



**Authoritarian Regimes and Financial Crises:
Explaining Autocratic Regime Survival and Collapse**

Marina Pavlova

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Advisors

First Advisor

Prof. Mark Kayser, PhD

Hertie School, Berlin

Second Advisor

Prof. Mark Copelovitch, PhD

University of Wisconsin-Madison

Third Advisor

Prof. Mark Hallerberg, PhD

Hertie School, Berlin

Summary

The common notion that financial crises pose serious threats to autocratic regime stability has been challenged over the last decades both on theoretical and empirical grounds by the extensive number of authoritarian regimes that seem to be absolutely impervious to financial and economic shocks. So, why do financial crises only sometimes lead to autocratic regime collapse? What mechanisms do (de)stabilize authoritarian regimes during financial crises? And under what conditions is autocratic regime breakdown likely to happen?

This dissertation addresses these questions by bringing together insights from the democratization, comparative autocracy, and political economy strands of research. It argues that the relationship between financial crises and autocratic regime breakdown is highly conditional, and depends on a complex interplay of economic and political factors. In three standalone papers, this dissertation scrutinizes the entire process of crises-induced autocratic regime instability and regime collapse, and examines the effects of different economic and political factors on the probability of autocratic regime survival and collapse during specific types of financial crises.

The key findings of this dissertation demonstrate that the destabilizing effects of financial crises may vary by crisis type, that in response to financial crises, policymakers in autocracies can implement crisis policies that prolong authoritarian rule, and that institutions by which autocracies govern may immunize them from political risks during financial crises, or, by contrast, may precipitate elite defection and regime collapse.

Overall, this dissertation provides many new theoretical and empirical insights into the sources of autocratic regime survival and breakdown during financial crises. It also provides one more evidence that economic and political problems do not exist in isolation from one another, rather they are linked together in complex networks of weirdly tangled cause-effects relationships, which we do not yet fully understand.

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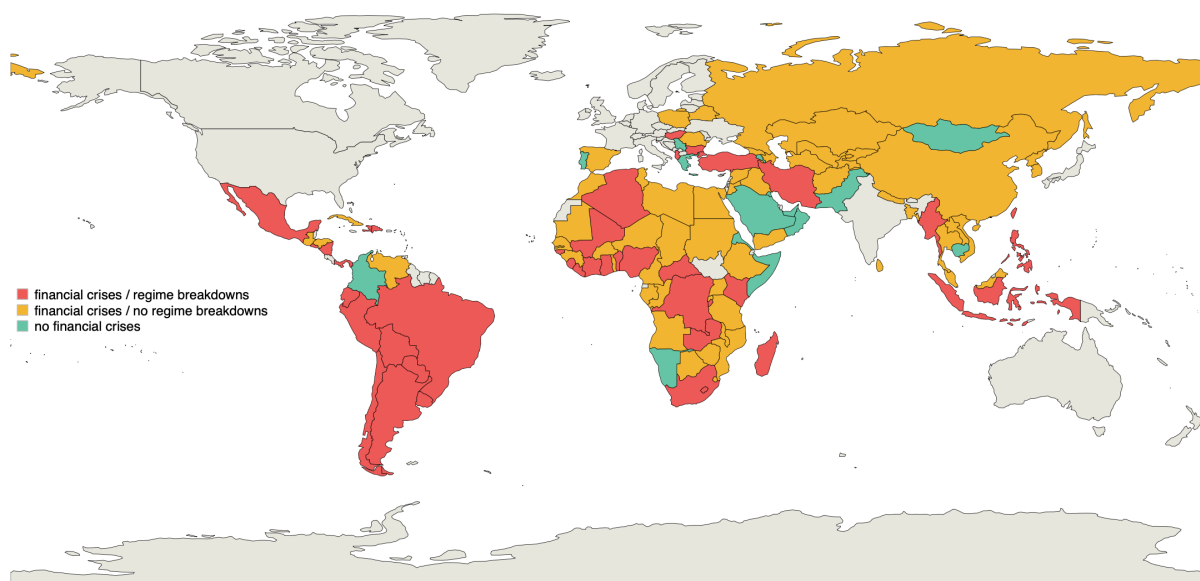
1. General Introduction

1.1. Motivation

For political leaders in autocracies and democracies alike, financial crises remain one of their worst nightmares. A typical journalist account of financial crises invokes the image of thousands of angry citizens marching through the streets of major cities in protest, screaming that the ruling elites are inept and corrupt, and calling for government to resign. Indeed, history gives politicians good reasons to worry. Political turmoil, protests and violence accompanied many major financial crises in countries as politically diverse as Indonesia (crisis in 1998), where people were out on the streets looting stores and ransacking homes, demanding the fall of the Suharto regime, to Greece (crisis in 2010-2012), where riots sparked by harsh austerity measures were so violent that they left several people dead and brought chaos to the streets of Athens, leaving the city paralyzed. More recently, public discontent and national protest movements against the government over severe financial crises and economic meltdowns have shaken regimes in a range of countries, including Lebanon, Iran, Sudan, Turkey, and Venezuela, providing ample evidence that the political costs of financial crises can be severe.

Nevertheless, while it is undisputed that financial crises have contributed significantly to the prominent examples of autocratic and democratic regime breakdowns such as the end of the Weimar Republic (1933), the Chilean coup (1973), the fall of the brutal military junta in Argentina (1983), the overthrow of Nicolae Ceaușescu in Romania (1989), and the ousting of Haji Mohamed Suharto in Indonesia (1998), history also provides many notable examples to the contrary. In Malaysia (crisis in 1997-1998), Mahathir bin Mohamad's regime remained in power despite severe economic contraction during the Asian financial crisis. In Zimbabwe (crisis in 2000-2008), Robert Mugabe presided for years during protracted economic depression caused by the 1999 sovereign default on the IMF and World Bank loans. Vladimir Putin's regime in Russia (crises in 2008-2009, and 2014-2015), Recep Tayyip Erdoğan's regime in Turkey (crises in 2018, and 2021), and the unique clerical regime in Iran (crises in 2012-2013, and ongoing since 2018) — all seem to be absolutely impervious to financial and economic shocks. Surprisingly, even in Venezuela, where the ongoing crisis is ranked to be the worst that the world has ever seen outside of war (Kurmanaev 2019), the regime of Nicolás Maduro manages to persist despite pure humanitarian catastrophe: economic chaos, hyperinflation, severe food and medicine shortages, mass exodus, and one of the world's highest homicide rates.

Figure 1.1. Autocratic regime breakdowns and financial crises, 1960-2010



Note: Data on autocratic regime breakdowns come from Geddes, Wright, and Frantz (2014), on banking crises — from Laeven and Valencia (2012), on currency crises — from Reinhart and Rogoff (2009), and on sovereign debt crises — from Beers and Mavalwalla (2017) and Standard & Poor's. A country is given the color red if at least one regime breakdown occurs during any financial crisis, or within a year after its end. Only autocratic country-years and only country-years of independence are included. Countries with populations less than one million are excluded.

The notion that autocracies inevitably break down during crises, potentially opening the way for a democracy, seems even more exaggerated when one takes a look at the large-scale empirical evidence (see Figure 1.1). A sample of autocratic years in 113 countries for the period 1960-2010 shows that only 35% of autocracies have experienced a regime breakdown that occurred during a financial crisis. The number is even smaller if one takes into account all episodes of financial crises over the specified time period — only 18% of all episodes of financial crises in autocracies coincided with a regime collapse. In other words, contrary to the general perception that crises pose serious threats to autocratic regime stability, the empirical evidence suggests that autocracies are far more likely to *survive* financial crises than to break down during them.

Similarly, the existing academic literature does not provide consistent and robust evidence of the destabilizing effects of economic crises in authoritarian setting. The available studies are almost evenly divided between those that find no support for the crisis-breakdown relationship and those that claim that the relationship is not only present, but also robust (see discussion below). From academic point of view, we still have very limited understanding of mechanisms that (de)stabilize autocracies during crises. In fact, we know a lot more about the conditions under which autocratic regime breakdown is likely to result in transition to a democracy, than about why autocracies survive or collapse during crises in the first place. And we know even less about when and how crisis-induced autocratic regime breakdown is likely to happen.

Beyond academic interest, this topic has also critical public policy relevance. Financial crises are contained and resolved by governments, and governments operate in a political environment. Yet, among economists, the focus of debate involving the emergence, evolution and attempts at resolution of financial crises are generally economic conditions, and after-crisis growth and development. In the discussion, both the politics of financial crises and the political feasibility of crisis policy options are usually absent. Such economic approach, although undoubtedly useful, is nevertheless not grounded in a realistic appraisal of political constraints created by financial crises and encountered by political actors as they attempt to deal with financial turmoil: While economic considerations indeed limit crisis policy options, which one of the economically feasible policy options to choose is always a *political* decision. The latter, in turn, often originates in the policymakers' desire to survive politically. Henceforth, insights on how autocracies deal with financial crises and why they survive financial turmoil could have profound implications both for policymakers in advanced economies and for the international finance establishment, particularly for the IMF.

To date, many important questions about the sources of autocratic regime (in)stability during financial crises remain unanswered. What makes some autocracies more stable during financial crises than the others? Does the effect of crises vary by crisis type? Can we locate common patterns of vulnerability with regards to actors and institutions in autocratic regimes? Why do autocracies with similar initial economic conditions choose different policies in response to similar crises? And how do political conflicts occur and unfold during attempts at crisis resolution?

This dissertation sets out to answer some of these questions. By focusing on specific crisis-breakdown relationships, it shows that the destabilizing effects of financial crises may vary by crisis type, that in response to financial crises, policymakers can implement policies that prolong authoritarian rule, and that institutions by which autocracies govern may immunize them from political risks during financial crises, or, by contrast, may precipitate elite defection and regime collapse.

While the findings in this dissertation do not suggest any generalizable rules for all types of crises and all types of autocracies, beneath the surface of this dissertation is a single pervasive theme: Authoritarian regimes turn out to be more stable, resilient, and durable than generally believed. Their ability to navigate the way through the storm during financial crises constitutes yet another example of incredible autocratic resilience. This

finding will likely disappoint democratic forces who still hope to use nonmilitary means to overthrow autocratic regimes.

This introductory chapter is structured as follows. Section 1.2 presents the main concepts used in this dissertation. Section 1.3 reviews the existing approaches to studying the crisis-breakdown relationship. Section 1.4 explains my research questions and research structure. Section 1.5 gives an overview of the main methodological challenges that arise when studying the crisis-breakdown relationship. Section 1.6 summarizes the main findings of my dissertation, and discusses the contribution to the academic literature. Section 1.7 concludes by providing a brief chapter overview.

1.2. Central concepts

1.2.1. Authoritarian regime, regime breakdown, and regime instability

Political regime

Throughout this dissertation, under ‘political regime’ I mean a set of formal and informal institutions and norms that structure the choice of political leaders and policies (Geddes, Wright, and Frantz 2014). Democracy is defined according to the Dahlian view that considers regimes democratic only if political leaders are chosen in free and fair elections for all key positions in power, upheld by certain political rights, such as freedom of thought, expression, assembly, etc. (Dahl 1989). Autocracy, therefore, is an umbrella term that captures any political regime that does not live up to the standards of the Dahlian definition of democracy.

Political change

The term ‘political change’ is a broad concept that refers to any change in the relative distribution of political power among actors within a polity. The fundamental difference between autocracies and democracies implies that political changes in autocracies are less institutionalized and, therefore, far more complex than political changes in democracies. In contrast to democracies, in autocracies, political choices are shaped and constrained not only by formal rules (such as elections or constitutions), but also by informal arrangements that allow certain elite groups to choose policies and impose their wishes on the society. Since formal and informal rules in autocracies quite often do

not correspond, researchers are typically interested in who has *de facto* power to select leaders and choose policies.

Regime breakdown

'Regime breakdown' is a more narrow term that can be defined as a *fundamental* change in formal and informal rules that structure the choice of political leaders and policies (Geddes, Wright, and Frantz 2014). In contrast to democratic regime breakdown, which can be seen as a sudden transition away from democracy via a violation of democratic *institutional standards* (most notably of free and fair elections), autocratic regime breakdown occurs when there is a sudden change of the *ruling coalition*, i.e., a change of the group that has *de facto* power to select leaders and choose policies. This conceptual difference between democratic and autocratic regime breakdowns has important implications for how we measure autocratic regime breakdown, which I discuss below.

Regime instability

Regime instability is a necessary (although not sufficient) condition for a regime breakdown. In a very broad sense, 'regime instability' can be defined as any attempt of socio-political members to change the distribution of political power so that it threatens the maintenance of the existing pattern of distribution of political power and could result in a regime breakdown (Ake 1975). Typical examples of regime instability events include coups d'état, popular uprisings, civil wars, terrorist attacks, and assassination attempts against the incumbent. In a more narrow sense, however, regime instability can be defined as the propensity for an imminent regime breakdown. Unless specified otherwise, in this dissertation, I use the term 'regime instability' in a more narrow sense.

1.2.2. Measuring autocratic regime breakdowns

Researchers measure autocratic regime breakdowns in many ways depending on the context, the selected definition, and the specific goals of the research. Traditionally, the literature on autocratic regime (in)stability distinguishes between three distinct levels of analysis: leadership, regime, and authoritarianism itself, and, accordingly, identifies three conceptually distinct types of political change in autocracies: leadership change, regime change, and democratization (see, e.g., Geddes, Wright, and Frantz 2014, Wright and Bak 2016, Svobik 2012).

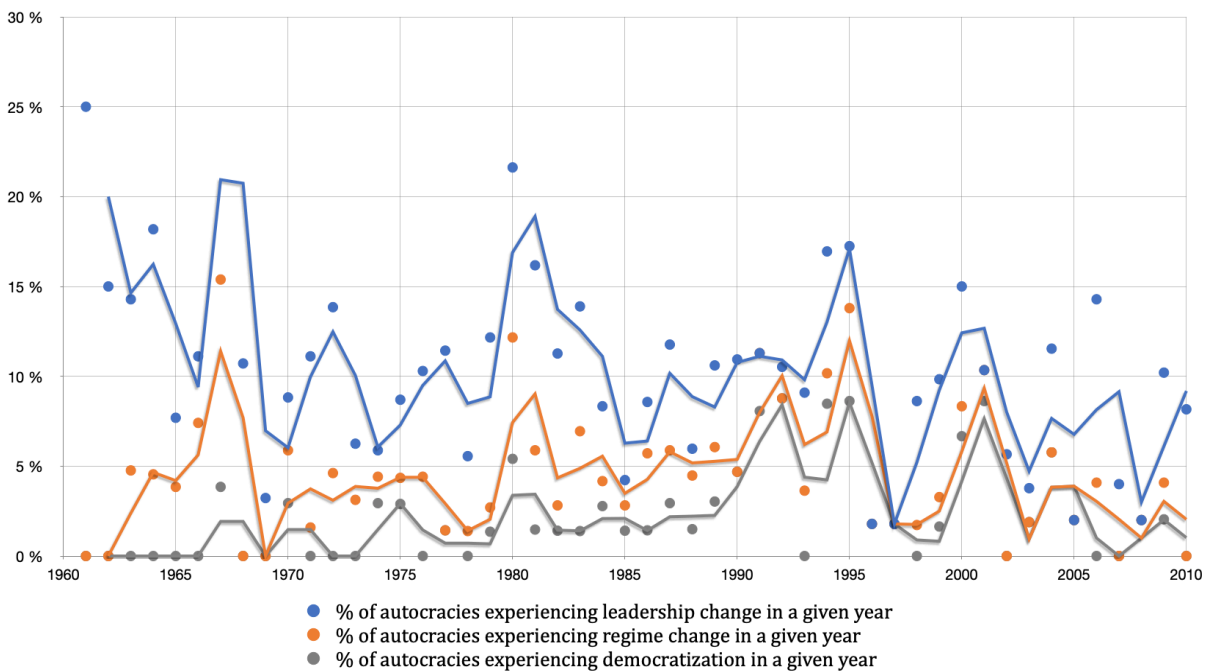
Leadership change is usually an important source of regime instability for personalist autocracies and monarchies, where leader exit significantly changes the power dynamics within the regime and often means the change of the regime itself even if the remaining leadership group stays in power. In single-party and military regimes, however, leadership change does not necessarily coincide with a regime collapse. So, for example, in response to social discontent, the ruling elites may decide to oust the unpopular leader and replace him with another one from the same inner circle that holds power (Geddes, Wright, and Frantz 2018). In some autocracies, regular leadership rotation may even be part of a common institutionalized mechanism that is used to enhance autocratic regime survival by alleviating the conflicts of power-sharing within the regime (Magaloni 2006).

Regime change is a complex concept that groups together several distinct types of political change in autocracies, such as transition to a democracy, transition to a new autocracy, and significant changes of the basic governing rules within the same authoritarian regime. While all of these events can be used as a proxy for autocratic regime instability, only the former two actually capture the concept of regime breakdown, in which the leader and his inner circle lose power by outside forces, such as competitive elections, military coups, popular uprisings, civil wars, or foreign invasions. The latter type of regime change captures self-imposed regime transformations that significantly change the basic rules of governing in the regime, such as institutional transformations that markedly change political power distribution and eventually reshape the regime.

Democratization is a specific subtype of regime change, which can be defined as a political process aimed at establishing a democratic political system. Historically, these events are relatively rare: less than a half of all autocratic regime breakdowns were followed by democratic transitions in the post-World War II era (Geddes, Wright, and Frantz 2014). Nevertheless, this type of political change has long been a core concern of scholars, and has received an enormous attention in the contemporary academic literature.

Figure 1.2 shows how various types of political change in autocracies fall into three distinct categories over time. Throughout the whole time period, leadership changes are far more frequent than regime changes, while regime changes are more frequent than democratic transitions. In other words, choosing appropriate measures for autocratic

Figure 1.2. Varieties of political change in autocracies, 1960-2010



Note: Data for autocratic regime change and democratization come from Geddes, Wright, and Frantz (2014). Data for leadership change are drawn from the Archigos database of political leaders (2016), and include both regular and irregular leadership changes, as classified by Goemans, Gleditsch, and Chiozza (2009).

regime breakdown is important both for empirical findings, and for our understanding of crisis-induced autocratic regime (in)stability and processes that are behind regime collapse and democratization (see Chapter 2 for discussion). In this dissertation, I measure autocratic regime breakdowns as both autocracy-to-democracy and autocracy-to-autocracy transitions.

1.2.3. Financial vs. economic crises

Quite often, financial and economic crises are treated as synonyms, which is a serious oversimplification and could bias empirical results. Distinguishing between the two is particularly important if they are the prime focus of research, as financial and economic crises are conceptually different, and do not automatically cause each other.

Broadly speaking, the economy consists of the 'real economy', which relates to the production of goods and services, and the 'financial economy', which concerns the management and allocation of existing assets in the pursuit of safe and stable savings returns. The term 'economic crisis' refers to a sudden downturn in the non-financial sector (i.e., the real economy), whereas the term 'financial crisis' refers to a widespread disruption in the financial sector (i.e., the financial economy).

The financial economy can be seen as the backbone of the real economy, because the real economy requires capital investment to support economic activity. However, although the roots of economic crises can quite often be found in the financial sector, economic and financial crises do not necessarily coincide. So, for example, some economic crises can be brought not by financial crises, but by real economic fluctuations, such as sliding business activity or an economic overheat (i.e., so-called business cycle recessions). Similarly, some financial crises may be limited to certain segments of financial services and may be resolved well before they spread throughout the real economy and become economic crises. If, however, economic and financial crises do coincide, they tend to be far more severe than 'normal' recessions: They last longer, result in larger output losses, and exhibit larger declines in employment, consumption, investment, industrial production, and other macroeconomic aggregates (Claessens and Köse 2013).

1.2.4. Varieties of financial crises

The literature on financial crises typically distinguishes between three main types of financial crises: currency crises, banking crises, and sovereign debt crises (see, e.g., Reinhart and Rogoff 2009, Laeven and Valencia 2012, Claessens and Köse 2013).

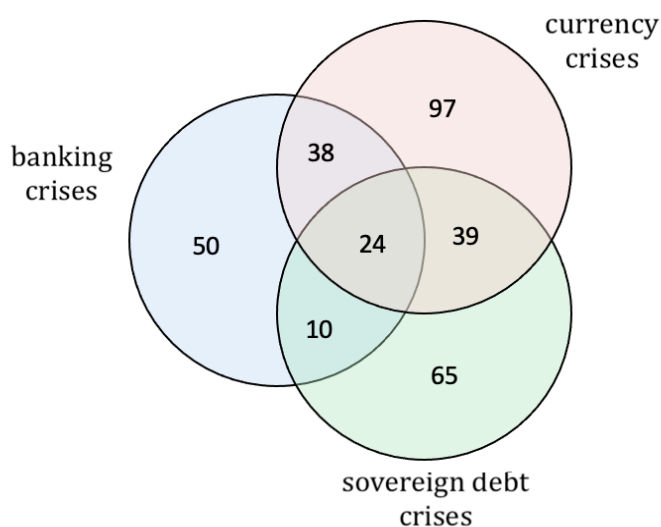
A *currency crisis* unfolds when there is a speculative attack on the foreign exchange value of a national currency. When faced with a currency crisis, authorities are forced either to devalue or sharply depreciate their currency, or to defend the currency by using foreign currency reserves, increasing interest rates, or imposing capital controls.

A *banking crisis* occurs when financial sector intermediaries, primarily banks, suddenly fail to perform their normal functions: Depositors are unable to withdraw money from their accounts because banks suspend the internal convertibility of their liabilities, and governments or central banks have to intervene by providing liquidity and capital assistance on a large scale.

Finally, a *sovereign debt crisis* refers to economic and financial problems caused by the government's failure to service its foreign or domestic debt obligations.

Financial crises often overlap and reinforce each other: One crisis can trigger another crisis, or both crises can occur simultaneously due to common factors. So, for example, banking crises often precede currency crises, and currency crises deepen banking crises

Figure 1.3. Varieties of financial crises in autocracies, 1960-2010



Note: Data on banking crises come from Laeven and Valencia (2012), on currency crises — from Reinhart and Rogoff (2009), for sovereign debt crises — from Beers and Mavalwalla (2017) and Standard & Poor's. Twin and triple crises are calculated as described in Chapter 2.

(Kaminsky and Reinhart 1999, Glick and Hutchinson 1999), sovereign defaults often overlap with currency crises (Laeven and Valencia 2012), and lead to (Borensztein and Panizza 2009) or follow banking crises (Laeven and Valencia 2012).

Figure 1.3 shows the number of standalone, twin, and triple financial crises in autocratic regimes over the period 1960-2010. While standalone crises are clearly more frequent than twin or triple crises, the latter are far more difficult to resolve, and their economic impact can be deep and prolonged.

1.3. Crisis-breakdown relationship: existing explanations

1.3.1. Why crises lead to autocratic regime instability

Sources of autocratic regime instability

Theoretical models aimed at explaining the sources of autocratic regime (in)stability during economic crises have traditionally placed more emphasis on domestic socio-political actors as the causal drivers of autocratic regime breakdowns. The standard approach in these models is to make some basic assumptions about who the key socio-political actors are and what their goals are, and to locate the sources of political conflicts among them.

According to the dominant view, autocratic regime instability may stem either (i) from within the regime (i.e., conflicts among those who rule), or (ii) from the masses excluded from power (i.e., conflicts between the rulers and the ruled) (see, e.g., Svobik 2012, Acemoglu and Robinson 2001, Buena de Mesquita et al. 2003). Elite groups may turn against the regime, because during crises, they endure significant financial losses, suffer from business closures, see their bank accounts dwindle, and grapple with uncertain business prospects. Citizens, by contrast, are more concerned about falling incomes, rising unemployment, accelerating inflation, and shrinking government support.

Crisis, thus, destabilize autocratic regimes by changing the cost-benefit calculations that determine whether elite groups and ordinary citizens continue to support the regime: They shift the balance of power in favor of the regime opponents, and thereby increase the probability of autocratic regime breakdown.

Varieties of autocratic regime instabilities

Depending on which socio-political actors challenge the regime, regime instabilities fall into two distinct categories (Kendall-Taylor, Lindstaedt, and Frantz 2019): (i) insider-led regime instabilities, i.e., threats that emanate from within the regime (e.g., elite-driven coup attempts, elections, term limits, resignations), and (ii) outsider-led regime instabilities, i.e., threats posed by the masses excluded from power (e.g., popular uprisings, demonstrations, civil wars).

Historically, *coups d'état* have posed the most serious threat to autocratic regime stability. They also remain the most common way by which autocrats lose power (Svobik 2012: 5): During the period from 1950 to 2012, more than one-third of all autocrats were forcefully removed from power by regime insiders through a coup (Kendall-Taylor and Frantz 2014: 37), and roughly two-thirds of all successful coups led to a regime change of some sort (Derpanopoulos et al. 2016: 2).

Elections encompass slightly less than one-third of all leader exits in autocracies from 1950 to 2012 (Kendall-Taylor and Frantz 2014: 37), being the second most serious threat to autocratic regime stability. Similar to coups, removals via elections are orchestrated by regime insiders: For an autocrat to lose office via an election, elite groups must first agree to hold elections that are competitive enough to be lost (Hyde and Marinov 2012). Without elite defection, autocrats can rarely be voted out of power, because autocratic elections are typically designed to serve autocratic needs, i.e.,

maintain loyalty and co-opt the support of regime insiders (see, e.g., Geddes 2005, Gandhi 2008, Gandhi and Lust-Okar 2009, Boix and Svobik 2013).

Ouster through *popular uprisings* is the third most serious threat to autocratic regime stability: About one-tenth of all autocrats were deposed through mass revolts from 1946 to 2008 (Svobik 2012: 5), and roughly a quarter lost office due to mass revolts from 2010 to 2012 (Kendall-Taylor and Frantz 2014: 39). While this may seem rare, mass-led actions like demonstrations, revolts, or popular uprisings tend to have the most far-reaching consequences among all types of regime instabilities: From 1950 to 2012, 85% of all mass-led leader removals in autocracies led to a regime change, and 45% — to a democratic transition, meaning that outsider-led regime instabilities are almost five times more likely to result in a democratic rule than military coups (ibid: 41).

In total, during the period from 1946 to 2008, more than two-thirds of all autocrats were removed from power by regime insiders (Svobik 2012: 4), which has led many scholars to conclude that the most serious threat to regime stability comes from *within the regime* rather than from the ordinary citizens (see, e.g., Geddes 2003, Frantz and Ezrow 2011). Yet, after the end of the Cold War, military coups have significantly declined in frequency, and those that occur are now often followed by competitive elections (Goemans and Marinov 2014). At the same time, masses have become increasingly empowered, with mass protests and popular uprisings now unseating a greater proportion of autocrats than coups, marking a significant shift in autocratic regime dynamic (Kendall-Taylor and Frantz 2014). Leader removals through elections have also increased in frequency during the last decades (Goemans and Marinov 2014), which has sparked an explosion of research on autocratic elections and their importance in understanding autocratic regime (in)stability.

Empirical evidence

Empirical studies investigating the destabilizing effects of crises can be crudely divided into two main categories: (i) those that focus on the direct effects of crises and seek to establish whether a relationship between crises and autocratic regime instability exists at all, and (ii) those that look into how various conditional factors interact with crises in creating autocratic regime instability and regime collapse.

Studies that focus on the direct effects of crises are surprisingly scarce and yield rather inconsistent findings. In studies on autocratic regime breakdowns, some scholars find no

significant effects of crises (Gasiorowski 1995), others claim that regime destabilizing effects are present and robust (Tanneberg, Stefes, and Merkel 2013), and others argue that the results are mixed (Przeworski et al. 2000). Similar disagreements persist in studies on irregular leadership change: Some scholars find no significant effects of crises (Burke 2012), while others claim that the relationship holds for regimes with small coalitions (Bueno de Mesquita and Smith 2010). Controversy continues also in studies on the relevance of crises as coup predictors are also almost equally divided between those that argue that crises increase the probability of coups (Derpanopoulos et al. 2016), those that insist that there are no statistically significant effects of crises on coup attempts (Powell 2012), and those that claim that poor economic conditions increase only the probability of 'regime change coups', but not of 'leader reshuffling coups' (Chin, Carter, and Wright 2021).

Given the mixed findings of these studies, many scholars assume that the relationship between crises and regime instability is highly conditional, and focus, therefore, on the interaction effects between crises and various factors to explain autocratic regime (in)stability. Conditional explanations of crisis-induced autocratic regime (in)stability, regime breakdowns, survivals, and democratization abound, with the most prominent of them being income level (Przeworski et al. 2000), income inequality (Acemoglu and Robinson 2006), capital mobility (Boix 2003), labor mobility (Wright 2009a), oil rents (Smith 2004, Wright et al. 2013), linkages to the West (Levitsky and Way 2005) — to name just a few. I discuss some of these explanations below.

1.3.2. Why autocracies survive or break down during crises

Economic factors

Many explanations of autocratic regime (in)stability during crises focus on various economic characteristics of the regime. So, for example, some scholars argue that income inequality (Acemoglu and Robinson 2006, Boix 2003) and capital mobility (Boix 2003, Pepinsky 2009) reduce elite fears of democracy, and thereby increase the probability of crisis-triggered autocratic regime breakdown. Labor mobility, by contrast, makes crisis-induced democratization less likely, because crises cause citizens to exit rather than protest (Wright 2009a). Other scholars claim that income level and economic development affect the prospects for autocratic regime breakdown and democratization,

yet, the empirical evidence is mixed (Acemoglu and Robinson 2006, Boix and Stokes 2003, Przeworski et al. 2000).

Another popular explanation of autocratic regime (in)stability rests on the rentier state theory, which asserts that political elites in oil-rich autocracies are fiscally independent from ordinary citizens, and can use oil revenues to buy off support of key socio-political actors, such as the military, business elites, and religious and socially prominent leaders (Ross 2001, 2012, Smith 2004, 2005, Ulfelder 2007, Wright, Frantz, and Geddes 2013). Oil rents are found to contribute to autocratic regime stability during economic crises, because the regime can use oil revenues acquired during good times to appease potential regime opponents during hard times (Smith 2006, 2007). Oil revenues also help strengthen the state coercive apparatus, which can be used to repress or placate the opposition during crises (Wright, Frantz, and Geddes 2013).

Other explanations of autocratic regime (in)stability during crises focus on the regime's access to external financial support. When autocracies get encumbered by high levels of sovereign debt, they are more likely to concede the regime and democratize, as high levels of debts disrupt the patronage networks that form the basis of the regime, and impede the ability of the regime to assuage and coerce important socio-political actors (Houle, Kayser, and Xiang 2016, Roberts 2006). Yet, access to financial support from other autocracies may strengthen the regime and help it muddle through the crisis (Yom and Al-Momani 2008). By contrast, conditional financial support from the Western donors (Wright 2009b) and pressures from international financial institutions, such as the International Monetary Fund and the World Bank (Knack 2004), may foster political liberalization and initiate a democratic transition.

Political factors

Various political factors also contribute to autocratic regime (in)stability during crises. So, for example, autocracies with different political institutions face different kinds of challenges to their survival in power, since they have different relationships with regime supporters and ordinary citizens. In times of economic crises, credible power-sharing institutions may help anchor actors' expectations and determine the regime's capacity to prevent unnecessary, regime-destabilizing conflicts. Weak institutions, by contrast, may intensify political conflicts among actors and lead to disagreements over how to respond

to economic collapse (Geddes 1999, Gandhi and Przeworski 2007, Brownlee 2007, Svobik 2012, Wright and Escibà-Folch 2012).

Scholars have found that military-led autocracies tend to be rather fragile during economic crises. When faced with economic difficulties, they often voluntarily hand over power to a civilian administration because of officers' fear of factionalism over how to deal with an economic collapse (Geddes 1999, Haggard and Kaufman 1995). By contrast, single-party autocracies tend to be rather stable during crises, because they rely on their party structure to repress or co-opt opposition and to ride out economic challenges (Smith 2005). Similarly, autocracies with well-functioning bureaucracies (Magaloni 2006) and extensive control over the economy (Shih 2020) and over the financial sector (Pepinsky 2009) are better able to cushion economic shocks and mitigate their negative impact, and, thus, stay a better chance to survive economic crises unscathed.

International factors also play an important role in explaining autocratic regime (in)stability during economic crises. In particular, the effects of economic crises on the probability of autocratic regime breakdown and democratization may be contingent on the proportion of democratic neighbors (Gleditsch and Ward 2006), the regime's linkages to the United States (Brinks and Coppedge 2006) and to the West in general (Levitsky and Way 2005), the regime's membership in regional international organizations in which most other members are democratic (Pevehouse 2002) and in intergovernmental organizations in general (Pevehouse 2005). Other explanations include Western leverage and cross-border flows (Levitsky and Way 2006), the regime's ability to censor critical media (Guriev and Treisman 2019), etc.

