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OLD DOGS, NEW TRICKS: AUTHORITARIAN REGIME PERSISTENCE THROUGH LEARNING

by

Nicholas R. Davis

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Political Science

at

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May 2020

ABSTRACT

OLD DOGS, NEW TRICKS: AUTHORITARIAN REGIME PERSISTENCE THROUGH LEARNING

by

Nicholas R. Davis

The University of Wisconsin-Milwaukee, 2020
Under the Supervision of Professors David A. Armstrong and Ora John Reuter

How does diffusion lead to authoritarian regime persistence? Political decisions, regardless of what the actors involved might believe or espouse, do not happen in isolation. Policy changes, institutional alterations, regime transitions– these political phenomena are all in some part a product of diffusion processes as much as they are derived from internal determinants. As such, political regimes do not exist in a vacuum, nor do they ignore the outside world. When making decisions about policy and practice, we should expect competent political actors to take a look at the wider external world. This dissertation project presents a theory of regime learning and authoritarian persistence to augment the extant literature on diffusion and democratization. While this literature provides important links between the outcomes across borders, it also falls short in explaining if and how diffusion can explain the absence of change– authoritarian persistence. The new theoretical approach is rooted in concepts drawn from the democratization literature as well as the psychology of learning, and distinguishes simplistic learning (emulation)– based on the availability heuristic– and a more sophisticated learning process rooted in the representativeness heuristic. To test the implications of this theory, I develop a pair of new measures of change: liberalization (making concessions) and deliberalization (increasing repression). Using a combination of human and machine coding of yearly Freedom House country reports, I determine whether authoritarian regimes made liberalizing or deliberalizing moves which fall short of the significant regime changes that aggregate measures such as POLITY, Freedom House, and similar capture. An empirical examination employing these new measures reveals that diffusion does exist among authoritarian regimes

at the regional level, among contiguous neighborhoods, and within more carefully confined groups of peers. These results add to our understanding of persistent authoritarianism and establish that emulation can be identified. Although authoritarian regimes seem to be be copying the liberalization and deliberalization strategies of their peers, there is not clear support for more sophisticated learning processes at this time.

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LIST OF ABBREVIATIONS

BART	Bayesian Additive Regression Trees
MENA	Middle East and North Africa
BTSCS	Binary Time-series Cross-sectional
FDI	Foreign Direct Investment
GWF	Geddes, Wright, and Franz
HTML	HyperText Markup Language
LASSO	Least Absolute Shrinkage and Selection Operator
MCMC	Markov chain Monte Carlo
NB	Naive Bayes
OLS	Ordinary Least Squares
ROC	Receiver Operating Curve
SPCA	Sparse Principal Component Analysis
SVM	Support Vector Machine
TF-IDF	Term Frequency - Inverse Document Frequency
XGB	eXtreme Gradient tree Boosting

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Introduction

The Puzzle of Persistent Authoritarianism

> *Similar provisions have been used in other countries in the region... to put pressure on independent civic groups. Tetiana Pechonchyk, executive director of the Human Rights Information Center and a leading Ukrainian activist, went as far to say that these draft laws directly draw language from existing legislation in Kazakhstan and Russia.*
>
> – G.S. Lentine (Atlantic Council 2018)

Introduction

Political decisions, regardless of what the actors involved might believe or espouse, do not happen in isolation. Policy changes, institutional alterations, regime transitions– these political phenomena are all in some part a product of diffusion processes as much as they are derived from internal determinants (see Berry and Berry 2007, 1990). For political regimes of all types throughout the world, the governance decisions made are affected by, and in turn affect decisions made by other regimes elsewhere. Interdependence in political science research involves various substantive areas of interest. In this dissertation I focus on one particularly important arena of interdependence: regime change and persistence. Often characterized as the "democratization" literature, this wide-ranging assortment of theoretical and empirical studies deals with various determinants of regime type and explanations of regime change. In the following section, I review some of the work which takes the notion of interdependence of processes– the diffusion of democratization– seriously. While this literature provides important links between the outcomes across borders, it also falls short in explaining if and how diffusion can explain the *lack* of change. In other terms, diffusion has been used to explain democratization, but not the absence of it.

Regimes do not exist in a vacuum, nor do they ignore the outside world. When making decisions about policy and practice, we should expect competent political actors to take a look at the wider external world. This project presents a theory of regime learning and authoritarian persistence to augment the extant literature on diffusion and democratization. This new theoretical approach is rooted in concepts drawn from the democratization literature as well as the psychology of learning. Initial empirical tests suggest that diffusion not only impacts authoritarian regimes in cascading revolutions which have occurred in installments throughout history, but also in the periods of stability between these groups of regime change events.

Democratization and Diffusion

In his seminal study of the "waves" of democratization, Huntington (1991) argues that democracy is growing throughout the world since the end of World War II. The political science scholarship investigating the third wave of democratization has repeatedly found evidence the global march towards democracy, despite reversals and stagnation among some of the more ambitious democratization efforts in the post-Cold War era and recent well-publicized struggles among a variety of democracies. The proportion of the world's political regimes which are democracies rose to over half by the early 1990s and remains well above that mark today.[1]

However, the seemingly inevitable march towards democracy that observers like Fukuyama (1989) called the "end of history" has not reached all corners of the globe. Specifically, there is a lack of relative democratization in the MENA region, what some scholars have identified as Middle Eastern (Lust 2011, Bellin 2004) or Arab (Stepan and Robertson 2003) "exceptionalism." Consider the figure below. It is clear that the Middle East and North Africa (MENA) region lags behind the rest of the world in democratization trends,

[1] It has been suggested by Croissant and Wurster (2013) that the overall number of electoral democracies, as measured by Freedom House, has seen decline between 2006 and 2011. Beyond the scope of their analysis, the number of electoral democracies recorded by Freedom House rebounded, reaching a maximum of 125 in 2015. Since 2016 there has again been a decline in the number of electoral democracies as measured by Freedom House, falling to 114 in 2018 (Freedom House 2019*a*).

as Eastern Europe, Latin America, and Asia once did prior to the third wave. Outside of the MENA region, other persistent authoritarian states like China challenge existing theories of democratization and what affects authoritarian stability.

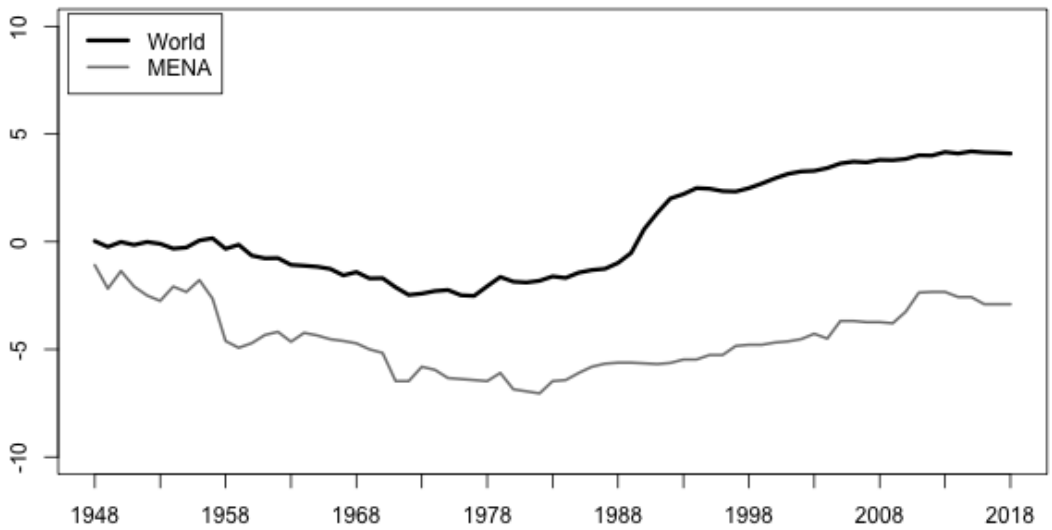


Figure 1: Democracy in the World

Figure 1 compares the mean combined POLITY scores of the MENA region and the rest of the world minus the MENA states. While this figure does not precisely represent the proportion of democracies in the world,[2] it is still illustrative of how authoritarian persistence appears to have a spatial dimension. There is a noticeable difference between the MENA region and the rest of the world.[3] The nature of this spatial dimension –whether based in geography, history, culture, natural resource endowment or other economic practices, or some other factor– has been the focus of scholars seeking to explain patterns of democratization. While the extant literature offers plausible accounts of how various explanations like Islam or natural resource rents may matter to the prospects of

[2]Combined POLITY scores are not a measure of regime *type* (i.e. democracy, non-democracy), but rather are an index of indicators which incorporate several institutional features of democracies and autocracies (Marshall, Jaggers and Gurr 2015). Despite the common practice in the comparative democratization literature to use a cutoff value of the combined POLITY scores to derive a measure democracy (see, for instance: Croissant and Wurster 2013) I believe this to be an inappropriate practice, as it relies on choosing an arbitrary value.

[3]This gap between the MENA region and the rest of the world holds no matter which of the commonly used measures of democracy are applied.

democratic transition and consolidation in authoritarian states, there are still questions left unanswered. Do structural, economic, and international factors work independently or in concert? Are explanations of democratization useful in understanding the *lack of democratization* (persistent authoritarianism)? Might resistance to the global diffusion of democracy itself be a form of autocratic diffusion? In the chapters of this dissertation, I consider these related queries through the latent question which connects them: how does diffusion lead to authoritarian regime persistence?

When regimes face serious challenges– whether from mass mobilization, elite defection, economic crisis, or exogenous threats– they can respond in different ways. Regime responses may lead to a range of outcomes, including (but not limited to) survival, democratization or liberalization, or state collapse. Sometimes regimes which enjoyed stability prior to the challenge fail to persist, but other times such regimes survive. Groups of states can face related or similar challenges, such as market crashes or regional conflicts. Or, regimes might experience what Beissinger (2007) refers to as modular political phenomena, coordinated protests or other events which are in part based on successful actions elsewhere. As a result regimes may experience temporally proximate transitions, such as much of Eastern Europe after the fall of communism. Alternatively, widespread crisis may claim no or few victims in terms of regime transitions, as the "Arab Spring" has demonstrated. This uncertainty over the result of challenges has long been known to political scientists studying regime transitions.

The literature on democratic transitions considered how such events were at once both uncertain and strategic. In one of the most widely-read reviews of the early transitions literature, O'Donnell and Schmitter (1986) consider how incomplete information and short time horizons make analysis of strategic actor behavior in transition events difficult. Przeworski (1991) adds that democratization is essentially the result of a mistake made by regime elites. These studies were instrumental in pushing the literature away from the deterministic expectation that transitions were unidirectional towards democracy as well as clarifying the difference between regime transition and regime consolidation.

Despite the increasingly less optimistic nature of the transitions literature, the third

wave brought about many predictions about the future of democracy. A broad-minded reading of Fukuyama (1989) imparts a belief that political liberalism will eventually follow as economic liberalism is adopted throughout the world following the fall of the only cohesive alternative system. In a widely read essay on the prospects of democratization in the post-9/11 world, Diamond (2003, p. 75) maintains that the march towards democracy "is far from inevitable, yet has never been more attainable." over a decade later, Plattner (2015) has a revised understanding of the march towards democracy, that it is less certain in the face of authoritarian resurgence.

Given the uncertainty of the results of challenges to the regime, coupled with alternating views of the prospects for democratization in the MENA region and among other authoritarian holdouts, a new approach to persistent authoritarianism is needed. The contribution of this project is twofold. First, I develop a novel theory of regime-level authoritarian learning which works to explain the puzzling existence of groups of persistent authoritarian stalwarts in the face of the global surge of democratization running throughout the third wave. Second, using a combination of human and machine classification I create a new way of measuring the changes regimes make which fall short of regime change events. This allows a more nuanced examination of the question of authoritarian persistence.

Plan of the Dissertation

This project includes four substantive chapters which present theoretical and empirical examinations of various aspects of the central research question. These chapters proceed as follows: a literature and empirical review of the extant literature on democratization and persistent authoritarianism (Chapter 1), the development of my new theory of regime learning (Chapter 2), creation of a way to measure regime changes (Chapter 3), and empirical analysis of six hypotheses derived from the theory (Chapter 4). I conclude the project with a few short remarks about likely avenues for future research. A more detailed description of the chapters is included in the sections below.

Chapter 1: Potential Explanations for Persistent Authoritarianism

The literature on democratization– and relatedly, authoritarian persistence– has suggested several competing theories as to why liberalizing change occurs and why it may not. The theoretical contribution of this project articulates how a particular type of diffusion, regime learning, provides a more compelling account of regime persistence than alternative approaches. However, prior to introducing that theoretical approach, it is necessary to address a core question: does diffusion occur beyond the third wave of democratization?

To answer this question, this chapter explores the main theoretical explanations in the comparative democratization literature and presents an set of empirical models covering all available countries for a 45 year period from 1972 to 2016. In the course of reviewing the literature and empirical record of the extant literature, I consider existing explanations for two related concepts: regime type and regime stability. There is a great deal of previous work to account for, as the comparative democratization literature is prolific through the third wave and through the past two decades. The empirical examination in this chapter corroborates some of the established findings in the literature. Of interest here is that while various structural or political economic explanations fail to operate well across both empirical models of democracy (regime type) and change (regime stability), diffusion explanations do comparatively better.

Chapter 2: A New Theoretical Approach to Regime-level Learning

Political regimes do not exist in a vacuum, independent of exogenous forces. However, existing theories of diffusion and regime type fall short of a complete, testable theory. In particular, the role of the diffusion of authoritarianism– rather than the spread of democracy– is an essential component in understanding authoritarian persistence. How does authoritarian diffusion affect authoritarian regime persistence? This chapter ad-

vances a theory of regime-level learning which addresses how endogenous features and exogenous factors– the actions of other regimes– interact.

This chapter provides conceptualization of learning and other key components of the theory. I view learning as a Bayesian updating process where regimes incorporate new information to update their prior expectation of survival should they select a given strategy to address an existential crisis. The two main strategies examined here are *repress* and *capitulate*, or "deliberalization" and "liberalization" which falls short of regime change. I build the theoretical model from the perspective of survival-maximizing regimes which must abandon their status quo actions due to the presence of a crisis brought on by a challenger. This chapter concludes with a set of testable implications derived from the theory that are further examined in the final empirical chapter.

Chapter 3: A Machine Learning Solution to Data Limitations

This chapter focuses on the specific challenges of measuring the outcomes of regime strategies to repress or capitulate, which are often quite subtle and not picked up in typical aggregate indicators. By the conceptual definition of these successful outcomes, they are explicitly not regime change events and as such may not always be recorded as changes to POLITY or Freedom House measures. This leads to the question central to this chapter: is there a way to measure regime liberalization and deliberalization in primarily persistently authoritarian contexts?

Since existing indicators cannot be used, I develop a new way of coding the outcomes of interest, a solution which relies on qualitative text-based data accompanying the Freedom House aggregate measure. I develop a web scraping algorithm to obtain the Freedom House country reports, available on-line as text for all countries and for years 2000-2017. My measurement solution then combines human and machine coding techniques to process the text data and look for evidence of liberalization and deliberalization events. This process produces valid measures of liberalization and deliberalization which correlate with existing aggregate indicators, yet provide greater nuance and variation.

Chapter 4: Regime Persistence Through Learning, 2001–2017

This final chapter builds on the previous three and presents a first set of results analyzing the theoretical assertions in this project. There are several connected ideas behind the tests presented in this chapter, each relating to the central question: does learning lead to persistence in authoritarian regimes? In this chapter, I provide an empirical examination of several aspects of diffusion. I find that although authoritarian diffusion can be detected in the data, but empirical record for complex learning and for persistence is yet unclear.

In this chapter, I specify six hypotheses, grouped together by the part of the theory they address: crisis, diffusion, learning, and regime persistence. Since my theory of regime learning is based on an assumption that regimes respond to the presence of an existential threat with a departure from the status quo, this is the first empirical test. It receives at best very limited corroboration. The next two hypotheses assess whether diffusion can be detected. These are fully supported by the data, revealing that with the new measurement diffusion is still present. I then have a test for each variant of learning described in the theory chapter; basic emulation (supported by the results), and more sophisticated learning (not supported). The final hypothesis addresses the central question of this chapter– and of the dissertation project as a whole– whether learning leads to regime persistence. The results here also do not identify clear support for this assertion, and so I make suggestions for future research to continue to assess regime learning.

Chapter 1

Potential Explanations for Persistent Authoritarianism

Change has already happened. What the long term will look like we can't tell. But the feeling in the country is altered. The feeling is, to steal Mr Obama's catch-phrase: "Yes, we can!"

– Ahdaf Soueif, January 2011

The regime is trying to ensure that there is no alternative: associations are outlawed; student elections are cancelled; cultural spaces closed. Journalists and photographers and students and doctors and engineers endure harsh conditions in jail.

– Ahdaf Soueif, January 2016

Introduction

These statements, written five years apart by Egyptian author Ahdaf Soueif,[4] reveal the discord between early assessments of the unfolding events in the Middle East and North Africa (MENA) and the widespread failure of change to occur after five years of

[4]The quotes included here are part of special reporting by the *Guardian* where commentators originally contributing in 2011 at the beginning of the "Arab Spring" were asked to revisit their own statements five years later (Yassin-Kassab et al. 2016).

turbulence, protest, repression, and conflict in many states in the region. In short, the expectation– mostly among journalists and politicians– that the MENA region was finally going to join the rest of the world and buck an epoch of authoritarianism was met with the empirical regularity of durable dictatorship.

The literature on democratization– and relatedly, authoritarian persistence– has suggested several competing theories as to why liberalizing change occurs and why it may not. The theoretical contribution of this project articulates how a particular type of diffusion, regime learning, provides a more compelling account of regime persistence than alternative approaches. However, prior to introducing that theoretical approach, it is necessary to address a core question: does diffusion occur beyond the third wave of democratization?

To answer this question, this chapter explores the main theoretical explanations in the comparative democratization literature and presents an set of empirical models covering all available countries for a 45 year period from 1972 to 2016. My approach is not dissimilar to that of Teorell (2010), but I cover a longer amount of time, including the years of the "Arab Spring" phenomena. While his study is a useful starting point, it is intended to set forth a collection of explanations of democratization. My intent here is to assess not only the literature on democratization, but also to establish that existing explanations cannot well explain authoritarian persistence. Extending the data to cover the "Arab Spring" includes some key regime failures and transitions as well as successful accounts of persistence. In order to more directly analyze persistence I substitute Teorell's (2010) long-run democracy model for a model of regime persistence.

In the course of reviewing the literature and empirical record of the extant literature, I consider existing explanations for two related concepts: regime type and regime stability. There is a great deal of previous work to account for, as the comparative democratization literature is prolific through the third wave and through the past two decades. The empirical examination in this chapter corroborates some of the established findings in the literature. Of interest here is that while various structural or political economic explanations fail to operate well across both empirical models of democracy (regime type)

and change (regime stability), diffusion explanations do comparatively better. There is room for expansion of explanations of regime persistence in light of democratization trends, but to paraphrase Brinks and Coppedge (2006), diffusion still appears to be no illusion.

Attempts to Explain Authoritarian Persistence

Much of the existing comparative democratization literature focuses on the determinants of democracy, political liberalization, and transitions to democracy. My interest is somewhat different, since I focus on the determinants of persistent authoritarianism. This related, but conceptually different understanding is important to note, since in the following sections I invoke the comparative democratization literature to demonstrate how there is yet a convincing theory of what explains democratization, much less the consistent absence of such a phenomenon.

For each of the factors I explore below, I first provide a short review of the literature on comparative democratization which applies to the factor of interest. I outline how the literature has either focused on explaining regime type (i.e. democracy or autocracy) or regime stability (i.e. longevity). Then I suggest how the literature reviewed can apply to the related phenomenon of persistent authoritarianism. I begin with structural factors, then turn to political economy explanations. Following that, I examine how diffusion relates to authoritarian persistence.

Structural Explanations

Structural explanations for democracy have been present in the literature for some time. Analyses of state formation and revolution (i.e. Moore 1966, Skocpol 1979) relied on structural factors for their historical analyses. Empirical political science has continued to use a few dominant explanations in qualitative and quantitative research since. Past

research has sought to explain the democratization using theories that focus on structural factors like colonial past (Bernhard, Reenock and Nordstrom 2004) or traditional culture (Inglehart and Welzel 2005). These accounts are better at explaining regime type than regime persistence, however.

Colonial Past

In the comparative democratization literature, colonial past is a common structural factor. The experience of colonization was generally believed to be a negative influence on the democratic potential of newly independent states, as it limited economic potential and reinforced class divisions which supported authoritarian politics (Rueschemeyer, Stephens and Stephens 1992). However, this view was challenged by the relative performance of some former colonies which transitioned and consolidated as democratic regimes following independence. The literature needed to evolve the theoretical expectations to account for the empirical diversity of colonial experience.

An early account relating the performance of third wave democratizers to to past colonial experience is Myron Weiner's observation that in terms of democratic survival, "the British colonial model of tutelary democracy has been more successful" than alternative colonial models (Weiner 1987, p. 862). In his exploration of the democratization efforts in the third wave, Huntington (1991, p.43) describes a "decolonization pattern" of democratization which is particular to British colonies. The expectation that former British colonies should become consolidated democracies post independence became a key component to large-N empirical work on democratization.

In more recent work there has been a shift away from the dogmatic claim that British colonial past is a boon for democratization, while other colonial experiences do not support democracy. Herbst (2014) argues that experiences with colonization, particularly in most African states, were too short to have any real impact post independence. Bernhard, Reenock and Nordstrom (2004) treat western overseas colonialism as a holistic phenomenon incorporating and examine its relative effects on democratic survival.[5] Con-

[5]Bernhard, Reenock and Nordstrom (2004) extensively review the literature on colonialism, its effects, and purported mechanisms.

trary to many previous studies, Bernhard, Reenock and Nordstrom (2004) find that when considering the holistic effect of colonialism– including economic development, social fragmentation, and political culture effects together– colonial experience generally does not positively effect the survival of democracy, even among former British colonies. They find that only when disaggregating the effects of colonial past to consider the relationship between civil society and the state (political culture) separately does the advantage of British colonial experience surface (Bernhard, Reenock and Nordstrom 2004). The lack of empirical support for a colonial effect is corroborated by other researchers using different large-N designs (Teorell 2010).

Much of the comparative literature on colonial legacy examines how colonial past might effect democratization, rather than the how colonial past might relate to authoritarian persistence. A different set of studies is more useful to this end. Two influential economics papers (Acemoglu, Johnson and Robinson 2001, 2002) frame European colonization as institutionalization of practices which either support democracy (endowed property rights) or support authoritarianism (extractive institutions). This perspective views contemporary political institutions in former colonies as a carryover from past colonial experience. Acemoglu, Johnson and Robinson (2001) note that creating new institutional arrangements is costly for political elites, and so they are likely to adopt existing institutions when they can. This explanation is more sensitive to within-colonizer variation than the approach in Bernhard, Reenock and Nordstrom (2004), and provides a simpler theoretical frame. Where European colonizers were able to resettle their citizens (where climate other conditions were mild) they instituted property rights and constraints on state power (Acemoglu, Johnson and Robinson 2001).

Much like the logic of constitutionally constraining monarchs (North and Weingast 1989) the interest of colonizers in such places was to credibly commit to a regular rate of taxation or appropriation from colonists so that economic growth and investment could increase metropole revenues. Where colonial powers could not reasonably settle colonists and there were natural or human resources to exploit for material gain, extractive institutions were created to manage and govern the territory (Acemoglu, Johnson and

Robinson 2001). The state repression and extraction apparatuses required to sustain authoritarian rulers are realized by the extractive institutions left behind by colonizers.

While the approach in Acemoglu, Johnson and Robinson (2001) draws on a political economic logic, it is arguably still a structural explanation. Colonial past matters, despite disuse of class-based and political cultural mechanisms. Persistently authoritarian places may benefit from a legacy of anti-democratic, extractive institutions which fail to constrain the executive or uphold property rights for the masses. This approach to explaining the role that colonial experience may have on the persistence of authoritarianism is appealing, but falls short for places where European colonization did not take place.

Culture

Another common structural factor which is commonly used in studies on comparative democratization is culture. Most often culture in this context means religion; in most studies Islam has been considered either antithetical to democracy or at least positively correlated with authoritarianism. In a basic sense, it does appear that the third wave of democracy avoided most Muslim majority societies since most of the Muslim world is in the persistently authoritarian Middle East and North Africa region. The connection between Islam and the lack of democracy has been challenged, however.

Modernization theory provides the root of the perception that Islam and democracy struggle to coexist. The general understanding of modernization theory is that economic development will lead to shifts in cultural values, which brings greater demand for political liberalization (Lipset 1959). The alternative viewpoint is that cultural change is unlikely given the persistence of traditional values and supposed hostility to liberalism in Islamic societies (i.e. Huntington 1993). Inglehart and Baker (2000) instead argue that cultural change is path dependent, and that variation in values within societies sharing religious tradition is smaller than differences between different religious traditions.

Ascribing antidemocratic values to societies which have been persistently governed by authoritarian regimes due to Islam has been theoretically and empirically discredited. In a careful analysis of Islam and democracy, Fish (2002) finds that there is not a scriptural

or dogmatic reason why Muslims would be predisposed to authoritarian rule. In a lengthy follow-up study, Fish (2011) examines survey data of Muslims from throughout the Islamic world, further discrediting the idea that Muslims are different in any meaningful way to Christians in their views of separation of religion and politics, personal religiosity, membership in civic organizations. Fish (2011) finds that Muslims are only slightly less tolerant of homosexuality and of personal dishonesty when compared to Christians, and that this is unlikely to have any impact on support for democracy. Other large-N analyses of Muslim attitudes and values find that there is support for democracy among even very religious Muslims (Ciftci 2010) and there can be simultaneous support for both democracy and *Shari'a* (Ciftci 2013).

Despite these studies revealing that there is not anything inherently antidemocratic about Muslims or Islam as a religion, it cannot be ignored that majority Muslim societies have continued to avoid democracy. Other elements of culture endemic to the MENA region in particular can help rectify this apparent confusion. Stepan and Robertson (2003) argue that the "democratic gap" is not a Muslim one, but rather an Arab one. Fish (2002) points to patriarchy and repressive familial structures which can create relatively extreme gender inequality. Ross (2008) points to the role of oil-producing economies in continuing to promote gender inequality. Inglehart and Welzel (2005) provide the most comprehensive link between culture and regime type, arguing that the farther a society moves away from traditional values, the more likely democratization is.

The traditional versus secular-rational dimension of cultural values is also linked to another dimension of values, survival versus self-expression (Inglehart and Welzel 2005). In a sort of update to modernization theory, Inglehart and Welzel (2005) argue that democracy coincides with high secular-rational and self-expression values, since higher rates of education, greater tolerance, and less existential concern lead to demands to the state for increased input into governance and respect for property rights and autonomy. The role that traditional cultural values have in sustaining authoritarianism is based in the support for patriarchical, tribal, and other traditional modes of authority that limit female equality and denigrate challenges to leadership. Extreme survival values signal

severe risk aversion to changes in governance (liberalization or democratization) due to individuals existential fears and abject need.

Unlike colonial past, culture can change over time– even if such change is very slow. This potentially makes this structural factor a better explanation for democratization than alternative explanations which are static. Where culture remains largely unchanged and retains its traditional and survival values, we can expect that authoritarianism will persist. Yet this explanation still comes up short when considering regime change events which seem to occur without appreciable cultural shift, and it cannot explain authoritarian to authoritarian regime changes.[6]

Political Economy Explanations

Besides structural accounts, some of the extant literature on comparative democratization and persistent authoritarianism focuses on a political economy approach. This view argues that stability is a function of resource rents, fungible foreign aid, or revenue from economic activity like trade since regimes can use these fungible resources to build repressive capacity (Ross 2001) or provide private goods to their winning coalition (Bueno de Mesquita et al. 2005).

Political economy explanations initially derived from modernization theory. The structural accounts above stress the social aspects of modernity, such as legacy institutional frameworks which do not support economic or political liberalism or a shift in cultural values. Political economic approaches focus instead on how increasing wealth and economic development enlarge the middle class, and accordingly lead to greater demands for political liberalization (Huber, Rueschemeyer and Stephens 1993). However, there is little empirical support for the idea that modernization leads to democratization.

In a well-known study, Przeworski et al. (2000) demonstrate that the tenets of modernization theory as applied to explaining democratization do not hold. They find that transitions to democracy occur irrespective of economic growth and development; instead, economic development helps prolong the life of consolidated democracies (Prze-

[6]For an example of the former, Tunisia in 2010; for an example of the latter, Egypt 2013.

worski et al. 2000). Rather than an explanation of regime *type*, economic development instead can help us understand why regimes– democracies in particular– persist. Having economic resources at hand is a great benefit to certain regimes, as it can prevent authoritarian backsliding in consolidated democracies. This may also explain how wealthy autocracies can avoid democratization, although this version of the argument is less empirically substantiated. Still, this idea does fit well with the selectorate theory approach (Bueno de Mesquita et al. 2003) which considers how economic resources are used to fuel regime persistence.

According to the selectorate theory, incumbent survival follows from the successful maintenance of the winning coalition (w), or those members of a polity which are required to sustain the incumbent, through goods provision (Bueno de Mesquita et al. 2003). As the size of w approaches zero the incumbent tends to supply private goods, while public goods are more typical of large w polities (democracies). Bueno de Mesquita et al. (2003) argue that large w polities tend to be wealthier in part due to lower tax rates and higher productivity. However, there is still an empirical regularity that comparatively per capita wealthy states can still have persistent authoritarian regimes.[7] The most common explanation for this regularity is the "resource curse."

Rentier Economics

The concept of a "resource curse" grew out of studies of state capacity and political institutions in the MENA region. These studies employ logic similar to modernization theory regarding the debilitating effects of poor economic performance and lack of economic diversification which inhibits political liberalization. In this view, states with high natural resource rents suffer from underdeveloped political institutions and stagnated diversification of their economies. Mahdavy (1970) identifies these resource endowed states which develop external rents from the sale of their resource endowments as rentier states.[8]

Additional studies explore the link between taxation and accountability, identifying

[7]Perhaps the most obvious example from the MENA region is Saudi Arabia, which has never experienced democracy and enjoys a $54,100 per capita Gross Domestic Product– a mere $3,200 less than the United States (CIA 2017).

[8]For a thorough discussion of rentier state formation in the MENA region, see Schwarz (2008).

the substitution of rents for taxation that leads regimes to be less beholden to public demands than in non-rentier states (Anderson 1987, Beblawi and Luciani 1987, Skocpol 1982). This literature links rentier status with institutional design and policy outcomes; in short, scholars studying the MENA region have identified rentierism as problematic for democracy.

In one of the most influential contributions to the literature, Ross (2001) outlines three mechanisms by which democratic governance is suppressed by resource wealth. The rentier effect works by regimes in resource rich states capturing rents from the sale of those resources and maintaining high spending and low taxes. The regime can provide services and price subsidies to silence demands for transparency and policy adjustments that typically correspond with high taxes. From the perspective of selectorate theory, resource rents are an alternative way for regimes to increase the distribution of goods to maintain w without raising taxes. Additonally, Greene (2010) notes that dominant party regimes use economic resource asymmetry from rents to stay in power.

The repression effect operates through the highly fungible nature of resource rents. Regimes can convert rents into improvements to the internal security apparatus of the state and increase its repressive capacity (Ross 2001). Rents therefore can be used to deal with popular mobilization and prevent escalating demands for democracy (Bellin 2004). In a similar manner, repressive capacity can be used to discourage the defection of incumbent supporters to a challenger (Bueno de Mesquita et al. 2003).

The modernization effect occurs through the lack of economic diversification in resource rich states. Social and cultural changes that are associated with the development and diversification of the economy are stalled, since rentier regimes need only to maintain the sectors of the economy that allow for the extraction and transfer of natural resources. Ross (2008) further argues that the modernization effect has severe implications for workforce composition, depressing the amount of women in the workforce, leading to a lack of social demands for equality and representation that occur in developing states which experience increases in female labor force.

The link between rentier status and regime type is not without discussion in the

extant literature, however. Two points of contention exist that challenge Ross (2001); a challenge levied at the manner in which the relationship between resources and regime type was measured, and a lack of evidence in favor of two of the three mechanisms.

First, findings in support of the negative relationship between natural resources– particularly oil– and democracy that developed out of the study of the MENA region have a methodological weakness. Haber and Menaldo (2011) argue that the statistical evidence in favor of the rentier theory is necessarily limited temporally and spatially to those states, primarily located in the MENA region, which are able to capitalize on their resources for the temporal domain covered. This, as Haber and Menaldo (2011, p. 2) point out, leads to bias in such results due to the homogeneity of within-country factors and time invariance. Such critics argue that the mechanisms outlined in Ross (2001) cannot be examined with research designs which do not adequately address the endogenous nature of resource wealth. Despite their study being a valuable addition to the literature, the evidence presented by the Haber-Menaldo critique misses an important point about the nature of the resource curse.

In defense of the rentier theory, Andersen and Ross (2014) present a counterargument to the Haber-Menaldo critique: that there is a "big oil change" in the early 1970s precipitating the negative relationship between resource wealth and democracy. The accumulation of large resource rents, particularly from the sale of oil, only became widely true among oil rich states after 1975 (Andersen and Ross 2014, p. 995). The authors demonstrate that their results confirm the negative relationship between rentierism and democracy, and are robust even when including various measures and estimation techniques used by Haber and Menaldo (2011).

Second, works following Ross (2001) have not found uniform support for all three mechanisms outlined in the seminal piece. Using different measures and methods, Ross (2009) reexamines the original Ross (2001) piece; he finds that of the three mechanisms only the rentier effect is both theoretically and empirically persuasive. The modernization effect is found to lack support in a better specified model with a more complete sample, and Ross (2009) includes robustness checks to ensure sample composition changes are

not the culprit. Despite the supporting results in Ross (2008) that female labor force participation is depressed and fertility is increased where economies are dominated by oil production, Ross (2009, p. 15) indicates that "there is not compelling evidence that oil's impact on social modernization helps explain its impact on democracy."

