Crowley, 1992: 7–8). Goldstone et al. insist that ‘political institutions (. . .) are the most important predictors of the onset of political instability’ (Goldstone et al., 2010: 190). Scholars in this tradition have looked in particular at the *types*, *repressive capacities*, and *elite configurations* of regimes.

Most prominently, various scholars agree that specific types of authoritarian regimes and elite coalitions are more prone to revolutionary uprisings than others. Personalistic and sultanistic regimes are said to be particularly vulnerable to seeing incumbents removed by mass uprisings (Escriba-Folch, 2013; Geddes, 1999; Goemans, 2008; Goldstone, 1986; Ulfelder, 2005;). In turn, Woo and Conrad have argued that the prevalence of nominally democratic institutions in autocracies increase popular political grievances and the likelihood for the people to resort to protest politics (Woo and Conrad, 2019).

From a slightly different perspective, other scholars have looked at specific elite dynamics in authoritarian regimes that would produce signals of weakness to populations and hence opportunities for contentious collective action. As Richard Lachmann emphasizes, ‘mass mobilization occurs most often during periods of unusually intense elite conflict’ (Lachmann, 1997: 73). People receive signals about the strength and prospective durability of authoritarian regimes (Bhavnani and Ross, 2003; Bueno de Mesquita and Smith, 2017; Hale, 2005). Such signals include the success or failure of specific policies and reforms, but also the age of incumbents—with an advanced age and possibly compromised health conditions signaling an authoritarian regime’s weakness and imminent power struggle for political succession. The influence of foreign actors—hegemony, neighboring states, and international institutions—can also have an impact on the people’s perception of a regime’s strength or weakness (Colgan, 2013; Snyder, 1999).

Finally, the capacity of regimes to employ their ‘despotic power’ (Mann, 1984) has been perceived as a decisive factor. ‘Loyalty to the government is the most critical qualitative characteristic of armed forces, for the outcome of rebellions and revolutionary wars hinge on that loyalty’ (Wickham-Crowley, 1992: 64; see also Brownlee et al., 2015; Koehler and Albrecht, 2019; Russell, 1974). This leads scholars to look at the political–military relations in authoritarian regimes assumed to be more or less conducive to securing that loyalty (Albrecht and Ohl, 2016; Koehler, 2017; Lee, 2005).

We use information on regime characteristics as well as political–military relations from different sources to operationalize and test some of these propositions. To begin with, we draw on the regime data collected by Barbara Geddes et al. (2014) for information on different regime types. Building on arguments most forcefully advanced by Jack Goldstone (1991), we expect to find a positive effect of personalist (or sultanistic) regimes.

H6: The probability of revolutionary situations is higher in personalist regimes than in other non-democratic regime types.

Second, we use data on incumbency duration based on the Archigos dataset (Goemans et al., 2009) as a measure of signals on the stability of elite alignments. The underlying logic is straightforward: long-time autocrats will have accumulated a track record of human rights violations and broken promises—hence disappointing larger parts of the population as well as political and economic

elite segments. The longer an incumbent is in power, moreover, the older he or she gets and, hence, the lower the expected future benefits of loyalty for elites. Bruce Bueno de Mesquita and Alastair Smith reminded us that '(n)o leader can commit to reward supporters from beyond the grave' (Bueno de Mesquita and Smith, 2017: 708). Lack of elite support for aging incumbents is evidenced by the fact that leaders hardly ever die in office, but are rather removed from power through other means than natural death. Scholars found that, in the period 1946–2012, only 16% of all outgoing autocrats actually died while in office, while the great majority was removed by different means (Kendall-Taylor and Frantz, 2016: 159; Svobik, 2012). Since long-term incumbents will not survive forever (in office and physically), political elites will think twice about investing in the regime and its lame-duck leader if they face a crisis situation challenging an ageing incumbent. Henry Hale, for instance, said about the Color Revolutions in Eastern Europe and Central Asia: 'massive street rallies are costly to suppress, and the more blood that will likely be shed in doing so, the more likely it is that the military will hesitate to engage in violence on behalf of a lame-duck leader' (Hale, 2005: 141).

H7: The probability of a revolutionary situation increases with increasing incumbency duration.