1.4. Research questions and dissertation structure

The overarching research question of this PhD dissertation is *why some authoritarian regimes survive financial crises, while others break down*. In order to answer this question, I do two things. First, I study the direct effects of financial crises on autocratic regime instability and regime breakdown, and identify and describe some correlation patterns between varieties of financial crises and varieties of political change. On this basis, I then focus on certain economic and political conditional factors that interact with certain types of financial crises to induce or prevent autocratic regime collapse. Importantly, instead of treating crises as a brief moment in time, in which rapid regime

Table 1.1. The structure of the dissertation

	crisis	→	regime instability	→	regime survival / breakdown
<i>economic factors</i>	Paper 1: varieties of financial crises (direct effects)		Paper 2: policy response to crisis (conditional effects)		
<i>political factors</i>			Paper 3: electoral events (conditional effects)		Paper 3: electoral institutions (conditional effects)

change is possible, and simply analyzing the effects of conditional factors on the probability of regime survival or collapse, I account for the fact that crisis-triggered regime breakdown does not happen overnight: Crisis first leads to *regime instability* — when elite groups and citizens decide to challenge the regime and the regime responds to these challenges, and then — if the regime is unable to stem discontent among elite groups and citizens and muddle through the crisis — it *breaks down*.

This dissertation, therefore, combines two different research strategies. First, it studies the direct and the conditional effects of financial crises, paying attention to both economic and political factors. Second, it explicitly focuses on what happens *during* financial crises, and studies therefore the entire process of crises-induced autocratic regime (in)stability and autocratic regime survival or collapse.

Table 1.1 summarizes the conceptual organization of this dissertation. The core of this dissertation comprises three standalone papers, which study autocratic regime (in)stability during financial crises from three different angles: (i) the direct effects of varieties of financial crises on varieties of political change (**paper 1**), (ii) the effects of crisis policy response on the probability of autocratic regime survival during currency crises (**paper 2**), and (iii) the effects of elections on the probability of autocratic regime breakdown during sovereign debt crises (**paper 3**).

Table 1.2 presents the key research questions of this dissertation. **Paper 1** aims to provide a more fine-grained understanding of the complex relationship between *varieties of financial crises* and *varieties of political change* in autocracies, and identify and describe the existing *correlation patterns*. Specifically, in this paper, I disaggregate the concept of political change in autocracies into three distinct political events — leadership change, regime change, and democratization, and distinguish between three

Table 1.2. Research questions of the dissertation

paper	focus of research	type of crisis	explanatory variable
paper 1	varieties of political change	varieties of financial crises	
paper 2	regime survival	currency crises	crisis policy response
paper 3	regime breakdown	sovereign debt crises	elections

types of financial crises — currency, banking, and sovereign debt crises, as well as their various combinations. On this basis, I then show some statistically significant associations between varieties of financial crises and varieties of political change, and claim that crisis-breakdown relationship is far more complex than the existing literature suggests. Essentially, this paper serves as the basis for the next two papers.

Paper 2 deals with the question of why autocracies *survive* financial crises, and addresses the role of crisis policy response in explaining autocratic regime stability. Drawing on the example of *crisis policy response to currency crises*, this paper tests whether certain crisis policies may help autocracies muddle through crisis-related regime instabilities, and shield them from regime collapse. Specifically, I analyze the regime's policy choices among the three Mundell-Fleming trilemma goals in response to currency crises, and find that capital account restrictions imposed in response to capital flight increase the prospects for autocratic regime survival. My central argument in this paper is that crisis policies may serve not just as an economic instrument, but also as a political tool. In particular, they may prolong the durability of authoritarian regimes.

Paper 3 examines why autocracies *break down* during financial crises by focusing on the effects of autocratic elections. Drawing on the example of *sovereign debt crises*, it tests whether *election-crisis combination* increases the risks for autocratic regime instability and regime breakdown. Proceeding from the premise that elections in autocracies may have both regime-sustaining and regime-subverting consequences, this paper distinguishes between the effects of electoral institutions and the effects of electoral events during sovereign debt crises. It argues that competitive electoral institutions, rather than electoral events, contribute to regime instability and increase the probability of autocratic regime collapse during sovereign debt crises. It also finds that even when debt crises lead to regime breakdown in competitive electoral autocracies, orderly regime change via elections is less likely than a forceful takeover.

Clearly, the few conditions analyzed in this dissertation constitute just a small part of a much larger set of potentially relevant political and economic factors that could explain autocratic regime (in)stability, and regime survival or breakdown during financial crises. Nevertheless, by looking at the problem of crisis-related regime instability from several completely different angles, this dissertation provides an important overview of the inherent complexities of crisis-breakdown relationship, and thus contributes to a better understanding of the economic origins of autocratic regime survival and collapse.

1.5. Methodological challenges

All papers in this PhD dissertation employ quantitative approach. Statistical analysis of large-N data sets clearly has some considerable advantages as opposed to other methods (e.g., it allows to assess the generality of relationships). However, there are a number of serious methodological challenges that can make the conduct of statistical analysis difficult and highly controversial. Most of these challenges are well-known but not easily remedied. Below, I present the most serious challenges that I faced when working on this dissertation, and discuss briefly how I addressed them.

1.5.1. Concepts and measurement

One challenge is the absence of a clear and consistent terminology. In the available literature, many key concepts are either used without accurate and coherent definitions, or their definitions vary from paper to paper, and largely depend on the direction of scholars' bias and specific research purposes. This makes any research on crisis-breakdown relationship very subjectively-selective and relatively-incomplete, and impedes the direct comparison of the available findings.

So, for example, the concept of 'economic crises' is rarely given a clear operational definition. Instead, scholars typically assume an exogenous economic shock as measured by annual fluctuations in some aggregate macroeconomic indicators, and focus on studying the effects of other conditional variables to explain the breakdown or survival outcome. Similarly broad and vague is the definition of 'electoral autocracy'. While autocratic elections have already become a major focus of research in regime studies, thus far, there is no scholarly consensus on what exactly constitutes an 'electoral

autocracy', how it differs from 'competitive electoral autocracy', and where exactly to draw the dividing line between 'electoral autocracy' and 'democracy'.

Even when concepts are clearly defined, they are often incorrectly measured. So, for instance, in many large-N statistical studies of crisis-breakdown relationship, there is little attempt to exam the concept of 'autocratic regime breakdown' as distinct from 'democratization'. While it is virtually axiomatic that autocratic regime breakdowns do not inevitably lead to democratic transitions, in empirical studies, these two concepts are often used interchangeably, which seriously biases research findings. A closely related problem is that some concepts are applied both to democracies and autocracies, as if they were symmetrical across regime types. Leadership change, for example, is quite often used as a proxy for regime change, although many leader removals, in fact, stabilize autocratic regimes.

In some cases, concepts may be clearly defined but impossible to measure with precision. The exact timing of banking and sovereign debt crises, for example, is often difficult to identify, and researchers have to rely on qualitative rather than quantitative judgements to date exact crises episodes. Differences in dating lead to ambiguity in determining the sequence of crisis-breakdown events, which, in turn, could seriously affect the empirical results. In other cases, broadly comparative data may be scarce, difficult to access, or of dubious quality. In such cases, operationalization and measurement of concepts require a thorough familiarity not only with the available data, but also with the narratives of individual cases and deeper case studies. For instance, considerable contextual knowledge is required to understand, describe, classify, and analyze the concepts of 'electoral autocracy' and 'competitive electoral autocracy'.

In this dissertation, I take the problems of conceptualization, operationalization, and measurement seriously. In all papers, I define as strictly and precisely as possible what exactly I study, and how exactly I measure it. I also use some of the best available data sources. However, since many choices of definitions, data selection, and measurement approaches involve a lot of clearly subjective decisions, comparability of my research results with other scholarly findings is not always straightforward, and interpretation of my findings requires caution. Therefore, to ensure my results can be replicated on other datasets, I have made all my data, data coding scheme, and programming files sufficiently detailed and fully accessible to the scientific community.

1.5.2. Unit-of-analysis issues

Another important issue is that my unit of analysis is *crisis*. Importantly, financial crises are not just simple events that take place at a point in time, like electoral events, for example. Rather, they are *episodes* that spread out diffusely over time, sometimes over several years. Financial crises vary in their duration, and many of them have no clear start or end dates. At the same time, crisis-level data are not readily available. Instead, researchers have access only to annual data on macroeconomic, political, institutional, and other variables of interest. This poses challenges in terms of research design and generalizability of findings, since the unit of analysis (crisis) does not coincide with the unit of observation (a country/year pair).

The vast majority of empirical studies simply ignore this problem, and make claims about crisis-breakdown relationship based on the analysis of time-series cross-sectional data sets, where annual growth rates of GDP per capita usually serve as the main measure of economic crises, and annual fluctuations in other variables of interest — as measures of various conditional factors of interest. This narrow focus on annual data is unfortunate and problematic, because it ignores the fact that regime breakdown is the culmination of an important *period* of regime instability. This approach also does not allow to adequately factor crisis duration, crisis severity, as well as substantial yet incremental changes of variables of interest that may accumulate into one major change. So, for example, according to the myopic focus on year-to-year changes in variables of interest, a severe but brief economic shock (e.g., a 8% drop in GDP in one given year) should pose more serious threats to autocratic regime stability than a mild but prolonged economic recession (e.g., a 4% annual drop in GDP for 5 consecutive years), although the latter one leads to a larger overall GDP contraction, and to a longer period of unemployment, poverty, and stagnant demand.

To address this problem, in addition to standard time-series cross-sectional regressions, I also include models in which I change the unit of analysis from crisis years to crises, and look at how individual crisis episodes fit my hypotheses. This empirical strategy ensures that my findings about crisis-breakdown relationship are based not only on annual data, but also on crisis-level data, and thus do not suffer from the problems associated with reductionism.

1.5.3. Causal inference without counterfactuals

Assessing the effects of financial crises on regime breakdowns involves a claim about causal relation which is often difficult to substantiate due to the absence of counterfactuals (i.e., outcomes that would have been observed had the intervention of interest been different). Using a counterfactual is the most rigorous approach to the framing of causal questions, and can provide strong evidence for most observed outcomes. In real world, however, we can observe only one realized outcome in each regime-crisis combination — survive or breakdown — and we are never able to observe what would have happened with the regime had there been a crisis / no crisis.

This poses a serious challenge to the identification of a causal relationship between crisis and regime breakdown, as the difference in the observed breakdown or survival outcome between a regime with a crisis and a regime without a crisis can be caused by many other preexisting differences between the two regimes, rather than by the crisis itself. Even with extensive and well-founded control variables there could still remain unobserved individual heterogeneity between autocratic regimes, as different countries will always differ from each other for historic and cultural reasons.

Most standard methods of addressing this challenge are inapplicable in this case. So, for example, randomized controlled trials, where only some regimes are randomly forced into a crisis while others experience an economic growth, are clearly unthinkable for practical and ethical considerations. Natural or quasi experiments (such as the Asian financial crisis), which are possible alternatives to experiments, are rare, and unobserved individual heterogeneity could still be an issue. And difference-in-differences estimation, which attempts to mimic an experimental research design by comparing the average change in the survival or breakdown outcome over time in the group of crisis-hit countries with the group of crisis-free countries, is inappropriate in non-linear case, because it hinges on an important common trend assumption between the treated and the control group. This assumption is violated in non-linear models like logit and probit, which are typically used for binary outcome variables. And thus, unlike in the linear model, the cross difference in the non-linear difference-in-differences model does not represent the treatment effect of interest (Puhani 2008, Lechner 2011).

In this dissertation, I address this problem by including a conditional logit model that fully controls for all time-invariant country-specific factors that may be correlated with

both my independent variables of interest and the latent propensity for regime change. Essentially, I use a fixed-effects, subject-specific model which exploits the available data by allowing countries to serve as their own controls in evaluating the effects of crises on the survival or breakdown outcome. The logic here is that countries tend to be more similar to themselves over time than to other countries in the sample. Yet, since this method differences away all useful variation between countries, I also always include a random effects probit model to control for unobserved cross-country heterogeneity. An important point here is that both the conditional logit and the random-effects probit models come with their own set of problems. Therefore, including both of them is crucial for my analysis, as this ensures that my findings are not an artifact of model selection.

1.5.4. Direction of causality

The direction of causality is often even more difficult to identify than the existence of a causal relationship per se. In crisis-breakdown relationship, for example, different conceptual and operational definitions of crises could affect the dating of individual crisis episodes, as well as the sequence of crisis / breakdown events, and thus could also impact the analysis and the results. This problem is compounded by the fact that even if the exact dates of crisis episodes are known, temporal precedence of crises may be an ill-suited indicator of the direction of causality, as financial turmoil may well precede regime breakdown because financial markets anticipate political turmoil and preempt it by withdrawing money from the economy. From a research design perspective, there is an extra complexity of finding a truly exogenous instrument for crisis: Whatever triggers financial crises is also likely to trigger regime instability. Essentially, since both crises and regime instabilities are *episodes* rather than events, the underlying causal dependencies between them are likely to be complex dynamic interactions, in which economic problems set in motion political conflicts (or vice versa), outcomes of political conflicts may lead to new economic problems, and new economic problems may prompt new political conflicts — all in a vicious loop, while the crisis is still ongoing.

Other relationships that I study (i.e., between crisis policy response and regime (in)stability, capital account policy and currency crises, regime (in)stability and elections) also suffer from reverse causality. While there is a general consensus in the academic literature that all these relationships are likely to be causal ones, the direction

of causality in each of them is often ambiguous, and remains a matter of serious scholarly debate. In political economy literature, for example, scholars cannot agree on whether currency crises lead to changes in capital account policy, or rather changes in capital account policy cause currency crises. Similarly, in comparative autocracy literature, controversy continues about whether autocracies concerned with regime stability introduce elections in order to sustain the regime, or rather elections create conditions conducive to regime instability and regime collapse.

While I do not aim to and obviously cannot fully address all of the endogeneity problems, I do my best to at least mitigate endogeneity threats. For this, I consistently use lagged explanatory variables when analyzing time-series cross-sectional data. I am well aware of the fact that lagging explanatory variables is an appropriate response to endogeneity concerns only if there is no serial correlation among the unobserved sources of endogeneity (Bellemare et al. 2017). Nevertheless, using this strategy serves as at least some defense against simultaneous or reverse causation (even if only under an untestable assumption of no autocorrelation among unobserved confounders). This approach also ensures comparability of my results with other studies in this field that often rely on lagged explanatory variables as a source of exogenous variation. Wherever possible, I also change the unit of analysis to mitigate the possibility of reverse causality, and — when a proper instrument is available — I use an instrumental variable approach to identify the direction of causality.

Although the proposed strategies are clearly not sufficient to address all of the endogeneity-related problems, I nevertheless think they yield some improvements compared to other academic papers in this field, and with all due caution, generally increase confidence in my results.

1.6. Main findings and contribution to the literature

The main novelty of this dissertation is its integrative approach. From theoretical perspective, it brings together insights from comparative autocracy, regime transitions, and political economy. From research design perspective, it combines two different research strategies, studying not only the direct and the conditional effects of financial crises, but also the entire process of crises-related autocratic regime (in)stability, and regime survival or collapse.

The findings and contributions of this dissertation can be broken down into three main categories according to the conceptual framework presented in Table 1.1: (i) findings about the direct effects of financial crises on autocratic regime instability and autocratic regime breakdown, (ii) findings about autocratic regime instability during financial crises, and (iii) findings about autocratic regime breakdown and survival during financial crises.

1.6.1. Findings about the direct effects of financial crises

First, paper 1 provides empirical evidence that financial crises and autocratic regime instability are intricately linked. To date, studies of the direct effects of crises are surprisingly scarce and inconclusive, and those that exist typically use measures that are ill-suited to capture autocratic regime instability and regime breakdown. As a result, there is a clear mismatch in the academic literature between the general scholarly consensus of the regime destabilizing effects of economic crises, and the empirical evidence that could support this view.

Second, this dissertation as a whole demonstrates that differences in definitions and measurement of crises could have profound implications both for empirical findings, and for our understanding of the causal processes that are behind crisis-induced autocratic regime instability and regime breakdown. Previous empirical studies of crisis-breakdown relationship have largely ignored the fact that crises come in different forms, vary in length and severity, and can be measured in various ways. This dissertation criticizes the prevalent approach to focus on annual changes in aggregate macroeconomic indicators only, and provides empirical evidence that the direct effects of crises could vary by crisis type.

Third, one important novelty of this dissertation is its explicit focus on the financial dimension of crises. The fact that the economy consists of the 'real economy', and the 'financial economy' has been completely neglected in the vast literature on crisis-breakdown relationship. This dissertation criticizes the myopic focus on the annual measures of real economic activity, and provides empirical evidence that disentangling the effects of crises into the financial and the real economic components, as well as distinguishing between types of financial crises could reveal important differences in patterns of crisis-induced autocratic regime breakdowns and democratic transitions.

Finally, paper 1 identifies and describes some important correlation patterns between varieties of financial crises and varieties of political change in autocracies. Specifically, it shows that the direct effects of financial crises are not universal across all crisis types. Out of all types of financial crises, only sovereign debt crises reveal statistically significant relationship with the probability of democratic transitions. Other types of financial crises have only regime destabilizing effects, and may increase not only the probability of transition to a democracy, but also the probability of transition to a new authoritarian regime.

1.6.2. Findings about autocratic regime instability during financial crises

First, paper 2 contributes to the literature on crisis-related regime instabilities by treating autocratic regimes as active participants rather than passive observers of financial crises. To date, most scholars develop their arguments about crisis-breakdown relationship based on a problematic assumption that autocracies simply fall victims to economic hard times, and survive or breakdown only because of economic, political, institutional or other characteristics of the regime, whereas the role of crisis policy response is neglected as a second-order problem. Paper 2 argues that autocracies can and do shield themselves from crisis-induced regime instabilities by actively responding to financial turmoil, and explicitly analyzes the effects of crisis policy choices during one type of financial crises — currency crises.

Second, paper 3 argues that autocratic regime instabilities during sovereign debt crises tend to come in the form of military coups and popular uprisings rather than in the form of national elections. Specifically, this paper tests whether national elections induce regime opponents to turn against the regime at one specific and commonly known date (i.e, the election), thereby amplifying the effects of sovereign debt crises in creating autocratic regime instability. It shows that during debt crises, only military-led regimes lose power via a competitive election. Yet, one should be cautious in interpreting this finding, because choices related to both the timing of elections and the decision to default are endogenously determined.

Third, paper 3 contributes to the literature on autocratic elections by explicitly arguing that the effects of elections on autocratic regime instability cannot be studied separately from the concrete underlying problems of political actors' interests and behavior within

the regime. To date, the literature on autocratic elections is rather underdeveloped in this regard: Scholars seem to agree that national elections pose threats to autocratic regime stability, but they usually bypass causation linking why citizens or the elites may want to abandon loyalty to the regime, implicitly assuming that any national elections are risky for autocratic regime stability. Paper 3 argues that national elections per se are not causing coups, uprisings, or regime change. Rather, they provide opportunities for regime change if something else (e.g., a financial crisis) changes the motivations of key socio-political actors that determine whether they continue to support the regime.

Finally, paper 3 also highlights the important difference between the effects of elections as electoral institutions and elections as electoral events. Previous studies have focused only on one of the two effects, making it difficult to grasp that ambiguous effects of elections result from the differences between the causal mechanisms that are in play in each case. The few studies that have looked at both effects lumped them into the same statistical model, implicitly assuming that elections rather than other factors determine authoritarian regime dynamics, i.e., cause mass dissatisfaction with the regime, and induce citizens and the elites to mobilize and challenge the regime.

1.6.3. Findings about autocratic regime survival and collapse during financial crises

First, paper 1 illustrates the importance of choosing appropriate and theory-relevant measures of autocratic regime breakdown. In the democratization literature, most empirical studies of crisis-breakdown relationship use democratization as a proxy for authoritarian regime collapse, while in the political economy literature, scholars often lump democracies and autocracies into one statistical model and use concepts developed for the study of democratic politics, such as leader removal, as a proxy for regime change. Paper 1 criticizes the traditional way of measuring autocratic regime breakdown in the literature, and provides empirical evidence that measuring regime breakdown as just leader removals or autocracy-to-democracy transitions provides an incomplete picture, as not all leader removals coincide with regime collapse, and not all regime breakdowns lead to democratic transitions.

Second, paper 3 emphasizes the importance of political institutions for understanding autocratic regime (in)stability during financial crises. Thus far, scholars have paid a lot more attention to the role of socio-political actors as the initiators and causal drivers of

crisis-induced regime instabilities. Yet, strategies employed by socio-political actors, as well as why only some actors challenge the regime, are difficult to understand unless the 'rules of the game' are included in the analysis. Paper 3 demonstrates that competitive electoral institutions increase the odds of autocratic regime breakdown during sovereign debt crises, because they create environments conducive to autocratic regime instability and regime change. By contrast, non-competitive electoral institutions seem to sustain the regime during sovereign debt crises.

Third, paper 2 provides empirical evidence that capital controls imposed in response to capital flight increase the probability of autocratic regime survival during currency crises. In contrast to IMF-style policy prescriptions that tend to be particularly painful in the short-term and thus happen to be unpopular with the citizens, capital account restrictions not only shield autocracies from capital flight and plummeting exchange rates, but also give governments more room to stimulate economic recovery, and buy off time to solve intra-elite conflicts and crash the opposition, thereby increasing the prospects for autocratic regime survival.

Finally, paper 2 also demonstrates that free capital mobility combined with higher levels of pre-crisis exchange rate fixity increase the probability of autocratic regime breakdown during currency crises. For policymakers that have made an explicit public promise not to devalue, the choice between currency devaluation combined with austerity measures and capital controls is particularly painful and politically dangerous, as both policy options lead to serious re-distributional effects and create many losers that have invested a lot in the status-quo arrangement.

1.6.4. Target literature

By focusing on the complex interplay between financial turmoil and political stability, this dissertation contributes to several large bodies of literature.

Paper 1 constitutes an important contribution to the literature on the economic origins of autocratic regime breakdown and democratization by suggesting a more nuanced understanding of crisis-breakdown relationship, and highlighting the importance of choosing appropriate and theory-relevant measures of both autocratic regime breakdown and economic crises.

Paper 2 aims to contribute primarily to the political economy literature by offering a more nuanced understanding of the political consequences of crisis policymaking in autocratic rather than democratic setting. To date, most empirical studies on distributive politics in times of financial crises either completely exclude autocracies from their analysis, or treat them as a homogeneous group of non-democracies, and apply to them concepts, measures, and tools that are ill-suited to capture autocratic regime dynamics.

Paper 3 targets the comparative autocracy literature by studying the role of elections in determining the likelihood of autocratic regime breakdown during financial crises. To date, there is no scholarly consensus on whether autocratic elections stabilize or rather destabilize autocratic regimes. I aim to contribute to this literature by suggesting that ambiguous effects of elections may well result from the differences between the effects of elections as electoral institutions, and elections as electoral events, and that the effects of elections cannot be studied separately from the concrete underlying problems of political actors' interests and behavior within the regime.

This dissertation as a whole aims to go beyond a mere target to one specific body of literature. It seeks to build bridges between comparative autocracy, political economy, and democratization strands of research, and to provide one more evidence that economic and political problems do not exist in isolation from one another.

1.7. Chapter overview

The remainder of this dissertation begins with **Chapter 2 (Paper 1)**, which presents a brief overview of the available literature on crisis-breakdown relationship, provides theoretical discussion of possible causal mechanisms linking different types of financial crises to autocratic regime breakdown, and examines the direct effects of varieties of financial crises on varieties of political change in autocracies. It criticizes the traditional way of measuring autocratic regime breakdown and economic crises in the academic literature, and shows that choosing appropriate and theory-relevant measures of both political change and economic crises has significant effects on empirical findings and important implications for our understanding of autocratic regime (in)stability and processes that are behind autocratic regime breakdown and democratization. It also finds some common empirical regularities across autocratic regimes and financial crises, and shows that destabilizing effects of financial crises may vary by crisis type.

On this basis, the next two chapters examine important conditional factors that interact with distinct types of financial crises in creating regime (in)stability and inducing or preventing regime breakdown. **Chapter 3 (Paper 2)** takes a political economy view and focuses on the conditional effects of crisis policymaking. It proceeds from the claim that the questions of how autocracies respond to financial crises and why they survive might be closely connected, and tests this argument by focusing on the effects of policy response to currency crises on the probability of autocratic regime survival. It finds that autocracies that impose capital account restrictions in response to plummeting exchange rate and capital flight are more likely to survive currency crises than autocracies that opt for IMF-style austerity policies, and thereby proves that crisis policy response may act as an important shield that helps autocratic regimes survive financial crises.

Chapter 4 (Paper 3) shifts the focus of attention to political factors, and studies the effects of autocratic elections during sovereign debt crises. By making an important distinction between elections as electoral institutions and elections as electoral events, this chapter examines how electoral institutions determine the regime's capacity to survive sovereign debt crises, and how electoral events interact with debt crises in shaping autocratic regime (in)stability. It finds that autocracies with competitive electoral institutions are more likely to break down during sovereign debt crises than other types of autocracies. However, orderly regime change via elections is less likely than a forceful takeover. It thereby proves empirically that the regime's ability to muddle through the crisis may depend on political institutions by which autocracies govern: Whereas crises create conditions conducive to public discontent with the regime, institutions create environments amenable to regime change, thereby increasing the odds of autocratic regime collapse.

Chapter 5 concludes by summarizing the main findings of this dissertation, and discussing possible implications of my key arguments for several policy questions. It also addresses the limitations of my research, and provides some suggestions for future research in this field.

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2. Financial Crises and Political Change in Autocracies

Abstract

This paper builds on and adds complexity to earlier research regarding the destabilizing effects of economic crises in autocracies. Previous studies have largely focused on regime breakdowns that result in democratic transitions, while other types of political change have received surprisingly little attention. Besides, scholars have often disregarded the financial dimension of economic crises, relying instead on aggregate macroeconomic indicators to reflect economic downturns. In this paper, I focus on the relationship between different types of financial crises and varieties of political change, and argue that this relationship is far more complex than the democratization literature suggests. Specifically, using a time-series/cross-sectional dataset of autocratic years of 97 countries from 1960 to 2011, I estimate a series of regressions that model the probability of leadership change, regime change, and democratization as a function of different types of financial crises and other potential determinants of autocratic regime (in)stability. My results suggest that financial crises have little effect on autocratic leadership change, and a robustly significant direct positive impact on autocratic regime change. Yet, their effect on democratization varies considerably by financial crisis type, with only sovereign debt crises having a robustly significant positive impact on the probability of democratic transition. Other types of financial crises have only regime destabilizing effects, and increase not only the probability of transition to a democracy, but also the probability of transition to a new autocratic regime. This finding indicates that measuring both autocratic regime breakdown and economic crises correctly has important implications for how we understand the process of crisis-induced autocratic regime collapse.

2.1. Introduction

The relationship between economic downturns and political change remains one of the most studied issues in political science. Researchers have long identified that economic crises can have adverse political consequences: They can trigger leadership change, government turnover, and even regime collapse: transitions to — but also from — democracy. Yet, given the amount and quality of effort expended on studying this topic, it is surprising that we still know so little about the relationship between financial crises and political change in authoritarian setting. Currently, the literature on this issue is scarce, and available studies are plagued by two major shortcomings.

First, much of our knowledge about how authoritarian regimes survive economic downturns is derived from the literature on democratic transitions. In this strand of research, democracy is seen as a prime threat to authoritarian rule, and in empirical studies, democratization is often used as a proxy for authoritarian regime collapse. At the same time, numerous theoretical studies have long delineated the differences between autocratic regime breakdown and democratic transition — these events are logically distinct, and the forces driving them are not the same. Accordingly, using the concepts of autocratic regime breakdown and democratization interchangeably, and thereby lumping multiple causal processes into the same statistical model, leads to bias if autocratic regime failure during economic crises, rather than democratization, is the main focus of research, as all authoritarian breakdowns that do not lead to democratic transitions remain ignored.

Second, in the democratization literature, scholars rarely focus explicitly on the impact of financial crises. Instead, most studies disregard the financial dimension of economic crises, and rely on annual growth rates of GDP, unemployment, or inflation to specify economic collapse. Yet, although the roots of economic crises can indeed quite often be found in the financial sector, economic and financial crises do not necessarily coincide. Besides, the channels through which financial crises cause economic hardship, as well as the magnitude and the distribution of this hardship among all actors of the society vary significantly by financial crisis type and by the way incumbent governments respond to specific financial events. Thus, by focusing on economic effects of financial crises only, scholars rely on a problematic assumption that the effects of financial crises on political change are universal for all types of crises, go exclusively through the real economy, and depend only on crisis severity as measured by aggregate macroeconomic indicators.

Surprisingly, little effort has been made so far to examine the relationship between financial crises and political change in autocracies in a more nuanced way. As a result, many important questions in this field remain unanswered: Do financial crises trigger autocratic leadership change, regime breakdown, and transitions to democracy? Or do they trigger autocratic breakdown, but lead to democratization only under certain conditions? Does the effect of financial crises vary by crisis type? And if so, then what are the causal mechanisms that link distinct financial crises to political change? And what is the probability that a particular pathway of autocratic political change will emerge?

In this paper, I seek to address some of these questions by providing a more nuanced understanding of the complex relationship between financial crises and political change in autocracies. Specifically, following the literature on autocratic regime (in)stability, I disaggregate the concept of political change into three distinct political events: leadership change, regime change, and democratization. I also distinguish between three types of financial crises, as it is common in the literature on financial crises: currency crises, banking crises, and sovereign debt crises, as well as their various combinations.

I argue that there is no single causal process that explains the relationship between all types of financial crises and all types of political change in autocracies. Rather, the underlying causal dependencies are complex dynamic interactions, which vary across different national contexts and in time. Therefore, instead of establishing the exact causality for each case, I only show statistical associations between varieties of financial crises and different types of political change. Since the presence of correlations does not imply the existence of a causal link, I make no claim of causality. The aim of this paper is only to show that (i) similar financial crises may induce different types of political change, as the relative distribution of political power among actors and domestic political conflicts may differ from case to case for historic and cultural reasons, and that (ii) the effects of financial crises on political change may vary by crisis type, as different financial crises harm citizens, opposition, and strategically important regime supporters disproportionately, and thus may trigger different distributional conflicts.

Empirically, I have collected data on 2851 autocratic country-years for 97 countries over the period from 1960 to 2011, with 296 country-years (10.4%) being coded as experiencing at least one type of political change, and 709 country-years (24.9%) — at least one type of financial crisis — over the specified time period. I estimate a series of regressions that model the probability of leadership change, regime change, and

democratization as a function of different types of financial crises and other potential determinants of autocratic (in)stability. To ensure my results are robust, for each combination of political change and financial crises, I run five types of models: pooled probit, pooled probit with dropped controls for the severity of the crisis, random effects probit, random effects probit with regional dummies, and fixed effects logit.

My findings suggest that all types of financial crises have little effect on autocratic leadership change, and a robustly significant direct positive impact on autocratic regime breakdown. Yet, the effect of financial crises on democratization varies considerably by financial crisis type, with only sovereign debt crises (and twin episodes that include a sovereign debt crisis) having a robustly significant positive impact on the probability of democratic transition. Other types of financial crises have only regime destabilizing effects, and increase not only the probability of transition to a democracy, but also the probability of transition to a new autocratic regime.

By offering a more nuanced understanding of the link between autocratic regime (in)stability and financial crises, this study speaks to two strands of literature. First, it adds to the democratization literature by providing empirical evidence for the claim that financial crises can destabilize autocratic regimes, and by showing that the effect of financial crises on democratic transitions may vary by crisis type. Second, it contributes to the political economy literature by shifting the focus of attention to the political consequences of financial crises in autocratic — rather than democratic — setting. As such, this paper shows that choosing appropriate and theoretically-relevant measures of both political change and economic crises has significant effects on empirical findings and important implications for our understanding of autocratic regime (in)stability and processes that are behind autocratic regime breakdown and democratization.

The structure of this paper is as follows. Section 2.2 presents a brief overview of the available literature on the relationship between economic crises and authoritarian regime breakdowns and democratic transitions, and identifies the existing research gap. Section 2.3 provides the discussion of possible causal mechanisms linking financial crises to political change in autocracies. Section 2.4 explains the data selection and research method, while Section 2.5 analyses the empirical results and provides their interpretation. Section 2.6 concludes by summarizing the main findings and suggests some future work.