Despite the problems with the rentier theory reviewed above, its explanation of the connection between persistent authoritarianism and natural resource wealth has been a popular theme in the extant literature.[9] For places endowed with oil and natural resources, this theory might explain how authoritarian regimes can remain stable. For places with no appreciable natural resource wealth which are persistently authoritarian, however, another explanation is required.

Foreign Aid

Much like resource rents, foreign aid is a fungible source of income and can stabilize regimes. Early accounts of foreign aid as democracy promotion rely on the problematic ideas derived from modernization theory, as reviewed above. The two-gap model (Chenery and Strout 1966) considers foreign aid as the bridge for gap between the investment and savings levels in a target's economy so that self-sustaining economic growth can be achieved.[10] This approach asserts that once the target country experiences enough growth to sustain democracy, the target will transition to democracy without intervention (Epstein et al. 2006, Knack 2001, 2004).

However, economists and scholars of comparative development view aid as generally not very effective in promoting economic development or democratization (see Riddell 2007, Lancaster 2008). This may be due to either the failures of foreign aid to underfunding by the donors (Sachs 2005) or failures in managing aid by targets with limited administrative capacity (Easterly 2006, 2003). According to some scholars, aid condition-

[9] A recent meta-regression analysis of the literature examines a vast selection of empirical work and finds a robust negative association between oil and regime type, even in when standard controls are included: previous political regime, income, and Islam (Ahmadov 2014).

[10] The two-gap model makes two theoretically and empirically problematic assumptions: the first is that the relationship between investment and growth is fixed; the second is that the aid revenue will actually finance extra investment rather than extra consumption in target states. Easterly (2003, p. 33) did an empirical test of these assumptions in the context of a critique of Burnside and Dollar (2000), finding that it holds for only one out the 88 countries in the original study: Tunisia.

ality is necessary to produce the democratization effect (Collier 2006, Kono and Montinola 2009), but the success of conditionality is not clear in the existing literature.[11]

A different approach to foreign aid and democratization is found in selectorate theory (Bueno de Mesquita et al. 2003), which views foreign aid as a means by which donors buy policy concessions from recipients. Autocratic leaders can use foreign aid revenue to buy political support (Bueno de Mesquita and Smith 2009, 2007) or to improve their coercive capabilities (Djankov, Montalvo and Reynal-Querol 2008, Lai and Morey 2006). In this sense, foreign aid is much like resource rents– an idea that Morrison (2009) has previously discussed.

Increasing capacity for patronage and repression retards democratization and promotes authoritarianism. In the existing literature, the selectorate framework is used to argue that under a specific set of conditions[12] foreign aid can still be effective in democracy promotion (Tan 2016, Licht 2010, Kono and Montinola 2009, Wright 2009). As such, the democratization literature generally makes it clear that donor pressure to democratize is generally more effective on democratic rather than on autocratic targets, and therefore for "donors interested in the democratization and political progress of democratizing or autocratic regimes, aid may be an inappropriate policy tool" (Licht 2010, p. 88).

For states without natural resources which receive foreign aid, this explanation is relevant. More countries receive foreign aid than have natural resources, but the amount of aid relative to GDP is often negligible and therefore cannot be expected to allow incumbents the same flexibility as rents. Only three states receive more than one trillion (USD) of United States foreign aid: Egypt, Afghanistan, and Israel (USAID 2016), none of which can be considered persistently authoritarian regimes.[13] This suggests that the

[11] A moral hazard problem exists when targets agree to make changes in exchange for aid disbursement (Bader and Faust 2014). Even when aid is contingent on liberalization monitoring costs and regime-level transfers do little to prevent political capture of what remains a highly fungible resource stream for target regimes (Jones 2005, Kosack and Tobin 2006). Technical assistance grants may allow for more oversight and helps keep the conditionality of aid intact by reducing the fungibility of development assistance (Gibson, Hoffman and Jablonski 2015), but the overall problem remains for most aid transfer types.

[12] The conditions are a long time horizon of analysis for Kono and Montinola (2009), before the institutionalization of the support base for Licht (2010), high prospects of survival post liberalization for the dictator for Wright (2009), and a recipient that has little trade or strategic value for Tan (2016).

[13] Afghanistan experienced military occupation by the United States, Egypt experienced an election in 2013, and Israel is a democracy.

foreign aid explanation experiences problems in its theoretical reach as well.

Trade

The classical liberal economic explanation of democratization is rooted in the modernization theory understanding that economic development fosters democracy (Lipset 1959). While the link between wealth and democracy has been well established (see above), the link between trade and democracy is less solidified. The classical liberal argument views trade as related to development by developing efficiency in the economy. In the long run, as international trade increases so to does the wealth of the state. However, there are necessarily long run "winners" and "losers" as trade becomes liberalized. Groups which are winners will continue to build wealth as long as trade remains open. In this way, development creates interest groups that prefer greater political liberalization as their wealth from economic liberalization (trade) increases.

Such interest groups have an incentive to lobby the regime to continue to receive the benefits of trade. These groups also have the capacity to organize, as they have comparably larger resources and a fairly stable coordination point (retaining trade openness). Such groups will become powerful enough that they can make political demands of the regime, which could lead to political liberalization. These groups can reach a point where the regime's trade polices have made them powerful enough that they are politically indispensable. As essential supporters of the regime, these interest groups can extract political concessions as long as the regime cannot secure support elsewhere.

There is discord within the classical liberal view, however. If trade creates development, and certain interest groups benefit, it is not evident that political liberalization would be their goal. Interest groups are minorities within the society, and because of their unequal share of economic power and political relevance, are more likely to demand specific political concessions rather than general ones. Democracy benefits the masses– and even with institutional controls in place– can relegate power and wealth away from minorities. Furthermore, the incumbent could either increase private good provision to buy the silence of essential supporters or where the selectorate (s) is relatively large and

w relatively small, substitute for more acquiescent supporters (see Bueno de Mesquita et al. 2003, p. 66).

Contrary to the classical liberal perspective, Li and Reuveny (2003) find that trade negatively influences democracy despite foreign direct investment positively influencing it. They suggest that trade involves the transmission of democratic ideas, which should positively influence democracy. Their argument is predicated on a regime type focus, yet the relationship between trade or FDI and regime stability is likely more useful in understanding persistent authoritarianism. Teorell (2010) also finds a negative effect of trade on democratization, but finds no effect of FDI.

As with the other factors explored above, contradictory results in the literature question the utility of trade or FDI in explaining persistent authoritarianism. Political economy explanations are better suited as theories of regime persistence than structural factors as they focus on how economic resources work to stabilize regimes. Structural factors are better suited to explaining regime type more broadly. This is because within country cases across time, such factors are mostly invariant, and as such they cannot as well reason the timing or nature of change. The literature on comparative democratization has considered an alternative to structural or political economy explanations, however.

Diffusion

The understanding that democratization does not happen in a vacuum– it is not a purely endogenous exercise– is particularly appealing given the relative failures of other purported determinants. Exogenous factors, sometimes referred to as international factors (Teorell 2010), play into structural and political economic explanations for regime type and regime change. Colonial past relies on an international force (imperialism) where great powers in Europe subjugate peoples and territories elsewhere. Trade and foreign direct investment are noted international factors as well. Diffusion is a different kind of international factor, however.

Studies of democratization which incorporate elements of diffusion were initially not very specific. Influential scholars studying transitions recognized that exogenous expla-

nations for democracy existed (Rustow 1970, Whitehead 1986). In his exploration of the third wave, Huntington (1991) admits that exogenous factors play a role. Przeworski et al. (2000) find that democracy is more likely to survive in a country that is in a more democratic region and becomes more likely to survive as the total number of democracies in the world rises, even controlling for important domestic variables. Despite this growing attention to exogenous explanations, and the development of a spatial understanding (typically regional), diffusion as an explanation remained abstract.

In order to develop a coherent theory of how diffusion affects democratization, the policy diffusion literature is a useful starting point. Since Walker's (1969) early study about the spread of public policy among the American states and Collier and Messick's (1975) examination of social policy in the world, scholars interested in policy diffusion have examined regional effects and policy innovation (Berry and Berry 2007).

Following a reconsideration and clarification of the theoretical and methodological aspects of diffusion (Most and Starr 1990), the literature on democratization and diffusion has better articulated how democratization might have a spatial dimension. Starr and Lindborg (2003) find global, regional, and neighbor effects in separate tests of each spatial relationship. Brinks and Coppedge (2006) find effects for all spatial demarcations tested simultaneously. Teorell (2010) further confirms support for neighbor diffusion and some limited regional effects on democratic upturns in the observation country but no global diffusion effects.

Neighbor diffusion is well supported by the literature, yet the mechanism behind the diffusion of democracy between neighbors is still not clear. The policy diffusion literature suggests several options which can be adapted for studies of democratization. These mechanisms include coercion, competition, learning, and emulation (Simmons, Dobbin and Garrett 2006). One of the best known studies of the diffusion of democracy, Brinks and Coppedge (2006), utilizes the emulation mechanism to explain neighbor diffusion.

Neighbor emulation works best when similar states are in very close proximity to one another, either sharing borders or separated by small amounts of water. In relatively small geographies such as the MENA region, even states which do not border each other

are likely to keep a close eye on the rest of the "neighborhood." Brinks and Coppedge (2006) consider emulation a reasonable mechanism for neighbor diffusion by making an assumption that regimes are rewarded when they are more similar to their neighbors.[14] This then leads to an expectation of regional convergence, either around democracy or nondemocracy. At first consideration this might explain how despite the relative successes of democratization enterprises in regions like Latin America and Eastern Europe, other regions fail to democratize. There are two problems with this view, however.

First, convergence towards a regional equilibrium type cannot account for individual countries which consistently resist convergence despite the rest of the neighborhood changing.[15] If neighbor emulation is indeed the mechanism at work, it is important to consider why and how some countries resist the neighborhood trend. Second, diffusion can be considered a challenge to persistent authoritarianism given that global increases in democracy would lead to more regional convergences around a democratic equilibrium. Yet empirically there is a marked departure from this expectation in the MENA region. The implication is that while diffusion– as understood by the existing literature– might be a useful explanation under certain contexts, there is a need for redevelopment of the theory to better account for how diffusion relates to persistent authoritarianism.

A Lack of Convincing Evidence

The various structural, economic, and diffusion factors reviewed above share two common traits. First, each has general popularity in the literature as an explanation for democratization or persistent authoritarianism. Second, each has been debated theoretically and empirically with no clear determination of effect. Rather than specify and test specific hypotheses, I present the following empirical model results as evidence in favor of a different assertion; namely, diffusion is generally a more appealing explanation for

[14] Brinks and Coppedge (2006, p. 466) consider rewards to be varied; peace and security, increased trade and investment, improved communication are all identified as potential rewards for regime convergence with neighboring states.

[15] For example, after a brief bout of liberalism following independence from the Soviet Union, Belarus has spent over a decade as an authoritarian holdout in a region (Eastern Europe) which showed great success with democratization during the third wave. Additionally, Israel is perhaps the only state in the MENA region which has remained a democracy despite neighbor pressures, war, and internal strife.

regime change and persistence than structural or political economic factors.

The results of four statistical models appear below in Table 1. The first column presents the results from an OLS linear regression model of *Democracy* (measured by POLITY score). The second and third columns reveal the results of logistic regression models of *Upturn* (measured as positive changes to POLITY) and *Downturn* (measured as negative changes) respectively. The fourth and final column presents the results of a binary time-series cross-sectional (BTSCS) model of regime *Persistence* (binary indicator where 1 is regime persistence).[16] A more detailed explanation of model and variable construction appears in the appendix.

The results in Table 1 are contingent on a variety of research design choices and operational assumptions about measuring the phenomenon of interest. However, these results are suggestive of two related points that have emerged in the exploration of the literature above.

In Search of an Explanation

First, it is clear that taken in isolation, any structural, political economic, and diffusionary explanations of democratization are at best partial answers. To explain levels of democracy (model 1), the structural variables perform in line with expectations from the bulk of the literature, with a notable exception. Colonial past is nearly universally a detractor for strong democracy scores. British colonial experience– viewed by some (i.e. Weiner 1987) as a potential boon for democratic consolidation– does not have a statistically significant effect here. Based on this finding, it appears that there may be additional corroboration for the assertion of a ubiquitous negative influence of colonization on democracy in Bernhard, Reenock and Nordstrom (2004). Extreme missingness in the data prevented the inclusion of a more sophisticated measure of cultural values here, but the crude proxy for traditional values (Muslim population) used in Teorell (2010) and other studies has a negative effect on democracy in these results as well.

[16]The choice to use a BTSCS approach follows from the advice in Beck, Katz and Tucker (1998) as well as Carter and Signorino (2010) and is appropriate given the data used here. A more complete discussion is in the appendix.

Table 1: Democracy Models

	Democracy (1)	Upturn (2)	Downturn (3)	Persistence (4)
British colony	−0.2274	−0.5270*	0.2539	−0.1013
	(0.2001)	(0.2117)	(0.3205)	(0.1356)
French colony	−2.1101*	−0.2574	0.0163	−0.0608
	(0.2335)	(0.2169)	(0.3884)	(0.1488)
Spanish colony	−1.3684*	−0.1932	0.3885	−0.2427
	(0.2301)	(0.2419)	(0.3719)	(0.1570)
Other colony	−1.4753*	−0.4489	−0.0983	0.0015
	(0.2729)	(0.2950)	(0.5257)	(0.1959)
Percent population, Muslim	−0.0275*	−0.0040	0.0084*	−0.0004
	(0.0026)	(0.0021)	(0.0036)	(0.0016)
Percent of GDP from rents $_{t-1}$	−0.0935*	−0.0083	0.0069	0.0094
	(0.0068)	(0.0077)	(0.0111)	(0.0050)
Total foreign aid, logged $_{t-1}$	−0.0538*	0.0015	0.0064	−0.0168
	(0.0103)	(0.0137)	(0.0186)	(0.0087)
Percent GDP from trade $_{t-1}$	−0.0063*	−0.0000	−0.0019	0.0024
	(0.0018)	(0.0024)	(0.0038)	(0.0016)
Global POLITY mean †	0.0365	0.2139	−1.3564*	−0.0736*
	(0.0390)	(0.3493)	(0.6537)	(0.0282)
Regional POLITY mean †	0.3936*	0.5578*	0.6463*	−0.0263
	(0.0300)	(0.1692)	(0.3146)	(0.0207)
Neighborhood POLITY mean †	0.3422*	0.1048	−0.1488	0.0196
	(0.0202)	(0.0672)	(0.1347)	(0.0143)
GDP per thousand persons $_{t-1}$	0.0241*	−0.1720*	−0.0844*	0.0663*
	(0.0068)	(0.0386)	(0.0334)	(0.0147)
Population, logged	0.0724	0.0907	−0.1485	−0.0061
	(0.0565)	(0.0572)	(0.0949)	(0.0393)
Internal conflict $_{t-1}$	0.9488*	0.6435*	0.8914*	−0.3295*
	(0.1982)	(0.1668)	(0.2732)	(0.1163)
International conflict $_{t-1}$	−0.8340	−0.2730	0.9603	−0.1779
	(0.5979)	(0.5448)	(0.7658)	(0.3466)
POLITY $_{t-1}$		−0.0849*	0.0755*	0.0377*
		(0.0126)	(0.0207)	(0.0089)
Time spell				19.5712*
				(8.5161)
Time spell ^{2}				−17.0837*
				(7.2624)
Time spell ^{3}				−8.4048
				(5.8910)
Intercept	3.7782*	−3.0183*	−3.9334*	2.3064*
	(0.3995)	(0.4744)	(0.7299)	(0.3183)
Num. obs.	5445	5363	5363	5445
R^2	0.5150			
Adj. R^2	0.5137			
McFadden's Pseudo R^2		0.1264	0.0688	0.0772
Log Likelihood		−818.4343	−391.1168	−1654.6515

*$p < 0.05$. Standard Errors in parentheses.

† Mean value for models 1, 4; mean change for models 2, 3. Each is lagged by one year in all models.

The structural variables in the models of upturn (2) and downturn (3) have few statistically significant effects and are likely influenced by specific regimes. In terms of persistence, statistically neither British colonial past nor Muslim population have positive, significant effects. While this challenges some of our existing notions of the survival of democratic regimes, it should be noted that persistence in this model is not specific to regime type. Theoretically, this doesn't really help our understanding of *why* certain authoritarian regimes persist longer. The literature has not yet advanced an understanding of how British colonial experience forges more durable institutions than no colonial past. Even the detailed exploration of cultural values in Inglehart and Welzel (2005) cannot well explain why traditional values translate into regime persistence, particularly in light of the changing values among many MENA societies governed by durable dictators.

The political economic explanations rooted in trade and rentier economics also have negative effects on the level of democracy, and no discernible effect on either upturns or downturns. Foreign aid has a weak negative effect on democratization and no effect in the other three models. Oddly, rentier economics has no statistically significant effect on persistence, a strange finding if the theoretical understanding of the fungibility of resource rents is correct. Trade– like foreign aid– has a negative effect on level of democracy in these results, suggesting that there might be more similarity between the three political economic explanations leveraged here than is often thought.

Diffusion effects appear at the regional and neighborhood levels in the democracy model (1). Higher regional and neighborhood averages are positively related to higher democracy scores. For democratic upturns (model 2), when regional average increases in the year prior to observation, this corresponds with a higher likelihood of a democratic upturn. Contrary to expectations, a regional average increase is positively related to POLITY score downturns (model 3), while global average increases have the expected negative effect on the likelihood of a downturn occurring. There is no effect for neighborhood changes in either the upturn or downturn models. What this might mean is explored further below.

The diffusion effects in the persistence model (4) present a bit of a puzzle– while higher

global averages are negatively related to the likelihood of regime persistence, regional and neighborhood averages are not statistically related to persistence. Given the time period covered in this sample, and considering the results of the diffusion variables in the other models these results could still be considered a corroboration of the general effect of the third wave of democracy. As the world becomes more democratic, regime durability falls, but when geographically proximate regimes become more democratic (regional or neighborhood average increasing) there is not a clear effect on the observation regime's likelihood of survival. This could indicate that there are different mechanisms for different types of regimes, or that regime longevity is a function of diffusion effects moving in different directions. These models rely on a method of operationalizing diffusion as average effects calculated on all available regimes in the sample, following Brinks and Coppedge (2006) and others. It appears as though this method might be fine for models of democracy, it is not sufficient for models of regime persistence. Overall, although democratization is an uphill battle– particularly considering the negative effects of certain structural factors and the political economic landscape– there seems to be democratic convergence in regions and neighborhoods the way Brinks and Coppedge (2006) have suggested. Authoritarian persistence, however, is another matter.

Second, while there is no obvious answer to which of these different approaches is best, there is some indication that all might matter, when taken together. The extant literature tends to view structural, political economic, and international factors like diffusion as rival explanations. Often, scholars will add a control variable to represent the alternative explanations[17] rather than adapt their theory to bridge approaches. When considering the role of international factors on democratization and regime persistence, it is increasingly difficult to disentangle what is strictly domestic and what is purely exogenous.

The structural factors explored in this chapter are not explicitly considered international effects, nor are the political economic factors included here. However, colonialism is certainly an exogenous effect. The spread of values based on religion and cultural

[17]This is common practice in studies involving diffusion; for instance, Brinks and Coppedge (2006) include "domestic" variables as controls for their models where diffusion effects are the main theoretical variables. Unsurprisingly, these controls include GDP per capita, colonial past, as well as some institutional features.

features could also be viewed as a blending of endogenous development and exogenous pressures. Domestic production for almost all countries in the modern era is affected by domestic features as well as international ones. Trade and foreign aid are partially or completely exogenous, despite having important effects on domestic political economy. The line scholars like Teorell (2010) have attempted to draw between domestic and international determinants is much less clear than many of our theories in political science would have us believe.

Additionally, beyond these factors having exogenous features not well explored in existing theory, it is hard to disentangle their effects on the outcome(s) of interest. Consider how the results of Table 1 are typically interpreted. It is surprising rentier economics doesn't have a statistically significant positive effect on persistence as mainstream theory would suggest it should. Perhaps this is a feature of sample construction or methodological choices. Or, perhaps our theory needs to be updated. Perhaps political economic and structural factors provide context for international factors like diffusion. If we treat these variables as representing a distinct theoretical perspective rather than supporting other explanations, we miss an opportunity to better theorize how international factors– such as diffusion– actually matter to regime change and persistence.

Does Diffusion Work As We Thought?

There are some interesting implications of these results for the way we interpret the role of diffusion in democratization or authoritarian persistence. Some of the best studies involving diffusion as an explanation for regime change theorize that similarity in regime type is a goal which is common across a variety of regime types. Brinks and Coppedge (2006) suggest that regional and neighborhood effects in particular occur as a result of the benefits regimes accrue as a result of their similarities. However, this approach relies on the understanding that among a group of states, pressure for change– emulation– is greatest where the observation country experiences a large difference between its regime type and the average level of democratization among the wider community (Brinks and Coppedge 2006, p. 467). This is irrespective of differences in *who* the members of that

community are, however. In short, this implies an assumption that observations will consider emulating all neighbors equally, since the average neighborhood values are not weighted by Brinks and Coppedge (2006).

The implication of such accounts of diffusion for explaining authoritarian persistence is that authoritarian holdouts during the third wave period are either in similarly authoritarian geographies or part of the statistical error term. Yet, there is a problem with the former, and the latter is substantively unhelpful. While places like the MENA region have maintained nondemocratic neighborhoods through the global upswing in democratization, even these places are geographically proximate to democracies.

Morocco, for instance, is only nine miles from the Spanish coast; Spain transitioned to democracy early in the third wave, but Morocco's monarchy has been able to resist democratization still to this day. India, a later democratizer, resides in a hostile neighborhood of authoritarianism which includes Pakistan, China, and Myanmar. Botswana is a relatively stable democracy in southern Africa,[18] with democratic neighbors South Africa and Namibia to the south and west but several nondemocratic neighbors to the north and east including persistently authoritarian Angola.

Which neighbors have more influence could be based in structural factors, such as shared colonial past? Botswana and South Africa were British colonies, but Angola was colonized by Portugal. Perhaps culture or religion matters to the strength of diffusion, explaining how Catholic Spain is not as influential as nondemocratic Muslim neighbors for Morocco. There is need for a more careful examination of how diffusion is working and whether this helps us understand regime change and persistence.

[18]There has been some discussion regarding whether Botswana is a "true" democracy, since the ruling Democratic Party has won every election since independence (see Cheibub, Gandhi and Vreeland 2010, p. 70). However, Freedom House consistently rates the country as "Free" and its POLITY score has been a positive eight since 1997.

A New Approach to Authoritarian Persistence

The extant literature on democratization, persistent authoritarianism, and diffusion has thus far advanced useful ideas and some preliminary evidence attempting to solve the puzzle of why and how authoritarian regimes persist. Despite these attempts, the link between diffusion and authoritarianism has yet to be fully explored.

A new area of research in comparative politics considers the role of *authoritarian* diffusion in promoting stability and creating pockets of authoritarian persistence that defies democratic diffusion. Much of the role of autocratic states in the survival and stability of other autocracies is still theoretical. Powerful nonwestern regimes, or "Black Knights," like China or Russia (Levitsky and Way 2010) could influence other authoritarian regimes through coercion or dependence (see Bader 2015*a*). Other scholars have argued that authoritarian regimes might collaborate to maximize their own survival (von Soest 2015). Instead, I argue that authoritarian diffusion works through a process of learning, where regimes adopt survival strategies based on the experiences of other authoritarian regimes.

Considering learning as an explanation for the persistence of groups of authoritarian regimes applies an existing approach to a new problem. Diffusion, particularly the learning mechanism, is not unknown in the political science literature. Rather, how the institutional contexts of different authoritarian regimes condition the incorporation of new information about the success of survival strategies (diffusion by learning) has not yet been examined. It is necessary to consider when regimes learn, and how new information is assimilated and brought to bear on challenges that autocrats face.

Why Authoritarian Persistence Matters

The new approach to explaining persistent authoritarianism which I present in this dissertation is particularly useful given the importance of factors which coincide with both regime type and persistence. Some ways in which economic wellbeing affects regime type and stability are reviewed above. There has been a good amount of attention in

the literature to economic (as well as political and social) consequences of authoritarian persistence. The role regime type has on conflict– both international and civil– has been well studied. The effects of regime type on repression and human rights is another important factor.

In the literature on economic development and democracy, there are many studies which argue that democracies are better at providing public goods, particularly for the poor (Sen 1981, 1999, Przeworski et al. 2000, Lake and Baum 2001, Bueno de Mesquita et al. 2003). This view has been contested by Ross (2006), who argues that it is really the middle and upper classes which benefit from greater education and health spending in democracies. Despite the contention on whether democracy is better for the poor, there is little evidence to suggest that persistently authoritarian regimes are better at public good provision and promotion of economic wellbeing for their populations. The selectorate logic (reviewed above) makes a clear point that authoritarian regimes with small wining coalitions will actually find little utility in public good provision. Better understanding persistent authoritarianism then can provide a window into why certain regimes lag behind in economic development and general wellbeing.

It is a well known empirical regularity that democratic states rarely fight each other in full wars, and are less likely to be aggressors than nondemocracies (Maoz and Russett 1993). This phenomenon is known as the democratic peace (Kant 1983), and has been the focus of a vast literature in political science. Contemporary scholars understand that there are three ways in which the democratic peace functions in the international conflict context: through norms (Dixon 1993, 1994, Raymond 1994, Hewitt and Wilkenfeld 1996, Dixon and Senese 2002, Lektzian and Souva 2009), institutions (Morgan and Campbell 1991, Morgan and Schwebach 1992, Bueno De Mesquita and Siverson 1995, Mansfield and Snyder 1995, Ward and Gleditsch 1998, Gleditsch and Ward 2000), and information (Fearon 1995).

In terms of intrastate conflict, most studies confirm a democratic civil peace (see Hegre et al. 2001, Davenport 2007). Democracy can offer nonviolent methods to redress grievances and communicate demands to the regime though institutions and norms.

Where democracy has been prevented from taking hold, those democratic norms and institutions do not, and can not exist. Authoritarian persistence then can be viewed as a foil for the maintenance of interstate and intrastate peace. This in turn has implications for instability, an idea which is explored in the following chapters.

Like the relationship between regime type and civil conflict, repression and human rights fare worse where democracy is lacking. In the seminal paper on repression and democracy, Poe and Tate (1994) suggest that either through democratic norms, democratic behavior, or democratic institutions democracy makes states less likely to violate the physical integrity rights of their citizens. The findings reported in that paper support their claim, and so too does much of the literature which followed this important piece. The supposed relationship in much of the literature is best described by Armstrong (2009, p. 404) who states that "[r]epeatedly, democratic political systems have been found to decrease political bans, censorship, torture, disappearances, and mass killing, doing so in a linear fashion across diverse measurements, methodologies, time-periods, countries and contexts."

However, the linearity of this relationship has been challenged. Davenport and Armstrong (2004) determine that there is a threshold for which democracy is a foil to repression, and that only at high levels of institutionalization do constraints on state actors reduce repression. This makes intuitive sense when considering how poorly institutionalized regimes are at greater risk for civil war and internal violence (Hegre et al. 2001, Hegre 2014). Even when considering that the relationship between repression and democracy isn't linear, it does not discount the fact that where democracy is lacking, chances of violence are greater. The persistence of authoritarianism raises concerns for the advancement of human rights due to the continued use of repression in lieu of normative or institutional alternatives.

Conclusion

The review of the democratization literature and associated empirical record has implications for the study of authoritarian persistence. There are certainly competing explanations of these political phenomena, and there is empirical corroboration of some of the main points raised in the literature. A few important implications emerge from this review.

First, diffusion does appear to occur beyond the third wave period. Yet, the process of diffusion is yet unclear. There is some evidence here of diffusionary effects on level of democracy as well as upturn and downturn, particularly at the region level. If regimes are following regional trends, the question then becomes *why* this is the case. Is it as Brinks and Coppedge (2006) suggest– that regimes pursue relative similarity with those around them? It is my suggestion that there is an intentional process which is expressed as diffusion: regime learning.

Second, the record is currently incomplete in terms of modeling authoritarian persistence. The familiar democratization modeling approaches covered here still places a comprehensive explanation of persistent authoritarianism out of reach. It is my hope that this project can make a contribution in this area.

The following chapter develops a theory of regime learning rooted in the idea that regimes are survival-maximizing. When a challenger threatens the status quo, the regime must act to protect its existence. Such existential threats provide a unique opportunity to use external information to try to determine the best course of action.

Chapter 2

Old Dogs, New Tricks: A New Theoretical Approach to Regime-level Learning

It is important to emphasize that political learning can affect beliefs about tactics... the conscious behaviors one uses to obtain a desired goal, may also be altered as a result of political shocks, crises, and frustration.

– Nancy Bermeo, 1992

Introduction

Political regimes do not exist in a vacuum, independent of exogenous forces. In the previous chapter, alternative explanations of regime change– and the lack of it– were explored. While no single explanation emerges from the extant literature, combining domestic (endogenous) and international (exogenous) factors to craft a more unified theory of regime survival is appealing. Diffusion in particular ties endogenous and exogenous factors together. However, the existing theories of diffusion and regime type fall short of a complete, testable theory. In particular, the role of the diffusion of authoritarianism rather than democracy is essential to understand in order to better explain authoritarian persistence.

The literature on democratization has a comparative disadvantage in explaining authoritarian persistence. The most influential studies of diffusion (Starr and Lindborg

2003, Brinks and Coppedge 2006) focus on how democracy spreads. Yet, the question remains: how does authoritarian diffusion affect authoritarian regime persistence? This chapter advances a theory of regime-level learning which addresses how endogenous features and exogenous factors– the actions of other regimes– interact.

This chapter begins with a review of the literature on authoritarian diffusion. Then, I conceptualize the key components of the theory. Following that, I build the theoretical model. The penultimate section explores how the mechanism– learning– functions. The last section concludes with a set of testable implications derived from the theory that are further examined in the empirical chapters to follow.

Diffusion of Authoritarianism in the Literature

As explored in the preceding chapter, political science has for some time considered diffusion as an explanation for policy adoption among various levels of governance and spatial groupings of political units. Early work describing the phenomenon of diffusion (i.e. Walker 1969) and empirically testing for diffusion as an alternative explanation to purely endogenous policy adoption (i.e. Collier and Messick 1975) has led to a variety of studies employing models of policy diffusion. Sugiyama (2008*a*; Sugiyama 2008*b*; Sugiyama 2012; Sugiyama 2013) explores the spread of social policy and policy reforms in Brazil. Other studies consider the spread of liberal economic policies relating to trade, monetary policy, and regulation (Simmons and Elkins 2004, Pitlik 2007).

Studies interested in how policy adoption among different political units happens has provided further theoretical development and the articulation of several alternative mechanisms. In a study of anti-smoking policy adoption among U.S. cities, Shipan and Volden (2008) find support for four mechanisms: competition, coercion, imitation, and learning. Simmons, Dobbin and Garrett (2006) consider these mechanisms as alternative explanations for the diffusion of political and economic liberalism, extending the theoretical development of the policy diffusion literature to studies of regime change.

The change in focus to the spread of more abstract features of governance– such as norms, values, or institutions– borrowed the logic of the earlier policy diffusion literature, but rarely do these empirical studies provide a detailed examination of the mechanism at work. Gleditsch and Ward (2008) examines the diffusion of institutions among neighboring countries, finding support for the general premise. However, they do not provide a theoretically motivated mechanism for this effect. Brinks and Coppedge (2006) come a little closer, suggesting that for a variety of reasons, regimes prefer to be similar to those around them; with a little creative interpretation this could be stretched into the idea of emulation from Simmons, Dobbin and Garrett (2006).

The focus on the spread of democracy (or, as some studies suggest, liberalism) made sense as the third wave of democratization reached its height. Regional patterns of regime change became readily apparent, most clearly visible in the former Soviet sphere of influence. To paraphrase Ash (1990), the pace of change in Eastern Europe had accelerated from ten years in Poland to ten months in Hungary, to just ten weeks in East Germany. It is intuitive that such similar events which are temporally and spatially confined would be directly related. Beissinger (2007) refers to this as *modular political phenomena*.

A key aspect to the modular nature of events like those described by Ash in Eastern Europe is that the political actors involved are cognizant of other proximate events and consciously emulate them (Beissinger 2007, p. 259). Therefore, the existence of modular political phenomena is evidence of diffusion at work.

Despite the impressive democratic gains throughout much of world during the third wave, there is also an apparent pattern of authoritarian persistence, as identified in the preceding chapter. Just as the literature has considered how regime change can be understood as modular political phenomena, non-change– persistence– can also be modular. In the existing literature, much of the work linking authoritarian politics and diffusion focuses on how challenges to regimes spread. In a typical example of such work, Weyland (2010) examines contention in European regimes between 1830 and 1940, pointing to diverging outcomes which contributed to early waves of liberalization and

later waves of authoritarianism.

Other studies have explored the diffusion of mass-based contention and its link to persistent authoritarianism, focusing on empirical evidence from the Middle East and North African (MENA) during the so-called "Arab Spring." Weyland (2012) considers how the protests which swept the MENA region are evidence of diffusion. In a rare cross-national quantitative analysis of the diffusion of contention during the "Arab Spring" Bamert, Gilardi and Wasserfallen (2015) find empirical support for diffusion as well. They also interpret their results as supportive of a cognitive heuristics mechanism similar to that in Weyland (2012), although they refer to it as "bounded learning" (Bamert, Gilardi and Wasserfallen 2015, p. 2).