Finally, expectations about the likely success of mobilization might also be influenced by a regime's coercive capabilities (Albertus and Menaldo, 2012; Davenport, 1995b). We use data on military spending from the Correlates of War Material Capabilities Dataset (Singer et al., 1972) as well as data on military recruitment (Toronto, 2007) to operationalize these dimensions. Higher levels of military spending, all other things being equal, are likely to signal high repressive capabilities. Volunteer recruitment (as opposed to general conscription) can be interpreted as a signal for military loyalty since autocrats are most likely to use recruitment mechanisms for stacking the coercive apparatus with members of their own ethnic, tribal, or religious constituency (McLaughlin, 2010; Roessler, 2011).

H8: The higher a regime's repressive capacities, the less likely is the emergence of a revolutionary situation.

As Table 3 shows, we find some support for H6 and H7, but our results do not support H8 (see Appendix Table A3 for alternative model specifications). In substantive terms, based on Model 1, a personalist regime is substantially more likely (61%) than a party-based regime to experience a revolutionary situation. The effect is robust to the inclusion of other variables. Yet, we also find that military regimes remain vulnerable to revolutionary mass uprisings, even though the effect disappears in other models and is reversed once we include country fixed effects (even though this is not significant). We find consistent support for H7 across all models in which the incumbency duration variable is included. Based on Model 2, the predicted probability of a revolutionary situation increases by 28% as incumbency duration moves from the 25th to the 75th percentile (or from about three to 13 years). Since this model includes country fixed effects, we conclude that the likelihood of a revolutionary situation increases as incumbents age. Incumbency duration has an even stronger effect in a comparison across, rather than within cases. Based on Model 5, moving from the 25th to the 75th percentile increases the probability of a revolutionary situation by 51%. Repressive capacity, finally, does not seem to be systematically related to the occurrence of revolutionary situations. While the recruitment variable reaches statistical significance in Model 4, the effect disappears as further controls are included and the overall model is not significant (see Table A3 in the Appendix). We therefore reject H8.

Table 3. Institutional factors.

Dependent variable = revolutionary situation	(1)	(2)	(3)	(4)	(5)	(6)
Personalist	0.512* (0.270)				0.665* (0.340)	0.978 (0.682)
Military	0.761** (0.329)				0.995*** (0.364)	-0.318 (0.766)
Monarchy	-0.583 (0.635)				-0.456 (0.821)	-1.725 (1.353)
Incumbent duration		0.0989*** (0.0205)			0.0388*** (0.0145)	0.0946*** (0.0215)
Military expenditure (lag)			-0.00483 (0.00516)			
Recruitment				-0.677** (0.329)		
Gross domestic product/capita (lag)	1.22e-05*** (3.00e-06)	5.74e-05 (4.55e-05)	1.76e-05* (1.06e-05)	2.26e-05** (1.07e-05)	1.91e-05*** (3.85e-06)	0.0002*** (7.91e-05)
Polity (lag)	0.0108 (0.0269)	-0.0110 (0.0336)	0.0205 (0.0302)	0.0261 (0.0308)	0.0407 (0.0336)	0.0772* (0.0430)
Constant	-4.290*** (0.223)		-4.021*** (0.230)	-3.897*** (0.244)	-4.646*** (0.337)	
Observations	4049	1899	3519	3386	3031	1597
Country fixed effects	No	Yes	No	No	No	Yes

Notes: Models 1 and 3–5 are rare events logit models, and Models 2 and 6 are country fixed effects logit models. Standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

What best predicts revolutionary situations?

At this point of the analysis we are left with a rather mixed bag of results that cannot be easily reconciled on the conceptual level. To begin with, there is no empirical evidence in support of some of the most prominent theories of revolutionary change, namely those approaches emphasizing socio-economic underdevelopment and crisis as drivers and triggers of revolutionary mass uprisings. We also do not observe many cases of peasant rebellions among our revolutionary situations, which suggests that revolutionary change originates from the cities. In fact, we found that a large industrial sector increases the likelihood of revolutionary situations (H2).

Moreover, our inquiry reveals that repressive capacities may help non-democratic incumbents to politically survive mass uprisings once they break out, but the presence of such capacities does not serve as an effective signal for prospective revolutionaries to refrain from taking to the streets in the first place. Prior protest (H4) and the showroom effect of revolutionary events in the neighborhood (H5) matter, at least in that they help overcome the threat potential of authoritarian repression. Finally, we find that personalist regimes (H6) and long-term incumbents (H7) are more likely to be challenged by popular mass uprisings (see also Appendix Figure A1). An unexpected finding—which, to the best of our knowledge, has not been noted in the literature so far—is that military regimes also appear to more likely experience mass uprisings. We attempt at integrating these results and estimate a final model including all variables that were significant in the previous steps along with GDP/capita and the Polity scale as controls.