2.2. Literature review and research gap

In the democratization literature, it is widely accepted that economic crises can cause autocratic regime failure and democratic transition. This belief is based on numerous case studies of prominent examples of regime breakdowns and transitions to democracy during economic crises (e.g., Chile in 1973, Argentina in 1983, Indonesia in 1997, Mexico in 2000), as well as on formal models of the interactions between ruling elites, who want to preserve power, and citizens, who demand democracy as a means of gaining influence (e.g., Acemoglu and Robinson 2001, Boix 2003, Bueno de Mesquita et al. 2003). These studies forcefully argue that economic crises make autocracies more vulnerable to regime collapse by generating widespread social dissatisfaction with the regime, and undermining its standing with the elites, citizens, and the opposition. The basic causal story in this literature is that economic crises deplete the resources available to an autocratic leader to maintain the loyalty of the politico-military elite (Haggard and Kaufman 2016), disrupt the patronage networks upon which the regime depends to co-opt or repress potential rivals (Houle, Kayser, and Xiang 2016), create division within the regime itself over policies that government should enact in order to resolve the crisis (Pepinsky 2009), and provide a focal point for opposition mobilization and political turnover (Bratton and Van de Walle 1997).

Nevertheless, despite the general scholarly agreement about the destabilizing impact of economic crises, large-N statistical studies of the direct impact of economic crises on regime change are scarce and have so far yielded rather inconsistent findings. Some scholars find scant evidence that economic crises have direct effects on autocratic regime failure (Gasiorowski 1995), others claim that the effect of economic crises on regime change is less destabilizing for autocracies than for democracies (Przeworski et al. 2000), and others argue that the relationship between economic crises and autocratic regime failure is not only present, but also robust (Tanneberg, Stefes, and Merkel 2013).

Similarly, historical evidence for economic crises and regime breakdowns presents a mixed picture. Although economic crises indeed preceded the breakdown of autocratic regimes and the successful transition to democracy in a number of countries, history is also replete with examples of autocratic regimes that survived economic turmoil unscathed (e.g., Mexico in 1981-1985, Malaysia in 1997-1999, Russia in 1998-1999, Zimbabwe in 2000-2008), or broke down during economic crises, but were replaced by another autocracy (e.g., Algeria in 1990-1994, Nigeria in 1990-1992, Nicaragua in 1979).

There is, therefore, a clear mismatch between the general scholarly agreement of the destabilizing effects of economic crises and empirical findings that support this view. Despite this fact, the destabilizing effect of economic crises has already achieved the status of stylized facts (Geddes 1999: 119), so that many academic studies take it for granted, bypass causation linking economic downturns to regime failure, and focus instead on studying the effect of certain conditions under which authoritarian regime breakdown can lead to democratization, such as income inequality (Acemoglu and Robinson 2006), capital mobility (Boix 2003), labor mobility (Wright 2009), linkages to the West (Levitsky and Way 2005), etc. As a result, while we have many plausible explanations for why autocratic regime breakdowns in some countries are more likely to end in democratic transitions than in others, we still have very limited understanding of why some autocratic regimes collapse during economic crises, while others survive, and we know even less about when and how autocratic collapse is likely to happen.

Apparently, the reason why empirical evidence has been so limited and inconclusive so far is that most empirical studies in this field have tried to identify one single causal process that explains the relationship between economic crises and autocratic regime instability, regime failure, and democratization. Yet, authoritarian regime breakdown and democratic transition are distinct in nature, and the causal processes behind them are not always the same.

Indeed, it is hardly novel to claim that autocratic regime failures do not inevitably lead to democratic transitions: The fact that the phenomenon we label 'democratization' actually consists of several distinct processes (i.e., regime breakdown, transition to democracy, and democratic consolidation) has long been recognized in the democratization literature (see, e.g., Huntington 1991). Rather puzzlingly, however, in large-N statistical investigations, scholars that study autocratic regime instability during economic shocks almost uniformly focus on the effect of economic crises on democratic transitions, thereby lumping two distinct processes (i.e., regime breakdown and democratization) into one. So, for example, both Gasiorowski (1995) and Przeworski et al. (2000) examine the effect of economic crises on autocratic regime instability by using the duration of autocratic spells — which may conceal several autocratic regimes — to model autocratic regime failure. What they actually measure, however, is not the effect of economic crises on autocratic regime failure, but their effect on the probability of democratization. Accordingly, their findings may significantly underestimate autocratic

vulnerability to economic crises, as all autocratic regime breakdowns that did not result in democratic transitions remain ignored.

Given the abundance and quality of the literature on democratic transitions that clearly distinguishes between two distinct concepts — ‘authoritarian regime breakdown’ and ‘democratic transition’ — it is extremely surprising that most empirical studies continue to use them interchangeably. To the best of my knowledge, there is only one study that explicitly tests and finds the direct effect of economic downturns on the probability of autocratic regime failure, irrespective of whether democratization follows. Tanneberg, Stefes, and Merkel (2013) find strong evidence that economic malperformance increases the likelihood of authoritarian regime change, as measured by both autocracy-to-democracy and autocracy-to-autocracy transitions. Yet, like many other studies, they ignore the question of whether this relationship holds for all types of crises.

The lack of a clear and coherent conceptualization of ‘economic crises’ is the second serious shortcoming in the literature on authoritarian regime instability and democratic transitions. Apart from some classic works on this subject (e.g., Haggard and Kaufman 1995), most recent empirical studies in this field never define what they actually understand under an ‘economic crisis’. They simply assume an exogenous economic shock, measure its impact on the economy in terms of annual growth rates of GDP, unemployment, or inflation, and analyze the effect of other variables of interest on the probability of democratic transition given economic collapse. Accordingly, they unconsciously and implicitly rely on a problematic assumption that all crises have the same destabilizing effect for the regime, and that this effect goes exclusively through the impact on the real economy.

Again, this obvious shortcoming is surprising, as distinguishing between different types of crises is common practice in the political economy literature. There is a large body of literature on the political consequences of financial crises in democracies, which forcefully argues that financial crises differ from one another not only in their magnitude and duration, but also in their origin, transmission channels, impact on the real economy, availability of containment and resolution policy choices, political consequences, etc. (see, e.g., Bernhard and Leblang 2008, Crespo-Tenorio et al. 2014, Chwieroth and Walter 2017, Borensztein and Panizza 2009, Walter 2013, Trebesch 2018, Compaoré et al. 2020, Edwards and Tabellini 1991). Unfortunately, very few of the political economy studies include autocracies in their analysis, and those that do — are ill-equipped with the

appropriate apparatus to conceptualize political (in)stability in authoritarian setting. Instead, scholars typically use concepts developed for the study of democratic politics (such as executive turnover and government turnover) to construct measures of political change that could be applicable to both democratic and autocratic contexts.

In the democratization literature, to the best of my knowledge, there are only two empirical studies that make an endeavor to carefully conceptualize what kind of economic shock they actually study. In its widely cited study, Gasiorowski (1995) distinguishes between inflationary and recessionary economic crises and argues that inflationary crises held back transitions to democracy from the 1950s through the early 1970s, but facilitated them in the late 1980s, whereas recessionary crises had no effect on democratization at all.

In a more recent empirical study, Houle, Kayser, and Xiang (2016) focus exclusively on debt levels of autocratic regimes, and argue that debt levels are the best predictor of democratic transitions, because they are the key measure of the regime's ability to co-opt or repress the opposition, as well as to support the patronage networks which form the basis of the regime. Empirically, they show that highly indebted autocracies are much more likely to democratize: With higher levels of debt, access to external financing becomes more difficult, and if debt levels become unsustainable, the ruling elites concede the regime, as they can no longer co-opt or repress the opposition.

By carefully disaggregating the complex phenomenon of 'economic crises' into distinct subtypes and theorizing these subtypes separately, these two studies suggest intuitions about why some economic crises increase the probability of democratic transitions, while others do not.

To sum, our knowledge about the impact of financial crises on political change in autocracies is still rather rudimentary. So far, most previous empirical studies have tried to lump several distinct causal processes that link different crises to autocratic regime (in)stability into the same statistical model. Yet, if we disaggregate the concepts of 'autocratic regime (in)stability' and 'economic crises' into distinct processes vs. subtypes and theorize different relationships separately, we might be able to see a more nuanced picture of the link between varieties of economic crises and the probability that a particular pathway of political change will emerge.

2.3. Financial crises and political change in autocracies

From a research design perspective, establishing straightforward causal explanation of the relationship between various financial crises and various political outcomes is extremely difficult, if not impossible. In general and across different national contexts, the underlying causal dependencies are complex dynamic interactions, in which different crises will set in motion different political conflicts, and outcomes of those political conflicts may not only change the nature of the financial crisis itself, but also prompt new political conflicts — all in a vicious loop, while the crisis is still ongoing.

On the whole, it is easier to show statistical associations between different financial crises and certain types of political change than to establish the exact causal relationship. I am well aware of the fact that the presence of correlations does not imply the existence of a causal link, and thus I make no claim of causality. The goal is to get a more nuanced picture of the complex relationship between financial crises and political change, and to show that this relationship may vary according to the varieties of both political change and financial crises.

Nevertheless, by focusing on the correlations between financial crises and political change, I can only show that financial turmoil and political turmoil are interrelated. To remedy this, in this section, I discuss certain causal mechanisms that explain how financial crises can affect the desire of relevant domestic actors to induce political change, and why the effect of financial crises on political change may vary by crisis type. I also exemplify the variation of outcomes by comparing unconditional probabilities of autocracies experiencing different types of political change during non-crisis and crisis years, distinguishing by crisis type.

2.3.1. How financial crises may induce political change in autocracies

The term ‘political change’ refers to changes in the relative distribution of political power among actors within a polity. Political changes in autocracies are far less institutionalized and therefore far more complex than political changes in democracies. This is due to the fact that political power in autocracies may stem not only from formal institutions (such as elections or constitutions), but also from informal rules (such as informal arrangements that allow certain elite groups to choose policies and impose their wishes on society). If formal and informal rules do not correspond (as it is often the

case in autocracies), researchers are typically interested in who has *de facto* power to select leaders and choose policies.

The comparative autocracy literature typically distinguishes between three major types of political change: leadership change, regime change, and democratization (see, e.g., Geddes, Wright, and Frantz 2014, Wright and Bak 2016, Svobik 2012). These types of political change are conceptually distinct and the driving forces behind them are diverse and complex and often do not follow any simple cause-effect pattern.

Crucially, according to a popular conception, political changes in autocracies are largely driven by two fundamental domestic political conflicts: (i) the conflict between the elites in power and the citizens excluded from power, and (ii) the conflict between those in power (i.e., intra-elite conflict) (see, e.g., Svobik 2012). To maintain power, autocrats must appease at least to some degree both the regime elites and the citizens, as both support the regime only as long as the benefits of supporting it outweigh the costs of turning against it (Acemoglu and Robinson 2001, Buena de Mesquita et al. 2003).

Financial crises aggravate both of the conflicts and may lead to political change, because they alter the interests of socio-political actors: They increase the incentives to abandon the regime, and lower the risks of rebellion against the regime. On the citizens' side, financial crises decrease the citizens' perceived or real benefits of supporting the regime, lead to the erosion of the regime's legitimacy, fuel public discontent, and increase the standing and the efficacy of the opposition that tries to mobilize public opinion against the regime (see, e.g., Brancati 2016). On the elites' side, financial crises trigger elite infighting and disagreement between powerful groups of interests about how to respond to financial turmoil (see, e.g., O'Donnell and Schmitter 1986, Pepinsky 2009).

The two conflicts are mutually reinforcing each other: Severe intra-elite conflicts may urge certain elite groups to defect and join the opposition, whereas social movements that are perceived as threatening by some of the elites may unleash elite infighting about whether to make concessions to the opposition or to pursue the course.

Depending on the exact interplay between the two conflicts, financial crises can catalyze the instability process in autocracies in a number of ways. For example, they can motivate regime insiders to oust the leader, making him into a scapegoat responsible for the economic collapse, and replace him with a different leader from the same ruling coalition. Likewise, however, they can lead to elite-infighting and provide certain elite

groups with an opportunity to mount a coup and overthrow the regime, replacing it with a new authoritarian regime. In other cases, however, they can generate social discontent that triggers mass mobilizations and fuels anti-regime protests. The protests and revolutionary threats can, in turn, either force the regime to liberalize from the inside in anticipation of even worse outcomes, or lead some elite groups to defect and join the opposition, thereby paving the way to democratic transitions.

2.3.2. Why different financial crises may lead to different types of political change

Understanding which economic interests are affected by different types of financial crises is of utmost importance for conceptualizing political conflicts during financial turmoil. Financial crises can affect economic interests of the elites and the citizens in at least two important ways: (i) through a distribution of costs associated with financial crisis type, and (ii) through the distributional implications of different government responses. In both cases, distributional conflicts can affect autocratic regime (in)stability unequally, because financial crises have different causes, come in different forms, result in different levels of economic damage, and may harm citizens, opposition, and strategically important regime supporters disproportionately.

Begin first with the financial crisis type. While all members of the society experience some economic hardship during financial crises, the aggregate economic costs and the distribution of these costs vary by financial crisis type¹. So, for example, currency crises hurt consumers, producers of non-tradable goods, and firms with foreign currency debts, with the poor being the most affected category, as a weakened currency reduces the purchasing power of their income, and leads to a sharp increase in the prices of imports. On the other hand, however, depreciations increase competitiveness of export industries, and might improve growth and employment outcomes. In sovereign debt crises, it is the holders of government bonds who are directly affected by sovereign default. Among those hit hardest, are also sectors that depend on external finance, because defaulting countries typically lose access to foreign capital markets. At the same time, sovereign default frees up resources that can be used domestically, and thus may benefit those who suffer from sovereign debt repayment (e.g., public sector employees, the unemployed, and the poor). Finally, in banking crises, household sector and local

¹ For further discussion, see: Frieden (1991), Bernhard and Leblang (2008), Frankel (2005), Leblang (2003), and Walter (2013) for currency crises, Crespo-Tenorio et al. (2014) and Chwiero and Walter (2017) for banking crises, Borensztein and Panizza (2009) and Trebesch (2018) for sovereign debt crises.

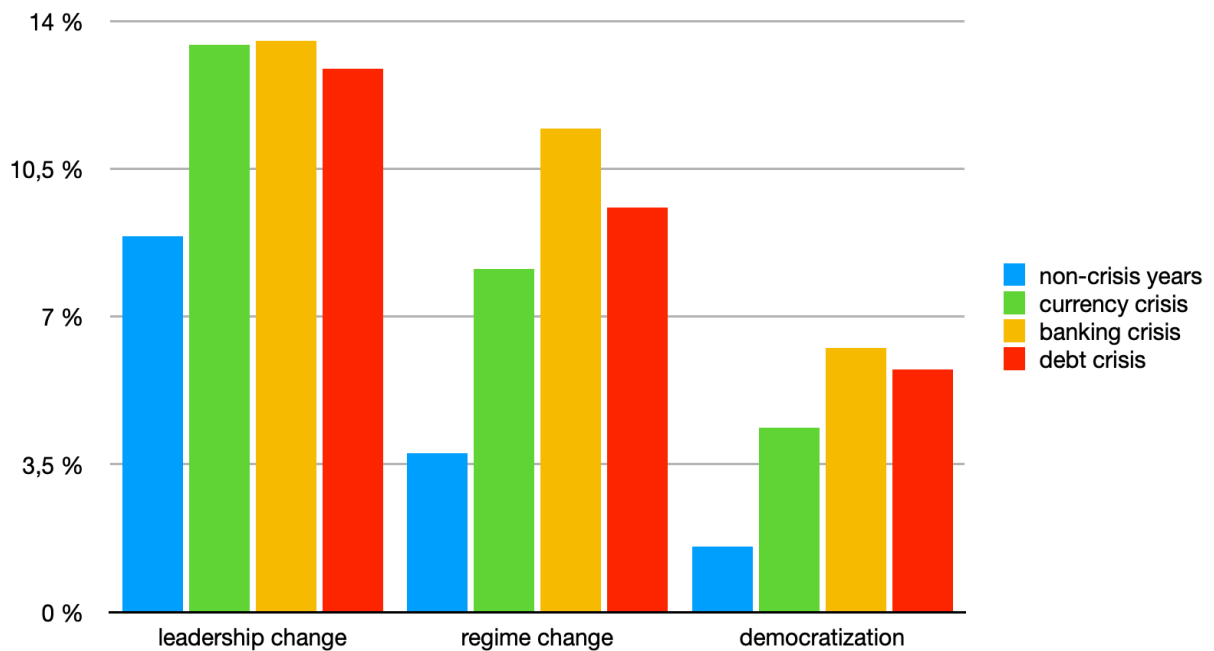
businesses are at particular risk, as they may lose their deposits if central banks and governments do not rescue crisis-hit banking sector. In the worst case scenario, however, a lot of other actors may be affected, as massive bank failures could threaten the whole system through which domestic credits are supplied and social payments are made.

Unsurprisingly, the choice of appropriate government response to the crisis is an object of political contestation. While economic considerations surely matter (e.g., crisis type, crisis severity, the degree of openness, or the structure of the economy), policy choice is also the source of serious political battles, as different containment and resolution strategies entail unequal distribution of costs². In currency crises, it is the battle between those who prefer to devalue or depreciate the currency, and those who want to defend the existing exchange rate by using foreign currency reserves, raising interest rate, or imposing capital controls. In sovereign debt crises, the key conflict occurs between actors who prefer to default on country's debt obligations and/or apply for the IMF assistance, and those who prefer austerity measures in order to service government debt and maintain access to foreign capital markets. Finally, resolving banking crises implies difficult decisions about government interventions in domestic financial sector using taxpayers' money. The central political conflicts here are about to whom, and to what extent deposit guarantees are to be provided, whether to compensate foreign creditors at all, and whether to bail out insolvent financial institutions.

Understanding the political implications of different types of financial crises requires, therefore, careful mapping all the distributional conflicts onto existing social and political configurations. The story is further complicated by certain non-economic factors, such as the regime's responsibility for the financial turmoil, and the timing of policy response. The former implies that distributional conflicts are more likely to translate into demands for political change if there is a coherent narrative that links economic burden to governments' actions (e.g., financial crises that are home-grown vs. financial crises that are caused by cross-border contagion; policy choices that clearly favor certain actors vs. policy choices that distribute the burden more or less equally). The latter means that governments may merely delay the much needed policies or reforms in order to avoid the blame for painful policy decisions, thereby aggravating existing economic problems and exacerbating future political conflicts.

² For further discussion, see, e.g., O'Donnell and Schmitter (1986), Freedman (2005), and Pepinsky (2009).

Figure 2.1. Unconditional probabilities of political change during financial crises



2.3.3. Empirics

In Figure 2.1, I compare unconditional probabilities of autocracies experiencing different types of political change in crisis and non-crisis years. For all types of crises and for all types of political change, the unconditional probability of political change is consistently higher for crisis than for non-crisis years. This supports the general scholarly agreement that financial crises and political change are related over the long run. At the same time, financial crises seem to affect different types of political change unequally: In crisis years, autocratic regimes are roughly 1.5 times as likely to experience leadership change, more than 2.5 times as likely to experience regime change, and almost 3.5 times as likely to experience democratization as in non-crisis years. Leadership changes seem, therefore, to be less strongly associated with financial crises than regime changes and especially democratic transitions.

Next, there seems to be almost no variation by crisis type for leadership changes during crisis years. For all types of financial crises, the rate of leadership change lies in the range of around 13-13.5% in crisis years, compared to almost 9% in non-crisis years. For regime changes, however, there is a clear variation by financial crisis type: During currency crises, the rate of regime change is about 2.1 times higher (8.1%) than in non-

crisis years (3.8%), whereas for banking crises, it is more than 3 times higher (11.5%), and for sovereign debt crises — around 2.5 times higher (9.6%). For democratic transitions, the variation by crisis type is also present, although only currency crises clearly stand out: For currency crises, the rate of democratization is about 2.8 times higher (4.4%) than in non-crisis years (1.6%), whereas for banking crises and sovereign debt crises — it is about 3.9 times (6.3%) and 3.6 times (5.8%) higher, respectively.

On the whole, out of all financial crises, banking crises seem to be the most strongly associated with all types of political change, and currency crises — the least strongly. These results are broadly similar for all types of political change, with regime change showing the most striking difference. By contrast, currency crises seem to have less impact on all types of political change.

In sum, the preliminary results clearly adjudicate in favor of a positive effect of all types of financial crises on the probability of all types of political change. They also provide some first evidence that there is a certain variation in different types of political change across different types of financial crises. We need, therefore, a more complete study on this complex relationship.

2.4. Data and research design

My dataset covers 97 authoritarian countries and 341 financial crises over the period from 1960 to 2011. All democracies, as well as all democratic country-years for countries that experienced democratic transitions, are excluded. In total, my sample contains 2851 autocratic country-years, with 296 country-years (10.4%) being coded as experiencing at least one type of political change, and 709 country-years (24.9%) — at least one type of financial crisis. In total, there are 75 cases (22% out of all financial crises), in which political change and financial crises occur at the same time.

Appendix 2.8.1 lists all authoritarian spell-cases, and Appendix 2.8.2 — all financial crises that I study. Appendix 2.8.3 provides definitions, sources, and descriptive statistics for all variables that I use. My R program file and dataset that can be used for replication of my results, as well as the Online Appendix with robustness test models, can be found at: <https://github.com/marina-pavlova/fcpca>.

2.4.1. Data

Dependent variables

Following the comparative autocracy literature, I distinguish between three types of political change in autocracies: leadership change, regime change, and democratization.

Leadership change: The data on leadership change are drawn from the Archigos database of political leaders (2016). This database provides information on the exact dates of executive leader removals, including whether they occur in a regular or irregular fashion. 'Regular' leadership changes are changes that occur according to the established rules (e.g., elections, vote by a ruling body, a hereditary succession in monarchies), whereas 'irregular' leadership changes are changes that occur against formal rules or established conventions (e.g., military coups, popular uprisings, assassinations) (Goemans, Gleditsch, and Chiozza 2009).

Regime change: The data on regime change come from the dataset on autocratic regimes compiled by Geddes, Wright, and Frantz (2014). Their dataset includes information on the exact start and end dates of autocracies, whether democratic or autocratic regime precedes and succeeds the regime, autocratic regime type, type of regime failure, and regime duration. Following their data, I define 'regime change' as a change in the basic formal and informal rules for choosing leaders and policies. This complex concept groups together several distinct types of political change in autocracies, such as autocratic regime collapse that leads to a democratic transition, autocratic regime collapse that results in a new autocracy, and significant changes of the basic governing rules during the lifetime of the same autocratic regime.

Democratization: The data on democratic transitions are drawn from the same dataset as 'regime change' (Geddes, Wright, and Frantz 2014). 'Democratization' is a specific subtype of 'regime change', which can be described as a political process aimed at establishing a democratic political system. Democratic transitions have long been a core concern of political scientists and have received an enormous attention in the contemporary literature, so it makes sense to theorize the relationship between financial crises and this subtype of regime change separately, in order to allow comparability of the results with other studies. To further aid comparison between democratic transitions and regime change, I also use data on autocracy-to-autocracy transitions from the same dataset.

Independent variables

Following the most common approach in the literature on financial crises, I distinguish between three types of financial crises: currency crises, banking crises, and sovereign debt crises, as well as their various combinations (see, e.g., Reinhart and Rogoff 2009, Laeven and Valencia 2012, Claessens and Köse 2013). In total, my sample contains 341 financial crises, with 181 of them being classified as currency crises, 67 — as banking crises, 93 — as sovereign debt crises, and 75 — as either twin or triple crises.

Currency crises: The data on currency crises come from Reinhart and Rogoff's (2009) canonical dataset of financial crises. The authors define a currency crisis as a sudden rapid drop in the value of a currency relative to a reserve currency, and date currency crises as exchange rate depreciations over 15% per year. In total, my dataset contains 181 currency crises with an average duration of 1.85 years.

Banking crises: For banking crises, I use the systemic banking crises dataset compiled by Laeven and Valencia (2012). According to this dataset, a banking crisis qualifies as systemic if two conditions are met: (i) significant signs of financial distress in the banking system (e.g., bank runs that lead to the closure, merging, bank liquidations, or nationalization of one or more distressed financial institutions); (ii) large-scale banking policy interventions in response to significant losses in the whole banking system. In total, my dataset contains 67 banking crises with an average duration of 2.87 years.

Sovereign debt crises: The data on sovereign debt crises come from two datasets: the Bank of Canada's database of sovereign defaults (Beers and Mavalwalla 2017), and Reinhart and Rogoff's (2009) dataset of financial crises. A sovereign debt crisis refers to a situation when a government does not honor its foreign or domestic debt obligations (i.e., fails to pay a principal or interest on the due date or within a specified grace period), or arranges a distressed debt restructuring at terms less favorable than the original terms. In total, my dataset contains 93 sovereign debt crises with an average duration of 3.92 years.

Currency, banking, and sovereign debt crises often overlap and reinforce each other: One type of financial crisis can lead to another type of financial crisis, or both crises can occur simultaneously due to common factors³. For this reason, in addition to individual

³ For detailed discussion of twin crises and their sequence see, e.g., Kaminsky and Reinhart (1999), Glick and Hutchinson (1999), Laeven and Valencia (2012), and Borensztein and Panizza (2009).

crises, I calculate four dummy variables intended to capture simultaneous and causally interrelated occurrences of two or three types of financial crises (i.e., twin and triple crises, respectively). I code a country being in a twin crisis, if one type of financial crisis takes place in the same country as another type of financial crisis over the period T-1 to T+1, where T is the starting year of the latter financial crisis. So, for example, the variable TWIN_BC — that captures twin banking and currency crises — is coded as 1 for year T, if either (i) a banking crisis occurs in year T, and a currency crisis occurs over the period T-1 to T+1; or (ii) a currency crisis occurs in year T, and a banking crisis occurs over the period T-1 to T+1. Similarly, I code a country being in a triple crisis, if any one type of financial crisis takes place in this country in year T, and other two types of financial crises occur over the period T-1 to T+1. In other words, I do not distinguish between the sequence of crises within twin and triple episodes in most of my models. As the sequence of crises within twin episodes may lead to some important differences in my dependent variables, I control for it wherever necessary.

Control variables

Following the literature on the determinants of autocratic regime breakdowns and democratic transitions, I include an array of the most widely used economic and political control variables to account for alternative explanations.

The first set of variables is economic. *Logged GDP per capita* measures the level of economic development. This controls for the hypothesis that autocracies that are more economically developed may be politically more stable than poorer ones. *GDP per capita growth* is included to control for the level of economic performance. This captures the argument that more severe financial crises are more likely to destabilize autocratic regimes. Besides, the inclusion of this variable allows me to disentangle the effect of the ‘economic component’ of financial crises (as measured by the annual growth rate of GDP) and the effect of its ‘financial component’ (as measured by a binary indicator of financial crisis type). The data on both variables are drawn from the Maddison project database (version 2018). I also include a control for *oil and gas resources*, which measures the share of oil and gas rents in total GDP. This captures the rentier state argument that reliance on oil and other natural resources makes autocratic regimes more stable by making the regime unaccountable to citizens, and by providing it with resources needed to co-opt allies and repress opponents. The data on oil and gas production come from the Ross-Mahdavi Oil and Gas Dataset, version 2.0 (2015).

The second set of variables is political. *Democracy index* measures to what extent the ideal of electoral democracy is achieved. This tests the argument that ‘more democratic’ autocracies may be more vulnerable to regime changes, as their citizens are more likely to hold their rulers accountable for financial turmoil and economic collapse. The data on this variable are drawn from the Varieties of Democracy Project (V-DEM Project 2018). Three dummy variables that measure *autocratic regime type* (party, military, and personal) come from Geddes, Wright, and Frantz (2014). They test for the argument that institutional differences among autocracies create different incentives for autocratic leaders and elites, in turn affecting the longevity of autocratic rule (see, e.g., Gandhi and Przeworski 2007, Geddes 1999, Geddes et al. 2018, Wright and Escribà-Folch 2012). So, for example, military regimes are believed to be more fragile than other types of autocratic regimes, and also the most likely of all autocracies to democratize (Geddes 1999). By contrast, single-party regimes are the most stable type of autocracies, and also the most resilient to economic crises, as they can rely on their party structure to repress or co-opt the opposition, and to ride out economic challenges (Smith 2005); they are also the least likely to democratize (Loxton and Mainwaring 2018). Finally, personalist regimes are believed to be the most susceptible to economic crises, since their support depends on material payoffs to sustain their rule (Geddes 1999).

Finally, I include the *age of the regime* to account for the possibility that more entrenched autocratic regimes are more likely to survive financial crises, a binary indicator of a *regime change within the last three years* prior to the current year to control for the hypothesis that countries that have experienced regime changes in the nearest past may have weaker political institutions and thus may be more likely to collapse, and a series of dummy variables that code for the region of the world in which each country is located (East Asia, Middle East, Africa, Latin America, ex-USSR, and Europe).

2.4.2. Method

All my econometric models are defined on a panel of country-year data, separately for each type of political change and for each type of financial crises. My baseline model is the standard pooled probit model that treats all explanatory variables as strictly exogenous and does not account for unobserved time invariant heterogeneity. Since this approach ignores the panel nature of the data, I use robust standard errors clustered by country to control for serial correlation across time.

As a robustness check on the validity of my results, I run four additional models: pooled probit model with dropped control for the severity of the crisis (*GDP per capita growth*), random effects probit, random effects probit with regional dummies, and fixed effects logit. In the former model, I account for the possibility that the effect of the ‘economic dimension’ of the analyzed financial crisis is so strong, that weaker effects of its ‘financial dimension’ — as measured by crisis type — simply cannot be seen. In both random effects models, I check the sensitivity of my initial results by accounting for unobserved cross-country heterogeneity. Fixed effects logit model accounts for country-specific factors that are not captured by my independent variables.

To ensure that the causation runs in the right direction, in all models, I lag independent and control variables by one year. Wherever necessary, I also run additional models for specific combinations of financial crises and certain subtypes of political change to get a more detailed picture of the correlation patterns.

To conserve space, only the results of my baseline models are presented in the next section and in Appendix 2.8.4. For all robustness tests, I provide estimated coefficients and standard errors of the independent variables only. Full results of all models can be found in the Online Appendix available at: <https://github.com/marina-pavlova/fcpca>.

2.5. Results and interpretation

2.5.1. Financial crises and leadership change

I begin with estimating the direct effects of financial crises on leadership change. The estimation results of pooled probit model appear in Table 2.1. Columns 1 to 4 present the effects of financial crises types on leadership change, whereas columns 5 to 8 and column 9 present the effects of twin and triple financial crises, respectively.