However, despite empirical evidence that emulation of the original Tunisian protest episode took place throughout the region, these studies also reflect that such effort had little success outside of the origin point. Many dictators experiencing protest outside Tunisia and Egypt managed to persist despite the apparent diffusion of protest. In a study which compares waves of protest during the Communist color revolutions and the "Arab Spring," Hess (2016) argues that it is structural factors– such as political institutions or resource wealth– which can explain why some regimes were able to persist despite such pressures for change.

Addressing specific features of the "Arab Spring" phenomenon to build a more coherent theory of diffusion, Patel, Bunce and Wolchik (2014) explore the spread of contentious politics in the MENA region. They draw on Della Porta and Tarrow's (2012) understanding of the *interactive* nature of diffusion, considering how both patterns of contention as well as patterns of regime response can diffuse in the same temporal and spatial environment. This is an essential link between standard diffusionary arguments (i.e. protest spreads) and the application of diffusion to regime survival.

Most scholarly work on authoritarian diffusion and survival is relatively recent, and several theoretical and empirical contributions focus on how key authoritarian regimes influence others. Bader (2015*a*) seeks to assess whether China, in particular, helps dictators in other authoritarian regimes survive. Her analysis uncovers no statistically significant

effects for most methods of influence (i.e. arms sales, aid projects), but does find that trade exports to China matter for dictator survival. Bader (2015*b*) further examines the way the Chinese regime influences other autocracies, finding that party regimes which are involved in economic cooperation with China also experience longer survival. Perhaps most importantly, her theoretical development in both studies casts Chinese foreign relations as implicitly diffusionary.[19]

In a related contribution, von Soest (2015) characterizes the anti-democracy activities of influential dictatorships like China or Russia as an opportunistic survival maximization strategy rather than strategic coercion mechanism. This theoretical argument lacks corresponding empirical validation; however, his work improves upon the theoretical basis of the authoritarian diffusion literature.

He clearly states how variations in patterns of authoritarian diffusion relate to institutional characteristics, noting that differences in the subtypes of authoritarian regimes (i.e. party or monarchy) matter to how regimes react to exogenous forces. Following Weyland (2009), von Soest (2015) also includes the perception of similarity among authoritarian regimes as a feature of how they react to diffusionary pressure. In discussing the diffusion of protest, Weyland (2009) presents the idea that perceived similarity is influenced by geography, culture and history, and institutions. In a similar fashion, von Soest (2015) suggests this perspective also makes sense from the regime side as well. He also addresses the diffusionary mechanisms at work.

Rather than focus on the coercion mechanism– which essentially amounts to autocracy promotion (i.e. Bader, Grävingholt and Kästner 2010)– he instead considers four different alternative ways in which authoritarian diffusion relates to regime survival (von Soest 2015). The most important distinction drawn here between the different mechanisms is between diffusion and collaboration. Following Elkins and Simmons (2005), von Soest (2015) views general diffusion as an exogenous force which cannot be invoked by actors, but is instead experienced by them (von Soest 2015, p. 628). By separating diffusion from

[19]Bader does not explicitly invoke diffusion to explain Chinese actions, likely due to an interest in maintaining dialog within the international political economy subfield. She does compare her interpretation of Chinese regime behavior with the diffusion of liberalism in both studies, however.

the other three authoritarian collaboration mechanisms von Soest (2015) is indicating that learning, support, and collaboration are not fully exogenous forces; instead, these processes involve the interaction of actors.

This certainly makes sense in the context of the collaboration mechanism, which requires intentional interaction on both sides, but it is less clear why learning or support should be considered this way. These latter mechanisms of authoritarian diffusion could representing actor interactions deliberately begun as part of a survival maximization strategy, as von Soest (2015) suggests. Yet, support and learning processes can also be completely one-sided; actors may choose (for strategic purposes) to engage in such behavior whether or not actors in another regime intend to participate. Particularly for the learning mechanism, no parallel intent to interact is needed for actors to observe, consider, and then adopt policies or strategies from an exogenous source of information.

The intersection of diffusion and authoritarian persistence in the extant literature has provided key elements which inform the theoretical perspective presented in this chapter. First, diffusion is not solely a democracy-promoting influence. Autocracy can also exert influence on other regimes. Second, the mechanism by which autocracy diffuses is not yet clear. Drawing on the literature reviewed here, learning seems to be a viable alternative. However, it is not well conceptualized. How does learning differ from emulation? How does learning work to help regimes survive? More theoretical development is needed to fully understand how such mechanisms might work.

Finally, as von Soest (2015) indicates, should regimes learn from outside information (from other regimes), how they select their "lessons" should matter to how successful they are. Not all examples are good ones for the survival of regimes; the example of Tunisia might have been a useful lesson for opposition groups in elsewhere in the MENA region, but clearly the death of that long-running dictatorship should be a cautionary tale for other regimes seeking to survive.

A Theory of Diffusion by Learning

Important Concepts

Before examining the theory of authoritarian learning in detail, it is first necessary to clarify some key concepts which are at the core of the theoretical discussion. Clear conceptual definitions will also be important for the following chapter, which operationalizes these theoretical terms.

Persistent Authoritarianism

Following Dahl (1971), the constituent components of political regime type can be understood as elements of participation and contestation. Therefore, regime type should really be expressed as a continuous measure which ranges from minimally contested, minimally participatory autocracies on one end of the spectrum and highly participatory, highly contested democracies on the other end. However, when referring to the empirical phenomenon of interest as *persistent authoritarianism* necessitates discreet categories of autocracy and democracy. Autocracies are quite diverse and can include regimes which have various democratic institutions but fail to meet the minimal definition of democracy (Geddes 1999, Przeworski et al. 2000, Cheibub, Gandhi and Vreeland 2010).

Autocracies can be categorized into types in different ways. The Geddes, Wright and Frantz (2014) improvement on Geddes' original typology is one such way. Their approach looks at executive succession structures that provide different authoritarian regime types such as monarchies, military dictatorships, personalist dictatorships, and party regimes(Geddes, Wright and Frantz 2014). Schedler (2013) focuses on competitive and hegemonic electoral authoritarian regimes. Bueno de Mesquita et al. (2003) use selectorate theory to suggest that the size of the winning coalition w, particularly in relation to the total selectorate s serves to distinguish different authoritarian structures. Although I draw on selectorate concepts in discussing the theory, I also refer to differences in the nominal types as Geddes, Wright and Frantz (2014) do.

Persistence is defined as the longevity of the regime. Persistent regimes are those

which are able to survive crises without significant changes. Regimes no longer persist when their institutional configuration has been altered such that the rules of politics are different than they were before. Democratization– a transition from authoritarian to democratic regime type– is one such way an authoritarian regime may cease to persist. A fundamental change in the regime related to the exercise of power, executive selection, or policymaking is another such regime termination. This could be evidenced by altering the constitution to create a legislature with veto power or by instituting elections for the executive office; such institutional changes need not meet the threshold of democratic transition to alter the way normal politics work.[20] The inclusion of sham elections for the executive office which are neither free nor fair would likely fall short of actual regime change, despite being a nominal liberalization event.

Persistence for authoritarian regimes may often rely on such liberalization. Such events are often intended to stave off regime termination occurring through irregular action by opposing actors. In democracies, government actors can appease or negotiate with the opposition in deliberative arenas; truly democratic institutions provide flexibility that also leads to survival. The institutionalization of pluralism and the intentional formation of venues which can forge compromise are two distinct design choices which can contribute to the long-run stability and persistence of democracies (Dahl 1978). However, in authoritarian regimes the idea behind utilizing nominally democratic mechanisms is emphatically not intended to engender compromise or produce meaningful pluralism. As Diamond and Linz (1989, p. xviii) note, "the existence of formally democratic political institutions, such as multiparty electoral competition, masks (often, in part, to legitimate) the reality of authoritarian domination."

Yet, clearly institutional design choices matter in authoritarian regimes, just as it does in democratic ones. After all, dictators throughout the world have opted for elections and other institutional changes despite the inherent risk that even a nominally liberalizing change could backfire and lead to regime termination through democratization. Institu-

[20]The literature on "hybrid" regimes has explored the way dictatorships use nominally democratic institutional features such as legislatures and elections to survive in the post-Cold War environment (Levitsky and Way 2002, Diamond 2002, Levitsky and Way 2010).

tions provide for regular interactions between political actors. In this way, institutions constrain actors and form patterns of behavior.

Selecting institutions– whatever shape they may take– which formalize the supremacy of governing elites over other actors helps elucidate how regimes survive. Creating an institutional succession mechanism, whatever it might be, ensures continuity should the current executive die or step down. This has the effect of redirecting elite competition towards aims other than ascending to power. Absent such an institutional mechanism to govern normal politics, elite competition vastly increases uncertainty and provides incentives to engage in extra-constitutional methods of ascending to power.[21]

It is important to note that removal of an executive through normal politics does not constitute the end of a regime, unless that regime is a personalist dictatorship where there is no institutionalized succession mechanism.[22] Where there are institutional means for executive selection, leadership turnover using that approach is simply normal politics. In democracies, elections which replace the incumbent do not constitute the end of the regime, so long as the constitutional rules governing such contests have not been violated. In authoritarian contexts there can be mechanisms based on elite consensus, military rank, or primogeniture that are constituted as features of the regime. It is irregular politics that ends regimes– when the rules governing normal politics are violated. This could be due to the removal of the executive through extra-constitutional means such as assassination, coup, or revolution. Such irregular events are crises which challenge the existence of the regime, should they occur.

Crisis

The theory presented in this chapter is as much about change as it is persistence. While the ultimate goal is to provide a way to explain the empirical patterns of authoritarianism in the world, it is important to point out that it is necessary to assess the

[21]This understanding of the role that authoritarian institutions which provide a succession mechanism reduce uncertainty builds on Olson (1993), who is fundamentally interested in how such uncertainty matters to economic productivity. It seems reasonable to extend this perspective to other aspects of society beyond economic activity.

[22]It is difficult to imagine what such a regime might look like, and even harder to produce an empirical example of one.

diversity of strategies which lead– or do not lead– to that survival as well. Related to this end, in order to understand why the status quo would ever be abandoned it is necessary to have a sense of the conditions under which the status quo becomes untenable. There could be a profusion of such conditions, and so it is best to describe this varied collection simply as *crisis*.

Crises represent critical junctures, to use the language of the historical institutionalists (see Hall and Taylor 1996). As noted by Pierson (2000), there is a status quo bias in political institutions due to uncertainty over alternatives. This also translates to the actions taken by governing actors as a result of the institutional configuration (political regime). Actors generally resist straying into the unknown; however, moments of crisis reflect the fact that the status quo is no longer tenable.

Crisis can be brought on by many different complications to normal politics, such as economic downturn or as a result of defeat in international conflict. Crisis can be a single influential event or a series of events over a narrow span of time. What differentiates crisis from the trials and tribulations of normal politics, however, is that crisis represents an existential threat. A challenge to the regime emerges as a result of the various events connected to the crisis.

Whether the challenge manifests as an elite schism or a mass mobilization against the regime, the context of normal politics has changed. In order for the regime to survive the crisis, governing actors must select a strategy other than "do nothing." To not react to the crisis at all would entail maintaining the old status quo– now untenable given the challenge that has emerged. Such a bizarre outcome can only be expressed as regime suicide. The challenger, by this definition of crisis, has provided an existential threat to the survival of the regime. To "do nothing" in this context is to resign to death.[23]

In the literature, the idea that the status quo is abandoned in this way is well represented, although the term "crisis" is not often used to explain this phenomenon. The foundations of the transitology literature are built on the premise that "there is no transition whose beginning is not the consequence... of important divisions within the author-

[23]This can be, in some cases, quite literal. I mean the death of the regime; for the dictator deposed by the challenger, it could mean execution at the hands of the victorious challenger.

itarian regime iteself" (O'Donnell and Schmitter 1986, p. 19). In this view, crisis in the form of an elite schism has shifted politics away from the status quo and into uncharted territory.

Przeworski's (1991) *liberalizer's gamble* also represents a disruption of the status quo where the challenger is a faction of regime elites interested in liberalizing the regime. Linz and Stepan (1996), in their discussion of the various ways in which transition is initiated, cover a variety of circumstances representative of crisis brought on by elite or mass challenges. In his game-theoretic treatise on the transitions from Communism in the former Soviet Eastern Europe, Colomer (2000) consistently invokes the language of crisis in forming the narrative that corresponds to his rational actor model of transition. He suggests that "critical events" such as defeat in war, the death of the dictator, or economic failure are the basis of shifts toward liberalization or civil conflict (Colomer 2000, p. 32).

Under crisis conditions, the status quo must be abandoned. However, there is a great deal of uncertainty involved in selecting a new strategy to pursue. How do actors know if increasing repression will work? How do they know that minor liberalizations will not create greater instability? Because crises can arise quickly and may occur without warning, often there is not much time to consider the ramifications of alternative strategies and determine the most likely route to successfully weathering the storm.

For actors faced with crisis, their own history might seem particularly enticing. Or, they can look out into the world around them and gather information about the actions others took. Standard accounts of diffusion processes imply that this behavior is occurring to some degree; after all, the world is full of both good and bad examples for regime actors faced with uncertainty. The presence of modular political phenomena suggest that when faced with crisis, actors might be able to learn from exogenous examples.

Learning

In the theoretical argument below, *learning* refers to the process by which an actor incorporates outside information into their decision calculus. To paraphrase Levy (1994,

p. 296), learning involves a change of beliefs about the world based on observation and experience. There are various features and variants of learning specific to certain structural conditions and challenger types. The differences in learning are explored in the section on mechanisms below. Generally, the concept of learning is not new in political science. Yet the application of learning here is represents a more careful theoretical development of the mechanisms of diffusion.

Similar to how the diffusion and regime type literature traces its core ideas back to the American public policy literature, so too does the idea of "political learning" utilized as a basis for this theory chapter. Etheredge and Short (1983) consider whether or not governments learn from experience in the long run. They derive their understanding of learning from behavioral psychology based on a subject's experience and corresponding behavioral adjustment, and apply this to organizational– governmental– learning.

In a similar manner, Bermeo (1992, p. 274) identifies political learning as "the process through which people modify their political beliefs and tactics as a result of severe crises." Considering how political learning on the part of elites factors into institution building and the return of democracy after authoritarianism, she specifically notes that international sources of information are as applicable as historical ones (Bermeo 1992, p. 283).

Work on regime transitions which relies on historical data and cases studies is rife with evidence of this. For instance, in assessing differences between various southern European transitions, Linz and Stepan (1996, p. 76) note that political learning resulted in key actors in the Spanish case considering the Portuguese and Greek examples and deciding on a different course of action than their counterparts in those countries had. In short, learning is an adaptation strategy based in the consideration of an existing example.

The Challenge Game

To understand the conditions under which learning leads to authoritarian persistence, it is necessary to first consider the strategic interactions which take place prior to the opportunity for regime elites to learn. Such strategic interactions can be expressed as a

two-player game. The game being played is one of political change, and it involves actors with preferences, strategies, and it has resulting outcomes. I refer to this as the *challenge game*. In the sections below, I explain how each component fits into the game, as well as how the challenge game leads to a theoretical model of regime learning. The conditions in which the game is played, including the identity of the non-regime player (challenger) alters the context in which learning takes place.

Actors and Preferences

The actors involved include the *regime* and the *challenger*. I consider both the challenger and the "regime" as unitary actors. Like other political science work which refers to the state as an actor, I am using the term "regime" here to represent the individual actor or group of actors which are empowered by the status quo regime. The challenger may also be comprised of more than one individual; again, due to unitary preferences the challenger is viewed as a single actor.

While it is certainly true that even in authoritarian contexts "the regime" often entails a diverse array of individuals who may express difference preferences over governance and policy, the regime actor here represents those political elites which prefer the current system to an alternative one. Referring to this actor as "the government" lacks nuance in many authoritarian contexts since there can be political elites who are not directly involved in the government, but wield power as a result of their status.[24] They have an incentive to protect the status quo institutional configuration whether or not they consistently participate in normal politics. Even when the challenger is an elite defection, the understanding of the regime actor remains unchanged. This is because the remaining elites are (post schism) still committed to the status quo regime.

Regimes are survival-maximizers. It is intuitive that the regime actor's preferences are unified and coherent on this front. Those elites empowered by the current institutional arrangement will attempt to protect that status quo. In practice, given how the

[24]To borrow from the selectorate theory approach (Bueno de Mesquita et al. 2003), members of w do not need to be officially part of the government. In some monarchies, for instance, we might imagine that family members who participate in selection processes can also eschew governmental responsibility.

authoritarian context constrains elites, this survival-focused behavior might appear consistent with maximizing the chances of reselection for the current dictator. This is due to the extreme importance of the executive in authoritarian regimes. The literature on authoritarian politics and elite cooptation corroborates this idea. According to many scholars, elites can be enticed to remain loyal despite lacking a real chance for promotion to the executive (i.e. Gandhi and Przeworski 2007, Menaldo 2012, Reuter and Robertson 2015).

The challenger can be either an elite faction threatening the current ruling coalition or a mass mobilization of the population. In either case, the challenger is dissatisfied with the status quo and has the ability to credibly threaten the regime. Challengers seek to maximize their chances to alter the regime from the status quo. This does not always mean they seek liberalization; there are a variety of alternatives challengers might prefer, including increasing repression targeting specific groups.

However, the perspective of Przeworski (1991) is that elite defection typically occurs when soft-liners split with hard-liners. Considering that most popular unrest in autocracies in the modern era has been related to dissatisfaction with the repressive nature of authoritarianism, the expectation here too is that more often than not the challenger prefers liberalization to increased repression. An implication of this perspective is that in the challenge game, the disrupting actor is pursuing regime change of a liberalizing nature.

To maintain the clarity and parsimony of the challenge game, I assume that only one challenger emerges at a time. This allows the for assumption of unified and coherent challenger preferences. Of course, in practice elite defection and mass uprisings may occur nearly simultaneously. In order to understand how regimes react to demands brought by a serious challenge, it is necessary to theoretically consider each challenge in isolation.

Recall that crisis is defined as a challenge to the regime where the status quo is removed as a viable option for survival. By necessity, this implies that there is a challenger present and it is capable of causing the regime's irregular removal in the not-to-distant future. Or, at least from the regime's point of view there is a perception that the challenger is

able to accomplish that end. In the face of such an existential crisis the status quo is no longer tenable. Regimes must select a strategy to eliminate the challenge.

Opposition type determines the severity of the challenge to the regime. Crisis, as it is described above, is by definition severe enough to create a finite time horizon for the regime. Should the regime not act, the probability of survival approaches zero. Perhaps some dictators are just lucky in drawing a challenger which fails despite a lack of response by the regime; no rational actor would take that chance willingly, however. A direct challenge therefore essentially requires action as the challenger builds strength and works to force a short time horizon if the crisis is not ended.

When the challenger is an elite defection, the regime is faced with an imminent credible threat to their time horizon as the probability of reselection is severely reduced. Elite defection is characterized by an internal schism between coalitions of regime elites. This is similar to the Przeworski (1991) argument about how a schism between hard-liners and soft-liners can cause a transition. Elite factions create a severe crisis for the regime for two reasons. First, the elite challenger can impose a finite, and often immediate time horizon on the regime since such an elite faction has a relatively well-defined alternative to the status quo. Elites have knowledge and informational resources to articulate and evaluate a specific challenge. Second, the elite challenger can credibly commit to governing post-transition due to experience as part of the winning coalition as well as resources to maintain institutional structures in the new regime.

When the crisis comes from mass mobilization, the severity of the crisis is typically less, and the probability of reselection is somewhat reduced. Mass mobilization is a threat to the status quo from outside the regime. It might be generated by political actors intending to be part of the new elite or by social actors (such as business organizations, religious leaders or organizations, or indigenous or ethnic leaders) who desire a shift from the status quo but are not necessarily aiming to be a part of the new ruling elite.

Mass mobilizations, even well-planned and executed ones, have difficulty credibly forcing a finite time horizon since there is uncertainty over the new ruling structure.

Mass mobilizations are typically not as well organized as elite defections and do not have the same capacity to challenge the regime. This is not to say that revolutions are not possible (see Skocpol 1979), just that this mode of challenge is seldom successful. The masses cannot credibly commit to ruling after transition since multiple actors and social forces face a coordination problem in determining the new institutional arrangement and division of power. Most of the individuals making up a mass protest have comparatively more diffuse preferences and may lack the same clarity of information as an elite defection. Yet, due to sheer numbers a mass-based challenger can still create a direct confrontation with the regime.

Strategies

The challenger makes the first move by opting to {*directly challenge*} the regime.[25] Logically, if the challenger opts to not directly confront the regime, the challenge game ends with the status quo preserved. Those challenges which are too weak to credibly threaten (or create the perception of credible threat) for the regime are not distinguished from normal politics here. For instance labor strikes, whether they are linked to an opposition group or not, may fail to credibly threaten the regime's hold over power. Country-wide protests directed at the regime are more indicative of a credible threat.

When facing a crisis, the regime needs to employ a response strategy to address the threat. Although regime responses can be complex and detailed, I simplify their options to three: {*wait*, *repress*, *capitulate*}. All three strategies carry uncertainty over their likelihood of success. As suggested above, the unappealing *wait* strategy carries an probability of success which approaches zero. Regimes which select this strategy do so if they lack the ability to increase repression or concede anything to the challenger. Essentially, the regime is abdicating if it selects this strategy.

Instead, regimes can increase repression to deal with challengers. The amount of

[25]The theory presented here does not deal with the intricacies of the challenger's strategies. I assume that challengers are formulating their decision to challenge on both context-specific factors such as relative power and preferences; I also assume that diffusion is at work on the challenger side. The literature reviewed in this chapter reveals that contention certainly draws from experience outside the borders enforced by the regime.

repression utilized by the regime is dependent on structural qualities like capacity to repress/resources available. Even for regimes facing a lack of absolute capacity to repress, the strategy is theoretically possible since these regimes were unlikely to be using much repression pre-crisis. This means that the increase of repression from zero to greater than zero still demonstrates a relative increase in repression. This strategy likely has diminishing returns, but if the *capitulate* strategy is expected not to work, repression might have to suffice. Repression can present dangers when faced with either challenger type, which are explored below.

Alternatively, the regime can acquiesce to some or all of the challenger's demands. Capitulation is a viable strategy distinct from regime resignation. The latter is essentially voluntary abdication following from the very likely failure of the *wait* strategy while the former is a strategic choice to negotiate with the challenger. Capitulation involves a partial or complete acceptance to the demands against the status quo. This strategy is aimed at increasing the chances of regime survival while avoiding the pitfalls of repression. While the *capitulation* strategy might incorporate institutional changes to the regime, such changes must fall short of a regime transition (major institutional/constitutional overhaul). However, it is certainly possible that this strategy might lead to transition in the future.[26]

When a challenge does arise, the naive assumption is that regimes will select repress if they have the capacity to do so and capitulate if they do not. This reflects the understanding in the extant literature that resource wealth, foreign aid, or other highly fungible resource streams will lead to repression in the face of crisis. Regimes without such resource streams, especially those regimes with a low degree of institutionalization like personalist regimes, should opt for small liberalizations to deal with crisis.

As regimes are intent on maximizing the probability of survival, mixed strategies are theoretically not really possible.[27] This is since the two strategies above are working at

[26]It is possible that capitulation could be a negotiated transition where the elites agree on a new power-sharing agreement with a different institutional arrangement. Consider those post-Communist democratic transitions in Eastern Europe where the former regime elites were allowed to run in elections as a Communist party. From the position of the current regime this outcome represents their death no matter how good their new deal might appear to be.

[27]Empirically, there is evidence that if different strategies are used within short periods of time, making

cross purposes. The effects of successful repression and successful acquiescence are incompatible, as this is essentially giving the challenger what they want while simultaneously pushing back against the requested change.

Choice of regime strategies is constrained by crisis. During non-crisis times, the regime can maintain the status quo amount of repression or liberalization, the strategy $\{wait\}$. When crisis hits, the status quo option is no longer available, since the challenger has caused a departure from the equilibrium. Regimes which persist then are selecting strategies that pay off. How regimes select between repression and capitulation is partially based in their prior understanding of how these strategies contribute to survival. Regimes also learn about how other regimes have fared when employing these strategies, and this conditions their expectation of survival when selecting repression or liberalization. The process of learning requires regimes observe and understand the outcomes associated with these strategies, and that they have ordered preferences over those outcomes.

Outcomes

In strategic interactions like the challenge game, actors will choose strategies which are likely to give them the highest payoff. The payoffs for the challenger can be expressed in the probability of achieving change consistent with their initial demands. The regime's payoffs are probability of survival given the challenger. For both actors payoffs when the challenger creates a crisis through $\{direct\ challenge\}$ are conditional on the probability of regime strategy success. The probability of success is given by nature and imperfectly known by the regime or the challenger. Therefore, given the uncertainty involved in the challenge game, discrete values are difficult to assign. Instead, the general outcomes associated with the strategies explained above can be compared to give an indication of the actors' preference orderings.

There are several possible outcomes associated with the challenge game. Regimes always prefer the Status Quo outcome– the result of the challenger selecting $\{no\ direct\ challenge\}$– as the expected probability of survival is essentially equal to one and is not

it appear as though regimes are mixing strategies.

conditional on the probability of regime success. Absent a direct challenge, normal politics occurs and the regime does not face an immediate existential threat. Challengers also often prefer the STATUS QUO outcome, meaning that direct challenges should be comparatively rare. This is a product of uncertainty over their own success, but such trepidation can be overcome when the challenger expects the regime will fail to be successful in negating the challenge.[28] In such cases the challenger creates a crisis by selecting {*direct challenge*}, and the resulting payoffs vary depending on regime strategy and probability of success.

There are two possible outcomes associated with each of the regime strategies {*wait*, *repress*, *capitulate*} which follow from a direct challenge. For each strategy, there is a successful outcome where the regime wins the challenge game and an unsuccessful outcome where the challenger wins the game. These collectively exhaustive paired outcomes have complementary probabilities assigned by nature– probabilities which regimes seek to accurately estimate. For instance, if p indicates the probability of the {*wait*} strategy being successful, the probability of that strategy being unsuccessful is then $1 - p$.

When evaluating which strategy is appropriate, regimes consider the outcomes associated with each strategy and weight the successful outcome with what they estimate the probability of success to be. Regimes perceive the probability of successfully employing {*wait*} to approach zero. The outcome of successfully waiting out the challenger (SURVIVE) is marginally worse than the STATUS QUO outcome. The corresponding outcome with probability approaching one is when {*wait*} is not successful: ABDICATION. For regime strategies {*repress*, *capitulate*} successful outcomes are expressed as DELIBERALIZATION and LIBERALIZATION for each, but the unsuccessful outcomes for these strategies differ based on challenger type.

For elite challenges, the context of repression and capitulation is framed by the nature of elite competition. When elites decide to split with the regime by trying to force a revision to the status quo, this action can be understood as a coup attempt or at minimum the threat of a coup. Therefore, should the regime attempt to repress and fail, the coup is

[28] As suggested in the previous footnote, there is likely a similar learning process for challengers as they process information about the regime and determine whether a direct challenge is prudent.

successful. This outcome is designated as Coup accordingly. For mass-based challenges, failed repression carries a much larger risk to the regime; Civil War occurs when mass mobilization is not successfully repressed by the regime. War is a realistic outcome in this case since the challenger has already signaled severe grievances by directly challenging the regime, and the failed efforts to repress the challenger have indicated the relative power of the regime is much lower than previously assessed. Put another way, failing to repress a mass mobilization invites the challenger to upscale contention to organized combat against the regime.

Failure of the capitulation strategy also differs in terms of outcomes depending on the challenger's type. For mass elite factions, the scope of the demands for liberalization are likely to be more narrowly defined, since the elites demanding the change have interests in altering the status quo regime to their benefit– they want to govern. Failure to successfully secure a deal which involves regime survival through a minor liberalization, thus appeasing the aggrieved elite faction, results in a different sort of regime death than in the failure outcomes associated with the {*wait*, *repress*} strategies. In the former, abdication creates a power vacuum in which we expect the organized opposition (the challenger) to fill. In the latter, either a coup delivers a new dictatorship or defeat in war allows for the creation of a new regime. These outcomes share a similar context for the regime elites removed from power. Either they are killed in war or executed post-coup, imprisoned, or exiled. Since the end of the Cold War, over half (53.2%) of dictators leaving office in irregular scenarios as described here were exiled, while others were killed (17%) and imprisoned (10.6%).[29]

What about the remaining dictators (19.1%) who were removed from office? Failure to engage in a minor liberalization, when faced with an elite challenger, results in an authoritarian to authoritarian regime change (Transition). This result occurs when marginal changes to the institutional order create unintended consequences, empowering the elites which demanded the alteration to the status quo. For instance, the regime's

[29]Following the approach of Escribà-Folch and Krcmaric (2017) I used the Archigos data (Goemans, Gleditsch and Chiozza 2009) and the regime type classification developed by Geddes, Wright and Frantz (2014) to determine frequencies of irregular exit by regime type. There were a total of 47 irregular removals of dictators from 1990 to 2015.

decision to relax constraints to make existing national elections more competitive in an attempt to quell the elite defection might result in the opposition pulling off a surprise victory. By no means should this suggest democratization, or even meaningful liberalization, but it certainly indicates the end of the prior regime. A new set of elites gets to manipulate institutions to maintain their hold on power, suggesting a regime transition distinct from simple leadership turnover. To paraphrase Pete Townshend, in such circumstances the new boss is very much like the old boss.[30]

A failure of the capitulation strategy when facing a mass challenger has a different outcome. The assumption that mass challengers are pressing for more comprehensive change is derived from the understanding that they– unlike the elites who defected from the regime– do not have reliable institutional access under the status quo. When a mass challenger directly challenges the regime, a major liberalization is their preferred result. Mass challengers want to revise the institutions which determine access and governing power. If the regime tries to make a deal and buy off the challenger with a minor liberalization and the challenger rejects the deal or the regime improperly executes the change, the effect can be understood as a major liberalization or perhaps even democratization: this outcome is termed Democratization accordingly. For instance, the regime may allow an election– in which it intends to ensure itself a favorable outcome through strict rules on voter registration, vote buying, or other means– to make a deal with the protesters. If the protesters leave the square and enter the voting booth, they can deliver a surprise victory for the opposition and effectively throw the regime elites from power. The events in Poland 1988-89 leading up to its democratic transition can be understood as this sort of outcome. The "Round Table" talks were the regime attempting to concede some liberalization to overcome the strikes and protests by Solidarność. The Communists expected to remain fully in control post-contest, but with the added veneer of minority opposition; the landslide result in favor of the opposition was a great surprise to the regime, and marked its death (Castle 2005).

What makes the Transition and the Democratization outcomes different from

[30]This idea is drawn from the lyrics of "Won't Get Fooled Again" (Townshend 1971).

the ones previously explored in this section is that members of the former regime may be able to participate in the new normal politics of the new regime. Of course, context matters; if the past dictatorship was particularly brutal it may be impossible to integrate the former ruling elite into the new system. This is particularly true if DEMOCRATIZATION is the outcome. However, there are plenty of examples– especially from some of the post-Communist Eastern European countries– where the former dictators reconstitute as a political party and contest elections. In each both TRANSITION and DEMOCRATIZATION the former regime attempted to negotiate with the challenger rather than repress them. It makes sense that in many such cases members of the former regime would be allowed to participate in normal politics so long as they accept the new status quo.

As stated above, regimes will always prefer the STATUS QUO to all other alternatives. They prefer the very unlikely SURVIVE outcome relative to others but since they also least prefer ABDICATE to all other outcomes, the {*wait*} strategy is generally avoided. Regimes rank WAR and COUP as highly undesirable outcomes due to pessimistic forecasts of their likelihood of survival. TRANSITION and DEMOCRATIZATION outcomes are comparatively better than those especially dangerous situations, but are less preferred relative to DELIBERALIZE and LIBERALIZE. What is problematic for regimes is that due to uncertainty over success, it is extremely difficult to rank these two outcomes *relative to each other*. Absent additional information, regimes are therefore agnostic over which strategy– {*repress*, *capitulate*} they should employ. Under the conditions of the challenge game, regimes need to pick between these strategies to maximize chances of survival. How they make this choice involves a more careful consideration of the information environment in which regimes exist.

Theoretical Model

Based on actor interactions in the challenge game, no single equilibrium exists. Instead, based on the preferences of the regime, we should expect that either strategy {*repress*, *capitulate*} would be selected with equal probability. That is, unless the regime actor has a way to reduce uncertainty over the probability of success for employing ei-

ther strategy. The probability of success can never be perfectly known by the regime. However, there are ways in which the regime can get a better estimate of it than simply guessing.

Challenge events might be rare for some regimes, but it is unlikely that long-lived dictatorships have never experienced an existential crisis brought on by a challenger. The regime actor can substitute their historical experience for a guessed (random) probability. In fact, we can imagine that the past strategy employed by the regime when faced with a challenge is a powerful heuristic– one which takes little capability to absorb new information, instead relying on institutional memory.[31] In essence, the way to deal with the uncertainty over the expected success of a strategy is to just do as you have done before. However, there are two related problems with this perspective.

First, autocracies do not always repress everyone, all the time. Even early philosophers like Machiavelli recognized that effective dictators should not always repress, instead favoring a more balanced approach (Machiavelli 1998). The literature on elite cooptation reflects this understanding, and supplies empirical evidence of its veracity. A hallmark of the literature on elite cooptation and authoritarian survival is emphasizing that often repression of elites is not needed, and that alternative tools for enforcing loyalty are used instead (see Gandhi and Przeworski 2007, Boix and Svolik 2013, Woo and Conrad 2019). This means regimes which have used repression in the past to deal with challengers *might* use it again, but there is also evidence that alternative strategies are employed. At some point, virtually all regimes change between strategies {*repress*, *capitulate*}. Applying the simple "do as we have always done" heuristic cannot explain this.