As the results in Table 4 show, all effects remain significant with the exception of the industry and military regime variables (see Appendix Table A4 for summary statistics). The results

Table 4. Complete model.

	(1)
Personalist	1.182*** (0.424)
Military	0.771 (0.625)
Monarchy	0.308 (1.396)
Incumbent duration	0.0501** (0.0235)
Diffusion	0.274*** (0.0636)
Prior protest	1.190*** (0.380)
Industry	0.0195 (0.0124)
Gross domestic product/capita (lag)	2.65e-05 (8.46e-05)
Polity (lag)	0.0331 (0.0536)
Constant	-6.234*** (0.766)
Observations	1699

Notes: rare events logit models. Standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

therefore suggest that four factors render the emergence of revolutionary situations likely. They happen in non-democratic regimes with a measure of personalist leadership; long incumbent tenure; the presence of a protest culture prior to the revolutionary event and in the state's immediate neighborhood.

What do these insights mean in a broader theoretical perspective? First, we found strong empirical evidence in support of our broad assumption that revolutionary mass uprisings—let alone meaningful social and political change eventually triggered by these uprisings—are complex events that defy somewhat simplistic accounts emphasizing individual causes. We propose that it is a combination of such factors mentioned above that makes a revolutionary situation likely, rather than any single factor on its own. In the context of general theories of revolutionary change, the combination of those factors found to increase the likelihood of mass uprisings leads us to emphasize breaking point theories as the most effective approaches for systematic prediction. Experience with prior protests, incumbent tenure, and diffusion effects all hint at the effectiveness of such theories at the center of which is the analysis of the dynamics and the timing of events, rather than structural factors in politics, society, and the economy.

Conclusions

Revolutionary mass uprisings do not happen out of the blue, and they should not surprise us as much as most empirical episodes of mass uprisings did surprise scholarly experts of the countries concerned. In fact, our inquiry into the causes of revolutionary situations, operationalized as authoritarian revolutionary situations, provides a useful point of departure for informed prediction.

Revolutionary mass uprisings are long in the making and the consequence of accumulated *anger* and contentious *infrastructure*. Most important is accumulated discontent among large parts of society with an authoritarian regime that is represented by a single long-term ruler. While patrimonial rule and long duration in power dramatically increase revolutionary action, the institutionalization of authoritarian rule (including term limits and party regimes) will help insulate autocrats from popular mass contestation turning into authoritarian revolutionary situations. Surprisingly or not, neither economic downturn, nor specific social agency (labor and middle classes) or the regime's coercive capacities constitute factors of broad relevance to explain revolutionary action.

Second, mass uprisings are the result of a learning curve in contentious politics. Mass uprisings in neighboring countries as well as preceding episodes of limited collective action constitute strong signals for the eruption of mass mobilization in any given authoritarian regime. This has both empirical and methodological implications. Empirically, scholars will direct their attention to learning curves among activists, but also the degree to which authoritarian regimes allow space for limited unconventional collective action as powerful predictors for sudden mass mobilization. Revolutionary situations therefore not only are results of accumulated anger with specific regime traits, namely overstretched personal rule, but also knowledge about how to confront such authoritarian regimes accumulated in prior contentious action.

Finally, the results of our inquiry merit its methodological point of departure. A narrow view on empirical episodes of revolutionary situations helps to isolate such rare events from more conventional episodes of contentious activism—and therefore identifying the latter as a causal factor for explaining the former: episodes of conventional contentious activism do not qualify to be studied as the dependent variable in inquiries of revolutionary situations, but they constitute an important building block for the causal explanation and prediction of mass mobilization.

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Notes

1. We use an inclusive definition of non-democratic regimes that also extends to different types of hybrid regimes. Operationally we only excluded an observation from our data if Freedom House (status at least 'partly free'), the Polity scale (values greater than 6), Cheibub et al. (2010), and Geddes et al. (2014) consistently classified an observation as democratic.
2. These datasets were the Nonviolent and Violent Campaigns and Outcomes (NAVCO) 2.0 data (Chenoweth and Lewis, 2013) on contentious episodes and the Cross-National Time Series domestic instability measures (Banks and Wilson, 2013). We included 13 cases that are not in the NAVCO 2.0 data, although they fall within the time period covered. These are: Argentina 1970; Benin 1963; Bolivia 1964; Côte d'Ivoire 1990; Côte d'Ivoire 2006; Gabon 1990; Haiti 2004; Pakistan 1969; Russia 1991; Turkey 1960; Turkey 1971; Turkey 1980; and Ukraine 1991.
3. In this particular specification, we recorded a 'crisis' if in the six years prior to a revolutionary situation, 3 years of positive economic growth were followed by at least 1 year of zero or negative growth. We also tried different specifications of the crisis variable but did not find significant results.
4. Both the Nonviolent and Violent Campaigns and Outcomes and Banks measures are 1-year lags.
5. The diffusion variable captures the number of revolutionary situations within the same world region in the last 3 years.