The estimates of twin banking/debt and triple crises are positive and statistically significant at the 5% level, suggesting a positive relationship with the probability of leadership change. At the same time, the coefficient estimates of all other types of financial crises are statistically insignificant. There is also little evidence that their effect may go through the real economy: Although there is a negative and statistically significant relationship between GDP per capita growth and leadership change, the estimated coefficients of GDP per capita growth are small, indicating that the effect of

Table 2.1. Leadership change and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-1.616*** (0.379)	-1.611*** (0.379)	-1.605*** (0.379)	-1.620*** (0.379)	-1.569*** (0.381)	-1.600*** (0.383)	-1.581*** (0.383)	-1.574*** (0.381)	-1.532*** (0.385)
ln_gdppc	0.025 (0.049)	0.024 (0.049)	0.023 (0.049)	0.025 (0.049)	0.019 (0.049)	0.023 (0.050)	0.019 (0.050)	0.020 (0.049)	0.013 (0.050)
gdppcgr	-0.015** (0.006)	-0.014** (0.006)	-0.015** (0.006)	-0.014** (0.006)	-0.014** (0.006)	-0.014** (0.006)	-0.012** (0.006)	-0.015** (0.006)	-0.013** (0.006)
vdem_index	0.770** (0.250)	0.760** (0.249)	0.767** (0.249)	0.754** (0.250)	0.739** (0.252)	0.747** (0.251)	0.733** (0.251)	0.752** (0.250)	0.728** (0.251)
oilgas	-0.010* (0.005)	-0.009* (0.005)	-0.009* (0.005)	-0.010* (0.005)	-0.009* (0.005)	-0.010** (0.005)	-0.010** (0.005)	-0.009* (0.005)	-0.010** (0.005)
duration	0.004* (0.003)	0.004 (0.003)	0.004* (0.003)	0.004* (0.003)	0.004* (0.003)	0.004 (0.003)	0.004* (0.003)	0.004* (0.003)	0.005* (0.003)
prevrc	0.163 (0.110)	0.161 (0.110)	0.163 (0.110)	0.161 (0.110)	0.162 (0.112)	0.157 (0.112)	0.166 (0.112)	0.167 (0.112)	0.166 (0.113)
party	-0.272*** (0.082)	-0.269*** (0.082)	-0.272*** (0.082)	-0.271*** (0.082)	-0.273*** (0.082)	-0.266*** (0.082)	-0.250*** (0.082)	-0.274*** (0.082)	-0.253*** (0.082)
military	0.438*** (0.079)	0.437*** (0.079)	0.436*** (0.080)	0.435*** (0.079)	0.437*** (0.080)	0.440*** (0.080)	0.413*** (0.080)	0.439*** (0.080)	0.426*** (0.080)
personal	-0.270*** (0.078)	-0.271*** (0.078)	-0.267*** (0.078)	-0.269*** (0.078)	-0.275*** (0.078)	-0.270*** (0.078)	-0.255*** (0.078)	-0.273*** (0.078)	-0.258*** (0.079)
anyfincrisis	0.009 (0.078)								
banking		0.090 (0.124)							
currency			0.042 (0.101)						
default				0.074 (0.096)					
twin_any					0.091 (0.100)				
twin_bc						0.149 (0.138)			
twin_bd							0.351** (0.152)		
twin_cd								0.090 (0.120)	
triple									0.370** (0.180)
AIC	1709.414	1708.907	1709.259	1708.847	1700.404	1695.466	1692.590	1700.601	1686.067
BIC	1774.446	1773.939	1774.292	1773.880	1765.388	1760.438	1757.566	1765.589	1751.010
Log Likelihood	-843.707	-843.453	-843.630	-843.423	-839.202	-836.733	-835.295	-839.301	-832.033
Deviance	1687.414	1686.907	1687.259	1686.847	1678.404	1673.466	1670.590	1678.601	1664.067
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.2a. Leadership change: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.009 (0.078)	0.090 (0.124)	0.042 (0.101)	0.074 (0.096)	0.091 (0.100)	0.149 (0.138)	0.351** (0.152)	0.090 (0.120)	0.370** (0.180)
Pooled Probit (gdppcgr dropped)	0.052 (0.077)	0.152 (0.121)	0.079 (0.099)	0.120 (0.094)	0.148 (0.097)	0.210 (0.136)	0.422*** (0.148)	0.147 (0.118)	0.448** (0.176)
Probit, RE	-0.016 (0.084)	0.090 (0.129)	0.023 (0.107)	0.043 (0.103)	0.070 (0.106)	0.151 (0.145)	0.353** (0.158)	0.067 (0.127)	0.388** (0.188)
Probit, RE (with regional dummies)	-0.050 (0.081)	0.114 (0.125)	-0.049 (0.104)	0.020 (0.099)	0.041 (0.103)	0.136 (0.141)	0.363** (0.154)	0.012 (0.124)	0.366** (0.183)
Logit, FE	-0.017 (0.161)	0.198 (0.233)	0.010 (0.202)	0.104 (0.191)	0.126 (0.191)	0.330 (0.255)	0.634** (0.266)	0.108 (0.225)	0.748** (0.310)

Table 2.2b. Regular leadership change: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.027 (0.090)	0.047 (0.146)	0.047 (0.114)	0.165 (0.108)	0.097 (0.114)	0.177 (0.155)	0.344** (0.172)	0.173 (0.131)	0.448** (0.194)
Pooled Probit (gdppcgr dropped)	0.037 (0.088)	0.063 (0.143)	0.056 (0.113)	0.172 (0.106)	0.107 (0.111)	0.188 (0.153)	0.350** (0.167)	0.182 (0.129)	0.453** (0.190)
Probit, RE	0.009 (0.095)	0.047 (0.151)	0.026 (0.120)	0.152 (0.112)	0.081 (0.119)	0.171 (0.161)	0.345* (0.177)	0.156 (0.136)	0.451** (0.199)
Probit, RE (with regional dummies)	-0.035 (0.094)	0.049 (0.150)	-0.048 (0.119)	0.120 (0.111)	0.038 (0.119)	0.133 (0.161)	0.349** (0.175)	0.101 (0.135)	0.428** (0.198)
Logit, FE	-0.005 (0.204)	0.218 (0.305)	-0.036 (0.249)	0.254 (0.234)	0.135 (0.239)	0.416 (0.311)	0.610* (0.332)	0.234 (0.267)	0.850** (0.362)

Table 2.2c. Irregular leadership change: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.009 (0.101)	0.157 (0.148)	0.049 (0.130)	-0.053 (0.127)	0.074 (0.128)	0.118 (0.175)	0.195 (0.187)	0.004 (0.161)	0.184 (0.230)
Pooled Probit (gdppcgr dropped)	0.091 (0.097)	0.282** (0.142)	0.120 (0.127)	0.041 (0.124)	0.202* (0.122)	0.252 (0.169)	0.368** (0.179)	0.129 (0.155)	0.377* (0.221)
Probit, RE	-0.007 (0.110)	0.170 (0.158)	0.038 (0.142)	-0.091 (0.141)	0.068 (0.138)	0.137 (0.186)	0.215 (0.199)	-0.020 (0.175)	0.214 (0.246)
Probit, RE (with regional dummies)	-0.035 (0.109)	0.194 (0.155)	-0.010 (0.141)	-0.111 (0.138)	0.055 (0.136)	0.159 (0.182)	0.233 (0.195)	-0.048 (0.172)	0.245 (0.242)
Logit, FE	0.090 (0.235)	0.388 (0.317)	0.225 (0.291)	-0.124 (0.291)	0.223 (0.277)	0.449 (0.366)	0.571 (0.388)	0.020 (0.345)	0.668 (0.474)

Notes:

Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

economic factors on the probability of leadership change is weak. By contrast, regime-institutional characteristics of autocracies seem to account for much of the variation in the probability of leadership change: The estimates of all institutional variables (party, military, and personalist regimes), as well as the estimate of the democracy index, are highly significant with considerable effects of the expected signs.

In Table 2.2a, I report the estimated coefficients and standard errors of independent variables from the robustness tests. Across all model specifications, the estimates of twin banking/debt and triple crises continue to be positive and statistically significant, whereas the estimates of all other types of crises — statistically insignificant, giving us much greater confidence in the results presented in Table 2.1.

To probe the relationship further, in Tables 2.2b and 2.2c, I provide estimated coefficients and standard errors of all independent variables, distinguishing between regular and irregular types of leadership change. A distinct pattern emerges. Across all specifications, twin banking/debt and triple crises have significant positive effects on regular — but not on irregular — leadership change. Only when I drop controls for crisis severity, several independent variables reach statistical significance in Table 2.2c, implying that the effect of some financial crises on irregular leadership change may go through the real economy. This finding suggests that formal institutional procedures may play some role during crisis-related leadership change. One possible explanation for this may be that during financial crises, leader removal through the existing procedures, such as elections, may be easier to orchestrate, as people are more likely to abandon their loyalty to the regime, whereas the dictator has less resources for maintaining elite loyalty, co-opting opposition, and organizing electoral fraud (Geddes et al. 2018).

Another important finding from this analysis is that the estimates of GDP per capita growth are highly significant in all specifications for irregular leadership change, but non-significant in all models for regular leadership change (see Tables 2.7a and 2.7b in Appendix 2.8.4). This suggests that economic conditions have certain effects on the probability of irregular leader removal, whereas for regular leadership change, it is the regime-institutional factors that matter the most. This finding is consistent with the bulk of literature on autocratic regimes: Indeed, in some autocracies, leadership rotation may occur on a regular basis — irrespective of economic conditions — and may be part of a common institutionalized mechanism that is used to enhance regime survival by alleviating the conflicts of power-sharing within the regime (Magaloni 2006).

In sum, there is little consistent evidence that financial crises have any statistically significant impact on leadership change in autocracies. Out of all types of financial crises, only the most severe ones (i.e., twin banking/debt and triple crises) reach statistical significance in all model specifications. Besides, the effect of economic factors in general seems to be pretty weak, and much of the variation in leadership change is explained by regime-specific characteristics (such as autocratic regime type or democracy index) rather than by economic factors. Yet, in cases where we do see some statistically significant relationship — which are likely to be leader removals that coincide with the collapse of the regime — leadership change is more likely to occur in a regular rather than in an irregular fashion, suggesting that even under non-democratic conditions, formal procedures are likely to matter.

2.5.2. Financial crises and regime change

Next, I estimate the direct effects of financial crises on autocratic regime change. Confirming a widely accepted belief that financial crises destabilize authoritarian regimes, results in Table 2.3 indicate a strong and statistically significant positive relationship between almost all types of financial crises and the probability of autocratic regime change. The estimated coefficient of twin banking/debt crises is statistically significant at the 1% level, the estimates of banking, sovereign debt, and triple crises — at the conventional 5% level, while the estimates of twin banking/currency and twin currency/debt crises — at the 10% level. Only one type of financial crises — currency crisis — has a non-significant estimated coefficient in my baseline model, implying that its effects on regime stability might be modest and that the effect may go through the real economy, which is captured by GDP per capita growth.

Control variables reveal no particular surprises. Across all models, the estimates of GDP per capita growth suggest that economic downturns increase the probability of autocratic regime breakdown. The estimates of institutional variables indicate that party regimes are more stable, while military and “more democratic” regimes — more likely to succumb to regime change, confirming the findings of comparative autocracy studies that institutional differences among autocracies affect the longevity of autocratic rule (Geddes 1999). There is also no consistent evidence that economic development, recent regime change or regime age have any impact on autocratic regime stability during financial crises, while the impact of oil and gas resources is significant, but small in size.

Table 2.3. Regime change and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-1.261** (0.508)	-1.272** (0.506)	-1.244** (0.508)	-1.266** (0.510)	-1.131** (0.513)	-1.231** (0.515)	-1.285** (0.517)	-1.133** (0.514)	-1.183** (0.520)
ln_gdppc	-0.106 (0.066)	-0.100 (0.066)	-0.105 (0.066)	-0.103 (0.066)	-0.119* (0.067)	-0.106 (0.067)	-0.101 (0.067)	-0.120* (0.067)	-0.115* (0.068)
gdppcgr	-0.033*** (0.007)	-0.032*** (0.007)	-0.035*** (0.007)	-0.033*** (0.007)	-0.032*** (0.008)	-0.035*** (0.007)	-0.031*** (0.008)	-0.034*** (0.007)	-0.034*** (0.008)
vdem_index	1.568*** (0.318)	1.599*** (0.316)	1.605*** (0.316)	1.573*** (0.318)	1.572*** (0.320)	1.617*** (0.319)	1.646*** (0.318)	1.603*** (0.319)	1.653*** (0.319)
oilgas	-0.013 (0.008)	-0.013* (0.008)	-0.013* (0.008)	-0.014* (0.008)	-0.013 (0.008)	-0.015* (0.008)	-0.015* (0.008)	-0.013 (0.008)	-0.015* (0.008)
duration	0.005 (0.004)	0.004 (0.004)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)
prevrc	0.017 (0.136)	0.018 (0.136)	0.027 (0.136)	0.022 (0.136)	-0.003 (0.139)	-0.022 (0.140)	0.028 (0.139)	0.016 (0.139)	0.007 (0.141)
party	-0.493*** (0.113)	-0.490*** (0.113)	-0.505*** (0.112)	-0.500*** (0.113)	-0.504*** (0.113)	-0.496*** (0.113)	-0.485*** (0.114)	-0.509*** (0.113)	-0.493*** (0.114)
military	0.506*** (0.103)	0.510*** (0.103)	0.506*** (0.103)	0.498*** (0.103)	0.507*** (0.104)	0.524*** (0.104)	0.488*** (0.104)	0.511*** (0.104)	0.518*** (0.104)
personal	-0.059 (0.102)	-0.072 (0.103)	-0.053 (0.102)	-0.062 (0.102)	-0.069 (0.103)	-0.062 (0.103)	-0.054 (0.103)	-0.058 (0.103)	-0.054 (0.103)
anyfincrisis	0.197** (0.095)								
banking		0.301** (0.135)							
currency			0.170 (0.121)						
default				0.273** (0.110)					
twin_any					0.250** (0.117)				
twin_bc						0.261* (0.158)			
twin_bd							0.484*** (0.165)		
twin_cd								0.273* (0.140)	
triple									0.491** (0.198)
AIC	984.031	983.663	986.368	982.472	975.651	971.309	972.130	976.201	966.632
BIC	1049.064	1048.696	1051.401	1047.505	1040.635	1036.281	1037.106	1041.189	1031.575
Log Likelihood	-481.016	-480.832	-482.184	-480.236	-476.825	-474.654	-475.065	-477.101	-472.316
Deviance	962.031	961.663	964.368	960.472	953.651	949.309	950.130	954.201	944.632
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.4. Regime change: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.197** (0.095)	0.301** (0.135)	0.170 (0.121)	0.273** (0.110)	0.250** (0.117)	0.261* (0.158)	0.484*** (0.165)	0.273* (0.140)	0.491** (0.198)
Pooled Probit (gdppcgr dropped)	0.290*** (0.091)	0.446*** (0.130)	0.252** (0.118)	0.369*** (0.107)	0.387*** (0.111)	0.412*** (0.152)	0.668*** (0.158)	0.397*** (0.136)	0.686*** (0.191)
Probit, RE	0.183* (0.101)	0.312** (0.143)	0.160 (0.128)	0.260** (0.118)	0.236* (0.124)	0.274* (0.165)	0.486*** (0.173)	0.261* (0.148)	0.514** (0.209)
Probit, RE (with regional dummies)	0.156 (0.098)	0.343** (0.138)	0.107 (0.125)	0.247** (0.115)	0.226* (0.120)	0.296* (0.161)	0.546*** (0.168)	0.234 (0.144)	0.583*** (0.204)
Logit, FE	0.572** (0.224)	0.684** (0.297)	0.409 (0.273)	0.720*** (0.255)	0.529** (0.263)	0.711** (0.354)	0.991*** (0.348)	0.513 (0.318)	1.157*** (0.437)

Notes: Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.4 presents the estimated coefficients and standard errors of independent variables from the robustness tests. Encouragingly, all robustness tests paint a fairly similar picture of the link between financial crises and autocratic regime change. The estimated coefficients of banking and sovereign debt crises, as well as of the respective twin and triple crises, remain highly significant across all specifications, while the estimates of currency crises remain non-significant in all but one models, confirming the findings from Table 2.3. At the same time, the estimates of twin banking/currency crises remain statistically significant at the 10% level, while the estimates of twin currency/debt crises lose statistical significance in two out of five models, suggesting that the effects of these types of crises on the probability of regime change may be modest.

The noteworthy finding in Table 2.4 is that all types of crises become statistically significant at the 1% level when I drop the GDP per capita growth that measures the impact of financial crises on the real economy. This finding suggests that the type of financial crisis *per se* does not play any decisive role in catalyzing regime instability: All types of financial crises seem to increase the probability of autocratic regime collapse, with the only difference that the effect of some crises (e.g., banking and debt crises) goes through both their ‘financial dimension’ and their ‘economic dimension’, whereas for others (e.g., currency crises) — through their impact on the real economy only.

As such, the findings presented thus far confirm the general scholarly agreement of the destabilizing effects of financial crises and indicate that the relationship between financial crises and authoritarian regime survival is not only present, but also robust. Nevertheless, two important comments are necessary.

First, although there is strong empirical evidence that financial crises and regime change are correlated, there is still the possibility of endogeneity. In fact, disentangling the direction of causality between financial crises and regime change is not that easy, because the relationship between them is likely to be one of tangled cause and effect. Even though I lag all variables by one year to lessen concerns about endogeneity bias, temporal precedence may be an ill-suited indicator of the direction of causality. Financial markets may well anticipate regime collapse that may influence their economic returns, and may preempt it by withdrawing money from the economy, reducing credit supply to local banks, or demanding higher yields on sovereign bonds — all of which could trigger financial crises. In this scenario, political uncertainty would be the main cause of financial turmoil, yet, temporally, financial turmoil would precede political change.

Second, the emergence of financial crises does not mean that an autocracy will collapse. It only means that the odds of autocratic regime breakdown have risen. It is also unclear from these models whether democracy or autocracy will succeed the collapsing regime, because authoritarian regime breakdowns are fundamentally different from democratic transitions, and causal processes behind them are not necessarily the same. In the section that follows, I distinguish between crisis-related transitions to democracy and crisis-related transitions to autocracy in order to check if certain patterns emerge.

2.5.3. Whither democratization?

I now rerun the regressions from Section 2.5.2 distinguishing between autocracy-to-democracy and autocracy-to-autocracy transitions. The estimated coefficients and standard errors of my independent variables appear in Tables 2.5a and 2.5b, whereas full results can be found in Tables 2.8a and 2.8b in Appendix 2.8.4.

The findings presented in Tables 2.5a and 2.5b reveal a distinct and interesting pattern. Whereas the coefficients on sovereign debt crises are statistically significant in all models of democratic transitions, they remain statistically insignificant in all models of autocratic transitions, suggesting that out of all types of financial crises, sovereign debt crises might have the strongest direct effect on democratization. This finding is further reinforced by the fact that all twin episodes that include a sovereign debt crisis show a statistically significant relationship with democratization. In some models, the estimates of debt crises are statistically significant at the 1% level, indicating that the relationship between sovereign debt crises and democratization is not only present, but also strong.

Table 2.5a. Autocracy-to-democracy: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.294** (0.123)	0.261 (0.174)	0.134 (0.155)	0.399** (0.137)	0.264* (0.148)	0.285 (0.190)	0.436** (0.202)	0.448** (0.165)	0.636*** (0.221)
Pooled Probit (gdppcgr dropped)	0.373*** (0.119)	0.401** (0.165)	0.214 (0.151)	0.476*** (0.134)	0.381*** (0.140)	0.418** (0.183)	0.600*** (0.190)	0.549*** (0.159)	0.791*** (0.211)
Probit, RE	0.277** (0.136)	0.272 (0.192)	0.082 (0.172)	0.410** (0.152)	0.230 (0.164)	0.293 (0.209)	0.472** (0.224)	0.429** (0.178)	0.696*** (0.246)
Probit, RE (with regional dummies)	0.259* (0.134)	0.296 (0.187)	0.053 (0.168)	0.408** (0.150)	0.238 (0.160)	0.322 (0.207)	0.521** (0.219)	0.440** (0.174)	0.779*** (0.245)
Logit, FE	0.777** (0.337)	0.401 (0.451)	0.280 (0.394)	1.036*** (0.357)	0.536 (0.386)	0.603 (0.515)	0.903* (0.505)	0.855* (0.438)	1.451** (0.607)

Table 2.5b. Autocracy-to-autocracy: estimated coefficients of the independent variables

model	any	banking	currency	default	twin_any	twin_bc	twin_bd	twin_cd	triple
Pooled Probit	0.079 (0.120)	0.306* (0.162)	0.113 (0.156)	0.114 (0.143)	0.179 (0.149)	0.162 (0.206)	0.443** (0.200)	-0.004 (0.202)	0.244 (0.274)
Pooled Probit (gdppcgr dropped)	0.183 (0.115)	0.455*** (0.154)	0.193 (0.152)	0.221 (0.138)	0.338** (0.141)	0.330* (0.196)	0.631*** (0.191)	0.149 (0.194)	0.475* (0.261)
Probit, RE	0.079 (0.120)	0.307* (0.164)	0.116 (0.158)	0.114 (0.144)	0.179 (0.153)	0.173 (0.211)	0.443** (0.201)	-0.004 (0.206)	0.253 (0.280)
Probit, RE (with regional dummies)	0.055 (0.123)	0.346** (0.165)	0.075 (0.160)	0.090 (0.147)	0.1168 (0.152)	0.178 (0.207)	0.496** (0.203)	-0.037 (0.206)	0.304 (0.276)
Logit, FE	0.299 (0.318)	0.821** (0.388)	0.468 (0.384)	0.183 (0.390)	0.397 (0.370)	0.617 (0.485)	0.959** (0.473)	0.014 (0.513)	0.819 (0.646)

Notes: Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

This result is not totally unexpected since there is some evidence in the democratization literature that with higher levels of debt, autocrats are more likely to concede the regime, because with limited access to external financing the ruling elites can no longer support their patronage networks and co-opt or repress the opposition (Houle, Kayser, and Xiang 2016). This finding is also in line with some formal theoretical models that suggest that indebted countries gradually become more constrained by international factors, such as capital-friendly policies that give foreign capital holders a say in domestic policy making process (Roberts 2006). In extreme cases (e.g., IMF assistance after sovereign default), debt provision becomes conditional on liberalization and democratic reforms, and democracy becomes the best possible strategy for highly indebted autocracies (ibid).

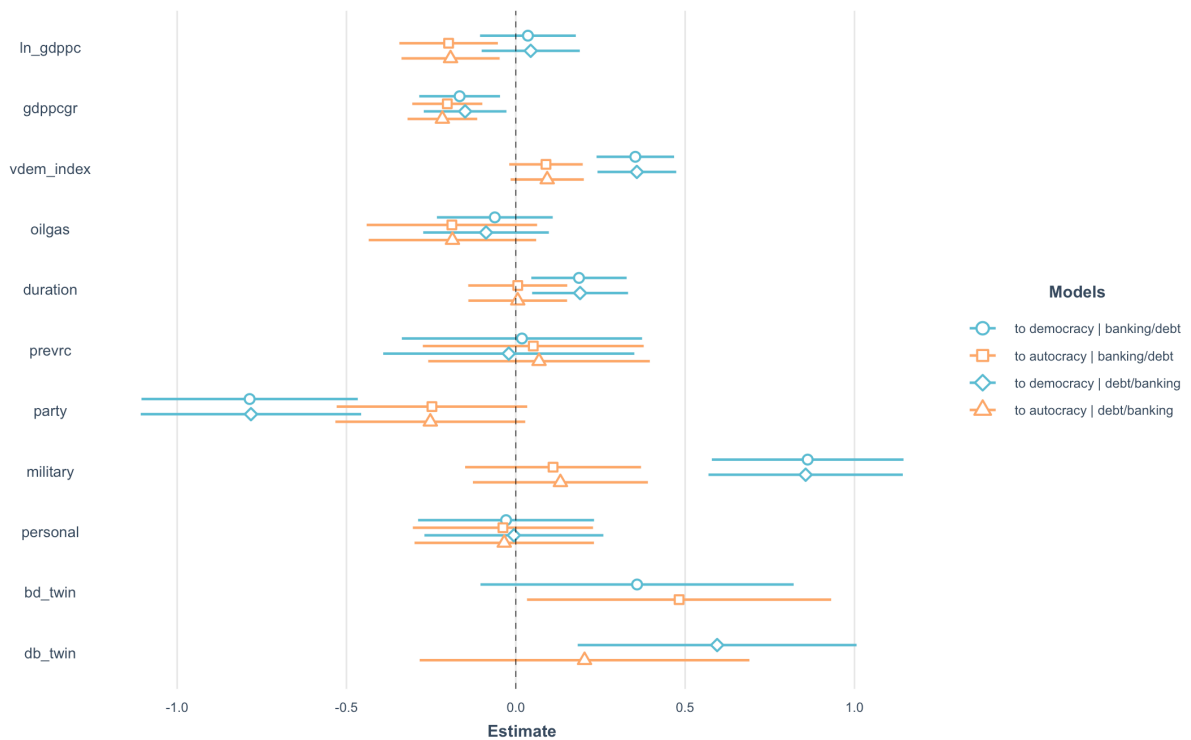
By contrast, banking crises show statistically significant relationship with autocracy-to-autocracy transitions (although in some models only at the 10% level), whereas their

effect on democratization seems to be modest. This finding is really striking and not that intuitive for interpretation. One possible explanation is that banking crises may trigger intra-elite infighting and disagreement about policy response: If the regime insiders cannot agree on the way financial crisis is to be resolved, this may tore the regime apart, and one elite group may mount a coup and overthrow the regime, replacing it with a new ruling group. More likely, however, is that financial markets simply observe growing signs of political tensions between the elites and preempt full-blown political crisis by withdrawing money from the economy thereby precipitating the crisis they are fearing. Again, identifying the direction of causality is not easy in this case. What seems to be absolutely clear, however, is that banking and sovereign debt crises may set in motion different political conflicts, which in turn may lead to different political outcomes.

Control variables in all models behave roughly as expected (see Tables 2.8a and 2.8b in Appendix 2.8.4). In autocracy-to-democracy models, the estimates of GDP per capita growth are negative, relatively small in size, and highly significant, indicating that economic downturns and democratization are correlated. The estimates of military regimes are positive, of party regimes — negative, and both are large in size and statistically significant, confirming the findings of comparative autocracy research that military regimes are more likely than other types of autocracies to break down and democratize (Geddes 1999), while single-party regimes are the most resilient to economic crises and the least likely to democratize (Smith 2005). The estimated coefficient of democracy index suggests that ‘more democratic’ autocracies are indeed more likely to democratize. Finally, the estimate of oil and gas resources is non-significant, indicating that there is no clear link between oil export dependency and the probability of crisis-induced democratization. In autocracy-to-autocracy models, most of control variables lose their significance, with only GDP per capita growth showing highly significant negative effect, and party regimes showing a consistently negative but only sporadically significant impact on autocracy-to-autocracy transitions.

Perhaps the most intriguing finding in Tables 2.5a and 2.5b is that twin banking/debt crises reveal statistically significant relationship with both autocracy-to-democracy and autocracy-to-autocracy transitions. To interpret this relationship, note that twin crises are heterogenous events. Just as single financial crises differ from one another in their causes, transmission channels, and economic impact, twin crises differ substantially according to the sequencing in which crises within twin episodes unfold. For example,

Figure 2.2. Transitions to democracy/autocracy and twin banking/debt crises



systemic banking crisis may lead to fiscal troubles, because in attempts to save its banking system the government can accumulate so much debt, that it may be forced to default and restructure its debt obligations. Likewise, however, sovereign default can prompt banking crisis, as domestic banks are usually the major holders of government debt and thus are heavily exposed to the sovereign.

To probe, whether the sequence of crises within twin episodes matters, I further distinguish between two types of twin banking/debt crises: banking crises that lead to sovereign defaults, and sovereign defaults that lead to banking crises. In Figure 2.2, I plot the regression coefficients and their confidence intervals for the four models I run. The difference is substantial. The estimates of twin debt/banking crises show statistically significant relationship with democratic transitions (blue line), but remain statistically insignificant in models for autocratic transitions (orange line). By contrast, the estimates of twin banking/debt crises show a smaller, but still visible difference between the statistically significant relationship with autocratic transitions (orange line) and statistically insignificant relationship with democratic transitions (blue line).

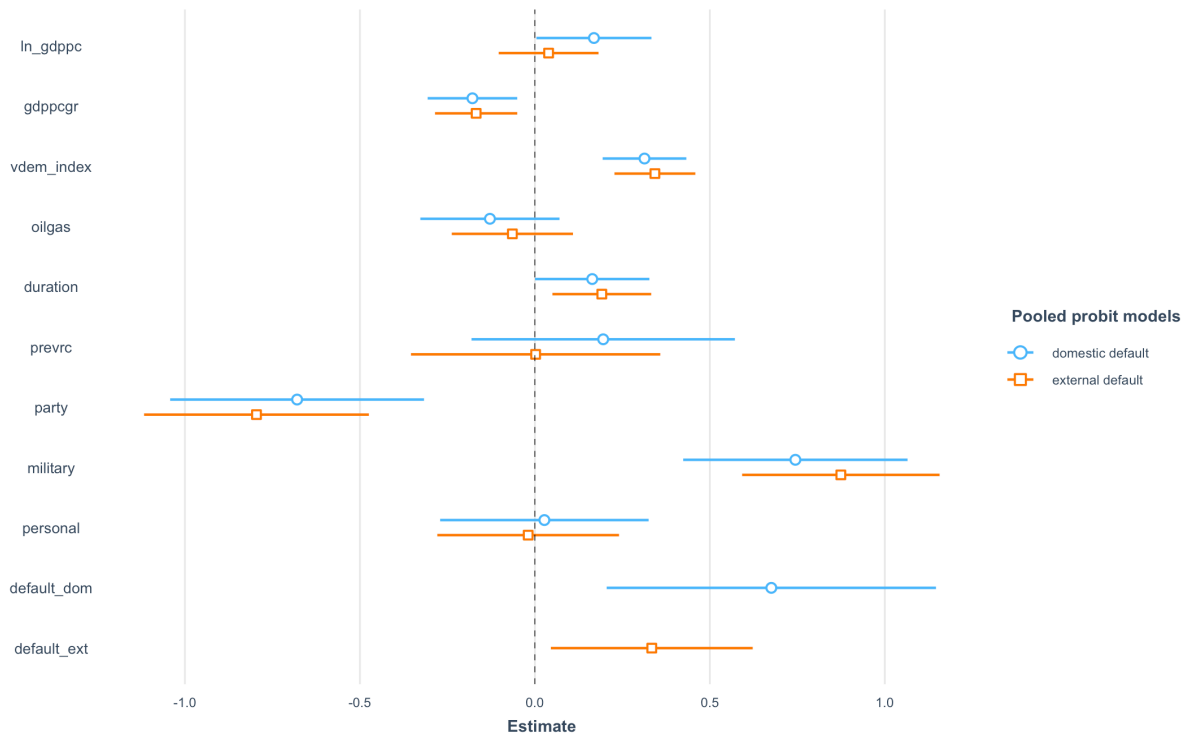
This finding suggests that crises in which the government runs out of money, defaults on its debt, and thereby triggers a banking crisis, are fundamentally different from crises in which the government defaults on its debt in attempts to save the troubled banking

system. In economic terms, these crises may even have similar devastating consequences for the real economy — in political terms, however, they seem to trigger different political conflicts. So, for example, in the former case, the government is directly to blame for the economic collapse, as there is a coherent narrative that links economic hardship to politicians' actions — thus, it is easier for the opposition to mobilize public opinion around its message, and challenge the regime. In the latter case, however, the incumbents can easily redress the situation and portray themselves as innocent victims of an exogenous economic shock, thereby minimizing — at least to some extent — the risks of public discontent and popular uprisings.

Still, these findings should be taken with extreme caution. First, we have relatively few cases of twin banking and sovereign debt crises, as they are the least frequent out of all twin crises combinations (Laeven and Valencia 2012). This means that estimates are prone to be sensitive to outliers. Second, the exact timing of banking and sovereign debt crises is a serious question in itself. In contrast to currency crises, where the exact starting date is pretty easy to identify, with both sovereign debt and banking crises, researchers rely on qualitative rather than quantitative judgements to identify crises episodes. This may lead to differences not only in the dating of individual crises, but also in the sequence of twin banking/debt crises which can seriously affect the analysis and the results. So, for example, Laeven and Valencia (2012) claim that banking crises lead to sovereign debt crises, but not the other way around. This is exactly the opposite of what Borenzstein and Panizza (2009) argue, as in their study it is sovereign debt difficulties that trigger banking crises more frequently. In both cases, however, scholars have deeper knowledge about some crises than others, and naturally, their intuitions fit the cases they know best better than those they know less well.

In any case, the fact that there is a correlation between sovereign debt crises and democratic transitions is intriguing in its own right. To gain further insight into the possible causal mechanism, on the final stage of my analysis, I distinguish between two types of sovereign defaults: domestic default and external default. The former refers to defaults on debt issued under a country's own legal jurisdiction and typically denominated in the local currency, whereas the latter refers to defaults on debt issued under foreign countries' legal jurisdiction and typically denominated in foreign currency. Figure 2.3 compares the estimation results. The noteworthy finding is that while both types of default reveal statistically significant relationship with democratization, the

Figure 2.3. Democratization and domestic vs. external default



effect of domestic default is substantively larger. This is not particularly surprising, as the decision to default on the domestic creditors and households is probably the easiest way for the regime to intensify both intra-elite and elite-citizens conflicts.

To sum, the results related to autocracy-to-democracy and autocracy-to-autocracy transitions show considerable differences compared to the results related both to regime change and to leadership change. This implies that different financial crises set in motion different political conflicts, which in turn can lead to different political outcomes. In other words, the relationship between financial crises and political change is far more complex than usually assumed.

2.6. Conclusion

It is hardly novel to claim that financial crises may lead to political change in autocracies. It is perhaps slightly less banal to remark that the relationship between financial crises and political change is far more complex than the democratization literature suggests. The findings I present in this paper provide a more nuanced picture of the weirdly tangled relationship between financial crises and political change, and contribute to the existing literature in three important ways.

First, my findings illustrate the importance of differentiating between different types of political change when measuring autocratic regime stability. In the democratization literature, empirical research usually neglects the fact that several types of political change are possible, and focuses instead on democratic transitions only. Similarly, in the political economy literature, scholars often lump democracies and autocracies in one statistical model and use concepts developed for the study of democratic politics, such as leader removal, as a proxy for regime stability. Yet, conceptualization of autocratic regime stability as just leader removals or autocracy-to-democracy transitions provides an incomplete picture, and largely underestimates autocratic regime vulnerability to financial and economic crises, as not all leader removals coincide with regime collapse, and not all regime breakdowns lead to democratic transitions. In other words, choosing appropriate measures of political change has significant effects on empirical findings and important implications for our understanding of autocratic regime (in)stability and processes that are behind autocratic regime breakdown and democratization.

Second, this paper adds complexity to earlier scholarly claims regarding the destabilizing effects of economic crises. In the majority of previous studies, the argument that economic downturns trigger autocratic regime breakdowns and democratic transitions is premised on the problematic belief that the effect of economic crises is universal for all types of crises, and can be measured by aggregate macroeconomic indicators, such as annual GDP growth rate, while financial dimension of economic crises is usually completely neglected. My findings show that disentangling the effects of the financial and economic components of crises, as well as distinguishing between various types of financial crises reveal important differences in autocratic regime (in)stability. Accordingly, lumping together different types of financial crises — as it is often done in the democratization literature — is highly problematic, because it can obscure specific causal mechanisms by which distinct crises affect political change.