Second, in terms of the regime relying on the heuristic of its own historical experience, a lack of recent (or any) memory of crisis brought on by a serious challenger is problematic. Consider recently independent regimes. They may not have experienced challenges before,

[31]Regime actors do not need to rely on the individual memories of elites; governing involves encoding past strategies into policies and institutions, even when past (repressive) actions are not publicly palatable. However, Etheredge and Short (1983) uncover evidence of a weakness in the collective (institutional) memory due to bureaucratic decentralization and redundancies and government turnover. They suggest that the U.S. nuclear incident at Three Mile Island was a near miss in large part due to a failure to know and utilize an existing strategy for nuclear disaster abatement (Etheredge and Short 1983, p. 51–52).

and so their estimate of the probability of success for either strategy will be no better than guessing. Considering that all regimes which are now enjoying persistence were at some point experiencing their existential crisis, it would be an amazing if they simply guessed their way into longevity. To push this idea a little further, regimes which are the product of a successful challenge to the previous status quo and then experience their own crisis will struggle to apply this simple heuristic. They cannot well rely on the experience of the ancien régime (which itself miscalculated the probability of success for its chosen strategy) and they cannot rely on their own history, which is yet unwritten.

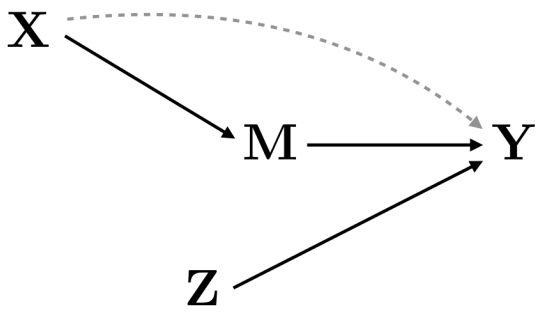
Following the literatures on diffusion and political learning reviewed above, there is an alternative heuristic which regimes consider instead. They can substitute the choices made by other regimes for their own (lack of) history dealing with challengers. This alternative heuristic is regime learning.

The process of incorporating exogenous examples into a less uncertain assessment of the probability of success of strategies is not an easy task, nor is it completely accurate. Generally, the diffusion literature implicitly assumes that regimes consider all available examples. For example, Brinks and Coppedge (2006) calculate average neighborhood and regional diffusion effects. Yet, it is not clear why regimes would take this "shotgun" approach to selecting examples. Learning, even in its most basic form, involves a more judicious approach to incorporating new information than the previous literature suggests.

Consider Figure 2, a graphical representation of the theory. Let the treatment X represent the actions of other regimes. Y is the outcome of interest; here, this represents the strategy selected by the observation regime. Let Z represent a vector of controls– alternative explanations such as structural or political economic factors– which previous studies have shown to matter.

Typical diffusion arguments applied at the regime level suggest a causal path $X \rightarrow Y$, represented in Figure 2 by the dotted line. However, it is unlikely that regimes would consider all outside information equally. Crisis creates a finite time horizon for action. This, as well as the time and resource cost of processing information, means we should

Figure 2: Causal Diagram of Theory



expect that as part of learning regimes filter what they believe to be relevant examples. This allows the regime actor to establish a less uncertain estimate of the probability of success for the alternative strategies. In Figure 2, the causal mediator M represents the filtering process.

Regime learning is therefore somewhat selective. In the following section, I explore different ways in which M enters into the learning process as a context-conditionality filter. It is my contention that the causal pathway $X \rightarrow M \rightarrow Y$ is the appropriate way to represent how diffusion matters to authoritarian persistence. This theoretical innovation allows for a more nuanced understanding of the learning mechanism relative to the existing literature.

Learning in Regimes

While it is possible that autocratic regimes are constantly gathering information about successful liberalization and repression in other regimes, times of crisis represent "teachable moments" where new information is most important. When the status quo is unchallenged, regimes may behave as though they are not incorporating new information into their choice of strategy. Since any departure from the status quo represents an increase in costs to the regime (more resources to repress, less control after liberalization) regimes will be hesitant to alter the status quo without a challenge.

We can see preliminary observational evidence of a diffusion process at work when sets of states experience highly related or the same crises. The events dubbed the "Arab Spring" are illustrative here. In Tunisia mass demonstrations erupted December 2010 after Mohamed Bouazizi set himself on fire to protest the corruption and ineffectiveness of the actors governing the 51 year old dictatorship (BBC News 2013). Following the widespread protests, Freedom House noted an increase in repression until the regime finally failed in 2011 (Freedom House 2019*b*).

Nearby Egypt– another long-running dictatorship– also attempted to increase repression when experiencing serious protests in 2011. Hosni Mubarak was forced to resign after roughly three decades as president. However, other regimes took different actions when faced with similar crises. In 2011 the tenured Jordanian monarchy also experienced fallout from the "Arab Spring" in the form of mass protests. The regime opted to install a new prime minister and announce political reforms rather than ramp up repression, despite a long history of doing so. In 2011, the long-established and equally repressive Moroccan monarchy also opted to capitulate to mass mobilization for constitutional changes and make some nominal alterations to the governing structure in that country. Both regimes– and both monarchs, for that matter– survived and continue to do so today.

The actions of these latter two regimes run counter to expectations based solely on the naive assumption that repression will be selected by default. This example also indicates that the simple heuristic of past experience is not sufficient to explain such outcomes. The question then is why Jordan and Morocco altered their typical strategy, and why Egypt did not.

Learning as a Process: Bayesian Updating

Regimes learn from their prior experience, but also through the lessons from other regimes facing crisis. The way they incorporate other regime experiences is through simplistic or more sophisticated learning. The learning process in each case is Bayesian updating, where the prior expectation a selected strategy will lead to survival is updated with new information on how that strategy worked for similar regimes facing crisis.

Regimes begin with a prior expectation of survival post-action given their structurally-induced preference over strategy. For regimes which have a history of repression, the prior expectation of repression as a survival strategy is high. How regimes update their prior in light of the crisis depends on the capacity of the regime to process new information as well as the necessity of gathering new information due to the imposition of a finite time horizon. While the severity of the crisis is based on the challenger side, the capacity to learn is dependent on regime institutionalization.

Regimes "learn" by absorbing new information on how to deal with crises. While the process of learning for individuals is well understood, applying this understanding to regimes (which are not individuals) might be considered problematic. Different authoritarian institutional configurations, or subtypes of authoritarianism, provide different capacities to learn and implement new information.

Capacity then has two components. The first is the ability to incorporate new information and update prior beliefs. The second is to actually act on the updated (learned) belief. These two facets of regime-level learning are tied together in such a way that it would be theoretically and empirically quite difficult to disentangle fully. Therefore, I consider the overall complexity of regime institutionalization similarly to how institutional checks and balances function as layers of complication and chances to veto in the democratic policymaking process.

Those regimes with a great deal of institutionalization for dealing with internal elite cohesion issues also should have a higher cost of altering course since there are more players to appease or buy out. Such regimes are referred to as "party regimes" in the (Geddes, Wright and Frantz 2014) typology. Or, these regimes could be referred to as "large winning coalition regimes" (large w) to use the language of selectorate theory (Bueno de Mesquita et al. 2003). This means that even if such regimes acquire new information it might not alter the choice of strategy much. There are comparatively more members of w to appease, and the institutional features of may party-type regimes create bureaucratic inertia. Reaction to new information is slower and capacity to update prior beliefs weaker than in less institutionalized regimes.

Those regimes with less institutionalization can more easily use new information and change course since the cost of selecting a strategy that is different from what they are predisposed to do is relatively low. Such regimes are personalist, military, or monarchy types. These are small w systems in which the number of elites to appease is small and therefore cost is low and capacity to make change high. In the example above, the monarchies in Morocco and Jordan are typically repressive, but opted for capitulations to deal with fallout from mass protest challenges during the "Arab Spring."

Types of Learning

The process of learning– Bayesian updating– is somewhat different based on the context of crisis. Using the language of the mechanisms of diffusion, this is best understood as the difference between "emulation" and "learning." In each case, regimes update their prior belief about the probability of success for a strategy. Yet in the emulation variant there is little sophistication in selecting new information to update with. In the more sophisticated variant, there is consideration of the source.

Which type of learning is used relates to the context in which the regime is situated, as well as the capacity of the regime– described in the preceding section. Capacity can be low or high depending on the institutionalization of the regime. Necessity– based on the challenger type– can also be low or high.

Emulation occurs when capacity is low and necessity is low. Regimes cannot properly incorporate the new information on successes and failures of other regimes facing crisis and so they pick a "regional" leader and emulate. The regime is looking to update with information that confirms its selection of $\{capitulate, repress\}$ and so it picks a "regional leader" to emulate which is most like itself, even if the challenger is different. This is similar to the the baseline neglect idea from Tversky and Kahneman (1973). This explains why regimes pick "obviously" wrong choices. Emulation also occurs when capacity is low and necessity is high. Regimes cannot properly assess the successes and failures of other regimes facing crisis, but need to act quickly. They select a leader and emulate. This logic is similar to what Weyland (2005) finds regarding Bolivia emulating policy choices

in the high profile Chilean regime instead of the much more similar Argentinean regime. We should see mixed results with the emulation method of learning. If the heuristic pays off, regimes will persist.

The more sophisticated version of Bayesian learning occurs when capacity is high and necessity is high. Regimes can process new information, but must resort to heuristics in how the new information is processed. Representativeness heuristics come into play when accessing information on how other regimes have fared. Welsh and Navarro (2012) argue that base rate neglect might not always be suboptimal; this corresponds to this approach. We should expect that this learning mechanism leads to persistence more often than emulation.

Learning also occurs when capacity is high and necessity is low. Regimes can shop for new information and incorporate it. The updating process includes the regime's assessment of a great deal of new information. Weights for new information need not follow the representativeness heuristic approach. Instead, regimes don't look for a "regional leader" and process information about the entire cohort. This should lead to persistence more often than any other method.

It makes sense that most regimes examine the actions of other regimes to update their prior. The question then is whether this is genuine or not: do regimes only look at specific exogenous examples to strengthen their prior (and therefore run the risk of getting it wrong) or do regimes try to actually learn from the actions of other regimes?

Sources of Example

In the literature on the diffusion of democracy, influential studies implicitly assume that there is a uniform effect among sources of exogenous example (see Brinks and Coppedge 2006). Diffusion itself may be no illusion, but treating all neighboring regimes as equally likely to have an effect on the trajectory of the regime in question is likely just smoke and mirrors. Because regimes are survival maximizing, and due to their varied constraints on the ability to incorporate new information, we should expect that heuristics

play a role in regime learning.

The extant literature on diffusion considers how region or neighborhood– typically contiguous states– represents a spatial grouping in which change can occur in modular fashion. Geography matters; however, *how* this spatial dimension actually relates to diffusionary effects is not always well identified. Perhaps regimes consider neighbors' actions since they are easy to observe and are likely already under surveillance for security reasons. In terms of learning, this "availability" heuristic is a reasonable one.[32] This should be particularly true for regimes facing challengers which also have limits on incorporating new information and acting on it.

The availability heuristic is not very sophisticated, and information gathered in this way likely does not best assist regimes in crisis establish a more credible probability of success for alternative strategies. There is a "bias of retrievability" associated with this heuristic which creates overconfidence in the new information provided despite a lack of applicability of the example (see Tversky and Kahneman 1973, Kahneman et al. 1982, p. 11). Regimes can do better; a heuristic based in representativeness should be more efficacious.

Typically, representative heuristics involve updating one's prior beliefs based on new information that is judged to be representative of some established category or outcome of interest (Kahneman et al. 1982). In terms of regime learning, this heuristic operates in a similar fashion, where regimes upweight structurally similar exogenous examples. From a group of contiguous neighbors or from the larger region, regimes facing an existential challenge should emulate same type regimes (i.e. monarchies emulate monarchies). This does not mean that those lessons are necessarily more applicable, just that for the regime in question such examples are more appealing as they are thought to be more representative. This heuristic introduces bias towards examples which might not be actually useful, however (Kahneman and Tversky 1973).

What constitutes as structural similarity can also be more than simple regime types. Past experience with a similar colonizer or cultural characteristics can be another way

[32]For a cogent description of the availability heuristic using the analogy of observing a car wreck while speeding, see Weyland (2010, p. 1153).

regimes "recognize" peers. Institutional, historical, cultural, or political economic structural similarity has been considered as a heuristic in studies of the diffusion of contention (i.e. Weyland 2010). Regimes– particularly those with high institutional capacity– will be able to recognize similar contexts and attempt to draw on what they believe are appropriate lessons. This also relates to how they perceive similarity of threat.

Whether the crisis has been created by an elite or a popular challenge to the status quo, there is an opportunity for the representativeness heuristic to play a role here as well. Regimes which engage in a sophisticated learning process avoid simply emulating representative regimes, instead selecting exogenous information offered by regimes facing the same challenger type. Again, the representativeness heuristic can be flawed and the perception of similarity of context might cause bias towards a "bad" lesson. Yet, such miscalculation should be diminished relative to the bias introduced by structural similarity; this is due to the more sophisticated process involved in identifying exogenous information of this sort. The difference between emulation and learning is not based in success, but rather it relates to the sophistication of the information gathering process.

Conclusion

The theory of regime learning described in this chapter relies on an assumption that regimes wish to maximize survival. Regimes pursuing survival incorporate exogenous information– such that they have the capacity to do so– into their decision making calculus in order to reduce uncertainty faced when selecting strategies to address an existential threat.

The theoretical model articulated is derived from specific conditions of crisis, which I have referred to as the challenge game. When a challenger arises, regimes must abandon the status quo in order to maximize chances of survival. The existence of modular political phenomena is evidence of diffusion at work; it is my contention that the process of diffusion is best represented as Bayesian learning, treating the regime as a unitary actor.

This theory of regime learning suggests several testable hypotheses. The central premise of my perspective is built on an assumption that regimes respond to crises with a departure from the status quo. While this is a necessary component of the theory which motivates boundedly rational action on the part of the regime when playing the challenge game, it is also an empirical question.

In the following chapter, a novel way of measuring deliberalizing and liberalizing outcomes– manifestations of the regime strategies {repress, capitulate}– is introduced. This allows for an empirical examination of both the assumption of regime survival maximization motivating the theory as well as additional features of the process of learning.

Further hypotheses, which are articulated in the final empirical chapter, address such features of learning. I can test for use of the basic availability heuristic by identifying whether regimes copy other regimes in the region as well as whether they copy contiguous neighbors. Further tests of emulation based on the representativeness heuristic– that structural features such as institutional arrangement or regime type, cultural, political economic, or other features help regimes identify peers– is also made possible by my unique dataset. Finally, I investigate regime persistence as a function of learning.

The theory presented in this chapter is as much about survival as it is about the crisis that threatens the status quo. Generally, I expect that those regimes which are able to reduce their uncertainty over the probability of success of a given strategy will survive longer than those regimes which are unable to narrow their choices, thereby falling victim to miscalculation in the face of an existential threat. The implication is that the longest-surviving regimes are probably those which have been able to learn. Ability to learn involves incorporating new information, and the ability to effectively deliver either repression or concessions. This itself requires an institutional configuration that minimizes the number of elites required for consensus and maximizes control by the executive. In short, small-w regimes (i.e. monarchies) with an abundance of fungible resources should be the longest surviving.

When looking at the MENA region, a casual observation of the longevity of different regimes appears to corroborate this perspective. The Saudi monarchy has persisted 87

years since the country formally consolidated as an independent member of the international system. The story is similar for the 73 years of Jordanian monarchy. Whether these regimes and others like them are learning requires careful empirical consideration.

Chapter 3

Measuring Regime Learning: A Machine Learning Solution to Data Limitations

Fearing a popular uprising similar to the Arab Spring movements sweeping the region, the Algerian government made a number of political and economic concessions in early 2011 to calm discontent.

– Freedom House Algeria Country Report, 2012

Introduction

The theory of regime learning presented in the previous chapter outlines various outcomes of regime-challenger interaction (the challenge game). When a challenger arises, regimes must abandon the status quo. Of the outcomes covered in the preceding chapter, there are two in particular which present a significant measurement challenge. Successful strategies by the regime to overcome challengers of either type have been termed *liberalization* and *deliberalization*.

This chapter focuses on the specific challenges of measuring the outcomes of regime strategies to repress or capitulate which are often quite subtle. By the conceptual definition of these successful outcomes, they are explicitly not regime change events. It could be the case that existing measures of regime type and quality might capture these outcomes. However, by their nature, liberalization and deliberalization events of the sort

which represent the outcomes of interest here often fall short of the institutional or *de facto* changes which lead to changes on well-known aggregate measures like POLITY or Freedom House.

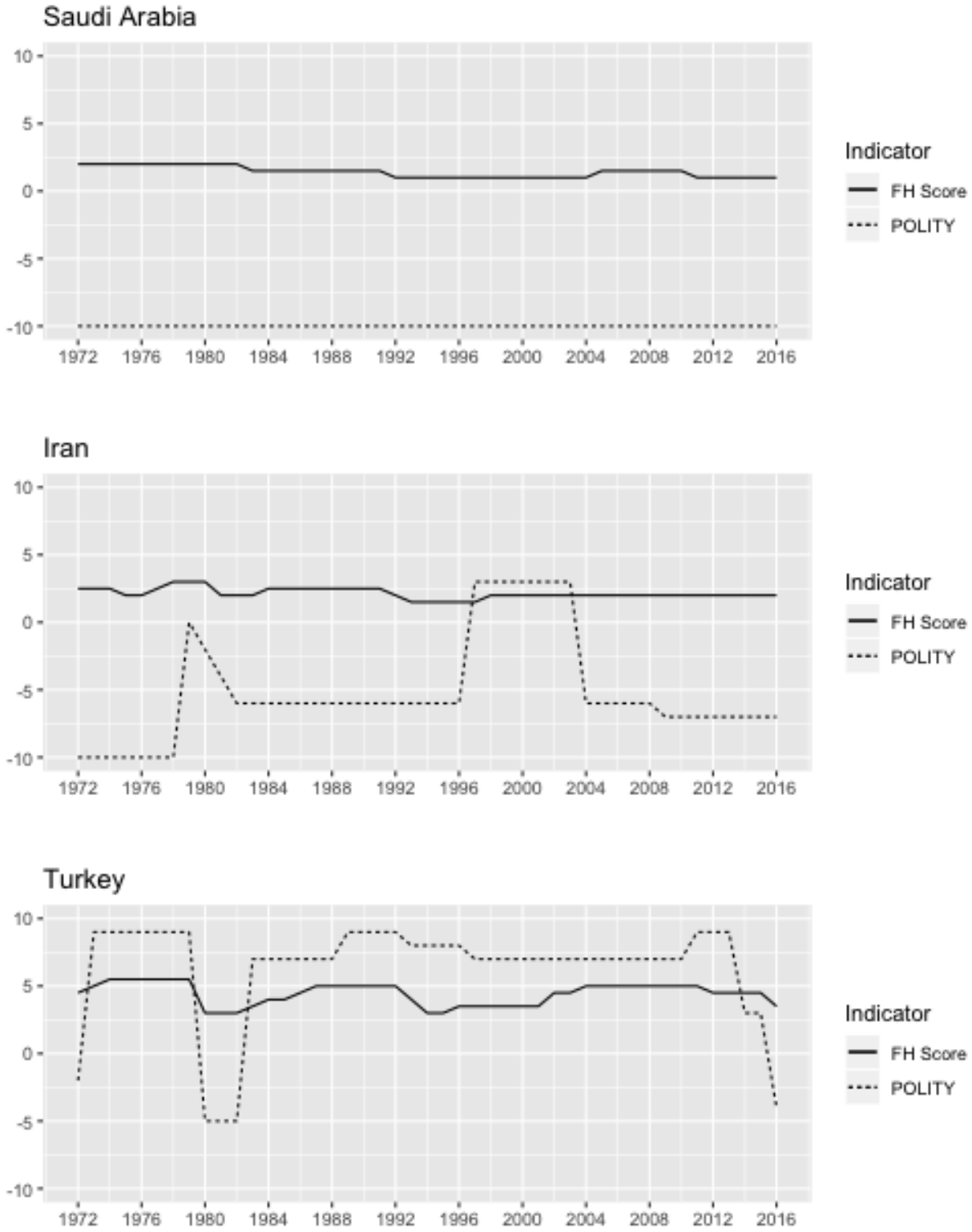
While POLITY and Freedom House are not the only aggregate measures of democracy, but they are the most commonly used (Högström 2013). In truth, it might be said that neither of these indicators truly measure "democracy." However, since they do measure concepts which are certainly highly correlated with "democracy"– institutional constraints and pluralism (POLITY); political rights and civil liberties (Freedom House)– they have been commonly used as indicators of democracy. Pemstein, Meserve and Melton (2010) suggest that POLITY and Freedom House, among other indicators, are all based on Dahl's (1971) underlying concepts of contestation and participation.

POLITY, now in its fourth installment, provides researchers with a autocracy-democracy index spanning 21 values (Marshall, Jaggers and Gurr 2019). Components of the POLITY index are competitiveness of executive recruitment, openness of executive recruitment, constraints on the chief executive, and regulation of participation and competitiveness of participation (Marshall, Jaggers and Gurr 2019). The POLITY index may be a suitable choice for empirical research on democratization; indeed, many of the studies cited in the review chapter use POLITY for this purpose. However, the POLITY index does not capture enough variation in liberalization and deliberalization for the purpose intended here. Consider that Saudi Arabia experienced a minor liberalization in 2011[33] that is not captured in the POLITY index, as shown in Figure 3. Perhaps this is not surprising since there was no real change to executive constraint, and no immediate appreciable impact on pluralism. However, considering the context (the beginning of the "Arab Spring") we should want to capture events like this liberalization even if it does not rise to the level of moving a component of the POLITY index. Even Iran and Turkey, which show more movement on POLITY from year to year have periods of no change in which there are liberalization and deliberalization events occurring– between 2000 and 2011 in Turkey,

[33]According to the Saudi Arabia 2012 Freedom House country report, in September 2011 the government held elections for half of the municipal council seats, and King Abdullah announced that women would be eligible to run and vote in the next round of municipal elections scheduled for 2015 and would be allowed to hold seats in the country's Consultative Council (the *Majlis al-Shura*).

for instance.

Figure 3: POLITY and Freedom House Compared, Select Countries



The main alternative used in many studies, including some influential works cited in

the review chapter such as Brinks and Coppedge (2006) and Teorell (2010), is Freedom House. The Freedom House index includes two main components, political rights and civil liberties which each have various subcomponents (Freedom House 2019*b*). Political rights are based on three subcomponents-– electoral process, political pluralism and participation, and functioning of government-– of which there exist a total of 10 indicators. The civil liberties component is based on four subcomponents-– freedom of expression and belief, associational and organizational rights, rule of law, and personal autonomy and individual rights-– which are spread over 15 indicators. The subcomponents are measured ordinally as five-point scales and then are each added to the two main component headings (Freedom House 2019*b*). The highest score for political rights is 40 while the highest score for civil liberties is 60; this is then translated to a scale from one to seven where low numbers indicate higher degrees of freedom. To aid in interpret ability, I reverse the Freedom House scores so as the numbers get higher, they indicate more freedom. This also allows for a more direct comparison with POLITY.

In Figure 3 there are a few important things to note. First, although it has been widely suggested (see Pemstein, Meserve and Melton 2010) have suggested that the major democracy measures tend to correlate highly with each other, the point that in some cases they do not (Pemstein, Meserve and Melton 2010, Högström 2013) is apparent here as well. Despite both indicators tracking well for Saudi Arabia, they do not correlate as strongly in the case of Iran or Turkey. The former has more stability than the latter in terms of freedom, and the latter seems to track better across the alternative indicators. More to the point, in 2010 at the outset of the "Arab Spring" Saudi Arabia and Iran have almost the same Freedom House reversed score. Yet, these two countries had very different sets of policies regarding political pluralism (Iran tolerates a little, Saudi none), gender equality (Saudi none, Iran comparatively equal), and so on. As Armstrong (2011) finds in his thorough examination of the Freedom House measurement construct, it is possible to have similar freedom scores but have substantively quite different regimes as much as it is possible to have different Freedom House scores across fairly indistinguishable regimes.

This leads to the question central to this chapter: is there a way to measure regime

liberalization and deliberalization in primarily persistently authoritarian contexts? In order to assess the theory of regime learning outlined in the previous chapter, the standard aggregate measures such as POLITY and Freedom House are not up to the task. There simply is not enough variation in these indicators to demonstrate liberalization and deliberalization. Fortunately, there is a solution that relies on qualitative data accompanying the Freedom House aggregate measure. This solution involves a combination of expert and machine coding, and produces valid measures of liberalization and deliberalization which both correlate with existing aggregate indicators, and provide greater nuance and variation.

Freedom House Country Reports: Text as Data

Measuring liberalization and deliberalization in a way that allows for variation within even persistently authoritarian regimes presents a challenge. Existing aggregate measures such as POLITY and Freedom House have components which may vary, even in persistently authoritarian places, and even if the aggregate score does not meaningfully change. However, assessing liberalization and deliberalization with such disaggregated index components will likely still not capture all of the choices that regimes make in light of challengers making the status quo untenable.

Consider, for instance, the various components of the POLITY aggregate index. The POLITY IV index is composed of several measures of executive recruitment, executive constraint, political competition, and political participation (Marshall, Jaggers and Gurr 2019). A meaningful change on any of these certainly could be construed as liberalization or deliberalization, depending on the direction of the change. However, the data is not entirely transparent in that the values which appear in the available data for these components is not accompanied by the qualitative details underlying those coding decisions. Therefore, using the disaggregated components of such an index is really only marginally better than using the aggregate measure itself. It is the qualitative details which are of

particular value here.

Similarly, the Freedom House aggregate measure is composed of constituent parts, organized under "political rights" (0-40 points) and "civil liberties" (0-60 points) headings (Freedom House 2018). There are many subcomponents in each heading. Although Freedom House only provides the aggregate ratings, ratings for each main heading, and a determination of "free," "partly free," or "not free" in the available data and does not provide the component scores, this information is available in a different format: web-based country reports.

As part of the yearly *Freedom in the World* series, Freedom House has analysts create country reports describing the historical political development of the country as well as political rights and civil liberties trends. These reports in recent years explicitly identify the score changes, and the reports consistently describe liberalizations and deliberalizations on a variety of dimensions even where the scores are absent. From 1999 to present for almost all of the countries tracked by Freedom House– in the 2018 report, there were 195 countries and 14 territories– yearly country reports appear on Freedom House's website, linked from the report they relate to. For instance 2018 on-line version of the report links to all the countries and territories, providing assessment for the year 2017.

This wealth of qualitative data describing liberalization and deliberalization events is both readily available, and it has the added quality of being specifically intended to corroborate quantitative data that is well-used. Unlike attempting to use news media coverage of political events in a country and commentary on its trajectory (non-targeted secondary sources), the Freedom House country reports are targeted primary sources (in that they rely on analyst knowledge and interpretation) specifically engineered to convey information of the sort I am looking to gather to measure liberalization and deliberalization. This should make extracting the relevant information from the text and coding the outcome of interest comparatively easier than poring over news reports.

Methodology

In order to measure the outcomes of interest, it is first necessary to be clear about the conceptual definitions of liberalization and deliberalization. As the previous chapter indicates, the outcomes *transition* and *democratization* refer to meaningful regime changes as a result of the regime strategies {*repress*, *capitulate*}. This necessarily makes liberalization and deliberalization outcomes something in between no change (which could be *status quo* or *survive* outcomes) and change to a different regime type.

Liberalization then is a minor– perhaps even nominal– change in the rules of politics, norms of politics, or policy which improves civil liberties or political rights. Deliberalization accordingly is a minor change in the rules of politics, norms of politics, or policy which decreases civil liberties or political rights. Such changes are more minor than change to the constitutional order– a major shift in civil liberties or political rights– which alters the regime type.

An example of the difference between liberalization and democratization, for instance, can be drawn from Freedom House's political rights subcomponent "electoral process." In an authoritarian regime, democratization would occur if free and fair elections were held for the executive and legislature for the first time. In this case the regime has changed type. Liberalization, on the other hand, could be evidenced by the dictatorship allowing opposition parties to register, but not allowing free and fair elections. This would not change the regime type, but it would contribute to a slightly more favorable view of political rights in that country.

Aggregate measures, such as those briefly reviewed above, cannot adequately account for liberalization or deliberalization as the aggregates are by their nature too coarse. There are several constituent parts to each of the aggregates, meaning that if there were movement in opposite directions on a few of the components the net change would be zero. For instance, as a regime becomes less restrictive in allowing access to uncensored websites it may also be ramping up repression against an ethnic minority. As the transparency of Freedom House has increased, this "averaging out" scenario has become evident; there will be positive and negative changes in the same country-year on different components

to net no real aggregate score change.

Considering the components independently also cannot provide a clear measure of liberalization and deliberalization. This is so for two reasons. The first is that while changes on the separate parts of the aggregate measures certainly can be understood to indicate liberalization or deliberalization, not all events that should be counted will be relevant enough to "move the dial." This is clear in reading through the Freedom House reports, where there is language to suggest that there is a meaningfully different practice by the regime but the score on the component part does not change. The second reason is that for POLITY in particular, not all events which should contribute to liberalization or deliberalization will fit into the component indicators. This is less of a concern with Freedom House, which incorporates both civil liberties and political rights dimensions. POLITY's reliance on institutional features means that important substantive changes may be missed by the original analysts considering the country-year scoring.

Operationalizing the conceptual definitions of liberalization and deliberalization therefore requires a different approach. Instead of relying on the aggregate measures or their component parts, text data from Freedom House– which includes substantive indications of liberalization and deliberalization– can be used to identify where the outcomes of interest have occurred, even if this did not register as a change on the component or aggregate measures. This entails assessing as many Freedom House country reports as is possible. Two methods have been used here as complimentary approaches: so-called "expert" coding, and machine coding. Each has benefits and trade-offs, but due to practical constraints neither approach can be used alone given the number of reports to classify and the length and complexity of the reports.

Expert Coding

The first method used to analyze the Freedom House country reports is "expert" coding. This approach is a typical solution to coding values from large amounts of information; it relies on a coder (the "expert") examining information and determining a corresponding classification or label. In analyzing text to determine a classification,

expert coding procedures involve several steps. First, a set of documents, or *corpus*, which constitutes the population of relevant information to be coded must be identified. Then, the expert must determine the classification scheme (i.e. the labels to be applied to the texts). Next, the expert needs to create a set of coding rules to determine how to translate the information in the text into a value (label) under the classification scheme. Following that, the expert reads through the corpus, assigning labels to the documents based on the coding rules. Finally, the expert assesses (validates) the quality of the coding.

The process of expert coding text documents has a long history in the social sciences. Both the POLITY and Freedom House aggregate measures rely on expert coding, although what the experts focus on to determine values is different. Despite its common use, this method is costly in terms of both time and resources (see Shah and Davis 2017). This has led many scholars to switch to alternative methods to reduce strain on research time and resources. One such alternative approach is *corwdsourcing*, which overcomes the need for an expert by distributing the task of coding among various non-experts.[34] Such approaches have been used instead of expert coding to deal with large amounts of uncoded text data (Benoit et al. 2016, Benoit, Munger and Spirling 2018). However, successful use of crowdsourcing in these applications relied on small tasks distributed among the crowd. This is different than coding an entire manifesto– or an entire country report.

Instead of crowdsourcing, I used a combination of my own expert coding and student research assistants[35] coding for the bulk of country reports in the MENA region. Using student research assistants is different than crowdsourcing, since I trained them to code using the process that I used. Random sampling of the coding done by students revealed that they essentially picked up on the same change language and evidence of liberalization and deliberalization events in the text that I did. The process used is described in the following section.

[34] A different way to view crowdsourcing is that instead of the participants being "non-experts," they are simply *local* experts. Their narrow expertise is not helpful for wider data coding enterprise, but can satisfactorily obtain reasonable validity if members of the crowd code what they know best.

[35] There were 16 political science undergraduate students from my Spring 2018 comparative politics course taught at Marquette University.

Coding Process

I began by identifying the corpus. Since the MENA region has the largest proportion of authoritarian regimes and some of the longest running dictatorships, it was a suitable place to begin the coding process. Once the MENA country reports for the years available were identified, this formed the basis of the corpus to code. Then, I established a few rules about coding. Looking for language which suggested change from the previous year, I paid close attention to section headings (where available) and/or adjacent terms to isolate action language which clearly related to political rights or civil liberties liberalizations and deliberalizations.

Since Freedom House makes yearly entries for each country available online at http://freedomhouse.or as part of its "Freedom in the World" report series, it was easy to assemble the corpus as a series of links. These reports are rendered as HTML documents which contain text summarizing political events of the past year and statements explaining any movement on the political rights or civil liberties indices. The country reports are typically available for all countries from 1998 to present, although the aggregate scores are assigned from 1972 onwards. For more recent years, there are clear topic headings and changes in scoring are marked. For earlier reports, a more careful examination of the text was needed to isolate information on political rights and civil liberties liberalizations. One issue that was revealed in this process is that there is sometimes repeat information in these country reports, particularly in older documents and when an influential event such as a civil war or regime transition occurred in the recent past. The outcomes of interest were only coded if there was an event in the observation year that occurred.

This process allowed me to code liberalizations and deliberalizations by type and subtype, using the components of the political rights and civil liberties aggregates as subtype categories. I also coded for the magnitude (major, minor, nominal) and confidence in the coded record. Note that even major changes fall short of actual regime change, which is coded separately. The result is that liberalization and deliberalization are not mutually exclusive categories. This is because events of either type may occur in the same year.

After coding several sets of an entire country's reports, I taught my student research

assistants to replicate my method. I ultimately coded 176 events across 12 different countries for a total of 124 country-years. The research assistants identified 284 events across 7 countries for a total of 91 country-years. The ratio of events to country-years is almost twice as high in the research assistant's data, but this is not very problematic for two reasons. First, I instructed the students to include anything they were not sure about, which may have slightly inflated the number of events they coded. I did some random sampling of their work and found no apparent false positives. Second, it appears as though some of the regime years assigned to the research assistants involved quite a bit of liberalization and deliberalization. This is in part a result of some of these years being at the outset of the Arab Spring, as well as a turbulent period in Egypt in the mid-2000s and post-U.S. occupation Iraq (2011-2017).