References

- Acemoglu D and Robinson JA (2001) A theory of political transitions. *American Economic Review* 91(4): 938–963.
- Alamos-Concha P (2014) Pathways to Revolution: When the Unstable Social Equilibrium and the Active International Intervention against Regimes Matter – A Comparative Analysis of 12 Middle East and North African Countries using QCA. Paper presented at the World Congress of Middle Eastern Studies, Ankara, 18–22 August 2014. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2657863 (accessed February 24, 2020).
- Albrecht H and Ohl D (2016) Exit, resistance, loyalty: Military behavior during unrest in authoritarian regimes. *Perspectives on Politics* 14(1): 38–52.
- Albertus M and Menaldo V (2012) Coercive capacity and the prospects for democratization. *Comparative Politics* 44(2): 151–169.
- Almeida PD (2003) Opportunity organizations and threat-induced contention: Protest waves in authoritarian settings. *American Journal of Sociology* 109(2): 345–400.
- Baev PK (2011) A matrix for post-Soviet ‘Color Revolutions:’ Exorcising the devil from the details. *International Area Studies Review* 14(2): 3–22.
- Banks AS and Wilson KA (2013) *Cross-National Time-Series Data Archive*. Jerusalem: Databanks International.
- Bauman Z (1994) A revolution in the theory of revolutions? *International Political Science Review* 15(1): 15–24.
- Beissinger M (2007) Structure and example in modular political phenomena: The diffusion of Bulldozer/Rose/Orange/Tulip Revolutions. *Perspectives on Politics* 5(2): 259–276.
- Beissinger M (2013) The semblance of democratic revolution: Coalitions in Ukraine’s Orange Revolution. *American Political Science Review* 107(3): 574–592.
- Beissinger M, Jamal A and Mazur K (2015) Explaining divergent revolutionary coalitions: Regime strategies and the structuring of participation in the Tunisian and Egyptian revolutions. *Comparative Politics* 48(1): 1–24.
- Bhavnani R and Ross M (2003) Announcement, turnout, and credibility in popular rebellions. *Journal of Conflict Resolution* 47(3): 340–366.
- Bishara D (2015) The politics of ignoring: Protest dynamics in late Mubarak Egypt. *Perspectives on Politics* 13(4): 958–975.
- Boudreau V (2004) *Resisting Dictatorship: Repression and Protest in Southeast Asia*. New York: Cambridge University Press.
- Brinton C (1952) *The Anatomy of Revolution*. 2nd edition. New York: Prentice Hall.
- Brownlee J, Masoud T and Reynolds A (2015) *The Arab Spring: Pathways of Repression and Reform*. Oxford: Oxford University Press.
- Bueno de Mesquita B and Smith A (2017) Political succession: A model of coups, revolution, purges and everyday politics. *Journal of Conflict Resolution* 61(4): 707–743.
- Carey SC (2006) The dynamic relationship between protest and repression. *Political Research Quarterly* 59(1): 1–11.
- Casper BA and Tyson SA (2014) Popular protest and elite coordination in a coup d’état. *Journal of Politics* 76(2): 548–564.
- Cheibub JA, Ghandi J and Vreeland JR (2010) Democracy and dictatorship revisited. *Public Choice* 143(1–2): 67–101.
- Chenoweth E and Lewis OA (2013) Unpacking violent campaigns: Introducing the NAVCO 2.0 dataset. *Journal of Peace Research* 50(3): 415–423.
- Colgan JD (2013) Domestic revolutionary leaders and international conflict. *World Politics* 65(4): 656–690.
- Davenport C (1995a) Multi-dimensional threat perception and state repression: An inquiry into why states apply negative sanctions. *American Journal of Political Science* 39(3): 683–713.
- Davenport C (1995b) Assessing the military’s influence on political repression. *Journal of Political and Military Sociology* 23(1): 119–144.
- Davies JC (1962) Toward a theory of revolution. *American Sociological Review* 27(1): 5–19.