Third, I identify and describe some correlation patterns between varieties of financial crises and three types of political change. Specifically, my findings suggest that financial (and economic) crises have almost no significant effect on autocratic leadership change. By contrast, their effect on autocratic regime change is robustly significant and substantively large. Yet, the effect of financial crises on democratization varies considerably by crisis type, with only sovereign debt crises (and twin episodes that include a sovereign debt crisis) having a robustly significant positive impact on the

probability of democratic transitions. Other types of financial crises have only regime destabilizing effects, and may increase not only the probability of transition to a democracy, but also the probability of transition to a new autocratic rule. Importantly, this finding supports my intuition that different types of financial crises set in motion different political crises, because they alter the interests of socio-political actors in autocracies disproportionately. It also suggests that autocratic regime (in)stability can be explained not only by regime-institutional differences (which has been the prevailing argument in the comparative autocracy research recently), but also by interest differences and distributional conflicts that various financial crises intensify.

It should be acknowledged, however, that the presence of correlation patterns identified in this paper does not imply the existence of a causal link. There are unresolved endogeneity problems in the relationship between financial crises and political change, and this paper does not provide any breakthroughs in this regard. I am well aware of the problem, and therefore make no claim about the presence and the direction of causality.

Although this paper sheds light on the complex relationship between financial crises and political change, by no means does it provide the final word on this issue. Indeed, many important questions are left unanswered, and future theoretical and empirical research seems to be promising along several broad lines. For example, it makes sense to flesh out the underlying causal mechanisms for some statistically significant correlation patterns identified in this paper. So, future research could explain the causal processes behind the relationship between sovereign debt crises and democratic transitions, or banking crises and transitions to a new autocratic rule. Another direction for future research is to investigate how different types of financial crises unfold: how autocracies respond to financial crises, whether certain containment and resolution strategies affect autocratic regime stability, which actors and institutions contribute to autocratic regime survival during attempts at crisis resolution, etc. Studies that address these and similar questions could significantly contribute to our understanding of the sources of autocratic regime (in)stability.

In sum, while many questions are still left unanswered, by providing a more nuanced picture of the relationship between financial crises and political change, this paper hopefully provides a framework for further work on these issues.

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2.8. Appendix

2.8.1. Authoritarian spell case list, 1960-2011

Country	Start	End	Country	Start	End
Algeria	1963	2011	Gambia	1970*	2011**
Angola	1977	2010	Georgia	1995*	2003
Argentina	1961*	1973	Ghana	1961	1969
	1977	1983		1973	1979
Armenia	1995	2011**		1982	2000
Azerbaijan	1994	2011**	Greece	1968	1974
Bangladesh	1974*	1990	Guatemala	1960*	1995
Belarus	1992	2011**	Guinea	1970*	2010**
Benin	1973	1990	Guinea Bissau	1975	1999
Bolivia	1960*	1979	Haiti	1970*	1990
	1981	1982		1992	1994
Botswana	1970*	2011**		2000	2004
Brazil	1965	1985	Honduras	1964	1971
Burkina Faso	1970*	2011**		1973	1981
Burundi	1970*	2003	Hungary	1968*	1990
Cambodia	1993*	2011**	Indonesia	1967*	1999
Cameroon	1970*	2011	Iran	1970*	2011**
Central African Rep.	1961	1993	Jordan	1970*	2011**
	2004	2011**	Kazakhstan	1994*	2011**
Chad	1970*	1979	Kenya	1964	2002
	1983	2011**	Korea, South	1962	1987
Chile	1974	1989	Kyrgyzstan	1993*	2010**
China	1961*	2011**	Laos	1976	2011**
Congo, Rep.	1970*	1991	Lesotho	1971	1993
	1998	2011**	Liberia	1970*	1990
Congo, Dem. Rep.	1970*	2011**		1998	2003
Cote d'Ivoire	1961	2011**	Libya	1970*	2010**
Dominican Republic	1961*	1962	Madagascar	1970*	1993
	1964	1965	Malawi	1970*	1994
	1967	1978	Malaysia	1969*	2011**
Ecuador	1964	1966	Mali	1970*	1991
	1971	1979	Mauritania	1970*	2011**
Egypt	1961*	2010**	Mexico	1961*	2000
El Salvador	1961*	1994	Morocco	1961*	2011**
Eritrea	1994	2011**	Mozambique	1978*	2011**
Ethiopia	1970*	2011**	Myanmar	1963	2010**
Gabon	1970*	2011**	Namibia	1991	2011**

Country	Start	End	Country	Start	End
Nepal	1970*	1991	Sudan	1970	1986
Nicaragua	1961*	1990		1990	2011**
Niger	1970*	1991	Swaziland	1970*	2011**
	1997	1999	Syria	1970*	2010**
Nigeria	1967	1979	Taiwan	1982*	2000
	1984	1999	Tajikistan	1992	2011**
Pakistan	1976	1988	Tanzania	1970*	2011**
	2000	2008	Thailand	1961*	1973
Panama	1969	1989		1977	1988
Paraguay	1961*	1993	Togo	1970*	2011**
Peru	1969	1980	Tunisia	1961*	2010**
	1993	2000	Turkey	1981	1983
Philippines	1973	1986	Turkmenistan	1994*	2011**
Portugal	1960*	1974	Uganda	1970*	2011**
Romania	1961*	1989	Uruguay	1974	1984
Russia	1995*	2011**	Uzbekistan	1996*	2011**
Rwanda	1970*	2011**	Venezuela	2006	2011**
Senegal	1970*	2000	Vietnam	1978*	2011**
Sierra Leone	1970*	1998	Yemen	1991*	2010**
South Africa	1960*	1994	Zambia	1968	2010**
Spain	1961*	1976	Zimbabwe	1981	2011**
Sri Lanka	1979	1994			

* left-censored cases

** right-censored cases

2.8.2. Financial crises, 1960-2011

Country	Banking	Currency	Default	Twin/Triple	Turnover
Algeria	1990-1994	1988-1991 1994-1995	1991-1996	triple	rlc, ilc, a->a
Angola		1991-2005 2009-2010	1985-2003	twin	
Argentina		1962 1964-1965 1967 1969-1971	1961-1965	twin	rlc, ilc, a->a
	1980-1982	1977-1983	1982-1983	triple	ilc, rlc, a->d
Azerbaijan	1995	1994		twin	
Bangladesh		1976 1987			
Belarus	1995	1994 1999 2009		twin	rlc, a->a
Benin	1988-1990				a->d
Bolivia		1963 1972 1979-1982	1981-1982	twin	ilc, a->a ilc, rlc, a->d
Botswana		1984			
Brazil		1965 1967-1969 1971 1974-1975 1977-1985	1983-1985	twin	rlc rlc, a->d
Burkina Faso	1990-1994	1994		twin	
Burundi	1994-1998	1996-1997		twin	rlc, ilc, a->a
Cameroon	1987-1991 1995-1997	1994-1995	1989	twin twin	
Central African Rep.	1976-1982 1988-1993		1981 1983-1993 2004-2009	twin twin	ilc, a->a rlc, a->d
Chad	1983 1992-1996	1994		twin	

Country	Banking	Currency	Default	Twin/Triple	Turnover
Chile	1976	1974-1979	1974-1975	triple	
	1981-1985	1982-1985 1987 1989	1983-1989	triple	a->d
China		1984			
		1986			
		1989			
		1994			
	1998				
Congo, Rep.			1986		
Congo, DR		1976	1976	twin	
	1983	1983		twin	
		1989			
	1991-1998	1994-1997 1999 2009		twin	ilc, a->a
Cote d'Ivoire	1988-1992	1994	1983-1998	triple	rlc
			2000-2011		ilc, a->a
Dominican Rep.			1975-1978		rlc, a->d
Ecuador		1971			ilc, a->a
Egypt		1962			
	1980	1979		twin	ilc
			1984		
			1989-1991		
			2001 2003		
El Salvador		1973			
	1989-1990	1988-1989	1981-1994	triple	rlc, a->a, a->d
Ethiopia		1993			
Gabon			1978		
		1994	1986-1994	twin	
			1999-2005		
Gambia		1985	1986-1990	twin	
		2003			
Georgia	1995				
		1999			

Country	Banking	Currency	Default	Twin/Triple	Turnover	
Ghana		1967	1966	twin	ilc, a->a rlc	
			1968			
			1974			
			1978	1979	twin	rlc, ilc, a->d
	1982-1983	1983-1989	1982	1987	triple	
		1992-1997				
		1999-2000			a->d	
Guatemala		1986	1986	twin	rlc	
		1989-1991	1989	twin	rlc	
Guinea		1982				
	1985		1986-1988	twin	ilc, rlc	
	1993		1991-1999	twin		
		2005				
Guinea-Bissau		1980			ilc, a->a	
	1995-1998	1994-1997	1983-1996	triple	rlc, ilc, a->d	
Haiti	1994	1992-1993	1982-1994	triple	ilc, a->	
		2003			ilc	
Honduras			1981		a->d	
Hungary		1968				
		1982				
		1989-1990			rlc, a->d	
Indonesia		1967-1968	1967-1969	twin		
		1978				
		1983				
	1997-1999	1997-1998	1997-1999	triple	rlc, a->d	
Iran			1978-1995		ilc, a->a	
		1985				
		1993				
		2000				
Jordan	1989-1991	1989	1989	triple		
Kazakhstan		1999				
	2008-2011					

Country	Banking	Currency	Default	Twin/Triple	Turnover
Kenya		1976			
		1981-1982			
		1985			
		1989			
		1992-1994	1991-1993	twin	
Korea, South		1999	1994-2002	twin	rlc, a->d
		1962-1963			
		1966			
		1970			
		1975			
Kyrgyzstan	1995-1999	1979-1980			ilc, rlc
		1997		twin	
Laos		1978			
		1986			
		1997			
Lesotho		1985			ilc, a->a
Liberia			1980		ilc, a->a
			1987-1990		ilc, a->a
			1998-2003		rlc, a->d
Libya		2002			
Madagascar	1988	1984-1987	1981-1984	triple	
			1986-1993		rlc, a->d
Malawi			1982		
			1988		
		1994			rlc, a->d
Malaysia	1997-1999	1997-1998		twin	
Mali	1987-1991				ilc, a->d
Mauritania	1984				ilc
		1993	1992-1996	twin	
Mexico		1976-1977			rlc
	1981-1985	1982-1987	1982-1990	triple	rlc
		1989			
Morocco	1980-1984	1994-1999		twin	rlc, a->d
		1998			
Morocco	1980-1984	1981-1982	1983	triple	
		1985			
			1986-1990		

Country	Banking	Currency	Default	Twin/Triple	Turnover
Mozambique			1980		
			1984		
	1987-1991	1987		twin	
Myanmar		1975			
			1984		
			1987		ilc, a->a
			1990		
			1996		
		2001			
			2002-2010		rlc
Nepal		1984			
	1988				
Nicaragua		1979	1979-1990	twin	ilc, a->a
		1985-1986			
	1990	1988-1990		triple	rlc, a->d
Niger	1983-1985		1983	twin	
Nigeria		1973			
	1991-1995	1985-1990	1984-1992	triple	rlc, ilc, a->a
		1992			
		1997			
		1999			rlc, a->d
Panama	1988-1989		1983-1989	twin	a->d
Paraguay			1968-1969		
		1984-1986	1986-1992	twin	rlc, ilc, a->d
		1989			
		1992-1993			
Peru		1976-1980	1976	twin	rlc, a->d
			1978		
			1980		
			1993	1993-1997	twin
		1998			
Philippines	1983-1986	1983-1984	1981-1986	triple	ilc, a->d
Romania		1973			
		1983	1981-1983	twin	
			1986		
Russia		1995-1996			
	1998	1998-1999	1998-2000	triple	rlc
	2008-2010	2008		twin	

Country	Banking	Currency	Default	Twin/Triple	Turnover
Rwanda		1991			
			1995		
Senegal			1981		
	1988-1991				
		1994			
Sierra Leone			1977		
		1983			
	1990-1996	1989-1991		twin	ilc, a->a
		1998	1995-1998	triple	rlc, ilc, a->a
South Africa		1967			
		1981			
		1984-1985	1985-1987	twin	rlc
		1988	1989		
			1993		rlc, a->d
Spain		1967			
Sri Lanka		1980	1979	twin	
		1983	1981-1983		
	1989-1991	1989		twin	rlc
Sudan			1979		
		1981			
			1991		
		1994			
Swaziland		1985-1986			rlc
	1995-1999				
Syria		1988			
Taiwan	1983-1984				
	1997-1999	1998		twin	rlc, a->d
Tajikistan		1999			
Tanzania		1985	1984	twin	rlc
	1987-1988				
		1990			
Thailand	1983	1984		twin	
Togo			1979		
	1993-1994	1994		twin	

Country	Banking	Currency	Default	Twin/Triple	Turnover
Tunisia			1963		
		1965			
		1974			
		1978	1979-1982	twin	
		1986			ilc
	1991				
Turkey	1982-1983	1981-1983	1982	triple	rlc, a->d
Turkmenistan		2008			
Uganda			1981		
		1988			
	1994				
Uruguay	1981-1984	1974-1984	1983-1984	triple	rlc, ilc, a->d
Uzbekistan		2000			
Venezuela		2010-2011			
Vietnam		1981			
			1985		rlc
		1987			
	1997				rlc
Yemen	1996	1995		twin	
Zambia		1977			
		1983-1986	1983-1985	twin	
	1995-1998	1988-1996	1988-1994	triple	rlc, a->d
		1998			
		2000			
		2008			rlc
Zimbabwe		1982-1984			
		1988-1991			
		1993-1994			
	1995-1999	1996-1998	1999-2009	triple	
		2000			
		2003-2008			

2.8.3. Variable definitions, data sources, and descriptive statistics

Variable name	Description & coding	Data source
arch_exit_irreg	Binary indicator of irregular leadership change: leadership change that occurred against explicit rules, provisions, or established conventions (e.g., leader removed from office either by popular uprising, coup d'état, assassination, or foreign intervention).	Archigos dataset (2016).
arch_exit_reg	Binary indicator of regular leadership change: leadership change occurs according to the prevailing rules, provisions, conventions and norms of the country.	Archigos dataset (2016).
arch_exit_any	Binary indicator of any leadership change: marks year in which any leadership change occurred (regular or irregular).	Calculated from arch_exit_reg and arch_exit_irreg variables.
regime_change	Binary indicator of regime change: marks year in which regime change occurs (i.e., fundamental changes in the formal and/or informal rules for choosing leaders and policies).	Geddes, Wright, and Frantz (2014).
democratization	Binary indicator of democratization: transition to a democratic political regime (i.e., subset of regime breakdowns that resulted in transitions to democracy).	Geddes, Wright, and Frantz (2014).
aa_transition	Binary indicator of autocracy-to-autocracy transition: transition to a new autocratic regime (i.e., subset of regime breakdowns that resulted in autocracy-to-autocracy transitions).	Geddes, Wright, and Frantz (2014).
banking	Binary indicator of systemic banking crises: a banking crisis is defined as systemic if there are (i) significant signs of distress in the banking system, and (ii) significant banking policy intervention measures in response to significant losses in the banking system.	Laeven and Valencia (2012), Reinhart and Rogoff (2009).

currency	Binary indicator of currency crises: a currency crisis is defined as a nominal depreciation of the currency in excess of 15 percent compared to the year before.	Reinhart and Rogoff (2009), Laeven and Valencia (2012).
default	Binary indicator of sovereign debt crises: a sovereign debt crisis is defined as either (i) a legal default, i.e. failure of an obligor to meet a principal or interest payment on the due date, or (ii) a distressed debt restructuring, i.e. when an exchange offer of new debt contains less favorable terms than the original issue. This variable includes external and / or domestic sovereign debt crises.	Reinhart and Rogoff (2009), Beers and Mavalwalla (2017).
default_ext	Binary indicator of external sovereign debt crises: an external sovereign debt crisis is defined as an outright default on a government's external debt obligations, i.e. a default on a payment to creditors of a loan issued under another country's jurisdiction, typically (not always) denominated in a foreign currency, and held mostly by foreign creditors.	Reinhart and Rogoff (2009), Beers and Mavalwalla (2017).
default_dom	Binary indicator of domestic sovereign debt crises: a domestic sovereign debt crisis is defined as an outright default on public debt issued under a country's own jurisdiction, typically denominated in the local currency, and held mainly by residents.	Reinhart and Rogoff (2009).
anyfincrisis	Binary indicator of banking, currency, or debt crises: measures an occurrence of banking, currency, or sovereign debt crisis in a given year.	Calculated from banking, currency, and default variables.
twin_bc	Binary indicator of twin banking and currency crisis: a country is in a twin banking and currency crisis, if (i) currency crisis takes place in the same country as banking crisis over the period $[t-1, t+1]$, where t is the year of banking crisis, or (ii) banking crisis takes place in the same country as currency crisis over the period $[t-1, t+1]$, where t is the year of currency crisis.	Calculated from banking and currency variables.
bc_twin		
cb_twin		

twin_bd	Binary indicator of twin banking and sovereign debt crisis: a country is in a twin banking and sovereign debt crisis, if (i) sovereign debt crisis takes place in the same country as banking crisis over the period [t-1, t+1], where t is the year of banking crisis, or (ii) banking crisis takes place in the same country as sovereign debt crisis over the period [t-1, t+1], where t is the year of sovereign debt crisis.	Calculated from banking and default variables.
bd_twin		
db_twin		
twin_cd	Binary indicator of twin currency and sovereign debt crisis: a country is in a twin currency and sovereign debt crisis, if (i) sovereign debt crisis takes place in the same country as currency crisis over the period [t-1, t+1], where t is the year of currency crisis, or (ii) currency crisis takes place in the same country as sovereign debt crisis over the period [t-1, t+1], where t is the year of sovereign debt crisis.	Calculated from currency and default variables.
cd_twin		
dc_twin		
twin_any	Binary indicator of any twin crisis: measures an occurrence of any twin crisis in a given year.	Calculated from twin_bc, twin_bd, and twin_cd.
triple	Binary indicator of triple banking, currency, and sovereign debt crises: a country is in a triple crisis, if (i) currency and sovereign debt crises take place in the same country as banking crisis over the period [t-1, t+1], where t is the year of banking crisis, or (ii) banking and sovereign debt crises take place in the same country as currency crisis over the period [t-1, t+1], where t is the year of currency crisis, or (iii) currency and banking crises take place in the same country as sovereign debt crisis over the period [t-1, t+1], where t is the year of sovereign debt crisis.	Calculated from banking, currency, and default variables.
gdppcgr	GDP per capita growth: annual percentage growth rate of GDP per capita.	Maddison Project (2018), World Bank WDI database.
resources	Total natural resources rents (% of GDP): the sum of oil rents, natural gas rents, coal rents, mineral rents, and forest rents.	World Bank WDI database.

vdem_index	Electoral democracy index: democracy index that measures to what extent the ideal of electoral democracy is achieved.	V-Dem Project (2018).
p_polity2	Polity2 is a revised combined POLITY Score that captures political regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy).	Polity IV dataset.
duration	Time-varying duration of autocratic regime: marks the number of consecutive calendar years in which an autocratic regime has ruled the country, up to and including the observation year.	Geddes, Wright, and Frantz (2014).
military	Binary indicator of military regime type (groups military, military-personal, and indirect military regimes in Geddes' classification).	Geddes, Wright, and Frantz (2014).
party	Binary indicator of party regime type (groups party-based, party-personal, party-military, party-personal-military, oligarchy, and Iran 1979-2010 in Geddes' classification).	Geddes, Wright, and Frantz (2014).
personal	Binary indicator of personalist regime type.	Geddes, Wright, and Frantz (2014).
prevrc	Previous regime change: binary indicator of previous regime changes occurring over the period [t-3, t-1], where t is the observation year.	Calculated from Geddes, Wright, and Frantz (2014).

Notes:

1. Table provides an overview and description of all variables used in the analysis. Motivation for their inclusion is provided in the text.
2. My R program files and datasets that will allow you to replicate my results are available at: <http://github.com/marina-pavlova/fcpca>.

Table 2.6. Descriptive statistics

Variable	n	mean	sd	min	max
p_polity2	2,714	-4.262	4.667	-10	10
arch_exit_any	2,851	0.099	0.299	0	1
arch_exit_reg	2,851	0.063	0.244	0	1
arch_exit_irreg	2,851	0.046	0.209	0	1
regime_change	2,851	0.047	0.212	0	1
prevrc	2,851	0.128	0.334	0	1
democratization	2,851	0.023	0.150	0	1
aa_transition	2,851	0.025	0.155	0	1
duration	2,851	18.670	15.725	0	85
banking	2,851	0.071	0.257	0	1
currency	2,851	0.117	0.322	0	1
default	2,851	0.136	0.343	0	1
default_ext	2,851	0.118	0.322	0	1
default_dom	2,113	0.036	0.186	0	1
anyfincrisis	2,851	0.249	0.432	0	1
bc_twin	2,843	0.040	0.196	0	1
cb_twin	2,826	0.034	0.182	0	1
twin_bc	2,818	0.051	0.220	0	1
bd_twin	2,846	0.027	0.163	0	1
db_twin	2,823	0.029	0.169	0	1
twin_bd	2,818	0.038	0.190	0	1
cd_twin	2,837	0.053	0.223	0	1
dc_twin	2,835	0.065	0.246	0	1
twin_cd	2,821	0.077	0.266	0	1
twin_any	2,820	0.119	0.324	0	1
triple	2,800	0.025	0.157	0	1
military	2,851	0.264	0.441	0	1
personal	2,851	0.490	0.500	0	1
party	2,851	0.465	0.499	0	1
gdppcgr	2,851	1.696	6.027	-39.892	55.074
ln_gdppc	2,851	7.896	0.844	5.595	10.683
vdem_index	2,851	0.243	0.142	0.070	0.818
oils	2,848	4.154	9.585	0	84.078
latam	2,851	0.135	0.341	0	1
mideast	2,851	0.136	0.343	0	1
africa	2,851	0.491	0.500	0	1
asia	2,851	0.061	0.239	0	1
southeastasia	2,851	0.088	0.284	0	1
europa	2,851	0.029	0.168	0	1
exussr	2,851	0.060	0.237	0	1

2.8.4. Additional models

Table 2.7a. Regular leadership change and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-2.391*** (0.432)	-2.387*** (0.432)	-2.380*** (0.433)	-2.411*** (0.434)	-2.378*** (0.434)	-2.396*** (0.437)	-2.405*** (0.437)	-2.373*** (0.435)	-2.370*** (0.439)
ln_gdppc	0.076 (0.056)	0.076 (0.056)	0.075 (0.056)	0.077 (0.056)	0.075 (0.056)	0.077 (0.056)	0.076 (0.056)	0.074 (0.056)	0.072 (0.057)
gdppcgr	-0.004 (0.007)	-0.004 (0.007)	-0.004 (0.007)	-0.002 (0.007)	-0.002 (0.007)	-0.003 (0.007)	-0.001 (0.007)	-0.002 (0.007)	-0.001 (0.007)
vdem_index	0.830*** (0.282)	0.830*** (0.282)	0.833*** (0.281)	0.801*** (0.283)	0.797*** (0.284)	0.804*** (0.283)	0.840*** (0.283)	0.797*** (0.283)	0.826*** (0.283)
oilgas	-0.007 (0.005)	-0.007 (0.005)	-0.007 (0.005)	-0.008 (0.005)	-0.007 (0.005)	-0.008 (0.006)	-0.008 (0.006)	-0.008 (0.005)	-0.008 (0.006)
duration	0.007*** (0.003)	0.007** (0.003)	0.008*** (0.003)	0.007*** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007*** (0.003)	0.007** (0.003)
prevrc	0.104 (0.133)	0.104 (0.133)	0.106 (0.132)	0.098 (0.133)	0.120 (0.133)	0.105 (0.135)	0.103 (0.135)	0.122 (0.133)	0.118 (0.135)
party	-0.199** (0.092)	-0.199** (0.092)	-0.200** (0.092)	-0.198** (0.092)	-0.198** (0.092)	-0.189** (0.093)	-0.187** (0.093)	-0.198** (0.092)	-0.184** (0.093)
military	0.480*** (0.092)	0.481*** (0.092)	0.478*** (0.092)	0.473*** (0.092)	0.472*** (0.092)	0.472*** (0.092)	0.463*** (0.092)	0.469*** (0.092)	0.467*** (0.092)
personal	-0.335*** (0.089)	-0.337*** (0.089)	-0.333*** (0.089)	-0.333*** (0.089)	-0.334*** (0.089)	-0.327*** (0.089)	-0.328*** (0.090)	-0.328*** (0.089)	-0.323*** (0.090)
anyfincrisis	0.027 (0.090)								
banking		0.047 (0.146)							
currency			0.047 (0.114)						
default				0.165 (0.108)					
twin_any					0.097 (0.114)				
twin_bc						0.177 (0.155)			
twin_bd							0.344** (0.172)		
twin_cd								0.173 (0.131)	
triple									0.448** (0.194)
AIC	1250.277	1250.265	1250.203	1248.088	1247.784	1242.148	1239.927	1246.855	1237.075
BIC	1315.310	1315.298	1315.235	1313.121	1312.768	1307.120	1304.903	1311.843	1302.019
Log Likelihood	-614.139	-614.133	-614.101	-613.044	-612.892	-610.074	-608.963	-612.428	-607.537
Deviance	1228.277	1228.265	1228.203	1226.088	1225.784	1220.148	1217.927	1224.855	1215.075
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.7b. Irregular leadership change and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.995* (0.519)	-0.991* (0.519)	-0.975* (0.522)	-1.004* (0.519)	-0.899* (0.524)	-0.990* (0.528)	-0.953* (0.530)	-0.932* (0.525)	-0.888* (0.534)
ln_gdppc	-0.075 (0.067)	-0.076 (0.067)	-0.078 (0.068)	-0.073 (0.067)	-0.088 (0.068)	-0.076 (0.068)	-0.082 (0.069)	-0.083 (0.068)	-0.090 (0.069)
gdppcgr	-0.029*** (0.007)	-0.027*** (0.007)	-0.029*** (0.007)	-0.030*** (0.007)	-0.028*** (0.008)	-0.029*** (0.007)	-0.027*** (0.008)	-0.030*** (0.007)	-0.029*** (0.007)
vdem_index	0.346 (0.348)	0.334 (0.347)	0.341 (0.347)	0.369 (0.347)	0.325 (0.351)	0.341 (0.349)	0.272 (0.352)	0.352 (0.349)	0.272 (0.353)
oilgas	-0.011 (0.008)	-0.011 (0.008)	-0.011 (0.008)	-0.011 (0.008)	-0.011 (0.008)	-0.013 (0.008)	-0.014 (0.008)	-0.011 (0.008)	-0.013 (0.008)
duration	-0.004 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.004 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)
prevrc	0.154 (0.129)	0.152 (0.129)	0.155 (0.129)	0.156 (0.129)	0.146 (0.131)	0.132 (0.132)	0.153 (0.132)	0.151 (0.131)	0.142 (0.134)
party	-0.416*** (0.114)	-0.409*** (0.115)	-0.416*** (0.114)	-0.419*** (0.114)	-0.419*** (0.114)	-0.408*** (0.115)	-0.385*** (0.115)	-0.422*** (0.114)	-0.391*** (0.115)
military	0.376*** (0.102)	0.372*** (0.102)	0.374*** (0.102)	0.380*** (0.102)	0.380*** (0.103)	0.385*** (0.103)	0.350*** (0.103)	0.387*** (0.103)	0.368*** (0.103)
personal	-0.150 (0.104)	-0.154 (0.104)	-0.146 (0.104)	-0.151 (0.103)	-0.161 (0.104)	-0.149 (0.104)	-0.123 (0.105)	-0.162 (0.104)	-0.131 (0.105)
anyfincrisis	0.009 (0.101)								
banking		0.157 (0.148)							
currency			0.049 (0.130)						
default				-0.053 (0.127)					
twin_any					0.074 (0.128)				
twin_bc						0.118 (0.175)			
twin_bd							0.195 (0.187)		
twin_cd								0.004 (0.161)	
triple									0.184 (0.230)
AIC	947.209	946.146	947.075	947.046	938.884	933.734	931.130	939.029	924.108
BIC	1012.242	1011.179	1012.107	1012.078	1003.868	998.707	996.106	1004.018	989.052
Log Likelihood	-462.605	-462.073	-462.537	-462.523	-458.442	-455.867	-454.565	-458.515	-451.054
Deviance	925.209	924.146	925.075	925.046	916.884	911.734	909.130	917.029	902.108
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes:

Clustered standard errors in brackets.

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.8a. Democratization and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-3.240*** (0.687)	-3.280*** (0.683)	-3.283*** (0.688)	-3.283*** (0.691)	-3.174*** (0.690)	-3.337*** (0.702)	-3.398*** (0.703)	-3.144*** (0.696)	-3.308*** (0.711)
ln_gdppc	0.031 (0.086)	0.046 (0.085)	0.045 (0.086)	0.039 (0.087)	0.033 (0.086)	0.052 (0.087)	0.055 (0.087)	0.022 (0.088)	0.039 (0.089)
gdppcgr	-0.026** (0.010)	-0.027*** (0.010)	-0.030*** (0.010)	-0.026** (0.010)	-0.026** (0.010)	-0.029*** (0.010)	-0.026** (0.010)	-0.026*** (0.010)	-0.025** (0.010)
vdem_index	2.443*** (0.429)	2.518*** (0.424)	2.514*** (0.424)	2.468*** (0.430)	2.441*** (0.427)	2.536*** (0.427)	2.619*** (0.430)	2.474*** (0.428)	2.623*** (0.433)
oilgas	-0.005 (0.009)	-0.006 (0.009)	-0.007 (0.009)	-0.006 (0.009)	-0.006 (0.009)	-0.010 (0.010)	-0.009 (0.010)	-0.006 (0.009)	-0.009 (0.010)
duration	0.012*** (0.005)	0.011** (0.005)	0.012*** (0.005)	0.012*** (0.005)	0.012** (0.005)	0.011** (0.005)	0.012*** (0.005)	0.013*** (0.005)	0.012*** (0.005)
prevrc	-0.005 (0.182)	0.003 (0.181)	0.011 (0.181)	-0.009 (0.183)	0.006 (0.182)	-0.036 (0.187)	-0.023 (0.188)	0.024 (0.183)	-0.015 (0.189)
party	-0.773*** (0.165)	-0.778*** (0.163)	-0.788*** (0.162)	-0.791*** (0.165)	-0.780*** (0.163)	-0.778*** (0.164)	-0.782*** (0.165)	-0.787*** (0.163)	-0.778*** (0.166)
military	0.866*** (0.144)	0.877*** (0.144)	0.871*** (0.144)	0.859*** (0.145)	0.847*** (0.144)	0.877*** (0.145)	0.863*** (0.146)	0.848*** (0.144)	0.884*** (0.147)
personal	-0.017 (0.133)	-0.032 (0.133)	-0.012 (0.132)	-0.020 (0.133)	-0.018 (0.132)	0.001 (0.134)	-0.004 (0.134)	0.015 (0.133)	0.016 (0.135)
anyfincrisis	0.294** (0.123)								
banking		0.261 (0.174)							
currency			0.134 (0.155)						
default				0.399** (0.137)					
twin_any					0.264* (0.148)				
twin_bc						0.285 (0.190)			
twin_bd							0.436** (0.202)		
twin_cd								0.448** (0.165)	
triple									0.636*** (0.221)
AIC	539.905	543.360	544.719	537.500	541.863	535.406	532.746	537.878	529.067
BIC	604.938	608.393	609.752	602.533	606.847	600.378	597.722	602.866	594.010
Log Likelihood	-258.953	-260.680	-261.360	-257.750	-259.931	-256.703	-255.373	-257.939	-253.533
Deviance	517.905	521.360	522.719	515.500	519.863	513.406	510.746	515.878	507.067
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 2.8b. Autocracy-to-autocracy transitions and financial crises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.292 (0.658)	-0.323 (0.658)	-0.261 (0.659)	-0.283 (0.660)	-0.094 (0.668)	-0.148 (0.664)	-0.213 (0.670)	-0.143 (0.667)	-0.096 (0.671)
ln_gdppc	-0.223** (0.087)	-0.219** (0.087)	-0.227*** (0.087)	-0.224** (0.087)	-0.249*** (0.089)	-0.241*** (0.088)	-0.234*** (0.088)	-0.241*** (0.088)	-0.249*** (0.089)
gdppcgr	-0.036*** (0.009)	-0.034*** (0.009)	-0.036*** (0.009)	-0.036*** (0.009)	-0.035*** (0.009)	-0.037*** (0.009)	-0.033*** (0.009)	-0.038*** (0.009)	-0.037*** (0.009)
vdem_index	0.652 (0.402)	0.629 (0.401)	0.656 (0.401)	0.649 (0.402)	0.645 (0.407)	0.671* (0.404)	0.646 (0.404)	0.710* (0.402)	0.689* (0.404)
oilgas	-0.020 (0.013)	-0.021 (0.014)	-0.020 (0.013)	-0.020 (0.013)	-0.019 (0.013)	-0.019 (0.013)	-0.021 (0.014)	-0.019 (0.013)	-0.018 (0.013)
duration	0.000 (0.005)	-0.000 (0.005)	0.000 (0.005)	0.000 (0.005)	0.001 (0.005)	0.000 (0.005)	0.000 (0.005)	0.001 (0.005)	0.001 (0.005)
prevrc	0.038 (0.166)	0.034 (0.166)	0.041 (0.166)	0.043 (0.166)	-0.001 (0.171)	0.000 (0.171)	0.070 (0.167)	0.009 (0.171)	0.027 (0.171)
party	-0.248* (0.143)	-0.233* (0.144)	-0.255* (0.142)	-0.250* (0.142)	-0.255* (0.143)	-0.255* (0.143)	-0.238* (0.144)	-0.262* (0.142)	-0.255* (0.143)
military	0.143 (0.131)	0.136 (0.131)	0.142 (0.131)	0.138 (0.131)	0.153 (0.132)	0.168 (0.131)	0.115 (0.133)	0.166 (0.131)	0.162 (0.132)
personal	-0.027 (0.134)	-0.033 (0.136)	-0.022 (0.135)	-0.028 (0.134)	-0.043 (0.135)	-0.049 (0.135)	-0.032 (0.136)	-0.050 (0.136)	-0.045 (0.136)
anyfincrisis	0.079 (0.120)								
banking		0.306* (0.162)							
currency			0.113 (0.156)						
default				0.114 (0.143)					
twin_any					0.179 (0.149)				
twin_bc						0.162 (0.206)			
twin_bd							0.443** (0.200)		
twin_cd								-0.004 (0.202)	
triple									0.244 (0.274)
AIC	619.859	617.024	619.782	619.686	609.977	610.772	614.432	611.225	609.702
BIC	684.892	682.057	684.814	684.719	674.961	675.744	679.408	676.213	674.646
Log Likelihood	-298.929	-297.512	-298.891	-298.843	-293.989	-294.386	-296.216	-294.612	-293.851
Deviance	597.859	595.024	597.782	597.686	587.977	588.772	592.432	589.225	587.702
Num. obs.	2730	2730	2730	2730	2718	2715	2716	2719	2708

Notes:

Clustered standard errors in brackets.