Limitations of the Coded Data

The resulting expert coded data covers all available years for twelve of the eighteen countries in the MENA region.[36] Despite a great deal of time and effort put into coding two thirds of one region, this does not leave much data for analysis (215 country-year observations). The relatively low number of observations also means that several of the coded data outcome measures– those which record specific types of liberalization or deliberalization, such as press freedom or political party legalization– are not sufficiently large in number. Running an analysis on this data is therefore not likely to provide the best possible empirical test of the theory outlined the previous chapter. In order to provide a more meaningful test of the theory, in particular the notion that there are possibly different groups of peers which regimes may learn from, requires more data. The process of expert coding described here overcomes the empirical problem of measuring liberalization and deliberalization in persistently authoritarian contexts, but a great deal more coding would be necessary. Absent an army of research assistants or a great deal of time to engage in this effort, expert coding cannot be the solution in this case.

[36]The countries included are Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Lebanon, Morocco, Oman, Saudi Arabia, Turkey, and Tunisia. Not coded were Kuwait, Libya, Qatar, Syria, UAE, and Yemen. Not included in the region were Israel and Sudan.

One alternative to continuing the expert coding approach would be to turn to crowdsourcing (see above). However, as previously stated, the task of coding entire country reports requires higher skill than is appropriate for typical crowdsourcing applications. Dividing the task into smaller text samples as Benoit, Munger and Spirling (2018) do is not helpful here, since the context of the event may only be apparent when reading the entirety of the country report. Instead, I turn to a different method: machine coding. Following Laver and Garry (2000) and Laver, Benoit and Garry (2003), I treat the country report text as data.

Applying a machine coding approach to code the rest of the available country reports means that collecting, processing, and coding 3,548 documents can be done by one person in hours rather than months. In the next section, I explain this process and the downsides using this approach has. Given the constraints on resources faced, and the overall aim of this project, expert coding a small amount of the data and relying on the machine coding of the rest was an acceptable tradeoff. This is not likely to be the case for all researchers, and so care should be taken in adopting the methodology here.

Machine Coding

Machine coding data is a multi-step process, involving gathering identifying and gathering the text data, cleaning the data, and then running classification. Grimmer and Stewart (2013) provide a useful guide through these steps, which I mirror in my approach here. To identify and collect the data, I created an automated method of gathering the extended corpus directly from the Freedom House website (a "webscraper"). I then applied a battery of typical transformations and alterations to turn the documents into quantitative data– to paraphrase Laver and Garry (2000), creating numbers out of words. With the text effectively turned into a quantitative dataset, I explore a series of different machine learning models to classify the documents as containing evidence of a liberalization or deliberalization. This step requires the use of the original expert coded data as training data to give the various machine learning algorithms examples of liberalization and deliberalization as coded by humans. Therefore, these classifiers are

all *supervised* learning. I ultimately specify a robust ensemble classifier that incorporates the various supervised learning methods.

The machine coding approach described in the following sections solves the problem of scarce time and expertise resources. It overcomes the data problem described above, effectively coding all countries available from 2000 to 2017. This allows for a more complete empirical test of the theory in the preceding chapter. However, there are two potential downsides to the machine coding approach utilized here, relative to traditional expert coding: extensibility and representativeness. These are not serious issues, but deserve a short explanation for transparency.

This approach may not be as extensible as expert coding. While it is possible to use another researcher's coding rules to replicated or extend and analysis using expert coded data, the machine coding approach is a little more complicated. Extensibility is dependent on the researcher's technical skill in adapting the webscraper I created.[37] The webscraper itself is only useful as long as the Freedom House website remains organized in a similar manner, where yearly country reports are reliably referenced from the most recent country report page. Additionally, use of the classifiers with new training data may alter the classification of the machine learning algorithms. This leads to the other potential drawback of the machine coding approach used here.

Since I created training data from a group of authoritarian countries which share some key structural features (i.e. they are all in the MENA region, majority Muslim, long histories of autocratic rule) the training data may be biased towards the events and language which describes liberalization and deliberalization in those country reports. In a sense, this is not particularly problematic; as I describe in the section on classifying texts below, I take some steps to ensure that text features specific to the countries in the training data do not end up predicting class. Ideally, the training data would be composed of a random selection of human coded regimes from different regions and with different histories. Given the expert-coded data is localized to a single region, it is possible to check the qualitative record to corroborate the quantitative data coded by the machine.

[37] All original code files and replication data will be made available on GitHub.

Gathering Freedom House Country Reports

Identifying the extended corpus is a much easier task than picking the domain of expert coding. This is because *all available country reports* are the extended corpus for machine coding. This includes any country report stored as a web page on the Freedom House server, minus the reports coded already (they are collected, but not coded again). The corpus is now 16.5 times larger than before; there were 3,763 reports available at the time of collection.

The format that Freedom House provides country reports in presents an opportunity to exploit an automated method of gathering text data: webscraping. Since each country report exists as a webpage with mostly unformatted text contents and clearly identifiable headers, I was able to create a script using the `rvest` package for R which uses a starting location[38] on the Freedom House server to identify the countries for which reports are available and harvest unique web addresses for each of those most recent (observation year 2017) country report web pages. Then, the script isolates a list of links which allow the person reading the webpage to select different yearly reports for the same country. Since some countries did not have country reports for 1998 or other years, this was necessary. Prior to the collection of these web addresses, I had no way of knowing the exact number of countries included, the number of reports for each country, or the location of those reports.

Once the number and location of the country reports were identified, the webscraper accessed each location in turn and collected the contents and headers of the page. In order to isolate the text of the country report and discard the unneeded HTML code, the scraper only collected the text information in the body of the page. The way this part of the HTML code of the pages was accessed varies across years (more recent reports have more features on the page) and so the script takes the year of the target page into account when scraping the contents. The Freedom House server protocol did not limit the number of times one user could access pages or specify a pause between accessing pages. So, it was a straightforward process to run the script and collect thousands of

[38] I used the original web address for the 2018 report as a starting point: `https://freedomhouse.org/report/freedom-world/freedom-world-2018`

reports in less than an hour.

The resulting data are stored in a table where country-year identifiers are included for each country report. The reports themselves contain all the text that exists on the web. Therefore, minus some trivial rich text formatting, the scraper returns the same information that a human expert coder would read and classify.

Classifying Texts

In order to machine code Freedom House text documents, it is necessary to clean the data. Several typical transformations were run over the corpus, including removal of punctuation and numbers, common English stopwords, and proper nouns. While the list of stopwords is provided by the Quanteda package, the list of proper nouns were instead created by hand. For instance, country names as well as months and dates were entered into the list to ensure that these terms would not become features used in classification.

Additionally, I identified leader and geographical names by isolating terms in the documents which began with capitalized letters. Over 38 thousand terms were eliminated as a result. Also, only terms with two characters or more were allowed, leading to 11,792 unique features to be used in classification. Finally, I dropped any term which did not appear in at minimum two separate documents, which led to a 31 percent reduction in the number of features (now 8,187) in the resulting $n \times k$ document-feature matrix. It was important to take these steps to eliminate the possibility that a term which was frequently used in one country's reports (such as a dictator's name) or a term which only occurred in one report would end up being influential in the classification process. This choice also reduces the likelihood that MENA-specific terms (such as proper nouns or Arabic terms) will play an outsized role in determining classification. Stemming– a common transformation to further reduce the number of features by keeping only root words– was not used, in order to preserve potential differences in word variations.

To get a sense of the distribution of data the classifier algorithms rely on, the thirty features which appear most frequently in the document-term matrix are listed in Table 2. Since these country reports are fundamentally about the political rights and civil liberties

landscape in a given country year, it is not surprising that terms like "government" and "elections" are among the top terms in frequency. However, we need to be cautious in interpreting this in the context of classification. Just as a human coder would need more information to assess whether a statement about "elections" was a liberalization or deliberalization event, simply looking at frequency alone cannot determine classification. While the human coder looks for context (words adjacent to key terms) the machine looks for terms which appear in a large number of training documents with a certain label (classification). Frequency is part of the equation in that high-frequency terms might occur in documents with a specific label. However, high frequency terms may also appear in documents of multiple labels.

Table 2: Top Text Features

Term	Freq.	Term	Freq.	Term	Freq.
government	3,820	also	897	military	814
political	2,740	years	896	groups	814
rights	1,947	authorities	890	opposition	806
law	1,727	freedom	875	national	804
elections	1,355	human	872	president	801
security	1,250	parliament	855	parties	797
women	1,164	civil	854	forces	776
state	1,057	council	854	religious	773
new	962	members	845	percent	763
public	949	however	845	including	753

For this classification process, I tried several variations of the type of features included. When humans classify texts, meaning is drawn from several words in sequence rather than a single word in almost all cases. The comparable technique to allow the machine to consider more than one word at a time is to create complex features called *n-grams*. I ran most of the classification methods explained in the next section[39] using a document-feature matrix containing bigrams and trigrams as well as unigrams and bigrams together. The massive increase in the k dimension of the document-feature matrix (hundreds of

[39]The massive increase in the total number of features created problems, where some of the more computationally complex classifiers could not be successfully executed due to machine physical memory (RAM) constraints. The assumption is that if these classifiers could be run without the machine resource constraints (i.e. on a cluster or distributed computing platform) that they would be no better performing than the Naive Bayes and Support Vector Machine classifiers which were processed.

thousands of features) in neither case produced better performing classifiers. Therefore, only unigrams– single word features– were used in the final classification process. There has been some indication that *n-gram* approaches for many basic tasks using text data do not provide meaningfully better results (e.g. Manning, Raghavan and Schütze 2008, Hopkins and King 2010).

Following preparation of the text, I used several different classification methods. All of these classifiers are *supervised* learning algorithms, meaning classification is done on "labeled" data (where y is already known). This necessarily means that the machine learning techniques employed here can only use the data that was previously coded by hand. As Grimmer and Stewart (2013) note, supervised learning is appropriate for situations in which there are known categories but unknown relationships between the features in the documents and those categories. Machine learning in this sense is determining which category a document belongs in given the features available; this is very similar to how a human would classify documents as well.

There are two related drawbacks of supervised learning on small-n datasets. The first is that no matter how few labeled cases you have, the classifiers will only be able to be "trained" on a subset; some labeled data must be set aside for validation purposes. For 204 labeled documents, this means that perhaps only half of those cases will actually be used to train the classifier (more on this in the next section). Second, rare events or those events unequally distributed among categories present a challenge in training classification algorithms. With so few training documents, the machine may struggle to identify the features which correspond to the rare or less frequent outcome. In a sense, the machine may not be able to learn how to determine the difference between the categories, and will end up assigning the modal outcome. There are some ways to minimize the risk of this happening, even with small-n data, but no way to eliminate such problems entirely.

Unlike human coders, the machine does not consider the order of words in the supervised learning methods used here. This approach is referred to as a "Bag of Words" (BoW) model. Such a model is simple in that it throws away all of the order information

in the words and focuses on the occurrence of words in a document instead. This concept long predates modern machine learning (e.g. Harris 1954).

Classification Methods

The supervised learning algorithms used here can be grouped into four general methodological approaches: a Naive Bayesian classifier, a series of alternative Support Vector Machine (SVM) classifiers, tree-based classification methods, and ensemble learning. I also attempted to utilize feature selection techniques such as the least absolute shrinkage and selection operator (LASSO) regression analysis (see Tibshirani 1996) and supervised principal component analysis (SPCA) logistic regression (see Bair et al. 2006). These approaches were unable to select enough features to successfully classify the documents.[40] Therefore, these selection methods were dropped from the classification process prior to the ensemble approach which combines all eight of the other classifiers.

Classification algorithms have to balance predictive accuracy against over-fitting to the training data. The development of the models outlined below was undertaken using a portion of the expert coded data as training data. All of that coded data could not be used since the left over portion is needed as a testing set to discover how accurate the models are. An exploration of the validity of the classification approach, including the relative accuracy of each set of models is included in a later section.

Naive Bayes The first classification method attempted is the Naive Bayes approach, which involves a simple probabilistic classifier based on applying Bayes' theorem[41] with strong (naive) independence assumptions between the features (Maron and Kuhns 1960). Naive Bayes classifiers are among the simplest Bayesian network models, and are computationally efficient and suitable for binary classification of text data (Grimmer and Stewart 2013). The Naive Bayes classifier is included in the popular text analysis package for R, Quanteda (Benoit et al. 2018). The Naive Bayes classification approach taken

[40] It could be the case that selection tools such as LASSO and SPCA are better suited for regression applications than to binary classification. Further research and testing is necessary.

[41] Bayes rule, when used for classification can be expressed as $p(C_k|x) = \frac{p(C_k)p(x|C_k)}{p(x)}$ where the posterior probability of a document with a vector of x features being in one of k classes $(C_k|x)$ is the prior C_k multiplied by the likelihood $x|C_k$ over the training set evidence.

here involves uniform priors, and is therefore the same for all the classes. The posterior probability assigned to the classes then is dependent only on the evidence and class-conditional probability introduced by the training data. Put another way, we assume the features of the document-term matrix are not associated with a class before training the model on the expert coded data. The resulting classification produces vectors of probabilities of the document representing liberalization/deliberalization or not.

Support Vector Machines Support-vector machines (SVMs) are supervised learning models with associated learning algorithms that analyze data used for classification and regression analysis (Boser, Guyon and Vapnik 1992, Cortes and Vapnik 1995). Given a set of training examples, each marked as belonging to one or the other of two categories, an SVM training algorithm builds a model that assigns new examples to one category or the other, making it a non-probabilistic binary linear classifier. SVM models are representations of the examples as points in space, mapped so that the examples of the separate categories are divided by a clear gap that is as wide as possible. New examples are then mapped into that same space and predicted to belong to a category based on the side of the gap on which they fall.

I specify four different SVMs using the "textmodels" extension to the Quanteda package for R (Benoit et al. 2018). These include an unweighted SVM where the features included as covariates rely on the term counts for each document and three different weighting schemes for term counts. The unweighted SVM approach does not apply any conditional weights to the classes based on the training data; this can be viewed as a "naive" SVM.

Given that the training classes are not uniformly distributed– for both liberalization and deliberalization there is a 60-40 imbalance– weighting may produce better results from the SVM approach. I therefore included a *proportional weight* SVM, where classes are weighted by the proportion of documents in either class, a *term frequency-inverse document frequency* SVM which weights classes by the relative sizes of the training classes by total feature numbers corrected for the inverse count of documents in either class. This weighting scheme penalizes terms which have high overall frequency, in the context

of imbalanced classes. I also include the final SVM as a *term frequency-inverse document frequency, proportionally weighted* SVM which weights classes by the relative sizes of the training classes by total feature numbers corrected for the inverse proportion of features in documents of either class. Like the previous SVM this scheme penalizes overall high frequency terms but corrects for within-document frequency and is sensitive to imbalanced classes.

Tree-based Classifiers Three tree-based approaches are included here; random forest (RF), extreme gradient boosting (XGB), and Bayesian additive regression trees (BART). These algorithms share a common underlying methodology in that they are all tree-based models. As Montgomery and Olivella (2018, p. 731) describe, tree-based models involve two basic steps: first, the covariate space is divided into non-overlapping and relatively homogeneous regions (relative to y), and second the model makes a prediction for one region. This process continues until all the space has been divided and the remaining covariates produce reasonable predictions of y, where "reasonable" is judged by comparison to a set of observed data.

Random forest is a basic tree-based approach to classifying data which utilizes "bagging" (Breiman 2001). Bootstrap aggregating (bagging) involves creating random samples of the training data, and then a classifier model is built for each sample. This method randomly selects both observations (rows) as well as features (columns). Ultimately, the results of these various models are typically combined by averaging, or another method. Through bagging, random forests create many tree-based models with slightly different subsets of the training data in the belief that averaging many models will create a better classifier for the new data. Montgomery and Olivella (2018) suggest the random forest approach for classification in political science data contexts such as mine. The algorithm is available in several packages for R; I used the "randomForest" package (Liaw and Wiener 2002).

The second tree-based approach is extreme gradient boosting (XGB), a common method of "tree-boosting" representing a more efficient and powerful classification technique than the random forest bagging approach (*XGBoost | Proceedings of the 22nd ACM*

SIGKDD International Conference on Knowledge Discovery and Data Mining 2016). Tree boosting is an iterative technique which adjusts the weight of an observation based on the last classification. This allows extremely fast calculations on very large data– well suited to text classification where the number of features is much larger the number of cases. XGB is implemented in R using the xgboost package (Chen et al. 2019).

The final tree-based method used here is Bayesian additive regression trees (BART) which is a Bayesian "sum-of-trees" model (Chipman, George and McCulloch 2010). The algorithm creates trees, and each tree is constrained by a "regularization prior" to be a weak learner. Fitting and inference are accomplished via an iterative Bayesian MCMC algorithm that generates samples from a posterior (Chipman, George and McCulloch 2010). Therefore, BART is a nonparametric Bayesian regression approach which uses dimensionally adaptive random basis elements. This model can be implemented in R using the bartMachine package (Kapelner and Bleich 2016).

The next section contains a discussion of the relative accuracy of the various models presented above. The valididty of the classification in this chapter is dependent on the performance of these models. Unfortunately, some of these approaches on their own are not very useful from an accuracy standpoint. Even some of the more advanced algorithms do not perform particularly well. However, there is a way to overcome the poor performance of some of these approaches and retain the better performance of some others using *ensemble learning*.

Validation of Classifiers

In all, there are eight different machine learning models specified to code liberalization and deliberalization using the expanded corpus of all Freedom House country reports acquired using the webscraping method. Yet, prior to deploying any of these models, assessing internal validity– the accuracy of trained models on labeled test data– is essential. Of course, internal validity alone has only partially addresses how well the machine coding performs. External validity is much more difficult to assess given the very constraints on expert coding which led to the machine coding approach.

In order to measure internal validity, I use four metrics commonly used in machine learning, precision, recall, balanced accuracy, and F1 score. These metrics are calculated by directly comparing the predicted classes which result from the various machine learning models with the labeled testing data. This way, the training data is used to create a model, the model is used on the testing data, and the results of the predicted classes versus actual classes of that testing data inform the accuracy of the model.

Each of the metrics provide a different sense of how well the models do at the classification task. Precision is the proportion of true positives over the total true and false positives. Recall is the proportion of true positives over the total of true positives and false negatives. Balanced accuracy is the mean of true positives over all positives and true negatives over all negatives. The F1 score is a balanced weight of precision and recall; this statistic is a weighted harmonic mean of these other two metrics which is always closer to the minimum of the two. We are looking for higher values (approaching one) on all of these. In particular, the accuracy and F1 metrics should be more than 0.50 and ideally as close to one as possible.

I ran these eight machine learning models for both liberalization and deliberalization– binary measures which are one if the country report document has evidence of language for the event in question– as well as using four different training class weighting schemes. Different class weights will change the relative number of cases in the training and test data, and will therefore have different effects on the various methods of classification. The first weighting scheme is to randomly assign expert coded (labeled) country reports into two groups, each 50 percent of the coded data. The result is that in the the training and test data there is an imbalance between the classes, where roughly 40 percent of documents are classified as liberalization and 60 percent as deliberalization. Recall that although these are not mutually exclusive categories, they are roughly complementary.

The next weighting scheme was to select labeled country reports into two groups, each 50 percent of the coded data, but taking care to ensure that among the training data there were equal numbers of zeros and ones for both liberalization and deliberalization. This of course means that the testing data is now extremely unbalanced. However, if the

classification algorithms are making efficient use of text features, the metrics should still register accuracy in this scheme.

The next weighting scheme randomly assigned 80 percent of the labeled data into the training set and 20 percent into the test set. The hope was that providing the models more variation in text features for the training data would result in more accurate predictions on the test data. The final weighting scheme assigned 70 percent of the labeled data to the training set and 30 percent to the test set, ensuring that the classes were equally represented in the training data. This could not be done with the 80-20 mix as before since there was not enough variation in the training data. Expanding the mix to include 30 percent of the labeled data in the test set reduced this problem. Figure 4 shows all four weighting schemes for both liberalization and deliberalization (columns) and the four performance metrics for all eight machine learning models (rows). Since most of these machine learning models produce probabilities of class (liberalization or deliberalization) rather than a discrete class label, the cutoff for determining class label was 0.50.

I have included color here to make it easier to see the best and worst performing models. The darker the shade of blue, the closer to one; the darker the shade of red, the closer to zero. Light (white) indicates the value is close to the 0.50 minimum viability threshold. It is clear that the different machine learning models perform differently when the sampling scheme is changed. Overall, the random 50-50 scheme does the best, despite very poor performance of the TF-IDF and TF-IDF proportionally weighted SVMs as well as less than ideal performance by the XGB model under that weighting scheme.

It should be noted that for the deliberalization BART models under each of the weighting schemes it was necessary to use alternative cutoffs to the standard 0.50 to determine class labeling. These were calculated using the receiver operating characteristic (ROC) curve. The ROC curve is a vector of values, often graphically represented as a curve or threshold, that illustrates the diagnostic ability of a binary classifier system as the discrimination threshold is varied (Spackman 1989). The maximum point on the ROC curve therefore identifies the optimal cutoff between binary classes. Using this method for the deliberalization BART models, I assigned thresholds of 0.3852, 0.461, 0.395, and

Figure 4: Comparison of Classifiers

		Random 50/50		Weight. 50/50		Random 80/20		Weight. 70/30	
		Lib.	Delib.	Lib.	Delib.	Lib.	Delib.	Lib.	Delib.
Naïve Bayes	Precision	0.6364	0.6727	0.3714	0.7302	0.6667	0.5882	0.5600	0.7292
	Recall	0.5385	0.6491	0.3939	0.7797	0.6316	0.5263	0.4375	0.7292
	Accuracy	0.6092	0.6246	0.5375	0.6922	0.6794	0.6041	0.6088	0.6734
	F1	0.5833	0.6607	0.3824	0.7541	0.6486	0.5556	0.4912	0.7292
SVM	Precision	0.5000	0.7455	0.4857	0.7143	0.5556	0.6471	0.5600	0.7292
	Recall	0.5641	0.6308	0.3864	0.7500	0.6667	0.6667	0.3684	0.7292
	Accuracy	0.6074	0.6262	0.5380	0.6607	0.6795	0.6531	0.5592	0.6734
	F1	0.5301	0.6833	0.4304	0.7317	0.6061	0.6111	0.4444	0.7292
Prop. SVM	Precision	0.5909	0.7455	0.8000	0.6349	0.4444	0.5882	0.6000	0.6875
	Recall	0.6047	0.6508	0.3590	0.7407	0.5333	0.4348	0.4286	0.7021
	Accuracy	0.6498	0.6459	0.5337	0.6308	0.5744	0.5229	0.6079	0.6368
	F1	0.5977	0.6949	0.4956	0.6838	0.4848	0.5000	0.5000	0.6947
TF-IDF SVM	Precision	0.2955	0.8545	0.6857	0.7143	0.3333	0.7647	0.6000	0.8750
	Recall	0.5417	0.6267	0.4138	0.7258	0.6667	0.5000	0.3571	0.7119
	Accuracy	0.5721	0.6652	0.5819	0.6379	0.6458	0.6167	0.5536	0.7255
	F1	0.3824	0.7231	0.5161	0.7200	0.4444	0.6047	0.4478	0.7850
Doc. Frq. SVM	Precision	0.2046	0.8909	0.6571	0.8095	0.3333	0.7647	0.5600	0.9167
	Recall	0.5294	0.6203	0.4107	0.7183	0.6667	0.5000	0.3500	0.6875
	Accuracy	0.5588	0.6797	0.5749	0.6656	0.6458	0.6167	0.5440	0.7326
	F1	0.2951	0.7313	0.5055	0.7612	0.4444	0.6047	0.4308	0.7857
RF	Precision	0.9091	0.8727	0.3714	0.7778	0.4444	0.7647	0.4800	0.8333
	Recall	0.4396	0.5926	0.3714	0.7424	0.6154	0.4815	0.3529	0.7273
	Accuracy	0.5380	0.6296	0.5215	0.6768	0.6291	0.5979	0.5411	0.7155
	F1	0.5926	0.7059	0.3714	0.7597	0.5161	0.5909	0.4068	0.7767
XGB	Precision	0.5227	0.2909	0.6286	0.5079	0.2222	0.2353	0.6000	0.5625
	Recall	0.6389	0.4444	0.3860	0.5614	0.4444	0.4444	0.3191	0.5745
	Accuracy	0.6604	0.4268	0.5485	0.4363	0.5035	0.5191	0.5167	0.4872
	F1	0.5750	0.3516	0.4783	0.5333	0.2963	0.3077	0.4167	0.5684
BART	Precision	0.9773	0.5273	0.5429	0.3492	0.8333	0.3529	0.4800	0.3750
	Recall	0.4388	0.4754	0.3065	0.4400	0.4412	0.2727	0.2353	0.3913
	Accuracy	0.5944	0.4206	0.4532	0.3258	0.5063	0.3469	0.4080	0.2790
	F1	0.6056	0.5000	0.3918	0.3894	0.5769	0.3077	0.3158	0.3830

0.417 respectively.

Across each of the different weighting schemes it is apparent that the advanced tree-based approaches (XGB, BART) do the worst, random forest and the most general SVMs do better, and the Naive Bayes classifier does the best. It might seem strange that the simplest methods are performing better than the more complicated methods– for instance, the specific weighting schemes in the TF-IDF SVMs– but we should consider the features of the best performing models: Naive Bayes, proportionally weighted SVMs, and random forest.

Although these algorithms are based on different logics of classification, they share in their simplicity a general property of simple weighting. The Naive Bayes classifier assumes uniform priors on class. The basic unweighted SVM and the proportionally weighted SVM also assume the features of the document-term matrix are not associated with a class before training the model on the expert coded data. The random forest algorithm begins by sampling from the covariate space randomly, which in a sense is similar to the other methods described here. Note that in the second and fourth column (intentionally weighted sampling of classes) these otherwise strong performers lose some of their accuracy in classifying liberalization, which is the class being intentionally weighted in the training data.

In each class weighting scheme the deliberalization classifiers seem to do better than the liberalization classifiers. This could be a function of the type of language– the assortment of text features– selected by the deliberalization models. Perhaps in the training data, the terms associated with deliberalization are more influential. The parallel in expert coding would be if the researcher knew a few words or phrases always signaled deliberalization in a country report, but the language for liberalization was less obvious and more dependent on context. The machine reads the terms without context (see above) so the relative prevalence of the terms then becomes important.

The class weighting schemes which attempt to balance the training sample lose too much on classifying liberalization to be of use here, despite gains on classifying deliberalization. Between the two random schemes, the 50-50 sampling scheme looks better

overall, and so I would have selected this class weighting scheme for use in classifying the extended corpus. However, since none of the models return values for balanced accuracy or F1 scores near one, there is no clear "winner" here among this different algorithms. Of course, perfect scores would have also been problematic, as this would have identified over-fitting to the training data. Since no obvious model can be identified, I turned to a different method of classification– ensemble learning.

Ensemble Learning Ensemble classifier models combine the decisions from multiple models to improve the overall performance of the classification task (Opitz and Maclin 1999, Dietterich 2000, Rokach 2010). The ensemble approach taken here is actually a nested two-step application of two different ensemble techniques, bagging and boosting. The former technique treats all models as equal, building the model independently of the others using a different subset of data. The latter weights models (which are not independently created) based on performance.

Ensemble learning typically involves specifying several models based on a similar algorithm and then aggregating the results. This approach is used in machine learning classification of text (Brill and Wu 1998, Curran 2002). In the political science literature this technique is not well known, but there some examples of using an ensemble approach to improve model prediction accuracy (e.g. Montgomery, Hollenbach and Ward 2012) and specifically for classifying text data (Hillard, Purpura and Wilkerson 2008). The approach I take here is somewhat similar to Hillard, Purpura and Wilkerson (2008) in that I create an "ensemble of ensembles" combining multiple different classifier approaches in the bagging stage.

Recall that bagging involves creating random samples of the training data set. Then, a classifier model is built for each sample and the results of these models are averaged. Instead of averaging the results of the eight models, I feed their predictions into the second stage of ensemble modeling, the boosting stage using XGB. Bagging is a useful technique for ensemble learning because it overcomes a weakness of the previously explained approaches– namely that any single model may not always be the most accurate classification due to the small amount of training data. For instance, changing the initial

seed value can change the results of some classifiers slightly.

For the bagging stage of the ensemble approach I began with dividing the coded data into randomly assigned training and testing sets based on a 70-30 split. Although the 50-50 scheme seemed to perform better (see Table 4) I needed some extra observations in the training data for the bagging process. I created 25 different samples, each of 50 percent of the coded data (leaving out 20 percent and keeping the remaining 30 percent for testing), with classes sampled to recreate the original imbalance between zeros and ones for both liberalization and deliberalization. In each of the 25 samples there were approximately 40 percent of cases labeled as liberalization and 60 percent as deliberalization. This bagging approach was done using the same initial random number seed value for each algorithm such that the samples should be the same across the different machine learning models. The resulting 200 vectors of predictions (8 models $\times$ 25 samples) were fed into the XGB boosting stage.

Boosting, as indicated above, is an iterative technique which adjusts the weight of an observation based on the last classification. If an observation was classified incorrectly, it tries to increase the weight of this observation and vice versa. In the context of ensemble learning, pairing a boosting approach with the bagging technique creates more stable results (through repeated sampling), and should also improve the performance of the classifier by iteratively selecting the best constituent model classifications. I specified a cross-validated XGB model using the predictions as covariates. The results appear in Table 5 in the first column.

Figure 5: Comparison of Ensemble Classifiers

	Threshold	*0.500* Lib.	*0.500* Delib.	*0.698* Lib.	*0.885* Delib.	*0.500* Lib.	*0.500* Delib.	*0.328* Lib.	*0.947* Delib.
Ensemble	Precision	0.5714	0.5814	0.6667	0.6667	0.6667	0.5814	0.5333	0.7600
	Recall	0.4615	0.6944	0.4615	0.6111	0.4615	0.6944	0.6154	0.5278
	Accuracy	0.6058	0.5011	0.6474	0.5940	0.6474	0.5011	0.6132	0.6485
	F1	0.5106	0.6329	0.5455	0.6377	0.5455	0.6329	0.5714	0.6230

The results here use the same color scheme to indicate performance as the figure above. Noting that the ensemble approach does slightly worse than Naive Bayes alone, I

proceeded to make some alterations in search of a better set of classification outcomes for both liberalization and deliberalization. In the second column of Table 5 the results of the ensemble approach– but with different threshold values for determining class labeling– is presented. I used the ROC curve to identify the optimal thresholds, which are listed along the top of the figure. There is some marginal improvement in balanced accuracy and F1 score, but not much.

Considering how poorly the tree-boosting methods performed prior to the ensemble approach, I decided to drop them and re-run the ensemble classification. The third column in Figure 5 presents the results of the cross-validated XGB model relying on 125 predictions of class from the iterations of Naive Bayes and four SVM models (5 models $\times$ 25 samples). There is some marginal improvement relative to column one, but the results are not much better than column two. Recognizing that optimal thresholds might again matter, I used the ROC curve to determine new thresholds and evaluated the ensemble approach again. These results (column four of Figure 5) are on average the best performing classifications of liberalization and deliberalization among the ensemble variants.

A careful reader will note that the "ensemble of ensembles" approach is not meaningfully better than the Naive Bayes classifier in column one of Figure 4 above. My decision to use the modified ensemble approach presented in column four of Figure 5 instead of the Naive Bayes classifier alone is due to the assumptions about the bagging and boosting in the ensemble approach. Opitz and Maclin (1999) suggest that tree-boosting methods may over-fit to noisy data and therefore can be less accurate than bagging methods. This could explain why there was poor performance on the boosting algorithms prior to the ensemble classification. However, Opitz and Maclin (1999) also argue that (1) bagging is almost always an improvement on individual classifiers; (2) the utility of boosting is based on the characteristics of the data; and (3) the improvement of the ensemble approach over individual classifiers is heavily influenced by the first set of combined class predictions. The ensemble of ensembles approach here, which combines bagging and boosting, follows all three of these points.

First, ignoring the other classifier algorithms for the moment, Opitz and Maclin (1999) would suggest that an ensemble of Naive Bayes classifiers using the bagging approach should always be better than single a NB classification. The same logic then applies to the other algorithms independently. Second, the boosting stage of my approach relies on an array of ensemble classifications rather than on a vector of class membership probabilities. So, the potentially problematic issues with boosting revealed in Figure 4 is diminished since the XGB model in the boosting stage of the ensemble approach is using *model output* (predictions) instead of *raw data* (text features). Third, The ensembles created for each algorithm (NB and all SVMs) are introduced to the ensemble boosting stage in the order in which they are listed in Figure 4 and the text above. If Opitz and Maclin (1999) are correct, then the predictions of class membership from the best performing ensembles (NB and unweighted SVM) are influencing the ensemble the most. Since XGB is a tree-boosting method, we could imagine that this means that strong NB predictions are reinforced as they do well in the context of the XGB tree-building exercise.

The next section explores the resulting coded data when the ensemble approach outlined here is used to code the extended corpus of all Freedom House country reports. While external validity– which would require more expert coding– is not examined country-by-country, in aggregate the classification appears to be successful when compared to the existing aggregate approaches.

Using Hybrid Coded Data

The ensemble classifier plus the original training data means that I now have a coded value of zero or one for liberalization and zero or one for deliberalization for 167 countries over 18 years. There is a maximum possible N of 2,963 to be used in statistical tests of the theory. Liberalization has a mean of 0.50 and deliberalization a mean of 0.35 in the global sample. The correlation between the two coded variables is -0.24.