- DeFronzo J (1991) *Revolutions and Revolutionary Movements*. Boulder: Westview Press.
- El-Mahdi R (2009) Enough! Egypt's quest for democracy. *Comparative Political Studies* 42(8): 1011–1039.
- Escriba-Folch A (2013) Accountable for what? Regime types, performance, and the fate of outgoing dictators, 1946–2004. *Democratization* 20(1): 160–185.
- Franklin JC (2009) Contentious challenges and government responses in Latin America. *Political Research Quarterly* 62(4): 700–714.
- Geddes B (1999) What do we know about democratization after twenty years? *Annual Review of Political Science* 2: 115–144.
- Geddes B, Wright J and Frantz E (2014) Autocratic breakdown and regime transitions: A new data set. *Perspectives on Politics* 12(2): 313–331.
- Goemans H (2008) Which way out? The manner and consequences of losing office. *Journal of Conflict Resolution* 52(6): 771–794.
- Goemans H, Gleditsch KS and Chiozza G (2009) Introducing Archigos: A dataset of political leaders. *Journal of Peace Research* 46(2): 269–283.
- Goldstone JA (ed.) (1986) *Revolutions: Theoretical, Comparative, and Historical Studies*. New York: Harcourt.
- Goldstone JA (1991) *Revolution and Rebellion in the Early Modern World*. Berkeley: University of California Press.
- Goldstone JA, Bates RH, Epstein DL, et al. (2010) A global model for forecasting political instability. *American Journal of Political Science* 54(1): 190–208.
- Gurr TR (1970) *Why Men Rebel*. Princeton: Princeton University Press.
- Hale HE (2005) Regime cycles: Democracy, autocracy, and revolution in post-Soviet Eurasia. *World Politics* 58(1): 133–165.
- Harsch E (1999) Trop c'est trop! Civil insurgency in Burkina Faso, 1998–1999. *Review of African Political Economy* 26(81): 395–406.
- Hess S (2016) Sources of authoritarian resilience in regional protest waves: The post-Communist Color Revolutions and 2011 Arab uprisings. *Government and Opposition* 51(1): 1–29.
- Huntington SP (1968) *Political Order in Changing Societies*. New Haven: Yale University Press.
- Kendall-Taylor A and Frantz E (2016) When dictators die. *Journal of Democracy* 27(4): 159–171.
- Kimmel MS (1990) *Revolution: A Sociological Interpretation*. Philadelphia: Temple University Press.
- King G and Zeng L (2001) Logistic regression in rare events data. *Political Analysis* 9(1): 137–163.
- Koehler K (2017) Political militaries in popular uprisings: A comparative perspective on the Arab Spring. *International Political Science Review* 38(3): 363–377.
- Koehler K and Albrecht H (2019) Revolutions and the military: Endgame coups, instability, and prospects for democracy. *Armed Forces and Society*. Epub ahead of print 4 November 2019. DOI: 10.1177/0095327X19881747.
- Koesel KJ and Bunce VJ (2013) Diffusion proofing: Russian and Chinese responses to waves of popular mobilization against authoritarian rulers. *Perspectives on Politics* 11(3): 753–768.
- Kowalewski D (1991) Periphery revolutions in world-system perspective, 1821–1985. *Comparative Political Studies* 24(1): 76–99.
- Kuran T (1991) Now out of never: The element of surprise in the East European Revolution of 1989. *World Politics* 44(1): 7–48.
- Kurer T, Häusermann S, Wüest B, et al. (2019) Economic grievances and political protest. *European Journal of Political Research* 58(3): 866–892.
- Lachmann R (1997) Agents of revolution: Elite conflicts and mass mobilization from the Medici to Yeltsin. In: Foran H (ed.) *Theorizing Revolutions*. London: Routledge, 73–101.
- Lee T (2005) Military cohesion and regime maintenance: Explaining the role of the military in 1989 China and 1998 Indonesia. *Armed Forces & Society* 32(1): 80–104.
- Li Y (2019) A zero-sum game? Repression and protest in China. *Government and Opposition* 54(2): 309–335.
- Lohmann S (1994) The dynamics of informational cascades: The Monday demonstrations in Leipzig, East Germany, 1989–91. *World Politics* 47(1): 42–101.