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

3. Autocratic Regime Survival during Currency Crises: The Effects of Crisis Policy Response

Abstract

Using a political economy perspective, this paper argues that autocracies that respond to capital flight with capital account restrictions — instead of IMF-style policies with floating exchange rates and free capital mobility — are less likely to break down during currency crises. In contrast to IMF-style austerity policies that are particularly painful in the short-term, capital controls give governments more room to simultaneously stabilize the exchange rate and stimulate economic recovery, and buy off time to solve intra-elite conflicts and crash the opposition. I test this argument on 184 currency crises and 187 autocratic regimes in 99 countries from 1960 to 2010, and focus both on autocracy-to-autocracy and autocracy-to-democracy transitions. As a proxy for crisis policy response, I use the data on countries' choices among the three Mundell-Fleming trilemma goals. My results suggest that capital account restrictions imposed in response to currency crises increase the probability of autocratic regime survival. Additionally, I find evidence that for financially open autocracies with higher levels of pre-crisis exchange rate fixity the problem of regime survival during currency crises becomes particularly pronounced. My findings indicate that crisis policy response can serve not just as an economic instrument, but also as a political tool which implications can be profound. In particular, some policies may have an unpleasant consequence of prolonging the durability of authoritarian regimes.

3.1. Introduction

A central finding in the literature on autocratic regime stability is that economic crises may churn up political unrest and give rise to the collapse of authoritarian rule. Democratization and authoritarianism studies have contributed significantly to this literature by exploring extensively how economic crises change the balance of power between regime supporters and regime opponents (Acemoglu and Robinson 2001), prompt anti-incumbent protest and elite infighting (Haggard and Kaufman 1995, 2016), field public discontent (Brancati 2016), and increase the standing and the efficacy of the opposition (Bratton and Van de Walle 1997). This literature has also provided a lot of valuable insights into the effects of autocratic institutions (Geddes 1999, Gandhi and Przeworski 2007), level of economic development (Acemoglu and Robinson 2006), income inequality (Boix 2003), labor mobility (Wright 2009), and other factors on the probability of crisis-triggered autocratic regime breakdown and democratization.

Rather puzzlingly, however, most scholars in this field completely ignore the economic side of the problem, namely the type of crisis, the economic constraints and trade-offs of crisis policymaking, and the domestic political conflicts associated with crisis management and resolution. Instead, most empirical studies almost uniformly treat all types of crises as a normal recession that only creates conditions conducive to regime failure. Scholars usually simply assume an exogenous economic shock that can instantly destabilize the regime, and study the effects of various conditioning variables, such as income level (Przeworski et al. 2000) or oil rents (Smith 2004), on the probability of autocratic regime breakdown. The prime focus of their research is thus on the internal characteristics of autocratic regimes that make them more or less prone to regime failure during economic meltdowns, while the role of economic crises themselves (rather than economic conditions in general) is neglected as a second-order problem.

Yet, crises come in different forms, require different responses, and may harm various socio-political actors disproportionately. And governments do not simply fall victims to economic troubles, but actively respond to crisis situations by adopting policies aimed at crisis containment and resolution. Some of these policies may favor economic interests of the regime supporters and thus give them incentives to defend the regime, thereby increasing the probability of regime survival, while others may generate widespread social dissatisfaction with the regime, thereby undermining its standing with the elites, citizens, and the opposition.

The fact that democratization and authoritarianism scholars have largely neglected the potential effects of crisis management on autocratic regime stability is truly perplexing. Indeed, the political economy literature has long highlighted the importance of the economic trade-offs and distributional conflicts surrounding economic policymaking (Frieden 1991, 2014, Steinberg 2015), and has vividly demonstrated that the decision to implement some painful economic policies could come at a high political cost to the incumbent (Frankel 2005). Besides, many scholars emphasize the political difficulties associated with crisis management and resolution (Pepinsky 2009, Walter 2013, Copelovitch, Frieden and Walter 2016). Yet unfortunately, just as democratization and authoritarianism scholars do not pay enough attention to the way autocracies respond to economic crises, political economy scholars tend to discount differences between various types of authoritarian regimes. Instead, they either completely exclude them from the analysis, or apply to them concepts, models, and tools that were created with democratic regimes in mind.

As a result, while it seems obvious that the questions of how autocracies respond to crises and why they survive might be closely connected, to date, the large body of literature on autocratic regime stability during economic crises is largely disconnected from the vast research on distributive politics in times of financial crises. Studies from either tradition have analyzed some aspects of the problem, in isolation from one another, but we still lack a complete picture. Surprisingly, very few scholars combine the insights from both strands of research, even though some academic studies point to the importance of distributional struggles over crisis policies in authoritarian setting (e.g., Pepinsky 2009, Steinberg and Malhorta 2014, Haggard and Kaufman 2016).

In this paper, I seek to address the existing research gap by marrying the insights from the literature on autocratic regime survival with those of political economy. I depart from the assumption that only differences in institutional, economic, and other characteristics of autocratic regimes affect the regime's propensity to collapse during economic crises. Instead, I focus on the way autocracies respond to crises, the economic constraints and trade-offs they face, the policies they introduce, and study the effects of their policy choices on the probability of regime survival. Since countries choose among different sets of strategies when dealing with different types of crises, I focus only on one specific relationship — the relationship between policy response to currency crises and autocratic regime stability.

Indeed, currency crises provide an ideal domain to examine the effects of policy response to crises on autocratic regime survival. First, currency crises are a rather frequent phenomenon, averaging more than five per year since 1975 (Glick and Hutchison 2011: 10), and in marked contrast to other crises, their exact starting dates are pretty easy to identify, because they lend themselves to the use of quantitative methodologies. Second, there is a large body of literature on currency crises, and theories on currency crises are more precisely articulated than for any other type of financial crises⁴. Finally, policymaking during balance-of-payment crises⁵ has been the subject of an extensive political economy literature: To date, scholars have developed a keen understanding of the economic constraints and trade-offs that affect the choice of policy response during crisis periods, the implications these trade-offs have for economic policymaking, and the distributional consequences of different policy options (Walter 2013, Broz, Duru, and Frieden 2016, Forbes and Klein 2015).

The point of departure for my research is that policy options during currency crises are constrained by the well-known Mundell-Fleming trilemma: A country cannot maintain, at the same time, a fixed exchange rate, free capital mobility, and an independent monetary policy — only two of the three are possible. The trilemma constraints imply that in response to currency crises, policymakers must choose between two mutually exclusive options: They can either opt for the standard neoliberal prescriptions advocated by the IMF — devaluation or depreciation of the currency, and monetary and fiscal austerity, or they can implement policies that are directly opposed to the mainstream paradigm — impose capital controls and pursue expansionary monetary policy in order to simultaneously stabilize the exchange rate and stimulate the economy.

I argue that autocracies that act against the IMF advice and impose capital account restrictions and preserve control over the economy are less likely to break down during currency crises. In contrast to IMF-style austerity policies that are particularly painful in the short-term, capital controls give governments more room to stimulate economic recovery, and buy off time to solve intra-elite conflicts and crash the opposition. I also

⁴ Theoretical models of currency crises are often categorized as first-, second-, or third-generation. For an overview of this classification, see, for example, Claessens and Kose (2014), Glick and Hutchison (2011).

⁵ A currency crisis refers to a sudden rapid drop in the value of a currency relative to a reserve currency (typically, 15-25% per year). A balance-of-payments crisis is a broader concept that involves a shortage of foreign currency reserves to cover balance-of-payments needs. Quite often, a balance-of-payments crisis is either resolved through a currency devaluation, or turns into a full-blown currency crisis. In this paper, I focus on currency crises only. Empirically, this means that I consider all cases of sharp depreciations of currencies, but ignore all cases in which balance-of-payments problems did not result in currency crashes.

argue that financially open autocracies with higher levels of pre-crisis exchange rate fixity are more likely to break down during currency crises: For policymakers that have made an explicit public promise not to devalue, the choice between IMF-style policies and capital controls is particularly painful and politically dangerous, as both options lead to serious re-distributional effects and create a lot of losers that have invested a lot in the status-quo arrangement.

Empirically, I have collected data on 184 distinct currency crises and 187 distinct autocratic regimes in 99 countries from 1960 to 2010. As a proxy for autocratic regime breakdown, I take all autocracy-to-autocracy and autocracy-to-democracy transitions, as coded by Geddes, Wright, and Frantz (2014). For countries' policy choices, I rely on the three trilemma indexes from Aizenman, Chinn, and Ito (2010, 2013), which measure the degree of achievement in each of the three potentially desirable policy goals of the Mundell-Fleming trilemma: capital account openness, exchange rate stability, and monetary policy independence.

To test my hypotheses, I examine econometrically how crisis and pre-crisis policy choices with respect to the trilemma goals affect autocratic regime stability during currency crises. For this, I split my analysis into three steps. I first test my hypotheses on the entire population of authoritarian country-years, which allows me to identify correlations between my variables of interest. I then change the unit of analysis to currency crises and address the possibility of an endogenous relationship: (i) between capital account policy and currency crises, and (ii) between crisis policy response and autocratic regime stability.

Using this empirical strategy, I find strong evidence that capital account restrictions imposed in response to currency crises increase the probability of autocratic regime survival. Additionally, I find support that financially open autocracies with higher levels of pre-crisis exchange rate fixity are more likely to break down during currency crises. My results hold after controlling for both of the endogeneity problems. More broadly, my findings suggest that macroeconomic policies are not just an economic instrument that can be used to resolve financial crises, but also a political tool that may help to prolong authoritarian rule.

By focusing on the complex relationship between crisis policymaking and authoritarian regime survival, this paper contributes to two strands of research. First, it adds to the

literature on autocratic regime stability by showing that not only internal characteristics of the regime, but also its active crisis policy choices affect its prospects for survival during economic crises. Second, by shifting the focus of attention from democratic to autocratic regimes, this paper contributes to the political economy literature by offering a more nuanced understanding of the political consequences of crisis policymaking. As such, this paper proves that both strands of literature have yet to grasp fully the relationship between economic crises and political stability.

The remainder of this paper proceeds as follows. Section 3.2 provides an overview of the existing literature on autocratic regime stability during economic crises, and distributive politics in times of financial crises, and discusses the existing research gap. Section 3.3 presents my central argument about the effects of policy responses and macroeconomic constraints on autocratic regime stability during currency crises. Section 3.4 explains data selection and research design. Section 3.5 reports the results of my analysis and provides their interpretation. Section 3.6 concludes by summarizing the main findings.

3.2. Literature review and research gap

To understand how a currency crisis might trigger autocratic regime instability and lead to a regime collapse, it is helpful to review briefly how economic crises can generate political instability in autocracies in general.

One central mechanism by which economic crises destabilize autocratic regimes is by changing the interests and the relative strengths of socio-political actors that determine whether they remain loyal to the regime: Crises decrease the perceived or real benefits of supporting the regime, increase the incentives to abandon the regime, and lower the risks of rebellion against the regime (Acemoglu and Robinson 2001, Boix 2003, Buena de Mesquita et al. 2003). The basic causal story in the democratization literature is that crises deplete the resources available to a dictator to maintain his coalition's loyalty (Haggard and Kaufman 1995, 2016), disrupt the patronage networks that are critical for regime stability (Houle, Kayser and Xiang 2016), aggravate existing political grievances and create a window of opportunity for protest mobilization (Brancati 2016, Bratton and van den Walle 1997), provoke a crisis of legitimacy among high echelons of power (Linz and Stepan 2011), and create divisions among the elites over the appropriate response to the economic collapse (O'Donnell and Schmitter 1986).

While the role of socio-political actors in bringing about regime change is undoubtedly decisive, any account of autocratic regime instability must also consider the political environment in which conflicts of interests take place, because institutional constraints affect the cost-benefit calculations of socio-political actors, their strategies, the formation of coalitions, and their decision to act (Geddes 1999, Gandhi and Przeworski 2007, Brownlee 2007, Svobik 2012, Wright and Escibà-Folch 2012). Focusing on formal and informal institutions that structure authoritarian rule, the comparative autocracy literature has demonstrated that the type of authoritarian regime has a profound effect on regime survival. So, for example, during economic crises, military-led regimes often voluntarily extricate themselves from power by overseeing an election among civilians (Geddes 1999). By contrast, single-party regimes tend to be the most resilient to economic recessions, because they rely on their party structure to repress or co-opt opposition and to ride out economic challenges (Smith 2005).

Moving from this general account of economic crises to currency crises, thus far, there is no cross-national empirical evidence on just how currency crises contribute to autocratic regime instability. Surprisingly, most scholars working in this field do not distinguish among varieties of financial crises, and focus on their recessionary effects only. Relatedly, they usually subsequently conclude that autocratic regime stability depends on the overall economic performance of countries as measured by aggregate macroeconomic indicators. As such, comparative politics studies fail to appreciate the rich set of findings from the large body of literature on financial crises, which has provided a lot of valuable insights into how currency crises are different from other financial crises and normal recessions, which factors determine countries' vulnerability to currency crises, and which fundamental trade-offs confront policymakers in the realms of exchange-rate and monetary policymaking⁶.

Even more puzzling is the fact that comparative politics scholars almost universally ignore the way autocrats deal with financial crises: While the emphasis on distributional conflicts associated with crisis policy responses is retained in studies that mix cases and data analysis (Haggard and Kaufman 1995, Pepinsky 2009, Freedman 2005), it is completely lost in large-N statistical analyses in this field. Instead, most cross-national empirical studies treat crises as an exogenous economic shock, which can instantly

⁶ For discussion on varieties of financial crises see, e.g., Reinhart and Rogoff (2009), Cardarelli, Elekdag, and Kose (2009), Claessens and Kose (2014). For exchange-rate and monetary policy constraints in an open economy see the canonical study by Mundell (1963), and, e.g., Frankel (2005), Steinberg (2015).

change interests and the relative strengths of socio-political actors or disrupt institutional stability of the regime, and in which rapid regime change is possible.

Yet, governments and other political actors are not passive observers of financial turmoil but active participants in choosing policies aimed at containing and resolving financial crises. The mere fact that in response to similar problems, some governments adopt early and decisive policy adjustments that reduce the risk of an economic collapse (Cardarelli, Elekdag, and Kose 2009), while others delay much needed macroeconomic adjustment and do not act until a full-blown economic crisis emerges (Walter 2013, Alesina and Drazen 1991, Rodrik 1999) suggests that the implementation of macroeconomic policies could be painful and politically costly for incumbents, and thus could contribute to political instability.

While the existing empirical literature on autocratic regime survival has largely overlooked this supposedly obvious mechanism, the large and distinguished literature on the political economy of exchange rates, capital flows, and monetary policymaking has offered a lot of valuable insights into the possible sources of conflicts over economic policy issues. Focusing on how domestic and international considerations influence exchange-rate and monetary policy choices, this literature shows that variation in macroeconomic policy preferences depends on the interest groups' exposure to international trade and foreign indebtedness (Frieden 1991, 2014, Blomberg et al. 2005, Steinberg 2015), reliance on foreign capital (Schambaugh 2004), capital mobility (Pepinsky 2009), trade openness (Frankel and Wei 2004), electoral considerations (Eichengreen 1992, Frieden and Stein 2001, Walter 2013), pressures from the IMF (Smith and Vreeland 2003, Dreher and Walter 2010), etc.

Building on the insights from this literature, existing research on distributive politics in times of financial crises emphasizes the political difficulties associated with implementing various macroeconomic policy responses to crises (Frieden 1991, 2015, Haggard and Kaufman 2016, Pepinsky 2009, Walter 2013, Copelovitch, Frieden and Walter 2016): Since different policies imply different distributional consequences and may significantly hurt certain interest groups, while benefiting others (Frieden 1991, 2014, Steinberg 2015), diverging interests translate into demands for contradictory policies from the government. Therefore, political struggles tend to erupt about how the costs of policies are to be distributed, and implementing some crisis policies could come at a high political cost to the incumbent.

But just as democratization and authoritarianism scholars do not pay enough attention to the economic constraints and the variety of policy options available to policymakers during currency crises, most political economy scholars either completely exclude autocratic regimes from their analysis, or treat all autocracies as a homogeneous group of non-democracies. Besides, in large-N statistical studies, these scholars typically use concepts developed for the study of democratic politics — such as executive leadership change (Bernhard and Leblang 2008) or cabinet collapse (Frankel 2005) — to construct measures of political instability that could be applicable to both democratic and autocratic contexts. Yet, most democratic concepts of political instability are ill-suited to measure regime instability in autocracies (Wright and Bak 2016), and by using them, political economy scholars may largely under- or overestimate political consequences of macroeconomic policies.

Another related shortcoming is that much of the attention in the political economy literature on currency crises has been paid to the effects of neoliberal crisis policy options — tightening of monetary and fiscal policies, and currency devaluation — while such controversial policy as capital controls has received surprisingly little attention. This is puzzling, as politicians can and do choose among various policy options when confronted with currency crises. Moreover, in autocracies, interventionist and protectionist policies are far more common than in democracies (Przeworski et al. 2000, Eichengreen and Leblang 2008, Steinberg and Malhorta 2014), and autocrats quite often resort to capital controls in order to get more autonomy to reflate their economies and to buy off time to crash their opposition (Pepinsky 2009).

In sum, our understanding of how currency crises affect autocratic regime stability is still pretty primitive. Most related papers in the democratization, comparative autocracy, and political economy fields of research have analyzed some aspects of this problem, in isolation from one another. As a result, there are large but separate literatures on the sources of autocratic regime instability during economic recessions, and distributive politics in times of financial crises. Given that the questions of how autocracies respond to crises and why they survive might be closely connected, marrying insights from these strands of research seems imperative to improve our understanding of the possible sources of autocratic regime instability.

3.3. Crisis policy response and autocratic regime (in)stability

One of the most significant findings in the political economy literature is that domestic political factors shape country-specific choices about the relative importance of the three policy goals — full capital mobility, exchange-rate stability, and domestic monetary policy autonomy. According to the well-known Mundell-Fleming trilemma⁷, only two of the three goals are achievable at the same time⁸, meaning that governments have to choose one side of the policy triangle illustrated in Figure 3.1. The choice between trilemma sides is typically made in a highly political context, in which strategically important elites and powerful interest groups lobby for policies that favor their economic interests. When the regime opts for policies that favor the position of one interest group, it affects the group with the opposite interests adversely.

The trilemma constraints imply that all policy instruments available to policymakers during currency crises can be crudely classified into two mutually exclusive policy options that correspond to different sides of the trilemma triangle: the IMF-style policies of monetary and fiscal austerity and financial liberalization, and the non-orthodox policy of financial protectionism⁹.

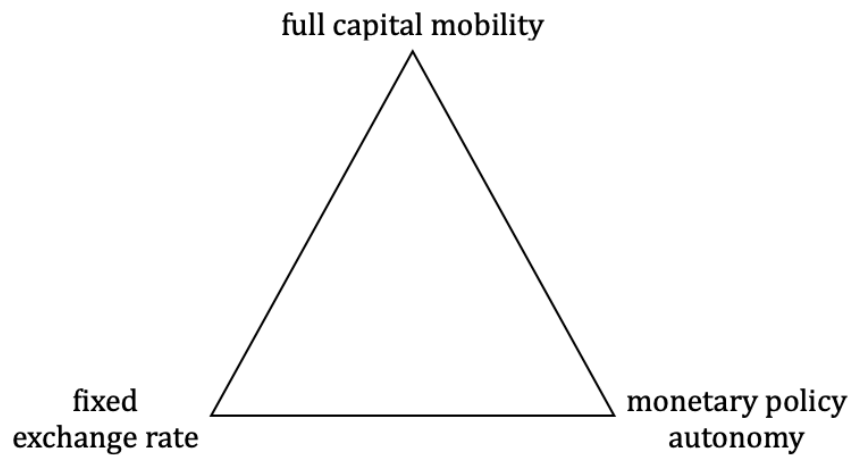
The standard IMF-style policy prescriptions for crisis-hit countries typically include a depreciation or devaluation of the currency to restore international competitiveness, monetary tightening to reduce capital outflows and to encourage capital inflows, fiscal tightening and structural reforms to reduce fiscal deficits, as well as further economic opening with respect to trade and capital account liberalization. The logic of these policies rests on the economic recovery through fostering financial interaction with the rest of the world. Accordingly, the main goal of these policies is to encourage international firms with large capital to resume investment by reassuring them that a government is committed to good and sustainable economic policies.

⁷ The trilemma is based on the insights of the Mundell-Fleming model (Mundell 1963), which has been the foundation and the main workhorse of open economy macroeconomics ever since the 1960s.

⁸ While the original version of the trilemma is focused on the extreme case, in which only “corner solutions” are possible (e.g., with a perfectly fixed exchange rate and a perfectly open capital account, a country has absolutely no autonomous monetary policy), in reality, there can exist an infinite number of trilemma policy combinations, in which each policy goal is neither fully achieved nor totally dropped (Aizenman, Chinn, and Ito 2013).

⁹ Of course, governments may also introduce “middle-ground” policies, such as temporary or partial capital controls, or certain transaction taxes that do not prevent but discourage the buying or selling of a national currency at the market rate (Klein and Schambaugh 2013).

Figure 3.1. Mundell-Fleming trilemma



The opposite solution is to disrupt currency speculation and curtail capital flight by imposing capital controls and adopting macroprudential measures. Capital controls cut the link between interest rates and exchange rates, thereby allowing governments to simultaneously stabilize the exchange rate and pursue expansionary monetary policy, which is otherwise not possible because of the trilemma constraints. In contrast to IMF-style crisis policies, the main goal of capital controls is not to restore access to foreign capital, but to rapidly contain the damage that plummeting exchange rate inflicts on the real economy, and by that to minimize domestic distributional conflicts that erupt between different societal groups about who is to bear the costs of the crisis.

Both of these strategies are viable options to address currency crises. Both of them have negative macroeconomic effects, and thus are painful. Yet, each policy option operates differently, has different distributional implications, and thus may incur different political costs to the regime. While the exact choice of crisis policy response and its effects on regime stability might differ from case to case for economic and political reasons¹⁰, all else equal, there are several reasons why IMF-style crisis policies may be politically more costly to autocracies than the use of capital controls.

The first reason is that IMF-style policies typically imply higher and more widely-distributed costs that are imposed on the national economy. The literature on crisis policymaking in democracies has identified that both internal (austerity measures) and

¹⁰ So, for example, free market oriented policies are often part of the conditionality attached to IMF or World Bank loans (Dreher and Walter 2010). Similarly, some policies may be avoided because they are penalized by some trade or investment agreements (Copelovitch and Pevehouse 2013). Finally, some policies may be adopted because of the lobby by powerful elites for their use (Pepinsky 2009).

external (currency devaluation) adjustment policies are extremely unpopular with the population (Eichengreen 1992, Frieden and Stein 2001, Walter 2013): Austerity policies hurt job creation, increase unemployment, lead to restrictions in social payments and underfunded public services, while currency devaluation makes life of ordinary people more costly, because it reduces the value of their savings and purchasing power, and increases inflation. Unsurprisingly, such measures tend to undermine popular support for the regime and increase the risk of mass rebellion. Capital controls, by contrast, tend to be a less salient and a less politically costly issue, especially in low- and lower-middle-income countries, where basic concerns such as unemployment and inflation are paramount¹¹ (Steinberg and Nelson 2019, Broz, Duru, and Frieden 2016). Capital account restrictions give governments more room and time to stimulate economic recovery, protect mass employment, control inflation, and continue social payments to the country's poor — all of which decrease the incentives of ordinary people to rebel against the ruling regime, and thus make it more difficult for the opposition to mobilize public opinion around its message.

The second reason is that IMF-style policies may result in plummeting exchange rate and large output contractions, both of which impair the ability of financial institutions, domestic firms, and governments to service their foreign-currency denominated debts. If banking system is weak or sovereign debts are already high, capital flight could increase the probability of a banking or a sovereign debt crisis, which is detrimental for regime stability, as both banking crises (Chwieroth and Walter 2017) and higher levels of sovereign debt (Houle, Kayser, and Xiang 2016) increase the probability of regime failure. Capital controls, by contrast, buy off time for financial institutions, domestic firms, and governments with foreign-currency debts to settle their debts at more favorable terms without fearing continuing currency depreciation and, under the trilemma framework, enable governments more room to aid fragile banking systems using monetary policy tools. Among those actors who could potentially be against capital controls are interest groups that favor access to international financial markets. Yet, even though they may not favor capital account restrictions per se, they are unlikely to prefer to retain access to foreign capital markets via a banking or a sovereign debt crisis, and thus are still likely to favor policies that capital account closure makes feasible.

¹¹ In high- and upper-middle-income countries, however, capital controls can become a highly salient political issue for ordinary people, especially if policymakers implement them during periods of financial instability (Steinberg and Nelson 2019).

A closely related argument is that capital controls may help governments to avoid going under the IMF program. Since IMF loans typically come in exchange for structural reforms that encroach on the country's autonomy and sovereignty, the ruling regime that signs on to IMF agreements loses ability to protect business interests of the strategically important elites or compensate their losses through budget cuts or other policies that shield them from financial turmoil. Unsurprisingly, IMF program participation systematically leads to distributional conflicts, and increases the potential for political instability and civil violence (Hartzell, Hoddie and Bauer 2010).

Finally, IMF-style policy prescriptions are characterized by the so-called J-curve effect (Przeworski 1991): Governments are advised to sacrifice short-term economic performance in the interest of the long-term recovery. This presents a difficult challenge for incumbent policymakers, and is particularly problematic when the regime confronts a fundamental threat to its rule. When risks of political instability are high, policymakers tend to discount the future, and prefer to implement policies that provide an immediate solution to an urgent threat, even if this solution is less beneficial in the long-run. This timing issue makes capital controls especially attractive: They are easy to introduce, have visible short-term effects, and buy off time to solve intra-elite conflicts and to defeat the opposition.

The above-mentioned reasons yield my first hypothesis.

Hypothesis 1: Autocracies that impose capital account restrictions and preserve control over the economy should be less likely to break down during currency crises.

The choice between IMF-style policies and capital controls should be particularly dangerous for financially open countries that were pegging their currencies prior to currency crises. One reason is that policymakers in these countries have made an explicit public promise not to devalue, and thus are directly to blame for losses that many socio-political actors incur. Based on the government promise to defend the peg, many interest groups in these countries have invested a lot in the financial transactions denominated in foreign currency, and may be seriously affected either through existing or future contracts, or through accumulated foreign-currency debts.

Another is the point that both crisis policy options inevitably violate status-quo trilemma commitments, which may be dangerous for regime stability. Pre-crisis trilemma policy choices typically constitute an equilibrium point where all economic

interests are aligned, given the distribution of bargaining power across elite interest groups and their importance to the regime stability. By pegging the currency, financially open countries lose their main instrument for managing the economy — monetary policy. Hence, during currency crises, they face difficult times, as they are under pressure either to give up the prevailing exchange rate regime and devalue their currency, or to sacrifice their capital account openness in order to maintain the desired exchange rate arrangements. Both crisis policy options could be politically costly to the regime, as they lead to serious re-distributional effects and create a lot of losers that would prefer the restoration of the status-quo arrangements¹².

This reasoning yields my second hypothesis.

Hypothesis 2: Autocracies operating under the constraints of fixed exchange rates and free capital mobility should be more likely to break down during currency crises.

3.4. Data and research design

To test my hypotheses, I have collected a time-series cross-sectional dataset that covers the period from 1960 to 2010, and includes data on 2819 authoritarian country-years, which correspond to 187 distinct autocratic regimes in 99 countries. The data on autocratic regimes' start and end dates come from Geddes, Wright, and Frantz (2014). The data on currency crises — which are coded as a nominal exchange rate depreciation by at least 15 percent per annum — are drawn from Reinhart and Rogoff (2009)¹³. My sample of currency crises contains 184 distinct crises that occurred in authoritarian country-years¹⁴, with an average duration of 1.85 years. In total, there are 35 cases (19% of all currency crises), in which regime breakdowns occur during a currency crisis or within a year after its end.

¹² Unsurprisingly, many policymakers invent policy alternatives in order to circumvent the trilemma constraints, such as interventions on the foreign exchange market, or increasing public debt in order to finance fiscal expansions. Yet, for currency interventions, policymakers need large foreign currency reserves (which are finite, in any case), whereas borrowing amidst a full-blown crisis is extremely difficult.

¹³ Unlike other scholars, most notably Laeven and Valencia (2008, 2012), authors code *all* country-years that meet the criteria, which is important for identifying the exact duration of the crisis. In other datasets, the typical approach has been to code only the first year of each 5-year window to identify the crisis.

¹⁴ Note that I exclude all democracies, as well as all democratic country-years for countries that experienced a democratic transition. Thus, if a currency crisis starts during an autocratic rule and lasts into the first years of a democratic rule, only autocratic country-years are included.

Appendices 3.8.1 and 3.8.2 list all authoritarian country-years and currency crises that I include in the analysis, respectively. Appendix 3.8.3 provides definitions, sources, and descriptive statistics for all variables that I use. My R program files and datasets that can be used for the replication of my results, as well as the estimation results from all extra models, are available online at: <https://github.com/marina-pavlova/arscc>.

3.4.1. Data

Dependent variable

My dependent variable *regime_change* is a simple dummy variable that indicates whether or not a regime change occurs in any given autocratic country-year, as coded by Geddes, Wright, and Frantz (2014). Following their data, I define regime change as a change in the basic formal and informal rules for choosing leaders and policies (i.e., a ruling-coalition change). There are two types of regime change: democratization (regime change via free and fair elections) and autocracy-to-autocracy transitions (events during which one group of autocratic elites replaces another). I do not distinguish between the two, as I am interested in autocratic regime survival only.

Independent variables

My independent variables of interest are (i) trilemma indexes that measure the degree of achievement in each of the three potentially desirable policy goals of the Mundell-Fleming trilemma: capital account openness, exchange rate stability, and monetary policy independence, and (ii) composite indexes, i.e., measures constructed by two of the trilemma indexes that capture macroeconomic policy orientation of the regime.

The data on trilemma indexes come from Aizenman, Chinn, and Ito (2010, 2013). The Chinn-Ito index (*kaopen*) measures a country's degree of capital account openness. The index for exchange rate stability (*ers*) is an invert of exchange rate volatility, i.e., annual standard deviations of the monthly exchange rate between the home and the base country. The monetary independence index (*mi*) is based on the correlation between a country's interest rate and the base country's interest rate. Each of the three variables is normalized to range between 0 and 1, with higher values corresponding to greater closeness to the respective policy goal.