This data can be used to assess a number of hypotheses, which appear in the following chapter. The process of combining expert coded and machine coded data of liberalization

and deliberalization events provides an opportunity to improve upon the small amount of expert data originally collected, as well as the existing aggregate measures which are relatively insensitive to the small but meaningful fluctuations in regimes over the past nearly two decades. Not only is the approach used here able to turn text data into quantitative data for the purpose of hypothesis testing, it has some external validity as well.

Figure 6: Comparison of Indicators

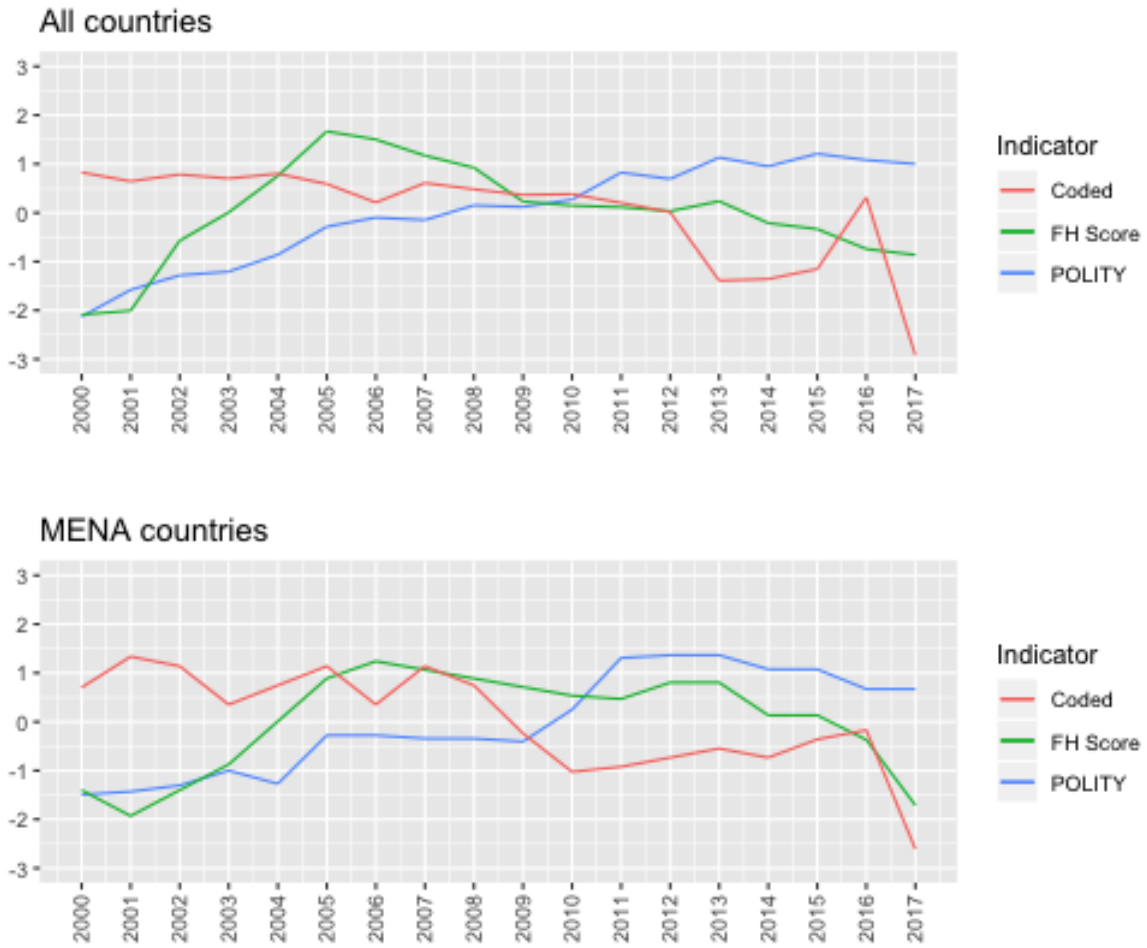


Figure 6 shows that overall, the coded measures (liberalization, deliberalization) vary with the extant aggregate measures which are used to indicate relative amounts of constraints on the executive (POLITY) and liberal civil liberties and political rights (Freedom House). The coded measures were converted from binary variables to a yearly global difference of means (liberalization minus deliberalization) for the purposes of comparison

with the aggregates, which were also converted to yearly averages. Each measure was then mean centered at zero and standardized (standard deviation set to one) to put them all on the same scale.

Like the original POLITY democracy and autocracy scales (Marshall, Jaggers and Gurr 2019), liberalization and deliberalization are not operationalized as mutually exclusive measures; there can be both, none, or one or the other recorded in a given country-year observation. However, the yearly mean of these variables (not shown) shows a roughly complementary relationship, with the trends moving opposite of each other. Therefore, I combined these to compare directly with the aggregate measures.

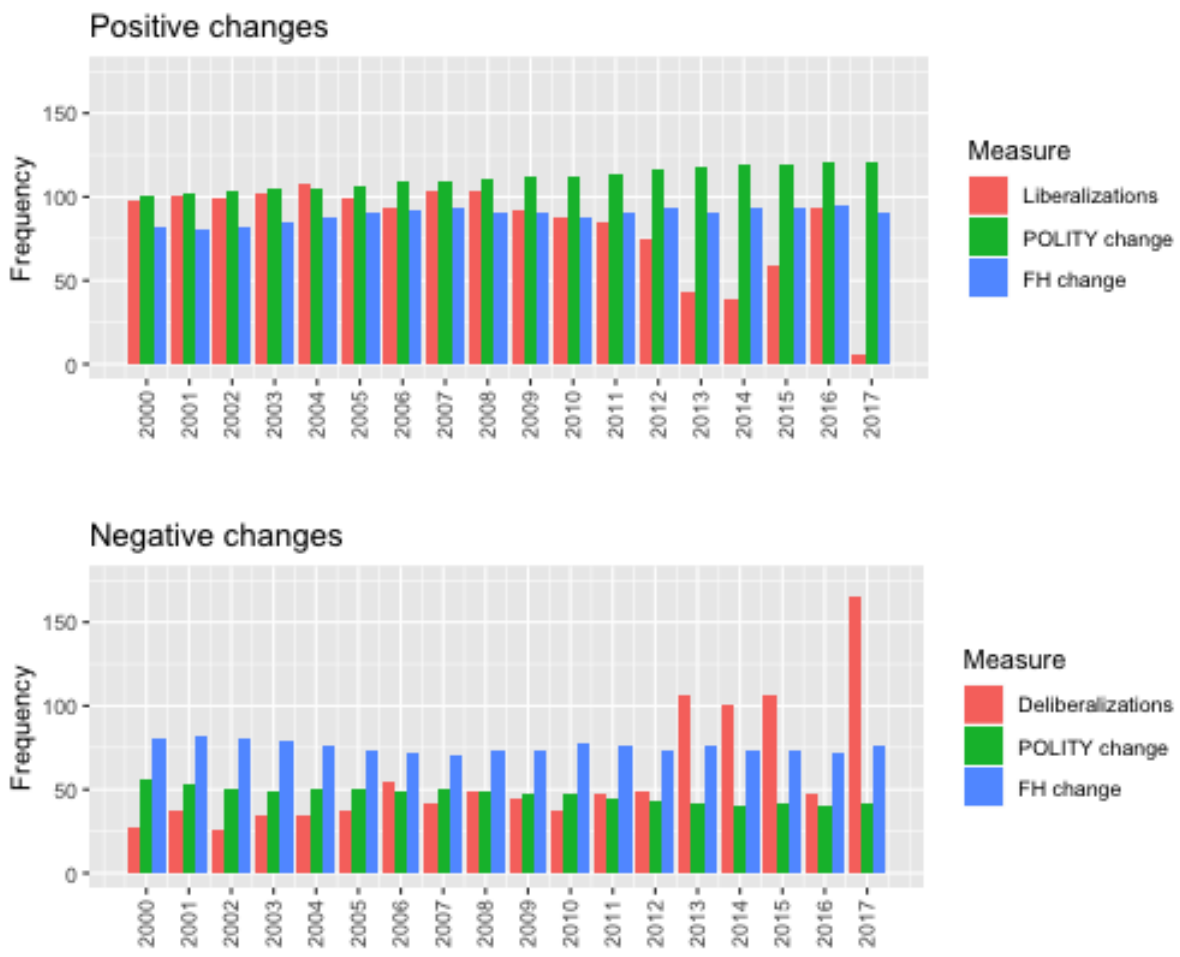
While the overall trends are similar for the aggregates and the coded measure, there are a few peculiarities of note. Despite the overall correlation between POLITY and Freedom House being well known (Pemstein, Meserve and Melton 2010), it is evident that the Freedom House measure is more responsive to the conditions facing democracies and non-democracies alike over the past decade (see Mainwaring and Bizzarro 2019). While POLITY mostly climbs throughout the time frame presented here, Freedom House shows a decline from 2006 on, corroborating the suggestion by Croissant and Wurster (2013) that electoral democracy– as measured by Freedom House– is on the decline.

There is not perfect correlation between the aggregate measures and the coded ones, which also provides evidence that the coded approach is perhaps picking up similar trends but more nuanced changes. Consider the time frame of the "Arab Spring" from 2011 to about 2015. In the top panel of Figure 6, it is fairly pronounced as mounting deliberalization. In the lower pane– just MENA countries– there are *liberalizations* pulling the trend line upwards. Note that for this same time the Freedom House aggregate is in decline, suggesting deliberalization.

This is further examined in Figure 7. The graphs show the frequency of coded liberalizations, positive changes to POLITY, and Freedom House (top panel) and coded deliberalizations, negative changes to POLITY, and Freedom House (bottom panel). There is more variation across years in the coded data than in the aggregates, which may suggest that the coding process has picked up more subtle changes in both liberalization and

deliberalization.

Figure 7: Comparison of Positive and Negative Change



One obvious difference among the included measures occurs in 2017, where deliberalization spikes (and liberalization drops precipitously). There are some potential explanations for this. The first is that there really was a large spike in deliberalization events in this year, which fits the idea that democracies and autocracies alike are deliberalizing in the face various pressures (see Freedom House 2018). Alternatively, the machine learning coding may have inadvertently utilized a term which was common in reports among the human-coded (MENA) cases that year as an indicator of deliberalization and "over-counted" such events when that term was found in most country reports in 2017. Indeed, all but El Salvador register deliberalization events in the coded data for 2017. One way to deal with this uncertainty over cause is to include a robustness check of all

models by running them with and then without the final year of data.

Conclusion

This chapter focuses on a data problem which arises out of the new theoretical formulation of regime level learning articulated in the previous chapter. The process of combining expert and machine coded approaches described here does identify a way to measure liberalization and deliberalization in persistently authoritarian regimes. This new measurement involves a multi-step process and a unique machine learning classification technique. When comparing the resulting coded data to existing aggregates like Freedom House and POLITY, there is some basic external validity to the new coded measures.

Performance of the ensemble approach is not as strong as it could be. The metrics used to evaluate the internal validity of my approach indicate that it is better than several alternative classification methods explored here. Importantly, it is better than the practical alternative for this project: expert coding. The cost in terms of time and tradeoff expense made continuing the expert coding approach infeasible. Perhaps in the future, this work could be extended with more expert coding to produce even better machine learning classifiers of liberalization and deliberalization.

Note that in order to create an even better classifier, I would need either different input data (see Grimmer and Stewart 2013), or a larger, truly random sample drawn from the population of texts (corpus). The former seems unlikely barring the identification of thus far unknown resource providing text-based analysis of political liberalization among a wide selection of countries over a relatively reasonable time frame. The latter is potentially achievable with more time and resources.

The resulting measures of liberalization and deliberalization described here provided the basis to assess the theoretical claims in the previous chapter. A recapitulation of the theory and a set of hypothesis tests appear in the next chapter. Absent the classification efforts reported here, these new empirical examinations of regime learning and survival

would not be possible.

Chapter 4

Regime Persistence Through Learning, 2000–2017

Morocco's ruling elite thinks it has skilfully sidestepped the revolutionary fervour sweeping the Arab world by offering a milder, more peaceful vision of change.

– Aidan Lewis, November 2011

Morocco holds regular multiparty elections for Parliament, and reforms in 2011 shifted some authority over government from the monarchy to the elected legislature. Nevertheless, King Mohammed VI maintains dominance through a combination of substantial formal powers and informal lines of influence in the state and society.

– Freedom House Morocco Country Report, 2018

Introduction

When compared to the rapid fall of a long-tenured autocrat and the extensive regime change experienced by Tunisia a decade ago, Morocco is a survivor of the tumultuous "Arab Spring" period. Comparing illustrative excerpts from the BBC country profile series during the early "Arab Spring" (Lewis 2011) and the Freedom House country report covering 2017 (Freedom House 2018) it is not impossible to draw the conclusion

that the monarchy in Morocco may have learned something from its ultimately less fortunate neighbor, the Ben Ali dictatorship. Morocco did not escape a challenge from mass mobilizations during this period, but nevertheless the monarchy did survive.

The theory of regime learning as described in Chapter 2 relies on an assumption that regimes wish to maximize survival. Regimes in the pursuit of survival will do better to incorporate exogenous information into their decision making calculus when possible in hopes of reducing uncertainty and selecting an appropriate strategy when faced with a threat. The challenge game articulated in Chapter 2 is based on the premise that once a challenge arises, the status quo is no longer tenable for the regime. Under such conditions, what should the regime do? I have argued that the choice for regimes can be narrowed down to two broad alternatives: liberalize or deliberalize.

Despite the uncertainty raised by a challenge, regimes do not face this choice absent sources of information about how to address crisis. Beyond their own history and predilections, regimes also experience diffusion. In Chapter 1 I explain how the the democratization and the persistent authoritarianism literature has viewed diffusion; in this dissertation I present an alternative reading as to how diffusion impacts regimes, with implications for survival or regime change. It is my contention that the process of diffusion is best represented as Bayesian learning, treating the regime as a unitary actor. Sources of information which regimes may learn from may exist right next door (neighboring regimes) or among a set of more spatially protracted peers (regimes sharing structural characteristics).

The new approach to measuring liberalization and deliberalization presented in the previous chapter– combining expert and machine coding of text data– allows for an empirical examination of my theoretical assertions. There are several connected ideas behind the tests presented in this chapter, each relating to the central question: does learning lead to persistence in authoritarian regimes? In addressing this central query, I provide an examination of some basic assumptions about diffusion. I find that although authoritarian diffusion can be detected in the data, its relationship with crisis is not clear. However, I do find some encouraging results in the subsequent tests of basic regime

learning (emulation). The empirical record for more complex learning and ultimately for persistence is yet unclear and requires more research.

This chapter introduces a set of hypotheses, each drawn from the theory. Then, the research design for these tests is outlined, drawing the new method of measuring the primary outcomes of interest (liberalization and deliberalization) together with several existing data sources to create a set of meaningful covariates. Then, the results of the hypothesis tests are discussed, highlighting support for the theory. The chapter concludes with some broad implications for the study of persistent authoritarianism.

Testing the Theory

The theory of regime learning described in Chapter 2 relies on an assumption that regimes are survival maximizers. Regimes which pursue strategies they hope will allow them to survive do so in an environment of uncertainty, and therefore may attempt to incorporate exogenous information into their decision making calculus, should they have the capacity to do so. When facing an existential threat, considering how other regimes responded to crisis can inform choice of strategies.

The theoretical model is derived from specific conditions of crisis– the challenge game. When a challenger arises, regimes must abandon the status quo in order to maximize chances of survival. The existence of modular political phenomena can be understood as diffusion, and from a regime-centered perspective this process is best represented as Bayesian learning. This treats the regime as a unitary actor, and involves the incorporation of new information from outside the regime into strategy selection.

I specify six hypotheses, grouped together by the part of the theory they address: crisis, diffusion, learning, and regime persistence. Since my theory of regime learning is based on an assumption that regimes respond to the presence of an existential threat with a departure from the status quo, this is the first empirical test. The next two hypotheses assess whether diffusion can be detected. I then have a test for each variant of learning described in the theory chapter; basic emulation, and more sophisticated learning. The

final hypothesis addresses the central question of this chapter– and of the dissertation project as a whole– whether learning leads to regime persistence. These are each explored in more detail in the following sections.

Crisis

The challenge game is predicated on the emergence of a challenger, which provides a disruption to the status quo and forces the regime to react or face destruction. The existing literature on democratization has considered how disruptions to the status quo create opportunities for regime change (O'Donnell and Schmitter 1986, Przeworski 1991, Colomer 2000). The political science literature on diffusion also examines how challenges to regimes– as Beissinger (2007) puts it, "modular political phenomena"– reveal that crisis brought on by challengers creates an existential crisis sufficient for the regime to take action as well as how exogenous influences factor into regime experiences (see Weyland 2009, 2010, 2012, Bamert, Gilardi and Wasserfallen 2015, Hess 2016).

Since crisis brought on by a challenge to the regime creates a necessity for regimes to change their strategy, it is therefore crises which provide an opportunity for regimes to learn from the outside world. Prior to testing the mechanism(s) of regime learning, it makes sense to consider whether there is empirical support for a narrow interpretation of the theoretical assumption that challenges to the regime offer a chance for change.

> **Hypothesis 1** *Regimes change from the status quo by liberalizing or deliberalizing when faced with a crisis.*

For the purposes of this chapter, crisis is narrowly defined as the existence of an existential threat to the regime due to a challenger. Perhaps any sort of crisis, such as economic downturn or defeat in international conflict, could produce a threat to the safety of the regime. However, since the theory is specifically about learning under the conditions of the challenge game, I leave a broader conceptual definition of crisis for future research. Challengers may be either an elite defection, or a mass mobilization. As discussed in the theory chapter, elite defections are always imminent, credible threats; mass mobilization may be less imminent and less credible.

It is my contention that violent protest activity should typically rise to the level of a real existential crisis for authoritarian regimes. In places where civil liberties are already comparatively constrained (relative to democracies) and mass mobilization has overcome the repressive apparatus of the regime through violence, this can be considered a real threat. However, not all mass actors may be willing to use violent tactics even if they are able to. In testing this first hypothesis, it is important to consider both violent protest, and a more general measurement of mass mobilization.

Diffusion

The political science literature on diffusion and democratization tends to focus on either regime change (Huntington 1991, Most and Starr 1990, Starr and Lindborg 2003, Brinks and Coppedge 2006), or on other modular political phenomena such as patterns of contention (see the previous section for examples). The theory of regime learning developed in this project is a theory of diffusion. Unlike most previous studies which connect diffusion and regime type, this theory is not exclusive to discrete regime change events (i.e. Beissinger 2007), is not about democratization (i.e. Brinks and Coppedge 2006), and is focuses on the regime side of modular phenomena rather than the challenger side.

Instead, the theory presented here is about how diffusion among authoritarian regimes works to prevent large regime change events, and as a result address challenges which may or may not be modular in nature.[42] When faced with a challenge, regimes will be affected by various sources of information. Establishing that regimes follow regional or local trends is a coarse first cut at establishing that they collect and utilize external information about other crises.

Since this entails a different perspective on diffusion relative to other studies, a re-examination of diffusion processes is warranted. In the existing literature on democrati-

[42] While historical examples such as the color revolutions in eastern Europe or the "Arab Spring" in the MENA region are highly suggestive of the interplay between simultaneous regime and challenger diffusion processes, this dissertation does not directly address challenger-side mechanics. Future research should attempt to synthesize the present theoretical model with the challenger side diffusion processes explored in the existing literature.

zation and diffusion, three levels of diffusion processes are considered: global, regional, and neighborhood (Most and Starr 1990, Brinks and Coppedge 2006). For authoritarian diffusion, regional and neighborhood effects will be considered. This is due to the larger number of democracies in the world. We would not expect the global pattern established among democracies to necessarily hold for authoritarian regimes the way it might for democratic ones. This leaves the following two hypotheses on the regional and neighborhood diffusion effects.

> **Hypothesis 2** *Regimes will select liberalization or deliberalization to match the regional trend when faced with a crisis.*

> **Hypothesis 3** *Regimes will select liberalization or deliberalization to match their contiguous neighbors when faced with crisis.*

Results confirming that regimes do indeed follow other dictatorships in their spatial proximity can provide a basis to better understand that diffusion is not just a phenomenon which contributes to greater liberalism, as was the case in during the third wave of democracy. Additionally, these hypotheses provide a test of the basic availability heuristic (see Tversky and Kahneman 1973) by identifying whether regimes copy other regimes in the region as well as whether they copy contiguous neighbors' selection of either liberalization or deliberalization. This heuristic provides the link between diffusion in general and the specific mechanism by which regimes adopt external information into their decision calculus.

Emulation

The availability heuristic can be understood as the most basic sort of Bayesian learning process, where regimes update their prior expectation of survival given choice of strategy– either liberalization or deliberalization– with new information. The "cheapest" form new information can take is whatever nearby regimes are doing to address their own crisis, no matter how suitable such lessons might be. When considering that an imminent threat has occurred, the ability to take stock of complex histories and examples is likely out of

reach for most regimes. Available lessons then are a sort of naive emulation; a knee-jerk reaction to adopt whatever strategy can be quickly identified.

A slightly more nuanced version of emulation, beyond the availability heuristic, takes some additional information into account as regimes seek instruction from their peers. True emulation involves the use of a representative heuristic, involving updating prior beliefs based on new information that is judged to be representative relative to an outcome of interest (see Kahneman et al. 1982). In short, instead of simply looking out into the nearby world and adopting whatever the strategy being used is, regimes will isolate more pertinent information and adopt the strategies of their nearby peer regimes which they recognize as similar.

> **Hypothesis 4** *Regimes will select liberalization or deliberalization to match their structurally similar peers when faced with crisis.*

The determining characteristics of peer regimes may be varied; there are a few more obvious structural features which are apparent to external observation, however. Those regimes which are institutionally similar– monarchies identifying other monarchies, single party regimes focusing on other single party regimes– should be able to quickly recognize peers as such macro-institutional features are neither secretive nor unknown to those outside the observation country.

More nuanced characteristics can include regimes in countries which had similar colonial experience (i.e. are all former British colonies) or regimes in similar economic development classes may be able to recognize that strategies employed by peer regimes make for better lessons than randomly harvesting new information, even from neighbors. In any of these peer groups, the representative heuristic should lead to similarity of action, be it liberalization or deliberalization, among structurally similar regimes.

Learning

Simplistic learning (emulation) differs from more complex variants when the capacity to accumulate and incorporate new information is higher. Put another way, some regimes

are able to adjust their prior expectations of survival given new information due to the institutional framework which underlies governance. Changing strategies from the status quo is a policy change, even if it does not entail the sort of typical deliberative policy process which is common in democracies under crisis conditions. Where institutional structures have fewer numbers of actors with preferences over policy implementation, the ability to adjust strategies is amplified.

Among authoritarian regime types, monarchy and personalist dictatorships have lower institutional complexity than party or even military regimes (see Geddes, Wright and Frantz 2014). These small-w regimes simply have fewer internal actors to appease, and as a result are less concerned about providing for larger segments of the population. Switching from ramping up repression to liberalizing on some symbolic dimension is therefore easier for such regimes.

Of course, there is another side to low institutional complexity regimes; while changing strategies is more straightforward such regimes may also lack sophistication. Fewer actors making decisions of consequence also means that those actors face the burden of processing new information themselves. Party organizations or military hierarchies which manage information flows to decision makers are largely absent in the types of low institutionalized regimes under discussion here. It could be the case that this burden overcomes the benefit to unrestrained action; this is ultimately an empirical question.

To assess whether the more sophisticated variant of the Bayesian learning mechanism has any support in the data, there are some possible strategies. The first would be to test whether *more* institutionally complex regimes are more likely to select the same strategies as those other regimes which survived similar challenger types. This would allow for the inclusion of the complex information-processing side of regime institutionalization. Alternatively, I could test whether *less* institutionally complex regimes were more likely to adopt similar strategies to structurally similar regimes facing elite defection. This could provide analysis of the relative ease such regimes have in dealing with the most pressing and credible threats (quick action) while still preserving the sophistication angle. Due to the nature of the data, neither of these approaches are feasible, since identifying

peers in this very specific sense means that many observation country-years will not have any relevant peers.[43] I instead opted for a different test of the more sophisticated learning mechanism.

> **Hypothesis 5** *Less institutionally complex regimes are more likely to select the same strategies as similar regimes.*

In an attempt to retain the interesting aspect of a test of the learning mechanism– the institutional complexity of the regime– and to avoid data problems due to variable construction I focused on less institutionally complex regimes learning from regimes which share some structural similarities. Here, the hypothesis seeks to uncover whether monarchies and personalist regimes appear to be more sophisticated learners by focusing on the action component rather than the information processing component.

Persistence

While the focus of most of the previous hypotheses has been on establishing evidence that regime learning occurs, it is important to also assess whether learning aids regimes in their primary goal: survival. The central premise of my theoretical argument is that regimes select strategies which help them continue to persist without major changes, transition, or destruction. By carefully navigating existential threats brought on by challengers, minor liberalization or deliberalization can allow regimes to persist.

Rather than either strategy– liberalization or deliberalization– directly leading to survival, both may do so in different contexts. I have argued that regimes look to their peers for more information during a crisis and follow their lead in selecting strategies. However, regimes are unlikely to find much value in those lessons where the subject took the wrong approach and failed to survive. For regimes, useful lessons from peer regimes should therefore provide information about how to weather the current storm. In short, By learning from their neighbors, regimes should be more likely to survive.

[43] A hypothetical example of this would be a monarchy facing an elite threat in a neighborhood where there were either no other monarchies or none facing similar challenger types. The observation would be dropped, and the number of useful observations remaining could theoretically be zero.

Hypothesis 6 *Regimes which copy structurally similar neighbors survive longer.*

Support for this hypothesis will tie the mechanisms of learning to the original question posed by this project: why do some authoritarian regimes persist while others do not? The following section explains research design choices for the implementation of the hypotheses tests described above. My empirical approach combines the new measures in the previous chapter with existing data sources to provide an examination of these theoretical assertions.

Research Design

The six hypotheses identified in the sections above provide a series of empirical tests of the theory developed in this project. Careful consideration of the limitations of available data, suitability of measures, and statistical modeling has been taken in determining the operationalization of the dependent and independent variables and model choices for quantitative assessment of these hypotheses. The details of the empirical strategy are explained below, beginning with sample construction, then variable construction, and finally turning to statistical modeling.

Sample Characteristics

The empirical analysis in this chapter is temporally limited to seventeen years, from 2001 to 2017. This is a function of the availability of one of the primary data sources: the classification of liberalization and deliberalization presented in the previous chapter. Detailed country reports from Freedom House do not exist at all prior to 1998, and the first year in which the text data used in the classification process is available for all countries is 2000. Including a one year lag for various covariates means that the data is only a reasonably complete sample beginning the following year. At the time that I began the process of hand-coding the training data used in the classification process, the most recent year of Freedom House data was from the 2018 reporting year, meaning the

sample is right censored at 2017.[44]

The spatial scope of the analysis in this chapter is not confined to any region or set of contiguous states. No specific regimes or geographies are intentionally omitted to make the sample more robust, or more representative of particular modes of rule. However, as a result of the way several of the variables used in the models are constructed, the spatial dimension is practically limited to 103 authoritarian regimes.

The scope of this analysis then is focused on authoritarian regimes in the past two decades. There are a total of 1,526 regime-year observations in the sample used here. Of course, it would be ideal to be able to test the theoretical assertions of this project in a longer time frame– particularly one which has considerable overlap with the third wave of democratization. However, barring a historical archive of Freedom House country reports being made available or another equally useful text data source to substitute, this cannot be helped at this time.

Variable Construction

The hypotheses above require specifying three different dependent variables, and a series of different independent variables. To the extent possible, the controls included in Chapter 1 are also included here for continuity. The first two dependent variables are *liberalization* and *deliberalization*, and come directly from the classification process in the previous chapter. The final dependent variable is *persistence* and is a binary indicator of whether the regime survived from the previous year. Summary statistics for all variables are included in the appendix (Table 8).

Dependent Variables

The first five hypotheses suggest various influences on whether a regime selects repress or capitulate in the context of a disruption to the status quo. The classification process, combining human and machine coding efforts, creates two measures directly dealing with

[44]It is unknown whether allowing the machine to code all of the most recent years worth of data for all countries would introduce any additional noise into the classified data. Rather than take the risk, I have opted to leave extension of the sample to future research.

these two possibilities, *liberalization* and *deliberalization*. Each is a binary variable where one indicates the regime made some small alteration to its method of rule– through an official policy change or an unofficial practice– which amounts to less than a regime change event but more than taking no action.

It is worth noting that liberalization and deliberalization are not technically mutually exclusive; regimes could be classified as selecting both within a regime-year observation. However, in the sample used here this is not the case. The proportion of regime-year observations which experience liberalization and deliberalization are 0.45 and 0.47 respectively. Mutually exclusive categories would reveal complementary proportions, and that is not shown here. The "zero" in these measures does not mean the opposing strategy was used– a zero for liberalization means "not liberalization" which may or may not include deliberalization, for instance. Additionally, these sample means indicate that while these are not rare events like regime transitions or state collapse, slightly over half of the time covered here, regimes are not actively selecting one of these strategies. In at least eight percent of cases, they appear to be selecting neither.[45]

For the final hypothesis, I include a different dependent variable: *persistence*. To empirically assess the survival of regimes, there are some alternative ways to measure persistence. One way is the number of years a regime has "lived"– similar to how international relations and comparative politics researchers track leader tenure (see Goemans, Gleditsch and Chiozza 2009). Yet it is not obvious that this is an appropriate way to track survival in the context of the theoretical framing used in this project. Rather than model regime tenure, where there is not much substantive difference within the tails of the distribution,[46] I instead utilize a simple binary indicator of survival. If the regime survives from $t-1$ to t the persistence indicator is coded as one, while failure to survive is coded as zero. I used six components of the POLITY index as a fairly sensitive barometer of change, considering the regime to fail if it moves on any one component. These

[45]Recall that the theory chapter provides several alternative outcomes beyond liberalization and deliberalization, including survival (through luck/inaction), abdication (failure due to inaction), coup, civil war, transition, or democratization.

[46]My meaning here is that the substantive difference between 52 regime years of survival and 57 regime years of survival is probably not meaningful; the same might also be said about the difference between two years and four.

include institutionalization of executive transfer (*xrreg*), competitiveness of executive selection (*xrcomp*), regulation of participation (*parreg)*, competitiveness of participation (*parcomp*), constraints on the executive (*xconst*), and openness of executive recruitment (*xropen*). These are each detailed in the documentation for the POLITY IV dataset (Marshall, Jaggers and Gurr 2019). I took this approach for two reasons.

First, although it could be argued that movement on any one of these is overly sensitive and not a direct match to the definition of regime change I use throughout this project, it was necessary to pick up on any variation within the sample. Regime change is a rare event, and even this sensitive measure reveals that to be true. Second, switching from Freedom House to POLITY here might seem to be an odd choice, but it is one that balances similarity of operational construction with the utility of available data. At the time of writing, Freedom House has not yet provided subcomponent data on their political rights and civil liberties aggregates. POLITY does have such data available for the sample constructed here. Additionally, the focus on executive constraints in the POLITY components well suits the institutional notions underlying my conceptual definition of regime change.

The mean of the resulting persistence variable is 0.88, suggesting that about 22 percent of the regime year observations in the sample experience a failure of survival. Familiar examples of regime failure from the MENA region are confirmed in the sample, such as Tunisia in 2011 (democratization), Syria in 2012 (civil war), and several transitions in Egypt 2011–2014.

Independent Variables

The first set of independent variables measures the presence of a challenge to the status quo. These two crisis variables focus on the two types of challengers I describe in the theory chapter: elite defections, and mass mobilizations. Data sources for the former over the temporal domain of the sample are limited. Data sources for the latter are more prevalent, but there are concerns over data quality or completeness for some sources.

To measure elite defections I use the coup data created by Powell and Thyne (2011).

The original data ended in 2010, but has since been extended to recent years by the Rulers, Elections, and Irregular Governance (REIGN) ongoing data collection effort (Bell 2016). The REIGN approach is to use the original coding rules to extend the data, so there is no concern over operational continuity here. The identification of coup attempts and successes begun by Powell and Thyne is well suited to this analysis; they clearly define coups as targeting the chief executive and perpetrated by "any elite who is part of the state apparatus" (Powell and Thyne 2011, p. 250). This is precisely the type of challenge I seek to include, in that coups defined this way are by necessity elite defections from within the regime. Successful or not, such defections are a serious and imminent threat to the status quo requiring action if the regime hopes to survive. In the sample, coup attempts are a rare event with only two percent of the observations experiencing elite defection.

Of the various datasets which include some information on protest activity, I selected the Integrated Crisis Early Warning System (ICEWS) data as my source for mass mobilization events (see Shilliday, Lautenschlager et al. 2012, Boschee et al. 2015). Although this source is not as commonly used in published political science work (as compared to GDELT, for instance) this resources is reasonably complete, is updated periodically, and covers the type of mass mobilization activity I am looking to account for in this analysis.[47]

Although it was originally developed as an early warning intelligence tool for the United States government by Lockheed Martin, the use of the ICEWS data is not confined to intelligence analysis. The data is available on the Harvard Dataverse, where the coded event data gathered automatically from the text of news stories is updated periodically. Of the hundreds of event types recorded by ICEWS, various forms of action are covered, including protest. To isolate the protest events from the millions of other event records available, I used kept all records which had the Conflict and Mediation Event Observations (CAMEO) code of "14"– events in which the primary action was protest (Gerner et al. 2002). Such events include various expressions of dissent such as strikes,

[47]See Ward et al. (2013) for a comparison of ICEWS and GDELT.

rallies, boycotts, nonviolent and violent protests, and riots. The intent behind the action is inherently political, directed at changing policy, leadership, rights, or institutions/the regime (Gerner et al. 2002).