- Lyall J (2006) Pocket protests: Rhetorical coercion and the micropolitics of collective action in semiauthoritarian regimes. *World Politics* 58(3): 378–412.
- Mann M (1984) The autonomous power of the state: Its origins, mechanisms, and results. *European Journal of Sociology* 25(2): 185–213.
- McAdam D (1986) Recruitment to high-risk activism: The case of Freedom Summer. *American Journal of Sociology* 92(1): 64–90.
- McAdam D, Tarrow S and Tilly C (2001) *Dynamics of Contention*. Cambridge: Cambridge University Press.
- McLaughlin T (2010) Loyalty strategies and military defection in rebellion. *Comparative Politics* 42(3): 333–350.
- Nepstad SE (2011) *Nonviolent Revolutions: Civil Resistance in the Late 20th Century*. Oxford: Oxford University Press.
- Paige J (1975) *Agrarian Revolution: Social Movements and Export Agriculture in the Underdeveloped World*. New York: Free Press.
- Radnitz S (2006) What really happened in Kyrgyzstan? *Journal of Democracy* 17(2): 132–146.
- Roeder PG (1982) Rational revolution: Extensions of the ‘by-product’ model of revolutionary involvement. *Political Research Quarterly* 35(1): 5–23.
- Roessler P (2011) The enemy within: Personal rule, coups and civil war in Africa. *World Politics* 63(2): 300–346.
- Russell DEH (1974) *Rebellion, Revolution, and Armed Forces: A Comparative Study of Fifteen Countries with Special Emphasis on Cuba and South Africa*. New York: Academic Press.
- Scott JC (1977) *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. New Haven: Yale University Press.
- Shadmehr M (2014) Mobilization, repression, and revolution: Grievances and opportunities in contentious politics. *Journal of Politics* 76(3): 621–635.
- Singer D, Bremer S and Stuckey J (1972) Capability distribution, uncertainty, and major power war, 1820–1965. In: Russett BM (ed.) *Peace, War, and Numbers*. London: SAGE, 19–48.
- Skocpol T (1979) *States and Social Revolutions: A Comparative Analysis of France, Russia and China*. Cambridge: Cambridge University Press.
- Snyder RS (1999) The end of revolution? *The Review of Politics* 61(1): 5–28.
- Stinchcombe AL (1965) Social structure and organizations. In: March JG (ed.) *Handbook of Organizations*. Chicago: Rand McNally & Co., 142–193.
- Svolik MW (2012) *The Politics of Authoritarian Rule*. Cambridge: Cambridge University Press.
- Tarrow S (1998) *Power in Movement: Social Movements and Contentious Politics*. Cambridge: Cambridge University Press.
- Tilly C (1978) *From Mobilization to Revolution*. Reading, MA: Addison-Wesley.
- Tilly C (2006) *Regimes and Repertoires*. Chicago: University of Chicago Press.
- Toronto N (2007) Military Recruitment Data Set, Version 2005.1. Available at: <https://community.apan.org/wg/tradoc-g2/fmso/m/fmso-monographs/239260> (accessed February 24, 2020).
- Trimberger EK (1978) *Revolution from Above: Military Bureaucrats and Development in Japan, Turkey, Egypt, and Peru*. New Brunswick: Transaction Books.
- Ulfelder J (2005) Contentious collective action and the breakdown of authoritarian regimes. *International Political Science Review* 26(3): 311–334.
- Webb AK (2006) The calm before the storm? Revolutionary pressures and global governance. *International Political Science Review* 27(1): 73–92.
- Weyland K (2012) The Arab Spring: Why the surprising similarities with the revolutionary wave of 1848? *Perspectives on Politics* 10(4): 917–934.
- Wickham-Crowley TP (1992) *Guerillas and Revolution in Latin America: A Comparative Study of Insurgents and Regimes since 1956*. Princeton: Princeton University Press.
- Woo A and Conrad CR (2019) The differential effects of ‘democratic’ institutions on dissent in dictatorships. *Journal of Politics* 81(2): 456–470.

Appendix

Table A1. Alternative specification of models in Table 1.