Following the methodology of Aizenman, Chinn, and Ito (2013), I also calculate three additional variables that capture macroeconomic policy orientation of countries: *ers_mi*, *mi_kaopen*, and *ers_kaopen*. These variables are constructed as the first principle component of *ers* and *mi*, *mi* and *kaopen*, and *ers* and *kaopen* indexes, respectively, and are normalized to range between 0 and 1. The aim of the composite indexes is to measure how close countries are to the 'vertex' of the trilemma triangle. Thus, higher levels of *ers_mi* refer to a 'financially closed economy', higher levels of *mi_kaopen* indicate a 'floating exchange rate regime', and higher levels of *ers_kaopen* mean that a country is closer to being a 'currency board'.

Finally, for each of my independent variables, I also create variables that measure their year-to-year changes: *d_kaopen*, *d_mi*, *d_ers*, and *d_ers_mi*, *d_mi_kaopen*, *d_ers_kaopen*. These variables capture shifts in countries' trilemma policy goals and macroeconomic policy orientation, and serve as indicators of the regime's chosen policy response to a currency crisis.

Control variables

As control variables, I use standard set of economic and political variables held to influence autocratic regime breakdowns in the democratization and comparative autocracy strands of literature.

The first set of variables is economic. From the Maddison Project database (version 2018), I calculate the natural logarithm of GDP per capita at purchasing power parity in constant 2011 US dollars (*ln_gdppc*). This variable measures the level of economic development, and controls for the hypothesis that higher levels of economic development reduce the risk of autocratic regime collapse (Acemoglu and Robinson 2006). From the same dataset, I take annual percentage growth rate of GDP per capita in 2011 US dollars (*gdppcgr*) to control for the level of economic performance. This captures the argument that severe crises, all else being equal, are more likely to result in autocratic regime failure than shallow ones (Gasiorowski 1995). From the Ross-Mahdavi Oil and Gas Dataset, version 2.0 (2015), I add a control for oil and gas resources (*oilgas*), which measures the share of oil and gas rents in total GDP. This controls for the rentier state argument that higher levels of oil wealth decrease the probability of autocratic regime failure (Smith 2004, Wright, Frantz, and Geddes 2013). I also calculate a dummy variable *twin* that measures whether a currency crisis overlaps with a banking or a

sovereign debt crisis, to control for the possibility that banking crises (Chwieroth and Walter 2017) or higher levels of sovereign debt (Houle, Kayser, and Xiang 2016) increase the probability of regime failure.

The second set of variables is political. From Geddes, Wright, and Frantz (2014), I include dummy variables that measure autocratic regime type (*party, military, personal*) to account for the possibility that institutional characteristics of the regime have significant impact on the longevity of autocratic rule (Geddes 1999, Geddes et al. 2018, Gandhi and Przeworski 2007, Wright and Escribà-Folch 2012, Smith 2005). Next, I calculate the average regional polity score (*polity2_avg*) to control for the argument that autocracies are more likely to break down if they are surrounded by democracies (Gleditsch and Ward 2006). For this, I employ the World Bank regional classification, while the data on individual polity2 indexes are drawn from the Polity IV dataset. I also add a dummy variable that indicates whether a country experienced a regime change within the last three years prior to the current year (*prevrc*) to account for the possibility that recent regime changes and fragile political institutions may be associated with higher risks of autocratic regime collapse (Geddes et al. 2018). Finally, in some models, I include a series of dummy variables to control for possible regional patterns of autocratic regime instability.

3.4.2. Method

I split the analysis into three distinct steps. In the first step, I employ time-series/cross-sectional analysis of the entire population of authoritarian country-years. The unit of analysis in this case is the country-year, and I use the following model to investigate the impact of crisis policy choices and macroeconomic policy orientation on autocratic regime survival:

$$regime_change_{it} = \beta_1 \cdot MF_index_{it-1} + \beta_2 \cdot crisis_{it-1} + \beta_3 \cdot MF_index_{it-1} \cdot crisis_{it-1} + \beta_{4...k} \cdot controls_{it-1} + \varepsilon_{it}$$

Here, *regime_change* is coded 1 if autocracy *i* experiences a regime change during year *t*. *MF_index* is either an individual trilemma index, or a composite index that captures macroeconomic policy orientation of the regime. *Crisis* is a dummy variable that indicates whether autocracy *i* experiences a currency crisis during year *t*, while *controls*

is a set of control variables. For each *MF_index*, I run three types of models¹⁵: (i) pooled probit with robust standard errors clustered by country, (ii) random effects probit that control for unobserved cross-country heterogeneity, and (iii) random effects probit with regional dummies that account for regional patterns. To lessen concerns about endogeneity, all independent and control variables are lagged by one year.

In the second step, I change the unit of analysis from autocratic country-years to the instances of currency crises. By doing so, I address several possible problems. First and foremost, I limit concerns about the possibility of an endogenous relationship between capital account policy and currency crises¹⁶, which is crucial for testing my first hypothesis about the effects of *crisis-induced* capital account closure on autocratic regime survival. By focusing only on those changes in capital account policy that happen during currency crises, I make sure that I analyze the effects of *changes in capital account policy* in response to currency crises, rather than the effects of *currency crises* that are caused by changes in capital account policy. Second, since many currency crises are multi-year events, year-to-year changes in individual trilemma indexes do not capture policy changes that unfold over several crisis years and accumulate into one major policy change (e.g., gradual imposition of capital controls), which may bias the estimates of the coefficients. For the same reason, panel data structure does not allow to distinguish between the effects of pre-crisis policy choices (e.g., pre-crisis capital account restrictions or pre-crisis macroeconomic policy orientation) and crisis policy choices (e.g., crisis-induced decisions to impose capital controls or to abandon the peg). In particular, using cross-sections instead of panel data makes it easier to test my second hypothesis about the effects of *pre-crisis* macroeconomic policy orientation on autocratic regime stability.

Thus, in the second step, the unit of analysis is the currency crisis, and I compare regimes that survive the crisis with those that break down during the crisis or shortly

¹⁵ Since I am interested in the sources of autocratic regime *survival* rather than autocratic regime failure, using the fixed effects logit model on a panel data would be inappropriate in this case, as it drops the entire control group — all autocracies that do not break down, among which there are a lot of autocracies that do experience currency crises. Note that 81% of all currency crises in my dataset did not coincide with regime change.

¹⁶ Thus far, there is no scholarly agreement either on the direction of causality between currency crises and capital account policy, or on the net effects of the relationship between the two. Some scholars claim that currency crises prompt capital account liberalization (Mukherjee and Singer 2010), others — that they lead to capital account closure (Pepinsky 2012); some scholars argue that currency crises can be caused by capital account liberalization (Prasad et al. 2003), others — that they can also be caused by capital controls (Glick and Hutchison 2005).

after its end¹⁷. For this, I estimate a series of probit models that test the impact of crisis policy choices and pre-crisis macroeconomic policy orientation on the probability of autocratic regime change¹⁸. The estimation models are given by:

$$\begin{aligned} \text{regime_change}_i &= \beta_1 \cdot d_MF_index_i + \beta_{2\dots k} \cdot \text{controls}_i + \varepsilon_i \\ \text{regime_change}_i &= \beta_1 \cdot MF_index_onset_i + \beta_{2\dots k} \cdot \text{controls}_i + \varepsilon_i \end{aligned}$$

An important point here is that I include two measures of *MF_index* in the analysis: *MF_index_onset* measures the value of individual or composite trilemma indexes at the onset of a currency crisis, while *d_MF_index* measures the maximum deviation of *MF_index* from *MF_index_onset* during a currency crisis. Specifically, for autocracies that survive the crisis, I measure the maximum deviation of *MF_index* from *MF_index_onset* during the whole crisis period, while for autocracies that break down, I take the maximum deviation of *MF_index* from *MF_index_onset* only up to the year of regime change. By constructing the model this way, I am able to test both whether *crisis* policy choices (as measured by *d_MF_index*) increase the likelihood of regime survival, and whether certain *pre-crisis* trilemma policy choices (as measured by *MF_index_onset*) make autocratic regimes more or less stable during currency crises.

In the third and final step, I address the possibility of an endogenous relationship between capital account closure and autocratic regime stability during currency crises. My unit of analysis is still the currency crisis, but now I use the US Federal Funds rate as an instrument to identify the relationship from capital account closure to autocratic regime survival, and the estimation model takes the following form:

$$\begin{aligned} \text{regime_change}_i &= \beta_1 \cdot d_kaopen_i + \beta_{2\dots k} \cdot \text{controls}_i + e_i \\ d_kaopen_i &= \gamma_1 \cdot fedrate_i + \gamma_2 \cdot d_fedrate_i + \gamma_{3\dots k} \cdot \text{controls}_i + u_i \end{aligned}$$

¹⁷ Note that I am interested in the sources of autocratic regime survival *during currency crises* only. Therefore, the change of the unit of analysis does not lead to selection bias in my case, as only non-crisis years are excluded from the analysis.

¹⁸ Continuous-time models, such as the Cox model, would be inappropriate here for at least three reasons. First, the Cox model faces problems in the presence of tied duration times, as the presence of ties causes biased coefficient estimates and standard errors. Currency crises are short-time events, with an average duration of 1.85 years, and the data on them is available in discrete units of yearly length, meaning that the vast majority of crises appear to be of equal length (i.e., 1-3 years). Second, controlling for unobserved cross-country heterogeneity is easier with discrete-time duration than within the partial likelihood framework of the Cox model. Third, the proportional hazards assumption of the Cox model is both restrictive and empirically questionable.

To qualify as a proper instrument, the US Federal Funds rate must be both relevant and exogenous¹⁹, meaning that it must be correlated with changes in countries' capital account policy, and should not affect autocratic regime stability except through capital account policy. The US Federal Funds rate seems to satisfy both of the criteria: It is clearly outside of governments' control, and thus cannot affect regime stability except through capital flows, and the spillover effects of US monetary policy on other countries, particularly on emerging market economies, have been emphasized by many economists (see, e.g., Rey 2013, Edwards 2012, Durdu et al. 2020). Admittedly, one can still imagine ways in which exogeneity assumption might be violated²⁰, meaning that the results should be interpreted with caution. Yet, I explicitly test for the relevance requirement and weak instruments to confirm that the instrument is valid.

3.5. Results and interpretation

3.5.1. Testing hypotheses on the entire population of autocratic country-years

Table 3.1 presents the estimation results from the first step of my analysis. Columns 1 to 3 report the estimates of the models with year-to-year changes in individual trilemma indexes. Columns 4 to 6 give the estimates of the models with composite indexes that measure macroeconomic policy orientation of countries. In column 7, I provide the estimates of individual trilemma indexes and changes in composite indexes from six extra models in order to allow comparison between the effects of the trilemma indexes and their year-to-year changes. Full estimation results of these models can be found in Table 3.6 in Appendix 3.8.4. To conserve space, only the results of the random effects probit models are presented in Tables 3.1 and 3.6. The results of all model specifications can be found in the Online Appendix at: <https://github.com/marina-pavlova/arscc>.

Looking first at the effects of the individual trilemma indexes (columns 1-3), we see that the estimate of the interaction term *crisis:d_kaopen* is positive, whereas the estimate of

¹⁹ Relevance requirement implies that the instrument must be sufficiently correlated with the endogenous variable of interest, conditional on other covariates. Exogeneity requirement means that it must satisfy the exclusion restriction by being conditionally independent from the error term.

²⁰ For example, the US Federal Funds rate can affect autocratic regime stability through currency crises themselves. Here, my unit of analysis is the crisis, so I assume that during currency crises, the effect of US monetary policy on regime stability may go only through the magnitude of capital flight and the choice of capital account policy in response to it.

Table 3.1. Trilemma policy choices and autocratic regime survival during currency crises

	crisis policy responses			macroeconomic policy orientation			
	(1)	(2)	(3)	(4)	(5)	(6)	
(Intercept)	-0.421 (0.546)	-0.420 (0.562)	-0.529 (0.544)	-0.434 (0.576)	-0.070 (0.675)	-0.224 (0.581)	(Intercept)
ln_gdppc	-0.130* (0.068)	-0.148** (0.069)	-0.116* (0.067)	-0.159** (0.069)	-0.166** (0.074)	-0.140** (0.068)	ln_gdppc
gdppcgr	-0.042*** (0.008)	-0.030*** (0.008)	-0.034*** (0.007)	-0.030*** (0.008)	-0.039*** (0.009)	-0.042*** (0.008)	gdppcgr
oilgas	-0.010 (0.007)	-0.007 (0.007)	-0.012 (0.008)	-0.007 (0.007)	-0.004 (0.007)	-0.009 (0.007)	oilgas
prevrc	-0.129 (0.145)	-0.137 (0.154)	-0.210 (0.139)	-0.148 (0.151)	-0.159 (0.157)	-0.214 (0.146)	prevrc
polity2_avg	0.065*** (0.014)	0.057*** (0.015)	0.058*** (0.014)	0.061*** (0.015)	0.068*** (0.015)	0.065*** (0.014)	polity2_avg
party	-0.379*** (0.118)	-0.181* (0.127)	-0.376*** (0.114)	-0.208* (0.127)	-0.287** (0.137)	-0.396*** (0.117)	party
military	0.411*** (0.102)	0.468*** (0.112)	0.398*** (0.104)	0.474*** (0.111)	0.503*** (0.114)	0.430*** (0.102)	military
personal	-0.106 (0.109)	-0.025 (0.118)	-0.138 (0.111)	-0.056 (0.118)	-0.109 (0.125)	-0.134 (0.109)	personal
sigma	-0.000 (0.691)	-0.057 (0.523)	-0.241* (0.141)	-0.073 (0.418)	-0.000 (0.313)	-0.000 (0.348)	sigma
currency	0.107 (0.135)	0.109 (0.133)	0.029 (0.131)	0.702** (0.328)	-0.375 (0.591)	-0.300 (0.442)	currency
d_kaopen	-1.284** (0.614)						0.212 (0.179) kaopen
currency:d_kaopen	2.635** (1.108)						0.175 (0.490) currency:kaopen
d_mi		0.595 (0.515)					-0.219 (0.343) mi
currency:d_mi		-1.194 (1.145)					0.643 (0.754) currency:mi
d_ers			0.012 (0.256)				0.036 (0.157) ers
currency:d_ers			-0.273 (0.423)				-0.673* (0.402) currency:ers
ers_mi				0.211 (0.308)			-0.305 (0.515) d_ers_mi
currency:ers_mi				-1.418* (0.744)			-0.163 (1.013) currency:d_ers_mi
mi_kaopen					-0.292 (0.387)		1.337* (0.732) d_mi_kaopen
currency:mi_kaopen					0.779 (0.922)		-2.566 (1.577) currency:d_mi_kaopen
ers_kaopen						-0.226 (0.237)	0.211 (0.478) d_ers_kaopen
currency:ers_kaopen						0.530 (0.614)	-0.086 (0.790) currency:d_ers_kaopen
Log-Likelihood	-413.682	-390.446	-490.482	-395.827	-346.101	-419.105	
Num. obs.	2308	2085	2749	2145	1961	2367	

Notes:

Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

d_kaopen is negative, and both are large in size and statistically significant at the conventional 5% level. This suggests support for my first hypothesis that capital account restrictions imposed during currency crises are associated with a higher probability of autocratic regime survival. Note that *d_kaopen* measures *changes* in capital account openness and thus serves as an indicator of the regime's active policy choice. In column 7, I compare these results to the estimates of *crisis:kaopen* and *kaopen*: Both are positive, but do not achieve statistical significance, confirming that the level of capital account openness alone — in contrast to *changes* in capital account openness — has no statistically significant effect on the probability of regime change. Given the trilemma constraints, this finding may point towards the viability of my second hypothesis that under free capital mobility, it is the choice of exchange rate regime that affects the probability of regime survival.

The estimates of other individual trilemma indexes reveal no particular surprises. The estimates of *mi* and *crisis:mi*, as well as the estimates of their year-to-year changes, are of the expected signs, but do not achieve statistical significance, suggesting that monetary independence is not the primary driver of autocratic regime (in)stability during currency crises. The statistically significant negative estimate of *currency:ers* supports the trivial argument that shallow currency crises (as measured by exchange rate stability) are less likely to result in regime collapse than severe ones.

Moving to the effects of the composite indexes (columns 4-6), we see that the estimate of *currency:ers_mi* is negative and statistically significant at the 10% level, while the estimate of *currency* is positive and statistically significant at the 5% level. This finding suggests that financially closed autocracies are less likely to break down during currency crises, which is consistent with the results from column 1, and further supports my hypothesis that capital account restrictions shield autocracies from regime collapse. Given that higher levels of exchange rate stability during currency crises (as measured by *currency:ers*) are found to decrease the probability of regime change, it is the ability of financially closed autocracies to stabilize the currency that might be driving the result in this case.

Out of all other composite indexes, only the estimate of *d_mi_kaopen* — that measures the regime's movement towards more flexible exchange rates — reaches the 10% level of statistical significance. Its estimate is positive and large in size, suggesting that there might be some positive relationship between the decision to float the currency and

autocratic regime instability in 'normal' times. At the same time, the estimate of the interaction term *currency:d_mi_kaopen* is negative, but statistically insignificant, indicating that the data lacks the precision to draw any conclusions about the effects of *d_mi_kaopen* in crisis times.

The estimates of *mi_kaopen* and *ers_kaopen*, as well as the estimates of their respective interaction terms, do not achieve statistical significance, suggesting that there is no consistent evidence of the relationship between exchange rate regime choices and autocratic regime survival. Note, however, that since currency crises are multi-year events, these two variables measure not only the effects of pre-crisis exchange rate regime choices on autocratic regime stability, but also the effects of crisis policy choices, making it impossible to distinguish between the two effects. So, for example, higher levels of *mi_kaopen* during crisis years may indicate not only the pre-crisis choice of a floating exchange rate regime, but also the crisis-induced decision to abandon the peg and float the currency. I address this ambiguity in the second step of my analysis.

Control variables in Table 3.1 behave as expected. The estimates of GDP per capita are negative and statistically significant, which is in line with the findings of previous studies that higher levels of economic development reduce the risk of autocratic regime change (Acemoglu and Robinson 2006). The estimates of GDP per capita growth are negative and highly significant, confirming the general scholarly agreement that more severe economic crises are more likely to result in autocratic regime breakdown. The estimates of institutional variables confirm the findings of the comparative autocracy literature that party regimes are less likely to succumb to regime change (Smith 2005), while military regimes (Geddes 1999) and autocracies that are surrounded by democratic neighbors (Gleditsch and Ward 2006) are more likely to break down.

In sum, the results from Table 3.1 provide some initial support for my first hypothesis that capital account restrictions increase the probability of autocratic regime survival during currency crises. Nevertheless, two important endogeneity problems remain. The first is the direction of causality between capital account policy and currency crises. The positive sign of the interaction term *crisis:d_kaopen* may well indicate that capital controls imposed in response to currency crises contribute to autocratic regime survival. Similarly, however, it may indicate that capital account liberalization leads to capital flight and currency crises, which, in turn, increase the probability of regime breakdown. In the latter scenario, self-induced currency crises would be the cause of regime failure,

rather than protectionist crisis policies — the cause of regime survival²¹. The second problem is the possibility of an endogenous relationship between policy response to currency crises and autocratic regime stability. Thus far, the direction of causality between the two is unclear, and there are reasons to suspect that only the most stable autocracies impose capital controls to stem capital flight and contain currency crises, while less stable autocracies simply succumb to speculative pressures and let the currency go into free fall. I address both of these problems in the next two sections.

3.5.2. Testing hypotheses on the sample of currency crises

In the second step of my analysis, I address the first of the two endogeneity problems. To make sure that I estimate the effects only of those capital account policies that are implemented *in response* to currency crises, I change the unit of analysis and focus on the instances of currency crises only. Now, all my independent variables measure either the value of the trilemma indexes at the *onset* of a currency crisis, or the maximum deviation from their onset value *during* a currency crisis.

Table 3.2 reports the estimation results for six probit models for the sample of currency crises. Similar to Table 3.1, in columns 1 to 3, I provide the results for changes in individual trilemma indexes during the crisis, in columns 4 to 6 — for composite trilemma indexes that measure macroeconomic policy orientation of countries at the onset of the crisis, and in column 7, I include the estimates of individual indexes at the onset of the crisis and changes in composite indexes during the crisis from six extra models, full estimation results of which can be found in Table 3.7 in Appendix 3.8.4.

Encouragingly, the results from Table 3.2 provide strong support for my first hypothesis that capital account restrictions imposed *in response* to currency crises are associated with a higher probability of autocratic regime survival. The estimated coefficient of *d_kaopen* is positive, large in size, and statistically significant at the 5% level, confirming my findings from Table 3.1. Also consistent with the results from Table 3.1, the estimate of *kaopen_onset* is statistically insignificant. Again, this goes in line with my argument concerning the effects of pre-crisis fixed exchange rates *combined* with free capital

²¹ This argument also applies to the interaction term *currency:ers_mi*. Its significance may indicate that financially closed autocracies are simply less likely to experience currency crises, and, therefore, are less likely to break down during them.

Table 3.2. Determinants of autocratic regime survival during currency crises

	changes in individual trilemma indexes			pre-crisis macroeconomic policy orientation			
	(1)	(2)	(3)	(4)	(5)	(6)	
(Intercept)	-0.574 (1.521)	-0.272 (1.497)	-0.486 (1.377)	-0.402 (1.468)	-0.963 (1.836)	-1.409 (1.576)	(Intercept)
ln_gdppc_onset	-0.063 (0.187)	-0.134 (0.185)	-0.068 (0.167)	-0.078 (0.181)	-0.019 (0.201)	-0.039 (0.186)	ln_gdppc_onset
gdppcgr_avg	-0.115*** (0.029)	-0.079*** (0.027)	-0.107*** (0.027)	-0.097*** (0.031)	-0.100*** (0.032)	-0.111*** (0.029)	gdppcgr_avg
oilgas	-0.010 (0.022)	-0.014 (0.028)	-0.012 (0.024)	-0.013 (0.025)	-0.021 (0.033)	-0.015 (0.027)	oilgas
prevrc	0.204 (0.337)	0.220 (0.323)	0.038 (0.310)	0.256 (0.327)	0.410 (0.348)	0.376 (0.348)	prevrc
polity2_avg	0.066* (0.037)	0.057 (0.038)	0.075** (0.036)	0.064* (0.038)	0.053 (0.040)	0.074* (0.038)	polity2_avg
party	-0.023 (0.300)	0.384 (0.335)	-0.014 (0.277)	0.356 (0.342)	0.212 (0.354)	0.083 (0.313)	party
military	0.825*** (0.289)	1.002*** (0.307)	0.809*** (0.275)	1.053*** (0.320)	1.010*** (0.316)	0.967*** (0.300)	military
personal	-0.142 (0.295)	0.037 (0.310)	-0.200 (0.278)	0.076 (0.316)	0.032 (0.333)	-0.136 (0.304)	personal
twin	-0.077 (0.268)	-0.018 (0.265)	0.039 (0.248)	-0.100 (0.269)	-0.037 (0.281)	-0.107 (0.272)	twin
d_kaopen	1.469** (0.733)						0.040 (0.485) kaopen_onset
d_mi		0.558 (0.897)					-0.050 (0.845) mi_onset
d_ers			0.227 (0.297)				-0.699* (0.358) ers_onset
ers_mi_onset				-0.583 (0.706)			-0.290 (0.746) d_ers_mi
mi_kaopen_onset					-0.214 (0.879)		-0.121 (1.076) d_mi_kaopen
ers_kaopen_onset						1.011* (0.600)	-0.777 (0.534) d_ers_kaopen
AIC	145.882	151.043	166.689	147.071	137.543	143.794	
BIC	179.913	184.160	201.933	180.115	169.583	177.413	
Log Likelihood	-61.941	-64.522	-72.344	-62.536	-57.772	-60.897	
Deviance	123.882	129.043	144.689	125.071	115.543	121.794	
Num. obs.	163	150	182	149	136	157	

Notes:

Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

mobility, rather than free capital mobility alone. In contrast to Table 3.1, however, the estimate of *ers_mi_onset* is now non-significant (although of the expected sign), suggesting that there is not enough statistical evidence that financially closed autocracies are more likely to survive currency crises than other autocracies. Accordingly, the statistically significant estimate of *currency:ers_mi* in Table 3.1 simply indicates that financially closed autocracies are less likely to experience currency crises, and, thus, are less likely to break down during them.

The results from Table 3.2 also provide support for my second hypothesis that autocratic regimes with more stringent trilemma constraints (i.e., greater exchange rate fixity combined with free capital mobility) are more likely to break down during currency crises. The estimate of *ers_kaopen_onset* — that measures countries' degree of closeness to a fixed exchange rate regime at the onset of a currency crisis — is positive and statistically significant at the 10% level. At the same time, the estimate of *mi_kaopen_onset* does not achieve statistical significance, suggesting that we cannot draw any conclusions about the effects of flexible exchange rates on regime stability during currency crises.

The parameter estimates of other independent variables, and of the control variables largely behave as expected. The estimate of *ers_onset* is negative and statistically significant at the 10% level, confirming that shallow currency crises (as measured by exchange rate stability) are less likely to lead to regime collapse than severe ones. The estimates of other trilemma indexes reveal no statistically significant relationship with autocratic regime (in)stability during currency crises. The estimates of *gdppcgr* and *military* are similar to models in Table 3.1, reinforcing my confidence in the earlier findings. Finally, the estimates of *ln_gdppc* and *party* are of the expected sign, but do not achieve statistical significance, while *polity2_avg* shows a consistently positive, but only sporadically significant impact on the probability of regime breakdown.

To see the substantive effects of my findings, in Figure 3.2, I plot changes in predicted probabilities of autocratic regime breakdown during currency crises given (i) a change in the regime's degree of commitment to a fixed exchange rate prior to a currency crisis, and (ii) a change in the degree of capital account openness during a currency crisis, with all other variables held at their means. As there are a lot of overlapping points around $d_kaopen=0$, I've added a bit of noise to each observation to improve visibility of point distribution. Although the coefficients of probit models do not allow a straightforward

Figure 3.2. Autocratic regime change probabilities given...



interpretation²², Figure 3.2 clearly shows that the probability of regime change increases, as *ers_kaopen_onset* goes up, and decreases, as *d_kaopen* goes down.

My final concern is that the maximum likelihood estimator for the probit model can be substantially biased due to the small sample size (i.e., I have 184 currency crises in my dataset). To address this problem, I run bootstrap simulations²³, generating 1000 bootstrap replications for each of my six models from Table 3.2. Table 3.8 in Appendix 3.8.4 reports the original estimates of each independent variable in six models of interest along with the bootstrap estimates of bias and standard errors for each case. The bootstrap estimations, indeed, reveal some bias in the estimated coefficients of my main independent variables of interest (*d_kaopen* and *ers_kaopen_onset*). However, the main results remain qualitatively unchanged²⁴.

In sum, the results from the second step of my analysis reinforce my previous findings and provide further support for my hypotheses that autocracies with a greater degree of pre-crisis exchange rate fixity and free capital mobility are more likely to break down

²² Figure 3.2 shows only the average change in the expected probability of autocratic regime collapse when *ers_kaopen_onset* and *d_kaopen* increase by one unit. Since probit is a non-linear model, the effect will differ from country to country.

²³ Each bootstrap sample is a random sample of 184 crises selected with replacement from the original sample of 184 currency crises. Since each bootstrap sample is drawn with replacement, some of the original observations are repeated more than once, while others are omitted. The statistic is estimated for each sample, and the bootstrap estimate of bias is calculated as the difference between the original estimate and the mean of the bootstrap estimates.

²⁴ Theoretically, one could correct for bias by subtracting the bootstrap bias from the sample mean. However, caution is required, since bias-corrected estimator may have substantially larger variance, especially when computed from a small dataset.

during currency crises, and that capital account restrictions imposed in response to currency crises are associated with a higher probability of autocratic regime survival. Nevertheless, the latter finding may indicate not only that capital controls shield autocracies from regime collapse during currency crises, but also that autocratic regime stability itself is the cause of capital account restrictions, not the effect of it. Therefore, a simple correlation between capital controls and autocratic regime survival is itself uninformative, unless we can disentangle the direction of causality.

3.5.3. Addressing the problem of endogeneity between capital account policy and autocratic regime survival during currency crises

In this final empirical section, I address the possibility of an endogenous relationship between capital account restrictions and autocratic regime stability. To make sure that the relationship between them runs from capital account closure to higher probability of regime survival and not the other way around, I employ an instrumental variable approach using the US Federal Funds rate as an instrument to identify the strength of the relationship between the two.

Table 3.3 reports the estimation results related to the use of instrumental variables. Columns 1 and 2 present the results for the first and second stages of the traditional two-stage least squares regression. In column 3, I re-run the second stage using a probit model, to ensure comparability of the estimation results with the results in Table 3.2. In columns 4 and 5, I re-estimate the results using the limited-information maximum likelihood estimator and the Fuller estimator, respectively.

In the first-stage regression with d_kaopen as dependent variable (column 1), we see that both higher levels of the US Federal Funds rate at the onset of the crisis and increases in the US Federal Funds rate during the ongoing currency crisis are negative and statistically significant, confirming that US monetary policy is a relevant instrument for capital account policy response of autocratic regimes during currency crises. Note that I also include $kaopen_onset$ variable in the first-stage regression to control for the possibility that countries may be limited in their ability to impose capital controls by their pre-crisis levels of capital account restrictions. This variable is also negative and highly significant, explaining much of the variation in capital account policy choices across countries.

**Table 3.3. Capital account policy and autocratic regime survival during currency crises:
Addressing the problem of endogeneity**

	2SLS		Probit	LIML	Fuller
	<i>first stage</i>	<i>second stage</i>			
	(1)	(2)	(3)	(4)	(5)
(Intercept)	0.180 (0.134)	0.278 (0.317)	-0.616 (1.387)	0.274 (0.317)	0.275 (0.316)
ln_gdppc_onset	-0.011 (0.016)	-0.015 (0.038)	-0.076 (0.169)	-0.014 (0.038)	-0.014 (0.038)
gdppcgr_avg	-0.000 (0.002)	-0.028*** (0.006)	-0.112*** (0.027)	-0.028*** (0.006)	-0.028*** (0.006)
polity2_avg	-0.001 (0.004)	0.016* (0.008)	0.063* (0.037)	0.016* (0.008)	0.016* (0.008)
party	0.011 (0.028)	-0.019 (0.066)	-0.104 (0.295)	-0.019 (0.065)	-0.019 (0.065)
military	0.027 (0.027)	0.206*** (0.065)	0.837*** (0.281)	0.205*** (0.065)	0.205*** (0.065)
personal	0.023 (0.029)	-0.062 (0.066)	-0.263 (0.289)	-0.063 (0.066)	-0.063 (0.066)
kaopen_onset	-0.199*** (0.048)	0.137 (0.139)	0.799 (0.621)	0.144 (0.142)	0.142 (0.141)
fedrate	-0.015** (0.005)				
d_fedrate	-0.037*** (0.008)				
d_kaopen_pred		0.685* (0.358)	3.136* (1.741)	0.714* (0.375)	0.706* (0.370)
Num. obs.	163	163	163	163	163
F-statistic	8.202				
Cragg-Donald statistic	23.082* (13.21)				

Notes:

Cells contain parameter estimates and standard errors.

Significance levels: *p<0.1, **p<0.05, ***p<0.01

For Cragg-Donald statistic: critical value in brackets,

* indicates 5% confidence of less than 5% instrumental variable bias.

The results of the baseline two-stage least squares regression support my hypothesis that capital account closure decreases the likelihood of autocratic regime breakdown during currency crises. In the second-stage regression (column 2), the estimated coefficient on the predicted values of changes in capital account openness is positive and statistically significant at the 10% level, indicating that decreases in capital account openness lead to higher probability of autocratic regime survival. The estimation results

with the probit model used in the second stage (column 3) reveal substantively similar patterns: The estimate on *d_kaopen_pred* remains positive and statistically significant, although now it is even larger in size than the estimate on *d_kaopen* in Table 3.2.

An issue of concern is potentially weak instruments. The first-stage F-statistic is 8.202, which qualifies as weak by academic research standards. For this reason, in column 1, I include the results of the Stock-Yogo test for weak instruments with 5% confidence of less than 5% instrumental variable bias. The Cragg-Donald statistic in the Stock-Yogo test is above the critical value and the result is statistically significant, which suggests that my instruments are strong enough to use. Nevertheless, intuitively, weakness in the instrument still seems possible.

To make sure that the results in column 2 do not suffer from the weak instruments problem, in columns 4 and 5, I present the estimated coefficients calculated using the limited-information maximum likelihood estimator and the Fuller estimator²⁵, respectively. Both methods are traditionally used for inference purposes when instrumental variables are potentially weak. The obtained results in both cases remain qualitatively and quantitatively similar to my baseline two-stage least squares model, which confirms that my main findings are robust to the weak instruments problem.