To ensure that I end up with only those events which are relaying information about mass mobilization within a state against the regime of that state, I eliminated any events in which the origin and target countries did not match. This retains those events which pertain to the observation country (the target). As a final filtering criteria to keep only the most relevant information on mass mobilization, a eliminated any events which were not not targeting the government by using a regular expression ("Govern*") on the ICEWS *Target_Sectors* identifier field.

Even after keeping only the most relevant events from the ICEWS data, often more than one event was recorded in an observation year. This is not problematic, as ICEWS is able to identify unique groups which may be participating in the same anti-regime protest (i.e. labor unions, student groups, and business associations). Yet without a strong assumption about what the variability in the number of protest events means in relation to the dependent variables, I instead include a binary indicator which is coded one when there is protest from mass actors within a country targeting the government/regime, and zero when no events of this sort were identified. This way of operationalizing the mass challenger variable differentiates protest from elite defection, as well as terrorism, civil war/insurrection, or other modes of contention. In the sample 60 percent of the observations have protest present. For reference, including only violent protest reduces this to 41 percent of the sample experiencing mass mobilization against the regime.

To operationalize the independent variables for hypotheses 2 through 6, I once again turn to the coded liberalization and deliberalization measures from the previous chapter. Instead of using regional or neighborhood means of Freedom House or POLITY, as I did in Chapter 1, I use my new coded measures here to create new assessments of diffusion, emulation, and learning. For the last hypothesis, I recycle several of these covariates in the context of persistence.

There are two methodological notes which apply to the following variable construc-

tions. First, each of these measures relies on a calculated mean. I selected this method of aggregating outcomes rather than some alternative (i.e. mode) since it is my perspective that regimes consider the actions of other regimes which they might seek to learn from as distribution rather than a discrete value. Put another way, from the perspective of a regime in crisis it is more appropriate to consider that "51 percent of my contiguous neighbors liberalized" rather than characterize this information landscape as "my neighbors liberalized."

Second, for each of the calculations below, I use a jackknifed approach. This process means that once the set of observations on which the calculation will be done is identified the observation is held out of the sample and not included in the calculated value. For instance, if we want to get the mean of liberalization for all MENA regimes in 2017 and our observation is Algeria 2017, Algeria's value is not included in the regional average for that year. For the observation Tunisia 2017, the regional average is again calculated without Tunisia's value. This is done to ensure that the value for the constructed independent variable does not include the value of the dependent variable value for each observation.

For hypothesis 2, I take the regional mean of each of the coded outcome variables (liberalization, deliberalization) using only authoritarian regional members and lag the resulting diffusion variables by one year. Regional affiliation was determined using observations from the same World Bank indicated region (i.e. Middle East and North Africa, or Sub-Saharan Africa). Only authoritarian regimes were included in the regional average, since the similarity of democracy and autocracy in strategy selection is not theorized in this project. On average, 49 percent of an authoritarian regime-year observation's region selects liberalization, while on average 41 percent select deliberalization.

Hypothesis 3 follows similar setup as the previous empirical test, but focuses on contiguous neighbors instead of regions. Contiguous neighbors were identified using the Correlates of War Direct Contiguity data (Stinnett et al. 2002, Correlates of War Project 2017). To be included in the observation's neighborhood, a state must have direct contiguity or separation by no more than 150 miles of water. In calculating the mean of contiguous neighborhoods, again only autocratic regimes were considered. This creates a

drop in number of valid observations since some regimes may not have autocratic neighbors (or, in the case of Fiji, any neighbors). On average, 49 percent of an authoritarian neighborhood-year observation's region selects liberalization, while on average 45 percent select deliberalization.

I create measures of emulation through a more sophisticated method of identifying peer regimes and calculating the average of liberalization and deliberalization for those peers regimes. Instead of using simple geographies such as region or neighborhood, I instead use three sets of structural characteristics which regimes can identify with relative ease and accuracy: (1) same authoritarian regime type, (2) shared colonial past, and (3) broad levels of wealth.

To identify peers using the first set of regime characteristics, I identified same authoritarian regime type as coded by Geddes, Wright and Frantz (2014).[48] There is variation in the institutional configuration of dictatorship, and the GWF coding scheme accounts for this well. Peer group averages were then calculated for each authoritarian type– such as monarchy, military dictatorship, party regimes, and so on– for each observation year. Using the coded colonial past data from Hensel (2018), I also replicated the peer group calculations substituting authoritarian regimes which had the same colonial history for same regime peers. Finally, I create a three-category indicator of wealth and use this to once again obtain the peer group calculations a third way. Using the 33rd and 66th percentiles of GDP per capita (WB 2017) as cutpoints, I divide regimes into low, middle, and high wealth categories. I then lagged each of the resulting variables by one year.

This method of calculating peer groups provides a reasonable operationalization for the purposes of examining emulation. However, there is an unintended consequence to the comparatively specific delineation of which regimes are included in the calculation for each peer group-year that was not a problem when using region (but began to emerge at the neighborhood level). The number of peers can vary, and it is possible that for some regimes there may be no available peers at the "local" level (neighborhood or region). Therefore, to ensure that these calculated variables would be of use to the empirical tests

[48]The REIGN data project has continued to extend the regime type codings using the original rules in Geddes, Wright and Frantz (2014), and is therefore available for the entirety the years in my sample.

in this chapter I ran each set of calculations at the level of contiguous neighborhood, again at the level of region, and then globally. Each time, I included authoritarian regimes which shared the peer group identification, and then created a "best response" aggregation rule. This means that for each observation, the value assigned to the peer group variable for that observation may be a result of the neighborhood, regional, or global calculation– in that order. For most observations, neighborhood or regional values are used.[49] For example, despite not having contiguous neighbors, Fiji can reenter the sample with values on these variables assigned from the higher level calculations.

The peer group variables are used for testing both hypotheses 4 and 5. The latter also involves an interaction with what I refer to as "institutionally simple" regime type. This is actually measured through the use of two dummy variables, one for monarchy and one for personalist regimes using the GWF categorization. It is important to note that interactions between the peer group *regime type* and these institutionally simple regime dummies does not create a multicollinearity issue in the statistical model. This is because the peer group calculation isolates regime type, and then my method of variable construction combines values from observations across multiple regime types. The correlation between the regime type peer group liberalization or deliberalization means and the institutionally simple regime dummies is never greater than ± 0.25.

Controls

In addition to the independent variables covered above, I also include several control variables. These are taken from the empirical analysis in Chapter 1, and appear in Table 8 in the appendix along with the dependent and independent variables. The summary statistics for these controls differs from the original analysis in the earlier chapter due to differences in sample construction, but the source and variable construction remains the same. The original descriptions are located in Appendix A.

[49] Credit for this idea goes to Dave Armstrong. There is almost certainly an interesting question related to missingness and variation within and among these levels, and could be the subject of future research efforts.

Estimation Methods

There are two estimation techniques used in this analysis, logistic regression and binary time-series cross-sectional (BTSCS) logistic regression. For the first five hypotheses, I use logistic regression, as is appropriate for dichotomous response variables. I calculate McFadden's Pseudo R-squared statistic for these models. The coefficients appearing in tables in the results section below are logistic regression coefficients, but as significance and relative magnitude for within-model comparison are more important than directly interpretable effects they were not altered for presentation (i.e. into log-odds ratios).

The final hypothesis uses binary time-series cross-sectional (BTSCS) logistic regression. As is explained in Appendix A, BTSCS is an alternative to standard logistic regression which accounts for time (Beck, Katz and Tucker 1998). It is a simpler modeling choice than the common survival estimation method, which becomes difficult to interpret with the wide scope of time series and cross-sectional identifiers in this sample. The BTSCS model includes a third degree polynomial in *Time spell* on the recommendation of Carter and Signorino (2010). See the explanation in Appendix A for a more detailed explanation of the methodological choices involved here. I calculate McFadden's Pseudo R-squared statistic for this model as well.

Results and Discussion

Results from the various hypothesis tests are included below. Overall the findings of this analysis provide some support for the theory, although there are some key elements which fail to be corroborated in the sample. Despite these failures, the diffusion and emulation hypotheses are supported. This provides a minimum amount of credibility for the theoretical perspective of this project, as well as establishes the usefulness of the data classification process developed here.

Prior to exploring the results for the stated hypotheses, I began by testing an assumption implicit behind the theory presented in the earlier chapter. This assumption is essentially the main alternative to the learning approach– if regimes do not incorpo-

rate external information in their survival calculus, they simply rely on their own past actions. Logistic regression models[50] of either liberalization or deliberalization and the corresponding lagged variable indicate that use of a strategy in a previous year is positively related to the strategy being used again in the observation year. This represents the status quo; it is the aim of this analysis to explore when "doing what has always been done" is no longer sufficient.

Hypothesis 1 states that regimes will change from the status quo by liberalizing or deliberalizing when faced with a crisis. Absent contextual information, the theory suggests that regimes should be willing to engage in either strategy, *ceteris paribus*, when faced with either an elite defection or a mass challenger. The results of logistic regression models of liberalization and deliberalization which include the crisis variables *coup attempt* and *protest* appear in Table 9, located in the appendix. There is no support for hypothesis in these models.

This finding is surprising, and robust to the inclusion of country fixed effects and a time correction term as well as lagging the crisis indicators by one year. Regimes should be responding to the rise of a challenger with a departure from the status quo, expressed as either deliberalization or liberalization. Yet in the data used here, neither protest nor elite defection appears to increase the likelihood of liberalizing or deliberalizing. There are a few possible explanations for this finding.

Perhaps the operationalization of crisis, which followed from the theoretical identification of challenger types, has made it difficult to obtain the hypothesized relationship here. After all, in the sample (and in general) coup attempts are an extremely rare event. That indicator may be too weak to overcome the noise in the sample. Combining coup attempts and protest into a unified crisis indicator (*any challenger* in Table 9, models 3 and 6) does not really change much, since the resulting variable is essentially picking up the (non)effect of protest, as that is the more common event type. Since protest occurs in over half of the observations, perhaps this is not a sensitive enough way to account for real existential crises brought on by mass mobilization either.

[50]Results not shown for space considerations. Replication materials include these models.

Table 3: Results, Hypothesis 1: Violent Protest

	Dependent variable:	
	Liberalization	Deliberalization
	(1)	(2)
Violent protest	$-0.230^{\dagger}$	0.289^{*}
	(0.118)	(0.123)
British colony	0.296	−0.232
	(0.156)	(0.163)
French colony	0.332^{*}	-0.616^{*}
	(0.157)	(0.165)
Spanish colony	0.562^{*}	−0.314
	(0.255)	(0.261)
Other colony	−0.120	-0.475^{*}
	(0.214)	(0.224)
Majority Muslim	0.220	0.378^{*}
	(0.126)	(0.133)
GDP per thousand	−0.005	0.080^{*}
	(0.006)	(0.011)
Trade, pct. GDP	0.001	−0.001
	(0.001)	(0.001)
Rents, pct. GDP	0.008	-0.020^{*}
	(0.004)	(0.005)
Constant	-0.523^{*}	−0.117
	(0.183)	(0.196)
Observations	1,285	1,285
Log Likelihood	−875.173	−802.914
Akaike Inf. Crit.	1,770.346	1,625.828
McFadden's R^2	0.013	0.195

Note: $^{*}p < 0.05$. † p = 0.051. Standard Errors in parentheses.

In Table 3, I present alternative model specifications to the protest models in the appendix. Here, I include only *violent protest* as indicated in the ICEWS data. This type of mass mobilization is less common than overall protest– 41 percent of the sample instead of 60 percent– and may be capturing a more serious threat to the regime in any case. In this table, the deliberalization model (2) does show support for the idea that a serious challenge to the regime produces a need to change from the status quo by ramping up repression.

The liberalization model (1) results are a little less clear. If we slightly relax the threshold at which statistical significance is obtained, the effect of violent protest on regime strategy shows a significant, but *negative* effect. This means that in this sample, crisis brought on by violent mass mobilization of the sort seen in Iran surrounding the 2009 election (CNN 2009) is unlikely to be met with capitulation, and instead increases the likelihood that regimes will try a different tactic, which may include increasing repression. Since I had no *a priori* belief over which strategy regimes would select given crisis, this finding can be viewed as providing some limited support for the hypothesis as well. After all, it could be the case that when faced with violent protesters, authoritarian regimes learn to repress by looking at other successful repression around them. Absent a more sensitive indicator of elite defection, it is not yet possible to determine if capitulation is the dominant strategy for dealing with that type of challenge.

In addition to the limited evidence that a violent mass challenge pushes regimes to increase repression, it may be the case that failed repression of any mass challenge to the regime does lead to civil war– as the theory suggests. In the sample constructed here, protest in the previous year is positively correlated with civil war. In the same model results, liberalization in the observation year has a negative effect on civil war while deliberalization has a positive sign. This is suggestive, and perhaps with a more sophisticated research design how the use of each strategy relates to other outcomes can be more carefully analyzed.

There is much clearer support for the next two hypotheses than the first one. These tests are aimed at establishing that diffusion can be detected in the sample constructed

here, and that regional and neighborhood effects like those established by Brinks and Coppedge (2006) and others exist for persistent authoritarian regimes as they do for democratizing regimes. The results of four models appear in Table 4. Models (1) and (3) address hypothesis 2, that regional liberalization or deliberalization will be positively related to regimes employing those strategies. Models (2) and (4) address hypothesis 3, which substitutes contiguous neighborhood for region as the example for regimes selecting strategies.

Table 4: Results, Hypotheses 2 and 3: Diffusion

	Dependent variable:			
	Liberalization		Deliberalization	
	(1)	(2)	(3)	(4)
Regional diffusion	2.218*		1.931*	
	(0.322)		(0.265)	
Neighborhood diffusion		1.039*		1.318*
		(0.188)		(0.186)
Lagged DV	1.483*	1.502*	1.671*	1.646*
	(0.124)	(0.129)	(0.139)	(0.146)
British colony	0.222	0.301	0.014	−0.030
	(0.169)	(0.176)	(0.188)	(0.190)
French colony	0.313	0.221	−0.318	−0.425*
	(0.172)	(0.176)	(0.184)	(0.192)
Spanish colony	0.269	0.178	−0.085	0.230
	(0.278)	(0.311)	(0.292)	(0.334)
Other colony	−0.041	−0.111	−0.240	−0.327
	(0.228)	(0.233)	(0.246)	(0.245)
Majority Muslim	0.201	0.266	0.150	0.223
	(0.138)	(0.144)	(0.148)	(0.155)
GDP per thousand	0.001	−0.007	0.048*	0.050*
	(0.007)	(0.007)	(0.011)	(0.011)
Trade, pct. GDP	0.002	0.001	−0.002	−0.003
	(0.001)	(0.001)	(0.001)	(0.002)
Rents, pct. GDP	0.006	0.005	−0.013*	−0.011*
	(0.005)	(0.005)	(0.005)	(0.005)
Constant	−2.207*	−1.690*	−1.134*	−1.037*
	(0.267)	(0.218)	(0.236)	(0.225)
Observations	1,278	1,172	1,278	1,172
Log Likelihood	−771.584	−710.944	−697.390	−629.712
Akaike Inf. Crit.	1,565.167	1,443.889	1,416.780	1,281.425
McFadden's R^2	0.125	0.210	0.121	0.222

Note: $^*p < 0.05$. Standard Errors in parentheses.

The results clearly support both hypotheses, with the sign and significance present for each of the four main effects. For both liberalization and deliberalization, at both the regional level and the neighborhood level, the trends surrounding regimes appear to be related to the actions they take. As the regional diffusion measure moves from zero to one, the predicted probability of liberalization changes from 0.267 to 0.661 and the predicted probability of deliberalization changes from 0.370 to 0.619. Likewise, as the neighborhood diffusion measure moves from zero to one, the predicted probability of liberalization changes from 0.364 to 0.551 and the predicted probability of deliberalization from 0.386 to 0.584. Diffusion is alive and well in the data, even beyond the third wave and among authoritarian regimes which are unlikely to democratize. These models control for previous liberalization and deliberalization to ensure the robustness of the diffusion effects.

Among the standard set of controls, an interesting finding emerges. For both the regional and neighborhood diffusion deliberalization models in Table 4, there is a positive effect of GDP per thousand on deliberalization, but a negative effect of GDP from resource rents. These have no effect in the liberalization models. One way to interpret this is when holding all else constant, overall wealth gives regimes more flexibility to repress, while resource wealth reduces dictators' appetites for repression. This may seem to be a bit of a puzzle, but an alternative interpretation of these findings which follows from Bellin (2004) can make sense of this apparent contradiction. High-resource rent regimes are able to avoid challenges because they can afford to maintain high levels of repression as the status quo. It is not that oil rich dictators eschew repression; actually, it is the opposite–such regimes are less likely to *need* to further deliberalize.

Turning to the results for hypothesis 4 (Table 5), there is again support in the data for the more simple version of learning articulated in this project. Using three different alternative operational definitions of the peer group regimes aim to emulate, I find significant, positive effects for each. As the proportion of liberalization or deliberalization among a regime's peer group increases, the likelihood of the regime following suit also increases.

For the liberalization models, as the peer group indicator based on regime type moves from zero to one, the predicted probability of liberalization increases from 0.367 to 0.539. For the peer group indicator based on shared colonial past, moving from zero to one changes the predicted probability of liberalization from 0.372 to 0.545. Finally, for the peer group indicator based on relative level of wealth, moving from zero to one changes the predicted probability of liberalization from 0.360 to 0.554. For the deliberalization models, as the peer group indicator based on regime type moves from zero to one, the predicted probability of deliberalization increases from 0.439 to 0.552. For the peer group indicator based on shared colonial past, moving from zero to one changes the predicted probability of deliberalization from 0.404 to 0.570. Finally, for the peer group indicator based on relative level of wealth, moving from zero to one changes the predicted probability of deliberalization from 0.414 to 0.555.

Once again the pattern with GDP per thousand, and GDP from resource rents is repeated for deliberalization but not for liberalization. That none of the control variables except for the lagged dependent variable have statistically significant effects is not very troubling, since these controls are adopted from models of democratization. As such, I don't have strong prior expectations on sign or significance for these variables. Including them or not has almost no appreciable effect on the main effects. The same is true about country fixed effects and time corrections for each set of models presented thus far.

With support for general diffusion in the sample and one mechanism of diffusion– simplistic learning, or emulation– it is worth revisiting a few elements of the theory prior to moving on to the discussion of the remaining results. The process of learning– Bayesian updating– leads regimes to update their prior belief about the probability of success for a certain strategy by incorporating new information. In the emulation variant there is little sophistication in selecting new information to update with when compared to the more sophisticated variant. Where regimes cannot quickly or effectively incorporate new information on successes and failures of other regimes facing crisis they use simple heuristics rather than spend time and energy shopping for quality sources. Regimes emulate peers which are most like themselves.

Table 5: Results, Hypothesis 4: Emulation

	Dependent variable:					
	Liberalization			Deliberalization		
	(1)	(2)	(3)	(4)	(5)	(6)
Peer group (type)	0.700*			0.455*		
	(0.159)			(0.174)		
Peer group (colony)		0.706*			0.671*	
		(0.186)			(0.190)	
Peer group (wealth)			0.790*			0.569*
			(0.179)			(0.183)
Lagged DV	1.513*	1.528*	1.535*	1.719*	1.709*	1.714*
	(0.125)	(0.123)	(0.123)	(0.138)	(0.137)	(0.137)
British colony	0.210	0.197	0.269	−0.167	−0.101	−0.122
	(0.170)	(0.169)	(0.169)	(0.180)	(0.182)	(0.181)
French colony	0.234	0.222	0.320	−0.417*	−0.272	−0.343
	(0.172)	(0.170)	(0.171)	(0.182)	(0.186)	(0.183)
Spanish colony	0.418	0.323	0.356	−0.201	−0.124	−0.159
	(0.275)	(0.275)	(0.275)	(0.294)	(0.293)	(0.293)
Other colony	−0.258	0.079	−0.056	−0.299	−0.259	−0.334
	(0.243)	(0.230)	(0.229)	(0.248)	(0.243)	(0.242)
Majority Muslim	0.201	0.220	0.233	0.172	0.203	0.163
	(0.138)	(0.138)	(0.138)	(0.147)	(0.146)	(0.147)
GDP per thousand	−0.006	−0.004	−0.007	0.054*	0.053*	0.054*
	(0.007)	(0.007)	(0.007)	(0.011)	(0.012)	(0.011)
Trade, pct. GDP	0.001	0.001	0.001	−0.002	−0.002	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Rents, pct. GDP	0.008	0.005	0.005	−0.013*	−0.013*	−0.013*
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant −1.658*	−1.643*	−1.739*	−0.800*	−0.993*	−0.929*	
	(0.209)	(0.211)	(0.216)	(0.211)	(0.219)	(0.216)
Observations	1,252	1,278	1,278	1,252	1,278	1,278
Log Likelihood	−756.047	−776.826	−774.173	−688.890	−697.405	−698.813
Akaike Inf. Crit.	1,534.095	1,575.652	1,570.347	1,399.779	1,416.809	1,419.625
McFadden's R^2 0.125	0.119	0.122	0.205	0.210	0.209	

Note: $^*p < 0.05$. Standard Errors in parentheses.

The more sophisticated version of Bayesian learning occurs when regimes can process new information fairly effectively, and act on it. Yet, they still must resort to heuristics in how the new information is processed. Representativeness heuristics come into play when accessing information on how other regimes have fared. Regimes can shop for new information and incorporate it, but still look to reasonable examples from their peers. We should expect that this learning mechanism leads to persistence more often than

emulation.

To assess whether learning is occurring in the sample and provide a reasonable test for hypothesis 5, I specify a series of models of liberalization and deliberalization where the diffusion variables for region and neighborhood are interacted with a proxy for regimes which are most likely to be learners rather than emulators. Regimes which have simple institutional structures– small-w regimes, to use the selectorate theory terminology (Bueno de Mesquita et al. 2003)– have fewer internal hurdles to acquiring and acting on new information. Where there is effectively a single decision maker who can exercise veto power, I expect learning to be most likely. This is not to suggest that such regimes (monarchies and personalist dictatorships) are inherently "smarter" than other types of regimes and therefore better at learning. Instead, they essentially can afford to have weak priors and can switch between strategies with comparatively low cost. More institutionally complex regimes need to buy off various veto players or internal constituencies and therefore even if they have comparatively better information-gathering apparatuses, their prior belief over winning strategy is harder to adjust.

The results of the tests of hypothesis 5, that less institutionally complex regimes are more likely to select the same strategies as similar regimes, appear in three separate tables. In the appendix, Table 10 contains six models including the three peer group identifiers interacted with monarchy for each liberalization and deliberalization. Table 11 also contains six models, but focuses on personalist regimes instead of monarchy.

The results are not entirely supportive of the hypothesis. There are several lower order partial effects among the models where the higher order term in the interaction is not statistically significant. For the liberalization models, none show a significant effect for the higher order interaction terms when monarchy is interacted with each of the peer liberalization measures. For deliberalization and monarchy, the interaction between peer group based on regime type and monarchy is statistically significant in the lower and higher order terms. The sign reverses for the partial effect of the interaction term. This is represented in Figure 8 in the appendix.

What this indicates is that as the proportion of deliberalization events among nearby

monarchies increases, the likelihood of the observation monarchy also deliberalizing goes down. One way to interpret this finding is that in the sample, monarchies are learning that repression is not a survival strategy. However, this is not corroborated by the empirical record: aside from Bhutan and Swaziland, all monarchies in the sample are from the MENA region, and no monarchy in the sample failed between 2001 and 2017. This finding therefore suggests a reexamination of the motivations of monarchies in the context of learning.

A similar story emerges from the results in Table 11 and the interaction between peer liberalization and personalist regimes. Figure 9 shows that the relative to other types of authoritarian regimes, personalist dictatorships are less likely to liberalize as their nearby peers do so. Since there are many more of these regimes in the data than monarchies, it is not immediately clear if there is some underlying group of regimes driving this finding.

Since the model results do not really provide support for hypothesis 5, I also relaxed how strictly peers were identified. The eight models in Table 6 cover liberalization (1-4) and deliberalization (5-8), focusing on monarchy (1, 2, 5, and 6) and personalist regimes (3, 4, 7, and 8). Instead of the specific peer calculations used in the results reviewed above, I include the diffusion measures here instead, making an assumption that regimes which are likely to be effective learners are also able to pick and choose which lessons hold the most weight among regimes in their region or neighborhood. In the table, odd model numbers involve regional diffusion while even model numbers involve neighborhood diffusion.

The results are not much more encouraging with this less specific assumption in place, however. There are partial effects for some of the lower order terms in the interactions between regime type and each of the diffusion variables. Among the higher order interaction terms, a familiar patter is revealed in models (5) and (6) with a sign reversal on the interaction estimate. Ultimately, there just isn't support for the learning hypothesis. Perhaps future research could explore alternative model specifications and variable constructions to eliminate the specific research design choices I have made as responsible for this lack of evidence.

Table 6: Results, Hypothesis 5: Learning and Diffusion

	Dependent variable:							
	Liberalization				Deliberalization			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Monarchy/Personalist	−0.756	0.480	0.367	0.136	1.674*	1.017*	0.589*	0.046
	(0.596)	(0.359)	(0.368)	(0.245)	(0.594)	(0.368)	(0.256)	(0.227)
Regional diffusion	2.027*		2.352*		2.151*		2.421*	
	(0.333)		(0.411)		(0.276)		(0.358)	
Regional × regime	2.541*		−0.479		−3.418*		−0.882	
	(1.216)		(0.665)		(1.001)		(0.527)	
Neighborhood diffusion		1.085*		0.955*		1.542*		1.291*
		(0.204)		(0.226)		(0.200)		(0.219)
Neighbor. × regime		−0.490		0.196		−1.895*		0.138
		(0.538)		(0.408)		(0.548)		(0.401)
British colony	0.252	0.395*	0.322*	0.474*	0.102	−0.027	0.192	0.008
	(0.161)	(0.167)	(0.162)	(0.168)	(0.177)	(0.178)	(0.180)	(0.179)
French colony	0.448*	0.337*	0.456*	0.337*	−0.352*	−0.623*	−0.472*	−0.597*
	(0.161)	(0.164)	(0.161)	(0.164)	(0.174)	(0.180)	(0.176)	(0.180)
Spanish colony	0.456	0.373	0.418	0.346	0.024	0.402	−0.033	0.351
	(0.263)	(0.292)	(0.265)	(0.292)	(0.273)	(0.310)	(0.272)	(0.310)
Other colony	−0.058	−0.137	0.003	−0.048	−0.128	−0.372	−0.201	−0.406
	(0.217)	(0.219)	(0.218)	(0.220)	(0.235)	(0.233)	(0.236)	(0.233)
Majority Muslim	0.206	0.309*	0.257*	0.336*	0.349*	0.396*	0.165	0.356*
	(0.133)	(0.139)	(0.130)	(0.134)	(0.143)	(0.148)	(0.141)	(0.144)
GDP per thousand	−0.001	−0.011	0.003	−0.006	0.071*	0.071*	0.055*	0.066*
	(0.007)	(0.007)	(0.006)	(0.006)	(0.012)	(0.012)	(0.011)	(0.011)
Trade, pct. GDP	0.002	0.002	0.002	0.002	−0.002	−0.004*	−0.001	−0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rents, pct. GDP	0.008	0.007	0.007	0.006	−0.019*	−0.014*	−0.019*	−0.016*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	−1.771*	−1.239*	−2.007*	−1.289*	−0.934*	−0.669*	−1.110*	−0.571*
	(0.255)	(0.204)	(0.278)	(0.212)	(0.224)	(0.211)	(0.258)	(0.223)
Observations	1,278	1,179	1,278	1,179	1,278	1,179	1,278	1,179
Log Likelihood	−843.281	−786.801	−846.818	−786.125	−767.353	−695.553	−770.841	−701.084
Akaike Inf. Crit.	1,710.562	1,597.602	1,717.635	1,596.249	1,558.706	1,415.106	1,565.683	1,426.167
McFadden's R^2	0.044	0.033	0.040	0.034	0.131	0.146	0.127	0.139

Note: $^*p < 0.05$. Standard Errors in parentheses. Models 1, 2, 5, and 6 are regime type Monarchy, while the other models are Personalist.

The final hypothesis test similarly does not receive support in the sample. To assess persistence, I specify two binary time-series cross-sectional models where the dependent variable is a simple indicator of whether the regime survived from the previous year. I interact a one-year lag of the protest indicator with each of the strategies liberalization and deliberalization. The model results are located in Table 12 in the appendix.

The lack of support for this hypothesis is rather disappointing, as this final element of the theory is the link between the actions regimes take (repress, capitulate) and the outcome which drives their decision calculus: survival. It appears as though there is too much noise in the data to obtain statistical support for this hypothesis. When liberalization and deliberalization are fairly common events (around 45 percent of observations in the sample) and the outcome of interest is overwhelmingly the modal outcome (only about 12 percent of the observations record failure) it is challenging to determine a statistically significant association.

Conclusion

Can we find evidence of diffusion among authoritarian regimes outside of the third wave of democratization? Does regime learning lead to persistence among these regimes? The results presented in this analysis of authoritarianism in the past two decades gives some insight into how diffusion operates outside of the more typical arenas presented in the literature. These results are a first cut at testing a new theory of regime learning. Although there is not support for all six hypotheses, this analysis provides a few key contributions, as well as a host of new questions.

The first contribution this analysis makes is that it establishes that diffusion can be detected in a sample of authoritarian regimes beyond the temporal domain of many of the studies reviewed in Chapter 1 (i.e. Brinks and Coppedge 2006, Teorell 2010). Using similar variable construction to established studies on diffusion and democratization, I have verified that even among those regimes we would not expect to democratize diffusion of political processes occurs.

The second contribution is that I have successfully deployed an alternative to the standard host of regime type, or "democracy" measures (POLITY, Freedom House). The classification process developed in the the previous chapter captures liberalization and deliberalization in regimes which falls short of actual regime change (i.e. democratization or autocracy-autocracy transition) and has obtained a minimum level of validity through use in these tests. Of course, it would be prudent to continue to compare results of these measures with the standard aggregates in other contexts before claiming total victory of the new approach. However, this analysis provides a key first step in this regard.

Although the first hypothesis on crisis, and the final two hypotheses– which sought to test the most complex and theoretically interesting aspects of the theory presented in Chapter 3, learning and persistence– did not find support in the data, there are a series of new questions which have resulted from this analysis. What is the optimal way to operationalize crisis? How should crisis be entered into the models of regime strategy selection? What combination of measures and modeling choices is best to assess complex learning in regimes? What model specification is appropriate for testing the effect of learning on persistence? Future research has an opportunity to build on the foundations of this analysis and seek answers to these questions.

Conclusion

Authoritarian Persistence and Diffusion

The Puzzle, Reexamined

Political regimes and the decision makers empowered by them do not exist in perfect isolation. Diffusion exists; the politics of any country are at least in part determined by the politics of others. When making decisions about policy and practice, it is not unreasonable that competent political actors actively look to external examples. This project began with a series of questions revolving around the central theme: how does diffusion lead to authoritarian regime persistence? The goal was to make a contribution in theoretical, empirical, and substantive terms to the comparative politics literature on democratization and authoritarianism. Although the final empirical chapter did not find support for all of the hypotheses, I believe I have still contributed to the literature.

The puzzle of persistent authoritarianism is grows out of the the third wave of democratization. Why is it that some authoritarian regimes seem invincible in the face of decades of liberalization and modular political phenomena like the democratic transitions in Eastern Europe and elsewhere? The oddity of persistence authoritarianism is most clear in the MENA region, where despite a rash mass mobilization during the so-called "Arab Spring" there was only one successful transition away from authoritarianism to date: Tunisia. In particular, the monarchies in Morocco, Bahrain, and Oman weathered the protests they faced with aplomb.

One might be tempted to ascribe such tenacity to an overdeveloped repression apparatus, common in such regimes (see Bellin 2004). Looking around the world to other persistently authoritarian regimes such as China, Belarus, or Tajikistan appears to support this notion. Particularly where there is oil wealth or traditional cultural values such explanations have been used to explain persistent authoritarianism. Certainly, there is empirical support for such claims for some countries. But then how does one explain the meltdown occurring in Venezuela– where the regime had solidified as a dictatorship decades ago and enjoyed oil wealth– or the failure of natural gas-rich Algerian dictatorship to survive the most recent bout of protests the way it had only a few years prior?

The traditional explanations in the literature grew out of a focus on change and democratization. The transitology paradigm has left its mark in the nature of the theoretical arguments as to why some regimes seem to persist despite pressures to change. Structural features, or political economic explanations, or perhaps even diffusion have been thought to provide a basis for understanding why the MENA region has thus far bucked the trend the rest of the world has experienced. Although these explanations are quite useful, it is diffusion which can be leveraged to make sense of the theoretical tensions and empirical contradictions in the MENA region and elsewhere. However, standard diffusion arguments like those made by Brinks and Coppedge (2006), where regimes seek to match the trends of their regions or neighborhoods, can be improved upon.

What We Have Learned About Regime Learning

In Chapter 1, I explored the main theoretical explanations in the comparative democratization literature and presents an set of empirical models covering all available countries for a 45 year period from 1972 to 2016. Finding some corroboration of the extant literature on democratization, in Chapter 2 I articulated a new theory of regime learning which pulls together typical diffusion arguments with structural and political economic explanations. In Chapter 3, I develop a new way to measure the outcomes of

primary interest to the theory, liberalization and deliberalization. Chapter 4 provides a set of hypotheses and tests using the new measures. Together, these chapters represent a set of contributions to the comparative politics literature.

Theoretical Contribution

The theory of regime learning here draws together several different literatures and presents a new explanation of regime behavior. While the understanding of Bayesian learning presented here is not novel, this approach applied to political regimes is new. Differentiating between emulation and more sophisticated learning augments the political science literature on diffusion by describing these theoretical mechanisms in the context of the survival of political regimes rather than policy adoption or patterns of contention. By combining structural and other characteristics into a more nuanced understanding of diffusion, this theory has also brought comparative theories of regime type and regime change into focus as elements of diffusion.