	(1)	(2)	(3)
Agriculture	0.0189 (0.0117)	0.00904 (0.0142)	-0.0183 (0.0299)
Industry	0.0281** (0.0126)	0.0311** (0.0129)	0.114*** (0.0402)
Crisis	-0.268 (0.303)	-0.173 (0.310)	-0.0375 (0.374)
Gross domestic product (GDP)/capita (lag)		-4.57e-05 (3.73e-05)	-0.000124 (0.000105)
GDP growth (lag)		0.821 (0.558)	-1.585 (2.328)
Constant	-5.550*** (0.655)	-5.253*** (0.732)	
Observations	3911	3911	1101
Country fixed effects?	No	No	Yes
Chi ²	6.06*	10.46*	15.81**

Note: standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Models 1 and 2 are penalized likelihood logit models (Firth method) for which we report the Wald Chi² statistic, and Model 3 is a country fixed effects logit model for which the likelihood ratio Chi² test is reported. The test is significant for all models. The effects are essentially the same as reported in the main text, with the exception of the fact that the agriculture variable does not reach significance in Model 1. This confirms our rejection of hypothesis 1 in the text.

Table A2. Alternative specifications of models in Table 2.

	(1)	(2)	(3)
Prior campaigns	1.423*** (0.280)		
Prior protests		0.193*** (0.0358)	
Diffusion			0.396*** (0.0619)
Gross domestic product (GDP)/capita (lag)	7.88e-05** (3.75e-05)	4.57e-05 (4.02e-05)	8.31e-05** (3.66e-05)
GDP growth (lag)	-0.489 (1.409)	-0.258 (1.604)	-0.286 (1.554)
Polity (lag)	-0.0340 (0.0261)	-0.0252 (0.0261)	-0.0244 (0.0260)
Constant	-5.020*** (0.293)	-4.529*** (0.246)	-4.723*** (0.257)
Observations	3338	3338	3338
Chi ²	28.67***	33.90***	43.02***

Note: standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

All models are penalized likelihood logit models (Firth method) for which we report the Wald Chi² statistic. The test is significant for all models. The conclusions are essentially the same as reported in the main text.

Table A3. Alternative specifications of models in Table 3.

	(1)	(2)	(3)	(4)	(5)	(6)
Personalist	0.501* (0.289)				0.397 (0.296)	0.978 (0.682)
Military	0.753** (0.338)				0.847** (0.355)	-0.318 (0.766)
Monarchy	-0.533 (0.533)				-0.560 (0.535)	-1.725 (1.353)
Incumbent duration		0.0989*** (0.0205)			0.0420*** (0.0129)	0.0946*** (0.0215)
Military expenditure (lag)			-0.00355 (0.00894)			
Recruitment				-0.676** (0.320)		
Gross domestic product/capita (lag)	4.93e-06* (2.69e-06)	5.74e-05 (4.55e-05)	3.22e-06 (2.84e-06)	3.07e-06 (2.80e-06)	5.24e-06* (2.69e-06)	0.0002*** (7.91e-05)
Polity (lag)	0.0112 (0.0290)	-0.0110 (0.0336)	0.0211 (0.0307)	0.0259 (0.0313)	0.0331 (0.0303)	0.0772* (0.0430)
Constant	-4.260*** (0.232)		-3.987*** (0.227)	-3.828*** (0.226)	-4.507*** (0.282)	
Observations	4049	1899	3517	3386	3484	1597
Chi ²	10.72*	28.39***	1.912	6.230	16.87***	38.70***
Country fixed effects?	No	Yes	No	No	No	Yes

Note: standard errors in parentheses: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Models 1 and 3–5 are penalized likelihood logit models (Firth method) for which we report the Wald Chi² statistic, and Models 2 and 6 are country fixed effects logit models for which the likelihood ratio Chi² statistic is reported. All Chi² tests are significant with the exception of Models 3 and 4 that include the military capacity measures. The fact that the overall models do not reach significance is further evidence for rejecting hypothesis 8. The conclusions are therefore substantially the same as reported in the main text.

Table A4. Summary statistics.

Variable	<i>n</i>	Mean	Standard deviation	Minimum	Maximum
Agriculture as percentage of gross domestic product (GDP)	2452	26.71	16.79	0.00	76.00
Industry as percentage of GDP	2441	29.35	13.95	3.45	83.13
Crisis	3507	0.56	0.50	0.00	1.00
GDP/capita	4049	5256.22	19375.32	306.62	632239.50
GDP/capita growth	3971	0.03	0.36	-0.68	20.79
Prior campaigns (<i>t</i> -1)	3006	0.24	0.43	0.00	1.00

(Continued)

Table A4. (Continued)

Variable	<i>n</i>	Mean	Standard deviation	Minimum	Maximum
Prior demonstrations (<i>t</i> -1)	3641	0.50	2.20	0.00	74.00
Diffusion	4049	0.33	1.14	0.00	7.00
Polity (<i>t</i> -1)	4049	-5.11	4.34	-10.00	10.00
Personalist regime	4049	0.25	0.44	0.00	1.00
Military regime	4049	0.12	0.32	0.00	1.00
Monarchy	4049	0.14	0.34	0.00	1.00
Incumbency duration	3484	10.20	8.93	1.00	50.00
Military expenditure as percentage of GDP	3517	16.13	30.93	0.00	417.44
Recruitment	3386	0.41	0.49	0.00	1.00

Table A5. List of revolutionary situations.

Number	Country	Year
1	Afghanistan	1978
2	Albania	1991
3	Algeria	1992
4	Argentina	1970
5	Argentina	1983
6	Bahrain	2011
7	Bangladesh	1990
8	Belarus	2006
9	Benin	1963
10	Benin	1990
11	Bolivia	1952
12	Bolivia	1964
13	Bolivia	1982
14	Bulgaria	1989
15	Burkina Faso	2011
16	Burkina Faso	2014
17	Cameroon	2008
18	Chile	1989
19	China	1989
20	Côte d'Ivoire	1990
21	Côte d'Ivoire	2006
22	Czechoslovakia	1968
23	Czechoslovakia	1989
24	Egypt	2011
25	Egypt	2013
26	Ethiopia	1974
27	Gabon	1990
28	Georgia	1991
29	Georgia	2003
30	Germany, East	1953
31	Germany, East	1989
32	Haiti	1986

(Continued)

Table A5. (Continued)

Number	Country	Year
33	Haiti	2004
34	Hungary	1956
35	Hungary	1989
36	Indonesia	1998
37	Iran	1979
38	Iran	2009
39	Kenya	1991
40	Korea, South	1960
41	Korea, South	1980
42	Korea, South	1987
43	Kyrgyzstan	2005
44	Libya	2011
45	Madagascar	1992
46	Malawi	1993
47	Mali	1991
48	Mongolia	1990
49	Myanmar	1988
50	Myanmar	2007
51	Nepal	1990
52	Nepal	2006
53	Pakistan	1969
54	Pakistan	1977
55	Philippines	1986
56	Poland	1981
57	Poland	1989
58	Portugal	1974
59	Romania	1989
60	Russia	1991
61	Senegal	2000
62	Sudan	1985
63	Syria	2011
64	Thailand	1973
65	Thailand	1976
66	Thailand	1992
67	Thailand	2006
68	Tunisia	2011
69	Turkey	1960
70	Turkey	1971
71	Turkey	1980
72	Ukraine	1991
73	Ukraine	2004
74	Ukraine	2014
75	Uruguay	1984
76	Venezuela	1958
77	Yemen	2011
78	Yugoslavia	2000
79	Zambia	1991

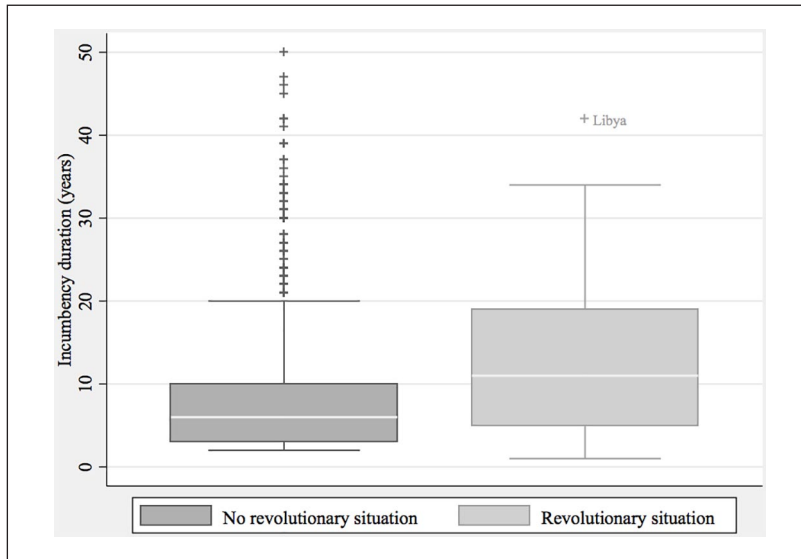


Figure A1. Incubency duration and revolution.

Figure A1 is a boxplot showing the distribution of the incumbency duration variable for years in which revolutionary situations occurred, and years in which incumbents changed without a revolutionary situation. The graph clearly shows that the positive effect of incumbency duration on the probability of a revolutionary situation is not driven by outliers.