The resulting theoretical framework is built around the rise of a challenge to the regime. This approach allows for the outcomes we recognize from empirical examination to be placed in the context of a interaction between two actors with different preferences: the *challenge game*. Several testable implications of this theory have been included in this project, and there are more possibilities which can be drawn out of this approach for further examination. In particular, determining if there is an identifiable threshold of crisis which leads regimes to pivot away from the status quo can ideally provide a better examination of this part of the theory.

Empirical Contribution

The empirical analysis in the above chapters establishes that political regimes do not exist in a vacuum. When faced with a challenge to the status quo, the two main strategies regimes have to choose between are *repress* and *capitulate*– "deliberalization" and "liberalization" which each fall short of a regime transition. The first empirical contribution this project makes is that I provide a new way of measuring these phenomena.

By combining expert coding and machine coding processes, I have developed a way to use an available source of information on minor changes to regimes in an efficient way. The measures I have developed show validity as well, and it is my hope that they can be utilized in other research.

The method of combining expert and machine coding techniques to process a large volume of information-rich text data can potentially be exported to other research questions. My approach here could be used where there are reports for a time series, a cross section of political units, or both. Where such text data is made freely available via websites or otherwise stored in a machine-accessible manner, I have demonstrated in this project that acquiring the data is not only possible but less complicated than might be thought. Once a data source has been identified, the analyst can use the "ensemble of ensembles" approach I utilize here without the need to make strong assumptions about which of the machine learning models included is best. It would be interesting to see how this process might be used to code both regime-side actions– as I have done here– as well as those on the challenger side.

My theoretical argument is that regimes are survival-maximizing and they must abandon their status quo actions due to the presence of a crisis brought on by a challenger. Whether they select liberalization or deliberalization is not only based on whether they have done so before, but also on what actions their peers took. I find empirical evidence of authoritarian diffusion, where regimes are more likely to liberalize or deliberalize if regional or contiguous neighborhood trends in the same direction exist. This is true even when controlling for whether regimes previously liberalized or deliberalized.

Beyond just establishing corroboration for existing studies that diffusion is occurring, I have done so by (1) using a new set of measures of political change; and (2) done so among authoritarian regimes over a recent set of years. In the existing literature, the focus on authoritarianism in this way has not yet been done. In order to fully understand the patterns of regime change– which include the third wave of democratization– we also need to better understand the periods of relative stability. In addition, this project focuses on the regime side of modular political phenomena like the so-called "Arab Spring" rather

than the challenger side. Diffusion of contention is better represented in the existing literature than diffusion of regime choices in the face of such contention. It is my hope that widening the discourse to better assess the regime side can also help analyze patterns of contention.

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Appendix A

Research Design, Chapter 1

I present the results of several empirical models in the main text to assess extant explanations for democratization and authoritarian persistence, as well as highlight the need for a new approach to explaining authoritarian persistence. This appendix explains the research design of this empirical overview, including variable construction and modeling choices.

There are 172 unique countries included in the sample, with yearly observations of all variables from 1972 to 2016 (45 years). This creates a sample of 6,902 possible country-year observations, although some variables included in this analysis introduce missingness. This results in the N for the models reported above being reduced. Descriptive statistics for the variables used in the empirical models appear in Table 7.

Dependent Variables

I specify four different dependent variables in the models presented above. Each considers a different aspect of democratization, following the extant literature. The first dependent variable is level of democracy. I use the *polity2* standardized institutional democracy score from the POLITY IV data (Marshall, Gurr and Jaggers 2010). This measure ranges from -10 to +10, where higher scores represent greater institutional democracy and lower scores represent greater institutional autocracy. With a mean of 1.31 and standard deviation of 7.35 there is a fair amount of variation in the sample on this dependent variable.

The second and third dependent variables deal with change. Both are binary measures

Table 7: Summary Statistics, Chapter 1

Statistic	N	Mean	St. Dev.	Min	Max
Dependent Variables					
Standardized POLITY	6,902	1.31	7.35	−10	10
Positive POLITY change	6,783	0.04	0.21	0.00	1.00
Negative POLITY change	6,783	0.02	0.12	0.00	1.00
Regime persistence (dummy)	6,902	0.90	0.31	0	1
Structural Variables					
Percent population, Muslim	6,832	26.84	36.88	0.00	99.94
No colony	6,902	0.38	0.49	0	1
British colony	6,902	0.23	0.42	0	1
French colony	6,902	0.15	0.36	0	1
Spanish colony	6,902	0.15	0.35	0	1
Other colony	6,902	0.09	0.28	0	1
Pol. Econ. Variables					
Percent GDP from rents $_{t-1}$	6,233	8.47	11.90	0.00	89.00
Total foreign aid in millions $_{t-1}$	6,902	877.06	2,245.33	0	63,233
Percent of GDP from trade $_{t-1}$	5,833	74.01	46.51	0.02	437.33
Diffusion Variables					
Global POLITY mean	6,855	1.16	2.48	−2.59	4.25
Regional POLITY mean	6,855	1.16	4.68	−7.74	10.00
Neighborhood POLITY mean	6,575	0.92	5.65	−10.00	10.00
Global POLITY change	6,805	0.11	0.23	−0.46	0.87
Regional POLITY change	6,805	0.11	0.43	−2.14	2.30
Neighborhood POLITY change	6,575	0.13	0.89	−14.00	14.00
Control Variables					
GDP per thousand $_{t-1}$	6,266	6.96	12.75	0.06	118.82
Total population (hundred thousands)	6,752	364.52	1,272.30	1.30	13,786.65
Internal conflict $_{t-1}$	6,902	0.16	0.37	0	1
International conflict $_{t-1}$	6,902	0.02	0.12	0	1

Notes: The total possible N is 6,902 over 45 years and 172 unique countries. The number of observations for each model may be lower due to listwise deletion of observations with missing values.

which identify if an upturn or downturn was recorded in the observed year. Using the POLITY variable *regtrans*, which records regime transitions of varying types, I simplify the transition measure into two variables. The upturn measure is coded as one for any positive regime transitions recorded by POLITY which constitute a three point increase in the past three years. Likewise, the downturn variable is coded one for any negative regime transition recorded by POLITY as a three or more point decrease in the past three years. Perhaps unsurprisingly these are rare events, with only five percent (upturn) and two percent (downturn) of observations coded as one.

The final dependent variable is persistence. This is a binary measure of whether the regime persisted unchanged from the previous year. Using the various component parts of the POLITY index, regime persistence was coded as 1 for any year where none of the components changed in value; persistence was coded 0 if any of the components changed in either direction. This approach should capture the the maximal number of changed recorded by POLITY in the sample. It is more sensitive than an alternative where only aggregate score changes would be considered (i.e. using *regtrans*). Of note is that 90 percent of the sample is persistence years, leaving 10 percent of the sample covering regime failures (in that they changed from the status quo).

Estimation Methods

The model results presented in the tables above rely on three different estimation techniques. For the *Democracy* model where the dependent variable is level of democracy, I use OLS linear regression. After examining component plus residual plots of each covariate, I discovered there was nonlinearity present. Therefore, I logged total foreign aid commitments and population. It was necessary to use an inverse hyperbolic sine transformation for the foreign aid variable as it contained zeros; the transformation is equivalent to logging the variable. There are no remaining serious nonlinearities or other OLS assumption challenging problems in the model presented in the text. As a matter of consistency I used the transformed variables in all four models.

Where the dependent variable is either upturn or downturn I use logistic regression,

as is appropriate for dichotomous response variables. I calculate McFadden's Pseudo R-squared statistic for these models. The coefficients appearing in Table 1 for these models are logistic regression coefficients, but as significance and relative magnitude for within-model comparison were more important than directly interpretable effects they were not altered for presentation.

The final model uses binary time-series cross-sectional (BTSCS) logistic regression. This is an alternative to standard logistic regression that does not account for time appropriately (Beck, Katz and Tucker 1998). It is also a computationally and representationally simpler modeling choice than survival models, which become difficult to interpret with 45 year series and 172 cross-sectional identifiers. This model includes a third degree polynomial in *Time spell* on the recommendation of Carter and Signorino (2010). The Beck, Katz, and Tucker approach suggested simple dummy variables to account for varying time spells (as the alternative, calculating splines, was difficult for most researchers at the time). The Carter and Signorino update to modeling time dependence in BTSCS logistics regression argues that cubic polynomials are almost always the ideal method, relative to time dummies or splines with different knotting choices. I calculate McFadden's Pseudo R-squared statistic for this model as well.

Independent Variables

Consistent with the discussion in the main text, the independent variables included in the empirical models are derived from three groups of explanations in the extant literature: structural factors, political economy factors, and diffusion factors.

Structural Variables

The first of the structural variables included is colonial past. This measure was adapted from the Issue Correlates Of War Colonial History Data Set, and identifies which western "colonial or imperial power that was most responsible for shaping the development of the entity (or entities) that became this modern state" (Hensel 2009). Since the idea behind colonial past is that the colonizer leaves important structural remnants

imprinted on society, this operationalization is more appropriate than alternatives, such as coding for the imperial power which the observation state gained independence from. The focus here is on western overseas colonization (see Bernhard, Reenock and Nordstrom 2004) and as such settler colonies including the United States, Canada, Australia, and New Zealand were omitted; Ottoman, Japanese, and other nonwestern colonizers were omitted as well. In Table 6 the categories of this measure are expressed as binary variables. In the model results above, the omitted reference category is "none" for this variable.

The second structural variable is percent of the population which are Muslim. This measure is from the ARDA RCS version 2.0 (Brown and James 2019). This variable has a mean value of around 27 percent, and a standard deviation of about 37 percent, and ranges from zero to nearly 100 percent.

Political Economy Variables

The first political economy measure included is the percent of GDP from resource rents, lagged one year. This variable comes from the World Bank Development Indicators (WB 2017) ranges from zero to nearly 90 percent in the sample, with a mean of just over 8 percent. Resource rents from oil, coal, minerals, and similar are included in this measure.

The second political economy variable is total foreign aid commitments, lagged one year. Data on foreign aid commitments is from AidData (2016). There are alternative sources for foreign aid data, but due to the number of years included as well as the nearly comprehensive nature of the AidData project, this source was selected. AidData includes both official development assistance as well as international loans, and gathers information from a variety of sources including donors and recipients themselves(Tierney et al. 2011). This variable is shown in Table 7 in millions of USD and ranges from zero to 63.2 billion with a mean of around 877 million.

The third political economy variable is percent of GDP from trade, sourced from the World Bank Development Indicators (WB 2017). There are several alternative ways to create a trade influence variable, such as net trade inflows or total trade volume. Since

percent of GDP from trade is already standardized across the size of the observation's economy this was a logical choice. The variable ranges from nearly zero to 531 percent. This indicates that for some observation years, total trade volume was so large that it eclipsed domestic production in the observation year.

Diffusion Variables

There are three diffusion variables included in the above analysis. Each captures a different scope of diffusion: global, regional, and among neighboring states. For the democracy model, all diffusion variables rely on the one year lagged POLITY values of the global, regional, or contiguous neighborhood members of the sample. For the global average, all observations for the indicated year were included. For the regional average, all observations from the same World Bank indicated region (i.e. Middle East and North Africa, or Sub-Saharan Africa) were included. For the neighborhood average, contiguous neighbors were identified using the Correlates of War Direct Contiguity data (Stinnett et al. 2002). To be included in the observation's neighborhood, a state must have direct contiguity or separation by no more than 150 miles of water.

Controls

For the models in chapter 1, several control variables were included in addition to the independent variables listed above. These measures are included as control variables as they are not commonly included as theoretically central in the literature on democratization, but still are often included as control variables in most extant studies.

The size of the of the polity– the log of total population in millions of people– as well as GDP per thousand persons were included from the World Bank Development Indicators (WB 2017). Additionally, two dummy variables, one indicating the presence of international conflict and one indicating internal conflict, were also included. The country-year conflict measures are adapted from the dyadic Armed Conflict Dataset (Gleditsch et al. 2002, Melander, Pettersson and Themnér 2016). These are all lagged indicators.

Appendix B

Supplementary Tables, Chapter 4

The following results are referenced in the text but were placed here for readability.

Summary Statistics

Table 8: Summary Statistics, Chapter 5

Statistic	N	Mean	St. Dev.	Min	Max
Dependent Variables					
Liberalization	1,429	0.46	0.50	0	1
Deliberalization	1,429	0.46	0.50	0	1
Regime persistence	1,432	0.88	0.33	0	1
Crisis					
Coup attempt	1,405	0.02	0.16	0	1
Protest	1,432	0.60	0.49	0	1
Diffusion, Emulation, Learning					
Regional liberalization	1,421	0.49	0.19	0	1
Regional deliberalization	1,421	0.41	0.26	0	1
Neighbor liberalization	1,288	0.49	0.32	0	1
Neighbor deliberalization	1,288	0.45	0.37	0	1
Peer liberalization (type)	1,379	0.47	0.41	0	1
Peer deliberalization (type)	1,379	0.44	0.42	0	1
Peer liberalization (colony)	1,429	0.45	0.35	0	1
Peer deliberalization (colony)	1,429	0.48	0.39	0	1
Peer liberalization (wealth)	1,429	0.46	0.37	0	1
Peer deliberalization (wealth)	1,429	0.47	0.40	0	1
Controls					
Liberalization $_{t-1}$	1,421	0.49	0.50	0	1
Deliberalization $_{t-1}$	1,421	0.42	0.49	0	1
Monarchy	1,432	0.11	0.32	0	1
Personalist regime	1,432	0.38	0.49	0	1
No colony	1,432	0.30	0.46	0	1
British colony	1,432	0.29	0.45	0	1
French colony	1,432	0.23	0.42	0	1
Spanish colony	1,432	0.07	0.26	0	1
Other colony	1,432	0.11	0.31	0	1
Muslim majority	1,426	0.43	0.50	0	1
Total population (hundred thousands)	1,426	393.20	1,460.43	4.24	13,863.95
GDP per thousand $_{t-1}$	1,384	5.32	10.63	0.11	85.08
Percent GDP from trade	1,299	83.23	52.47	0.17	437.33
Percent GDP from resource rents	1,380	14.78	14.77	<0.01	86.45

Notes: The total possible N is 1,432 over 17 years and 103 unique countries. The number of observations for each model may be lower due to listwise deletion of observations with missing values. All diffusion, emulation, and learning measures lagged one year.

Results, Hypothesis 1

Table 9: Results, Hypothesis 1: Crisis

	Dependent variable:					
	Liberalization			Deliberalization		
	(1)	(2)	(3)	(4)	(5)	(6)
Protest	−0.173			0.040		
	(0.119)			(0.126)		
Coup attempt		−0.418			0.014	
		(0.374)			(0.385)	
Any challenger			−0.159			0.068
			(0.119)			(0.127)
British colony	0.308*	0.312*	0.308*	−0.254	−0.241	−0.249
	(0.156)	(0.156)	(0.156)	(0.162)	(0.163)	(0.162)
French colony	0.341*	0.384*	0.339*	−0.647*	−0.819*	−0.693*
	(0.157)	(0.159)	(0.158)	(0.165)	(0.170)	(0.167)
Spanish colony	0.584*	0.602*	0.586*	−0.361	−0.328	−0.346
	(0.254)	(0.253)	(0.254)	(0.261)	(0.262)	(0.261)
Other colony	−0.098	−0.034	−0.090	−0.550*	−0.562*	−0.543*
	(0.214)	(0.212)	(0.214)	(0.224)	(0.222)	(0.223)
Majority Muslim	0.218	0.229	0.222	0.368*	0.442*	0.393*
	(0.126)	(0.127)	(0.127)	(0.132)	(0.134)	(0.133)
GDP per thousand	−0.005	−0.005	−0.005	0.080*	0.083*	0.081*
	(0.006)	(0.006)	(0.006)	(0.011)	(0.011)	(0.011)
Trade, pct. GDP	0.001	0.001	0.001	−0.002	−0.003*	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rents, pct. GDP	0.008	0.009*	0.008*	−0.020*	−0.020*	−0.020*
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Constant	−0.537*	−0.672*	−0.547*	0.041	0.127	0.037
	(0.190)	(0.167)	(0.192)	(0.204)	(0.179)	(0.206)
Observations	1,285	1,268	1,280	1,285	1,268	1,280
Log Likelihood	−876.010	−864.605	−872.657	−805.624	−783.859	−799.115
Akaike Inf. Crit.	1,772.021	1,749.210	1,765.314	1,631.248	1,587.717	1,618.229
McFadden's R^2	0.012	0.012	0.012	0.0924	0.104	0.096

Note: $^*p < 0.05$. Standard Errors in parentheses.

Results, Hypothesis 5

Table 10: Results, Hypothesis 5: Learning and Monarchy

	Dependent variable:					
	Liberalization			Deliberalization		
	(1)	(2)	(3)	(4)	(5)	(6)
Monarchy	0.166	0.411	0.050	0.914*	0.477	0.618
	(0.373)	(0.341)	(0.337)	(0.463)	(0.336)	(0.355)
Peer group (type)	0.866*			1.054*		
	(0.157)			(0.167)		
Type × Monarchy	0.136			−1.742*		
	(0.498)			(0.626)		
Peer group (colony)		0.881*			1.214*	
		(0.185)			(0.184)	
Colony × Monarchy		−0.211			−0.910	
		(0.527)			(0.519)	
Peer group (wealth)			0.831*			1.169*
			(0.180)			(0.178)
Wealth × Monarchy			0.477			−1.168*
			(0.497)			(0.511)
British colony	0.257	0.252	0.303	−0.206	−0.145	−0.191
	(0.160)	(0.160)	(0.162)	(0.168)	(0.168)	(0.167)
French colony	0.337*	0.338*	0.443*	−0.593*	−0.386*	−0.498*
	(0.161)	(0.158)	(0.160)	(0.169)	(0.172)	(0.170)
Spanish colony	0.617*	0.534*	0.576*	−0.193	−0.111	−0.160
	(0.258)	(0.258)	(0.257)	(0.268)	(0.270)	(0.270)
Other colony	−0.354	0.085	−0.094	−0.343	−0.352	−0.442
	(0.228)	(0.218)	(0.217)	(0.233)	(0.229)	(0.228)
Majority Muslim	0.221	0.242	0.241	0.299*	0.346*	0.283*
	(0.134)	(0.133)	(0.133)	(0.139)	(0.138)	(0.138)
GDP per thousand	−0.010	−0.009	−0.012	0.074*	0.071*	0.073*
	(0.007)	(0.007)	(0.007)	(0.012)	(0.012)	(0.012)
Trade, pct. GDP	0.001	0.001	0.001	−0.002	−0.003	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rents, pct. GDP	0.011*	0.008	0.007	−0.020*	−0.019*	−0.019*
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Constant	−1.105*	−1.090*	−1.098*	−0.238	−0.469*	−0.399*
	(0.192)	(0.194)	(0.202)	(0.191)	(0.199)	(0.196)
Observations	1,257	1,283	1,281	1,257	1,283	1,281
Log Likelihood	−836.715	−861.582	−857.683	−769.952	−782.429	−781.083
Akaike Inf. Crit.	1,697.429	1,747.165	1,739.365	1,563.904	1,588.858	1,586.167
McFadden's R^2	0.035	0.027	0.030	0.114	0.117	0.118

Note: $^*p < 0.05$. Standard Errors in parentheses.

Table 11: Results, Hypothesis 5: Learning and Personalism

	Dependent variable:					
	Liberalization			Deliberalization		
	(1)	(2)	(3)	(4)	(5)	(6)
Personalist	0.602*	−0.246	0.233	−0.093	0.093	−0.013
	(0.203)	(0.229)	(0.217)	(0.184)	(0.197)	(0.198)
Peer group (type)	1.146*			0.863*		
	(0.188)			(0.196)		
Type × Personalist	−0.675*			0.131		
	(0.310)			(0.333)		
Peer group (colony)		0.575*			1.162*	
		(0.207)			(0.206)	
Colony × Personalist		0.920*			−0.128	
		(0.379)			(0.367)	
Peer group (wealth)			0.904*			1.051*
			(0.201)			(0.203)
Wealth × Personalist			0.001			−0.039
			(0.355)			(0.347)
British colony	0.297	0.372*	0.409*	−0.222	−0.128	−0.182
	(0.163)	(0.162)	(0.161)	(0.168)	(0.170)	(0.168)
French colony	0.311	0.338*	0.457*	−0.605*	−0.389*	−0.503*
	(0.161)	(0.159)	(0.160)	(0.169)	(0.174)	(0.170)
Spanish colony	0.600*	0.547*	0.554*	−0.195	−0.109	−0.167
	(0.258)	(0.260)	(0.258)	(0.266)	(0.269)	(0.268)
Other colony	−0.276	0.174	0.016	−0.389	−0.312	−0.476*
	(0.229)	(0.218)	(0.217)	(0.235)	(0.229)	(0.228)
Majority Muslim	0.259*	0.275*	0.275*	0.292*	0.335*	0.272*
	(0.131)	(0.129)	(0.129)	(0.138)	(0.136)	(0.136)
GDP per thousand	−0.005	−0.003	−0.006	0.069*	0.069*	0.070*
	(0.006)	(0.006)	(0.006)	(0.011)	(0.011)	(0.011)
Trade, pct. GDP	0.001	0.001	0.002	−0.002	−0.002	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rents, pct. GDP	0.009	0.006	0.006	−0.020*	−0.019*	−0.019*
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Constant	−1.357*	−1.067*	−1.271*	−0.149	−0.472*	−0.335
	(0.205)	(0.201)	(0.207)	(0.202)	(0.212)	(0.207)
Observations	1,257	1,283	1,281	1,257	1,283	1,281
Log Likelihood	−833.039	−858.357	−857.546	−774.174	−783.848	−783.642
Akaike Inf. Crit.	1,690.078	1,740.714	1,739.093	1,572.349	1,591.697	1,591.283
McFadden's R^2	0.040	0.031	0.030	0.110	0.116	0.115

Note: $^*p < 0.05$. Standard Errors in parentheses.

Figure 8: Effect of Monarchy x Peer Deliberalization on Deliberalization

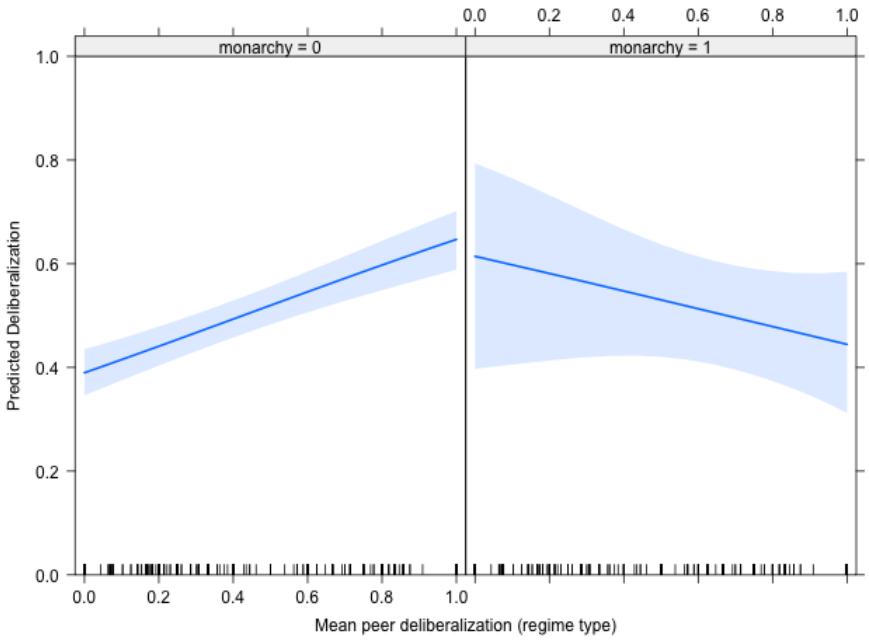
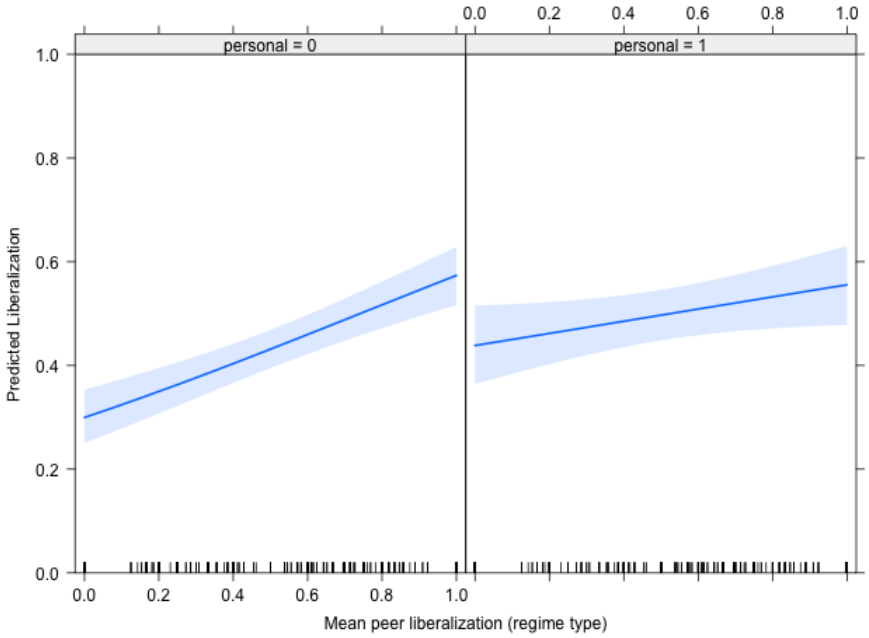


Figure 9: Effect of Personalist x Peer Liberalization on Liberalization



Results, Hypothesis 6

Table 12: Results, Hypothesis 6: Persistence

	Dependent variable:	
	Persistence	
	(1)	(2)
Protest	0.026	−0.021
	(0.355)	(0.345)
Liberalization	0.194	
	(0.437)	
Liberalization × Protest	−0.135	
	(0.529)	
Deliberalization		−0.038
		(0.455)
Deliberalization × Protest		−0.041
		(0.532)
British colony	−0.796*	−0.791*
	(0.339)	(0.339)
French colony	−0.188	−0.208
	(0.336)	(0.340)
Spanish colony	13.789	13.766
	(546.770)	(546.136)
Other colony	−1.069*	−1.098*
	(0.525)	(0.520)
Majority Muslim	−0.590*	−0.579*
	(0.282)	(0.286)
GDP per thousand	0.017	0.017
	(0.035)	(0.035)
Trade, pct. GDP	0.002	0.002
	(0.004)	(0.004)
Rents, pct. GDP	0.017	0.017
	(0.011)	(0.011)
Time spell	57.793	58.116
	(37.939)	(37.751)
Time spell ^{2}	37.566	37.766
	(27.903)	(27.778)
Time spell ^{3}	16.810	16.940
	(13.879)	(13.815)
Constant	3.003*	3.110*
	(0.734)	(0.725)
Observations	742	742
Log Likelihood	−237.040	−237.122
Akaike Inf. Crit.	504.081	504.243
McFadden's R^2	0.088	0.088

Note: $^*p < 0.05$. † p = 0.051. Standard Errors in parentheses.

Curriculum Vitae

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Education

Ph.D., Political Science, University of Wisconsin-Milwaukee, May 2020
Exam Fields: Comparative Politics and International Relations
Thesis: Old Dogs, New Tricks: Authoritarian Regime Persistence Through Learning
Committee: David A. Armstrong (chair), Ora John Reuter (co-chair), Natasha Borges Sugiyama, Shale Horowitz, and Patrick W. Kraft

M.A., Political Science, University of Wisconsin–Milwaukee, August 2012
Thesis: Relative Theories of Democratization in the Middle East and North African Region and World
Committee: David A. Armstrong (chair), Jennifer K. Smith, and Paru R. Shah

B.A., Political Science (World Politics), University of Wisconsin–Eau Claire, May 2009
Cum Laude
Thesis: Comparative Political Analysis: Democratic Potential in Islamic States
Advisor: Ali R. Abootalebi

Research

Peer reviewed

Shah, Paru R. and Nicholas R. Davis. 2017. "Comparing Three Methods to Classify the Race of Candidates." *Journal of Race, Ethnicity and Politics* 2(1): 124–139. DOI: 10.1017/rep.2016.27

Working papers

Why Would They Say No? Authoritarian Reactions to Relief Aid (w/ B. S. Tan)

Trading Faces: How Trading Partners Affect Changes in Governing Institutions

With a Little Help from Our (Autocratic) Friends: The Aid-Democratization Nexus and Chinese Development Assistance

Conference presentations

Tan, B. S. and N. R. Davis. Why Would They Say No? Authoritarian Reactions to Relief Aid. *The Annual Meeting of the American Political Science Association*, Boston September 2018.

Davis, N. R. Walking in Your Neighbor's Steps: Neighbor Emulation As Simplistic Learning. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2018.

Schwarz, C. and N. R. Davis. It's Never That Simple: Unpacking the Simultaneous and Conditional Effects of Foreign Aid, Political Institutions, Economic Development, and Political Violence. *The Annual Meeting of the International Studies Association*, Baltimore February 2017.

Tan, B. S. and N. R. Davis. The Logic of Authoritarian Reaction to Foreign Relief. *The Annual Meeting of the American Political Science Association*, Philadelphia September 2016.

Davis, N. R. Persistent Authoritarianism and the Stabilizing Effect of Resource Wealth. *The Annual Meeting of the American Political Science Association*, Philadelphia September 2016.

Davis, N. R. With a Little Help from Our (Autocratic) Friends: The Aid-Democratization Nexus and Chinese Development Assistance. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2016.

Schwarz, C. and N. R. Davis. Decisions, Decisions: Re-examining the Trade-Conflict Nexus. *The Annual Meeting of the International Studies Association*, Atlanta March 2016.

Davis, N. R. Trading Faces: How Trading Partners Affect Changes in Governing Institutions. *The Annual Meeting of the American Political Science Association*, San Francisco September 2015.

Davis, N. R. Democracy, Inclusion, and Communal Rebellion: Understanding Violence Against the State 1980–2006. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2015.

Davis, N. R. Teaching the Rebels A Lesson: Education Provision and Civil Conflict. *The Annual Meeting of the International Studies Association*, New Orleans February 2015.

Davis, N. R. The Diffusion of Political Liberalism: What We Can Learn From Regime Responses During the Arab Spring. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2014.

Davis, N. R. and B. S. Tan. Evaluating Three Theories of Democratization in the Middle East and North Africa. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2014.

Shah, P. R., N. R. Davis, and M. Tofias. Race and Guessing Games: Comparing Three Methods to Classify the Race of Candidates. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2014.

Davis, N. R. Major Theories of Democratization Reexamined: Replacing Garbage Can Regression Models with Mixture Models. *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2013.

Shah, P. R., M. Marschall, and N. R. Davis. The Supply Side of Minority Representation: When Do Minority Candidates Run, and When Do They Win? *The Annual Meeting of the Midwest Political Science Association*, Chicago April 2012.

Project Affiliations

The Ohio State University (data consultant): June 2018–August 2018

PRIO Costs of Contention (research assistant): January 2017–December 2018

Laboratories of Democracy (data consultant): August 2016

CandidateD (research assistant): Fall 2013–Spring 2014

Candidate Emergence in the States (research assistant): Fall 2012–Fall 2013

Local Elections in America Project (project assistant): Fall 2011–Spring 2012

Academic Appointments

University of Wisconsin-Milwaukee

- Associate Lecturer, Department of Political Science: Fall 2016–Spring 2020
- Research Assistant, Department of Political Science: Summer 2013– 2016
- Teaching Assistant, Department of Political Science: Fall 2012–Spring 2016
- Graduate Assistant, Department of Political Science: Spring 2011–Spring 2012

Marquette University

- Visiting Instructor, Department of Political Science: Fall 2017–Spring 2019

University of Wisconsin-Parkside

- Associate Lecturer, Department of Politics, Philosophy, and Law: Spring 2017

University of Michigan

- Teaching Assistant, ICPSR Summer Program: Summer 2014, 2018, 2019

Fellowships and Awards

Graduate Student Excellence Fellowship, UW-Milwaukee 2018–2019

Travel Grant, American Political Science Association 2015

Travel Grant, UW-Milwaukee Graduate School 2015

Travel Grant, UW-Milwaukee Political Science Department 2015

Travel Grant, UW-Milwaukee Graduate School 2014

First Year Student Success Award (teaching), UW-Milwaukee 2012

Chancellor's Graduate Student Award, UW-Milwaukee 2012–2013

Leonard Gambrell World Politics Award, UW-Eau Claire 2008–2009

Courses Taught

4421 Democracy, Authoritarianism, and Totalitarianism (Marquette University)

2401 Introduction to Comparative Politics (Marquette University)

175* Introduction to International Relations (UW-Milwaukee)

104 Introduction to International Relations (UW-Parkside)

103* Introduction to Political Science (UW-Milwaukee)

* Course taught both face-to-face and on-line.

Teaching Assistantships

UW-Milwaukee

500 Political Science Capstone (lab instructor)

390 Political Data Analysis (lab instructor)

175 Introduction to International Relations (teaching assistant)

103 Introduction to Politics (discussion section leader)

ICPSR Summer Program

Introduction to the R Statistical Computing Environment (with John Fox)

Regression I (with Colin Lewis-Beck)

Regression II (with Tim McDaniel)

Regression III (with David Armstrong)

Professional Activities

Discussant, Midwest Political Science Association, Chicago April 2017

Reviewer for *Journal of Contemporary Asia*, 2020

Reviewer for *International Political Science Review*, 2016

President, Political Science Graduate Student Association, 2012–2016

Member, International Studies Association, 2014–2017

Member, American Political Science Association, 2013–2020

Member, Midwest Political Science Association, 2012–2020