In sum, the results from the third step of the analysis seem reassuring. They provide further evidence that capital account closure increases the likelihood of autocratic regime survival during currency crises. Even more importantly, this finding gives support to the idea that crisis policy response may affect the likelihood of autocratic regime survival in the short run — an issue that is often neglected in the democratization and comparative autocracy strands of literature. It is worth mentioning, however, that I cannot completely rule out that US monetary policy breaks the exclusion criteria: It might well be the case that it impacts the likelihood of regime survival via channels other than capital account policy. Therefore, caution is required in interpreting the precise causal mechanisms via which crisis policy response affects prospects for autocratic regime survival during currency crises.

²⁵ The limited information maximum likelihood estimator (LIML) is a linear combination of the OLS and 2SLS estimates, with the weights such that they approximately eliminate the 2SLS bias. The Fuller estimator is a modified version of the LIML estimator, and provides the most unbiased estimates for inference purposes when instruments are potentially weak.

3.6. Conclusion

Why do some autocratic regimes collapse during financial crises, while others survive? In this paper, I have suggested an answer to this question from a political economy perspective. Building on the insight that under free capital mobility, exchange-rate and monetary policies are intricately linked, I have provided quantitative evidence that crisis policy choices of autocratic regimes may affect the likelihood of regime survival during currency crises. Specifically, two main findings follow from this paper.

First, my results suggest that autocracies that opt for capital controls — instead of IMF-style crisis policies with floating exchange rates and free capital mobility — are less likely to break down during currency crises. Even though IMF-style policies may be beneficial in the long-run, they often have rather painful short-term consequences and happen to be unpopular with the citizens. By contrast, capital controls not only shield autocracies from capital flight and plummeting exchange rates, but also give them more room to stimulate economic recovery, and buy off time to solve intra-elite conflicts and crash the opposition, thereby increasing the probability of autocratic regime survival.

Second, this paper has shown that free capital mobility combined with higher levels of pre-crisis exchange rate fixity increase the probability of autocratic regime breakdown during currency crises. For policymakers that have made an explicit public promise not to devalue, the choice between IMF-style policies and capital controls is particularly painful and politically dangerous, as both policy options lead to serious re-distributional effects and create a lot of losers that have invested a lot in the status-quo arrangement.

The main findings of this paper contribute to the literature on autocratic regime survival during economic crises by shifting the focus of attention from internal characteristics of the regime to the role of active crisis policy choices of autocratic governments. Thus far, the prime focus of this literature has been on the institutional and economic differences among autocracies that make them more or less prone to regime collapse during economic downturns, while the role of economic crises themselves (except for the magnitude of the economic collapse) was neglected as a second-order problem. By contrast, this paper suggests that governments in autocratic regimes are not just passive observers of financial turmoil, but active participants in choosing policies aimed at containing and resolving crises. It also explicitly focuses on the effects of crisis policy choices on autocratic regime stability during one type of crises — currency crises.

The results of this paper might be of interest also for the political economy studies. Existing work in the political economy literature has developed a keen understanding of distributive politics in times of financial crises, but has focused predominantly on democratic countries, largely overlooking the vast amount of scholarship on autocratic regimes over the last decades. This paper, by contrast, shifts the focus of attention from democratic to autocratic regimes, and thereby offers a more nuanced understanding of the political consequences of crisis policymaking. More broadly, this paper adds to the debate on the political regime underpinnings of international monetary policy, and hints at one possible explanation of why some countries have resorted to capital account restrictions during recent financial crises — a policy response that has long been considered as heresy by the IMF. Specifically, this paper suggests that the incentives to impose capital controls in response to capital flight may originate in the regime's desire to survive politically.

Overall, by bringing together the insights from the literature on autocratic regime survival with those of political economy, this paper sheds light on the complex relationship between the politics of crisis policymaking and autocratic regime stability. It provides one more evidence that economic and political problems do not exist in isolation from one another. They are linked together in complex networks of weirdly tangled cause-effect relationships, in which economic problems are both caused by and contribute to political problems. Both strands of research have just begun to understand some of these interlinkages, and have yet to grasp fully the relationship between economic crises and political stability.

Finally, from public policy view, the main finding of this paper is that crisis policies are not just an economic instrument, but also a political tool, which impact can be profound. This conclusion, if sustained by further analysis, can have significant implications not only for authoritarian leaders whose main concern is to survive politically during financial turmoil, but also for the international finance establishment, especially for the IMF as the lender-of-last-resort, whose advise and economic assistance during financial crises may have not only economic but also political consequences.

3.7. References

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3.8. Appendix

3.8.1. Authoritarian regimes, 1960-2010

Country	Start	End	Country	Start	End
Algeria	1963	1992		1982	1993
	1993	2010**		2004	2010**
Angola	1976	2010**	Chad	1970*	1975
Argentina	1961*	1966		1976	1979
	1967	1973		1983	1990
	1977	1983		1991	2010**
Armenia	1995	1998	Chile	1974	1989
	1999	2010**	China	1961*	2010**
Azerbaijan	1994	2010**	Congo, Rep.	1970*	1991
Bangladesh	1972	1975		1998	2010**
	1976	1982	Congo, Dem. Rep.	1970*	1997
	1983	1990		1998	2010**
Belarus	1992	1994	Cote d'Ivoire	1961	1999
	1995	2010**		2000	2000
Benin	1973	1990		2001	2010**
Bolivia	1960*	1964	Dominican Republic	1961*	1962
	1965	1969		1964	1965
	1970	1971		1967	1978
	1972	1979	Ecuador	1964	1966
	1981	1982		1971	1972
Botswana	1970*	2010**		1973	1979
Brazil	1965	1985	Egypt	1961*	2010**
Burkina Faso	1970*	1980	El Salvador	1961*	1982
	1981	1982		1983	1994
	1983	1987	Eritrea	1994	2010**
	1988	2010**	Ethiopia	1970*	1974
Burundi	1970*	1987		1975	1991
	1988	1993		1992	2010**
	1994	1996	Gabon	1970*	2010**
	1997	2003	Gambia	1970*	1994
Cambodia	1993*	2010**		1995	2010**
Cameroon	1970*	1983	Georgia	1995*	2003
	1984	2010**	Ghana	1961	1966
Central African Rep.	1961	1965		1967	1969
	1966	1979		1973	1979
	1980	1981		1982	2000

Country	Start	End	Country	Start	End
Greece	1968	1974		2010	2010**
Guatemala	1960*	1963	Malawi	1970*	1994
	1964	1966	Malaysia	1969*	2010**
	1967	1970	Mali	1970*	1991
	1971	1985	Mauritania	1970*	1978
	1986	1995		1979	2005
Guinea	1970*	1984		2006	2007
	1985	2008		2009	2010**
	2009	2010	Mexico	1961*	2000
Guinea Bissau	1975	1980	Morocco	1961*	2010**
	1981	1999	Mozambique	1978*	2010**
	2003	2003	Myanmar	1963	1988
Haiti	1970*	1986		1989	2010**
	1987	1988	Namibia	1991	2010**
	1989	1990	Nepal	1970*	1991
	1992	1994		2003	2006
	2000	2004	Nicaragua	1961*	1979
Honduras	1964	1971		1980	1990
	1973	1981	Niger	1970*	1974
Hungary	1968*	1990		1975	1991
Indonesia	1967	1999		1997	1999
Iran	1970*	1979	Nigeria	1967	1979
	1980	2010**		1984	1993
Jordan	1970*	2010**		1994	1999
Kazakhstan	1994*	2010**	Pakistan	1976	1977
Kenya	1964	2002		1978	1988
Korea, South	1962	1987		2000	2008
Kyrgyzstan	1993*	2005	Panama	1969	1982
	2006	2010		1983	1989
Laos	1976	2010**	Paraguay	1961*	1993
Lesotho	1971	1986	Peru	1969	1980
	1987	1993		1993	2000
Liberia	1970*	1980	Philippines	1973	1986
	1981	1990	Poland	1946*	1989
	1998	2003	Portugal	1960*	1974
Libya	1970	2010**	Romania	1961*	1989
Madagascar	1970*	1972	Russia	1995*	2010**
	1973	1975	Rwanda	1970*	1973
	1976	1993		1974	1994

Country	Start	End	Country	Start	End
	1995	2010**		1977	1988
Senegal	1970*	2000	Togo	1970*	2010**
Serbia	1992	2000	Tunisia	1961*	2010**
Sierra Leone	1970*	1992	Turkey	1981	1983
	1993	1996	Turkmenistan	1994*	2010**
	1997	1997	Uganda	1970*	1971
	1998	1998		1972	1979
South Africa	1960*	1994		1981	1985
Spain	1961*	1976		1987	2010**
Sri Lanka	1979	1994	Uruguay	1974	1984
Sudan	1970	1985	Uzbekistan	1996*	2010**
	1986	1986	Venezuela	2006	2010**
	1990	2010**	Vietnam	1978*	2010**
Swaziland	1970*	2010**	Yemen	1991*	2010**
Syria	1970*	2010**	Zambia	1968	1991
Taiwan	1982*	2000		1992	1996
Tajikistan	1992	2010**		1997	2010**
Tanzania	1970*	2010**	Zimbabwe	1981	2010**
Thailand	1961*	1973			

* left-censored cases

** right-censored cases

Notes:

- (i) Data on regime start and end dates are drawn from Geddes, Wright, and Frantz (2014). Their data code the date for 'regime start' as the calendar year for the first January 1 in which the regime holds power (i.e., if the regime comes to power in year t, year t+1 is the first observation year).
- (ii) All democratic periods, periods of foreign occupation, periods of provisional government, and periods in which the central government fails to control the majority of its territory are excluded.

3.8.2. Currency crises in autocracies, 1960-2010

Country	Start	End	RC	Country	Start	End	RC
Algeria	1988	1991	a->a		1983	1983	
	1994	1995			1989	1989	
Angola	1991	2005			1994	1997	a->a
	2009	2010**			1999	1999	
Argentina	1962	1962			2009	2009	
	1964	1965	a->a	Cote d'Ivoire	1994	1994	
	1967	1967		Ecuador	1971	1971	a->a
	1969	1971		Egypt	1962	1962	
	1977	1983**	a->d		1979	1979	
Azerbaijan	1994	1994			1989	1991	
Bangladesh	1976	1976			2001	2001	
Belarus	1994	1994	a->a		2003	2003	
	1999	1999		El Salvador	1973	1973	
	2008	2009			1988	1989	
Bolivia	1963	1963	a->a	Ethiopia	1993	1993	
	1972	1972		Gabon	1994	1994	
	1979	1979	a->d	Gambia	1985	1985	
	1981	1982**	a->d		2003	2003	
Botswana	1984	1984		Georgia	1999	1999	
Brazil	1965*	1965		Ghana	1967	1967	
	1967	1969			1978	1978	a->d
	1971	1971			1983	1989	
	1974	1975			1992	1997	
	1977	1985**	a->d		1999	2000	a->d
Burkina Faso	1994	1994		Guatemala	1986	1986	
Burundi	1996	1997	a->a		1989	1991	
Cameroon	1994	1996		Guinea	1982	1982	
Chad	1994	1996			2005	2005	
Chile	1974*	1979		Guinea-Bissau	1980	1980	a->a
	1982	1985			1994	1997	
	1987	1987		Haiti	1992	1993	a->d
	1989	1989**	a->d		2003	2003	a->d
China	1984	1984		Hungary	1968*	1968	
	1986	1986			1982	1982	
	1989	1989			1989	1989	a->d
	1994	1994		Indonesia	1967	1968	
Congo, Dem. Rep.	1976	1976			1977	1978	

Country	Start	End	RC	Country	Start	End	RC
	1983	1983		Nepal	1984	1984	
	1997	1998	a->d	Nicaragua	1979	1979	a->a
Iran	1985	1985			1985	1986	
	1993	1993			1988	1990**	a->d
	2000	2000		Nigeria	1973	1973	
Jordan	1989	1989			1985	1990	
Kazakhstan	1999	1999			1993	1993	a->a
Kenya	1976	1976			1997	1997	
	1981	1982			1999	1999	a->d
	1989	1989		Paraguay	1984	1986	
	1991	1993			1989	1989	
	1999	1999			1992	1993**	a->d
Korea, South	1962*	1963		Peru	1976	1980**	a->d
	1966	1966			1993*	1993	
	1970	1970			1998	1998	
	1975	1975		Philippines	1983	1984	
	1979	1980		Romania	1973	1973	
Kyrgyzstan	1997	1997			1983	1983	
Laos	1978	1978		Russia	1995*	1996	
	1986	1986			1998	1999	
	1997	1997			2008	2008	
Lesotho	1985	1985	a->a	Rwanda	1991	1991	
Libya	2002	2002		Senegal	1994	1994	
Madagascar	1984	1987		Sierra Leone	1983	1983	
Malawi	1994	1994**	a->d		1989	1991	a->a
Malaysia	1997	1998			1997	1997	a->a
Mauritania	1993	1993			1998	1998	a->d
Mexico	1976	1977		South Africa	1967	1967	
	1982	1987			1981	1981	
	1989	1989			1984	1985	
	1994	1995			1988	1988	
	1998	1999	a->d	Spain	1967	1967	
Morocco	1981	1982		Sri Lanka	1980	1980	
	1985	1985			1983	1983	
Mozambique	1987	1987			1989	1989	
Myanmar	1975	1975		Sudan	1981	1981	
	1990	1990			1994	1994	
	1996	1996		Swaziland	1985	1986	
	2001	2001		Syria	1988	1988	

Country	Start	End	RC	Country	Start	End	RC
Taiwan	1998	1998		Vietnam	1981	1981	
Tajikistan	1999	1999			1987	1987	
Tanzania	1985	1985		Yemen	1995	1996	
	1990	1990		Zambia	1977	1977	
Thailand	1984	1984			1983	1986	
Togo	1994	1994			1988	1991	a->a
Tunisia	1965	1965			1992	1996	a->a
	1974	1974			1998	1998	
	1978	1978			2000	2000	
	1986	1986			2008	2008	
Turkey	1981	1983**	a->d	Zimbabwe	1982	1984	
Turkmenistan	2008	2009			1988	1991	
Uganda	1988	1988			1993	1994	
Uruguay	1974*	1984**	a->d		1996	1998	
Uzbekistan	2000	2000			2000	2000	
Venezuela	2010	2010**			2003	2008	

* left-censored cases

** right-censored cases

a->a autocracy-to-autocracy transition

a->d autocracy-to-democracy transition

Notes:

- (i) Data on currency crises come from Reinhart and Rogoff (2009), and Laeven and Valencia (2012).
- (ii) Only autocratic country-years are included. All democratic periods, periods of foreign occupation, periods of provisional government, and periods in which the central government fails to control the majority of its territory are excluded.
- (iii) RC stands for regime changes that occur during a given currency crisis or within a year after its end.

3.8.3. Variable definitions, data sources, and descriptive statistics

Variable name	Description & coding	Data source
regime_change	Binary indicator of regime change: marks year in which regime change occurs (regime change is defined as fundamental changes in the formal and/or informal rules for choosing leaders and policies).	Geddes, Wright, and Frantz (2014).
democratization	Binary indicator of democratization: transition to a democracy (i.e., a subset of regime changes that resulted in transition to a democratic rule).	Geddes, Wright, and Frantz (2014).
aa_transition	Binary indicator of autocracy-to-autocracy transitions: transition to a new authoritarian regime (i.e., a subset of regime changes that resulted in a new autocratic regime).	Calculated from Geddes, Wright, and Frantz (2014).
prevrc	Previous regime change: binary indicator of previous regime changes occurring over the period [t-3, t-1], where t is the observation year.	Calculated from Geddes, Wright, and Frantz (2014).
currency	Binary indicator of currency crises: a country is in a currency crisis, if the nominal depreciation of its currency is in excess of 15 percent compared to the year before.	Reinhart and Rogoff (2009), Laeven and Valencia (2012).
banking	Binary indicator of systemic banking crises: a banking crisis is defined as systemic if there are (i) significant signs of distress in the banking system, and (ii) significant banking policy intervention measures in response to significant losses in the banking system.	Laeven and Valencia (2012), Reinhart and Rogoff (2009).

default	<p>Binary indicator of sovereign debt crises: a sovereign default is defined as either (i) a legal default (i.e., a failure of an obligor to meet a principal or interest payment on the due date), or (ii) a distressed debt restructuring (i.e., when an exchange offer of new debt contains less favorable terms than the original issue). For crises that last longer than 5 years, only the first 5 years are taken into account.</p>	<p>Reinhart and Rogoff (2009), Beers and Mavalwalla (2017), Standard & Poor's.</p>
twin	<p>Binary indicator of twin crises: a country is in a twin crisis, if currency crisis coincides with either banking or sovereign debt crisis (i.e., if either banking or sovereign debt crisis occurs over the period [t-1, t+1], where t is the year of currency crisis).</p> <p><i>Note:</i> As this paper focuses on currency crises, only twin currency-banking and currency-debt crises are included in the analysis. Twin banking-debt crises are excluded.</p>	<p>Calculated from currency, banking, and default variables.</p>
ers	<p>Exchange rate stability index: the ERS index is measured as annual standard deviations of the monthly exchange rate between the home country and the base country. The index is normalized to range between 0 and 1 (<i>Note:</i> the base country is defined as the country that a home country's monetary policy is most closely linked with).</p> <p>Higher index indicates more stable movement of the exchange rate against the currency of the base country.</p>	<p>Aizenman, Chinn, and Ito (2010, 2013).</p>
d_ers	<p>Year-to-year change of the ERS index.</p>	<p>Calculated from ers.</p>

kaopen	<p>Normalized Chinn-Ito capital account openness index: the Chinn-Ito index measures a country's degree of capital account openness. It is the first principal component of the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The index is normalized to range between 0 and 1.</p> <p>Higher index means more capital account openness.</p>	Aizenmann, Chinn and Ito (2010, 2013).
d_kaopen	Year-to-year change of the normalized Chinn-Ito index.	Calculated from kaopen.
mi	<p>Monetary independence: the extent of monetary independence is measured as the reciprocal of the annual correlation between the monthly interest rates of the home country and the base country. Normalized to range between 0 and 1.</p> <p>Higher values of the MI index indicate more monetary policy independence.</p>	Aizenman, Chinn, and Ito (2010, 2013).
d_mi	Year-to-year change of the MI index.	Calculated from mi.
ers_mi	<p>The first principal component of ERS and MI: measures how close countries are towards the vertex of "closed economy" of the Mundell-Fleming trilemma triangle. Normalized to range between 0 and 1.</p>	Calculated from ers and mi variables.
d_ers_mi	Year-to-year change of the ERS_MI variable.	Calculated from ers_mi variable.
mi_kaopen	<p>The first principal component of MI and KAOPEN: measures how close countries are towards the vertex of "floating exchange rate" of the Mundell-Fleming triangle. Normalized to range between 0 and 1.</p>	Calculated from mi and kaopen variables.

d_mi_kaopen	Year-to-year change of the MI_KAOPEN variable.	Calculated from mi_kaopen.
ers_kaopen	The first principal component of ERS and KAOPEN: measures how close countries are towards the vertex of “currency board” of the Mundell-Fleming trilemma triangle. Normalized to range between 0 and 1 .	Calculated from ers and kaopen variables.
d_ers_kaopen	Year-to-year change of the ERS_KAOPEN variable.	Calculated from ers_kaopen.
gdppc	GDP per capita: real GDP per capita in 2011 US dollars: cgdppc variable in Maddison Project Database.	Maddison Project Database (version 2018), Penn World Table (version 9.1), World Bank WDI database.
gdppcgr	GDP per capita growth: annual percentage growth rate of GDP per capita in 2011 US dollars as given in country National Accounts: rgdpnadc variable in Maddison Project Database.	Maddison Project Database (version 2018), Penn World Table (version 9.1), World Bank WDI database.
oil_gas_value_pc	Total value of oil and gas production: country’s total volume of oil and natural gas production multiplied by the world price for oil and natural gas and divided by population size in a given year. Since world prices are taken for a benchmark type of oil / natural gas, they only approximate the actual price, which varies by country.	Ross-Mahdavi Oil and Gas Dataset, version 2.0 (2015).
oilgas	Total value of oil and gas production (% of GDP): country’s total volume of oil and natural gas production as percentage of GDP.	Calculated from oil_gas_value_pc and gdppc.
polity2	Polity2 is a revised combined POLITY Score that captures political regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy).	Polity IV dataset.

polity2_avg	Average annual regional polity2 score: score that measures average regional polity2 index for each observation year.	Calculated from polity2, using the World Bank classification by regions.
duration	Time-varying duration of an autocratic regime: marks the number of consecutive calendar years in which an autocratic regime has ruled the country, up to and including the observation year.	Geddes, Wright, and Frantz (2014).
military	Binary indicator of military autocratic regime.	Geddes, Wright, and Frantz (2014).
party	Binary indicator of single party autocratic regime.	Geddes, Wright, and Frantz (2014).
personal	Binary indicator of personalist autocratic regime.	Geddes, Wright, and Frantz (2014).
monarchy	Binary indicator of monarchy.	Geddes, Wright, and Frantz (2014).
fedrate	Effective Federal Funds Rate: the central interest rate in the US financial markets, annualized, not seasonally adjusted.	Board of Governors of the Federal Reserve System (US).

Notes:

- (i) Table provides an overview and description of all variables used in the analysis. Motivation for their inclusion is provided in the text.
- (ii) My R program files and datasets that will allow you to replicate my results can be found here: <https://github.com/marina-pavlova/arscc>.

Table 3.4. Descriptive statistics for panel data

Variable	n	mean	sd	min	max
regime_change	2,819	48	214	0	1
currency	2,819	121	327	0	1
twin	2,819	72	259	0	1
ers	2,782	685	341	1	1
d_ers	2,749	-8	216	-993	993
mi	2,154	466	158	0.0001	968
d_mi	2,085	-0.0005	105	-286	298
kaopen	2,399	281	276	0	1
d_kaopen	2,308	3	88	-758	758
ers_mi	2,145	541	186	0	1.000
mi_kaopen	1,961	572	150	32	986
ers_kaopen	2,367	520	226	0	1
gdppc	2,819	4,041.313	4,603.027	336	43,624
ln_gdppc	2,819	7.905	849	5.817	10.683
gdppcgr	2,819	1.850	6.078	-44.661	52.174
oil_gas_value_pc	2,819	371.084	1,410.803	0	27,988.090
oilgas	2,819	4.223	9.678	0	84.078
polity2	2,819	-4.212	4.705	-10	10
polity2_avg	2,819	-1.527	3.752	-7.300	7.621
party	2,819	442	497	0	1
military	2,819	266	442	0	1
personal	2,819	489	500	0	1
duration	2,819	18.490	15.678	1	85
prevrc	2,819	132	339	0	1
fedrate	2,819	6.312	3.434	160	16.380
europe	2,819	91	287	0	1
latam	2,819	136	343	0	1
mideast	2,819	136	342	0	1
africa	2,819	487	500	0	1
eastasia	2,819	122	327	0	1
southasia	2,819	29	169	0	1

Table 3.5. Descriptive statistics for 'currency crises' data

Variable	n	mean	sd	min	max
regime_change	184	190	394	0	1
currency_duration	184	1.848	1.825	1	15
twin	184	533	500	0	1
ers_onset	182	596	353	17	1
d_ers	182	-169	396	-999	954
mi_onset	150	513	164	70	968
d_mi	150	14	148	-433	413
kaopen_onset	163	243	276	0	1
d_kaopen	163	-4	182	-1	939
ers_mi_onset	149	475	197	93	951
mi_kaopen_onset	136	617	162	86	959
ers_kaopen_onset	157	578	230	0	986
gdppc_onset	184	4,221.440	3,923.663	470	27,312
ln_gdppc_onset	184	8.014	807	6.153	10.215
gdppcgr_avg	184	477	5.414	-28.648	13.443
oilgas	184	3.363	8.227	0	70.977
polity2	184	-3.995	4.579	-10	9
polity2_avg	184	-958	3.791	-7.300	6.875
party	184	451	499	0	1
military	184	326	470	0	1
personal	184	408	493	0	1
duration	184	18.022	17.422	1	83
prevrc	184	196	398	0	1
fedrate	184	6.699	3.354	160	16.378
d_fedrate	184	154	1.743	-5.780	7.520
europe	184	109	312	0	1
latam	184	223	417	0	1
mideast	184	109	312	0	1
africa	184	391	489	0	1
eastasia	184	141	349	0	1
southasia	184	27	163	0	1

3.8.4. Additional models

Table 3.6. Trilemma policy choices and autocratic regime survival during currency crises: extra models

	individual trilemma indexes			changes in macroeconomic policy orientation			
	(1)	(2)	(3)	(4)	(5)	(6)	
(Intercept)	-0.335 (0.545)	-0.202 (0.598)	-0.494 (0.550)	-0.421 (0.560)	-0.431 (0.604)	-0.473 (0.558)	(Intercept)
ln_gdppc	-0.148** (0.068)	-0.162** (0.069)	-0.124* (0.066)	-0.147** (0.069)	-0.146** (0.074)	-0.124* (0.069)	ln_gdppc
gdppcgr	-0.043*** (0.008)	-0.030*** (0.008)	-0.032*** (0.007)	-0.031*** (0.008)	-0.038*** (0.009)	-0.043*** (0.008)	gdppcgr
oilgas	-0.009 (0.007)	-0.007 (0.007)	-0.012 (0.007)	-0.007 (0.007)	-0.005 (0.007)	-0.009 (0.007)	oilgas
prevrc	-0.175 (0.142)	-0.147 (0.150)	-0.240* (0.137)	-0.118 (0.143)	-0.128 (0.163)	-0.171 (0.159)	prevrc
polity2_avg	0.061*** (0.014)	0.060*** (0.015)	0.058*** (0.014)	0.058*** (0.014)	0.065*** (0.015)	0.064*** (0.014)	polity2_avg
party	-0.411*** (0.117)	-0.200* (0.127)	-0.393*** (0.114)	-0.185* (0.126)	-0.253* (0.139)	-0.364*** (0.119)	party
military	0.425*** (0.101)	0.469*** (0.111)	0.408*** (0.105)	0.461*** (0.109)	0.488*** (0.116)	0.423*** (0.105)	military
personal	-0.147 (0.109)	-0.057 (0.118)	-0.140 (0.110)	-0.023 (0.118)	-0.056 (0.127)	-0.111 (0.112)	personal
sigma	0.000 (0.275)	-0.091 (0.334)	-0.240* (0.142)	-0.000 (0.659)	0.000 (0.329)	-0.057 (0.525)	sigma
currency	0.103 (0.181)	-0.201 (0.408)	0.307 (0.205)	0.091 (0.136)	0.093 (0.142)	0.019 (0.135)	currency
kaopen	0.212 (0.179)						-1.284** (0.614) d_kaopen
currency:kaopen	0.175 (0.490)						2.635** (1.108) currency:d_kaopen
mi		-0.219 (0.343)					0.595 (0.515) d_mi
currency:mi		0.643 (0.754)					-1.194 (1.145) currency:d_mi
ers			0.036 (0.157)				0.012 (0.256) d_ers
currency:ers			-0.673* (0.402)				-0.273 (0.423) currency:d_ers
d_ers_mi				-0.305 (0.515)			0.211 (0.308) ers_mi
currency:d_ers_mi				-0.163 (1.013)			-1.418* (0.744) currency:ers_mi
d_mi_kaopen					1.337* (0.732)		-0.292 (0.387) mi_kaopen
currency:d_mi_kaopen					-2.566 (1.577)		0.779 (0.922) currency:mi_kaopen
d_ers_kaopen						0.211 (0.478)	-0.226 (0.237) ers_kaopen
currency:d_ers_kaopen						-0.086 (0.790)	0.530 (0.614) currency:ers_kaopen
Log-Likelihood	-422.160	-397.940	-493.900	-389.900	-334.580	-410.681	
Num. obs.	2399	2151	2782	2074	1868	2275	

Notes:

Clustered standard errors in brackets.

Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 3.7. Determinants of autocratic regime survival during currency crises: extra models

	pre-crisis individual trilemma indexes			changes in macroeconomic policy orientation			
	(1)	(2)	(3)	(4)	(5)	(6)	
(Intercept)	-0.860 (1.518)	-0.388 (1.665)	0.068 (1.392)	-0.447 (1.489)	-1.181 (1.613)	-0.665 (1.538)	(Intercept)
ln_gdppc_onset	-0.033 (0.186)	-0.116 (0.186)	-0.092 (0.166)	-0.102 (0.183)	-0.010 (0.198)	-0.043 (0.189)	ln_gdppc_onset
gdppcgr_avg	-0.113*** (0.029)	-0.077*** (0.027)	-0.103*** (0.026)	-0.100*** (0.031)	-0.100*** (0.032)	-0.116*** (0.030)	gdppcgr_avg
oilgas	-0.020 (0.029)	-0.016 (0.028)	-0.008 (0.023)	-0.014 (0.026)	-0.021 (0.032)	-0.017 (0.029)	oilgas
prevrc	0.263 (0.327)	0.213 (0.323)	-0.015 (0.313)	0.294 (0.325)	0.408 (0.348)	0.281 (0.354)	prevrc
polity2_avg	0.062 (0.038)	0.057 (0.038)	0.077** (0.036)	0.068* (0.038)	0.053 (0.039)	0.068* (0.038)	polity2_avg
party	-0.023 (0.306)	0.370 (0.335)	0.021 (0.279)	0.334 (0.338)	0.231 (0.343)	-0.025 (0.303)	party
military	0.861*** (0.287)	1.018*** (0.308)	0.903*** (0.287)	0.982*** (0.311)	1.016*** (0.315)	0.929*** (0.296)	military
personal	-0.147 (0.301)	0.041 (0.314)	-0.228 (0.281)	0.040 (0.314)	0.055 (0.319)	-0.187 (0.302)	personal
twin	0.006 (0.266)	0.011 (0.262)	-0.026 (0.250)	-0.106 (0.272)	-0.038 (0.282)	-0.042 (0.272)	twin
kaopen_onset	0.040 (0.485)						1.469** (0.733) d_kaopen
mi_onset		-0.050 (0.845)					0.558 (0.897) d_mi
ers_onset			-0.699* (0.358)				0.227 (0.297) d_ers
d_ers_mi				-0.290 (0.746)			-0.583 (0.706) ers_mi_onset
d_mi_kaopen					-0.121 (1.076)		-0.214 (0.879) mi_kaopen_onset
d_ers_kaopen						-0.777 (0.534)	1.011* (0.600) ers_kaopen_onset
AIC	150.193	151.440	163.177	147.652	137.590	144.750	
BIC	184.225	184.557	198.421	180.696	169.629	178.368	
Log Likelihood	-64.097	-64.720	-70.588	-62.826	-57.795	-61.375	
Deviance	123.193	129.440	141.177	125.652	115.590	122.750	
Num. obs.	163	150	182	149	136	157	

Notes:

Cells contain parameter estimates and standard errors.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 3.8. Bootstrap estimation results for autocratic regime survival during currency crises

model_names	estimate	st_error	boot_median	boot_se	boot_bias
model 1: d_kaopen	1.469	0.733	1.560	0.994	0.214
model 2: d_mi	0.558	0.897	0.614	1.084	0.056
model 3: d_ers	0.227	0.297	0.284	0.320	0.061
model 4: ers_mi_onset	-0.583	0.706	-0.591	0.956	-0.060
model 5: mi_kaopen_onset	-0.214	0.879	-0.241	1.076	-0.010
model 6: ers_kaopen_onset	1.011	0.600	1.147	0.855	0.183

4. Electoral Authoritarianism and Sovereign Debt Crises: Do Elections Sustain or Undermine Authoritarian Rule?

Abstract

This paper highlights the important difference between the effects of elections as electoral institutions and the effects of elections as electoral events on the likelihood of autocratic regime survival during sovereign debt crises. Proceeding from the assumption that debt crises create conditions conducive to mass discontent with the regime and reduce the regime's economic capacity to tilt the playing field in its favor and to quell popular protests, this paper argues that qualitative differences between electoral institutions are the key to determining which autocracies are more stable during debt crises and which are less so. It shows that autocracies with competitive electoral institutions are more likely to break down during sovereign debt crises, whereas non-competitive electoral autocracies seem to be impervious to sovereign default. It also finds that even when debt crises lead to regime breakdown in competitive electoral autocracies, orderly regime change via elections is less likely than a forceful takeover. Unlike other autocracies, competitive electoral autocracies are also more likely to be ousted via popular uprisings, suggesting that their rulers have to contend with threats emanating not only from the regime-insiders, but also from the citizens they govern. Given that competitive electoral autocracy is nowadays the most prevalent type of authoritarian rule in the world, understanding the sources of its (in)stability is of utmost importance.

4.1. Introduction

Conventional wisdom holds that financial crises and economic downturns pose threats to autocratic regime stability. Yet, contemporary research has placed more emphasis on political actors, their myriad competing interests, and coalitions as the initiators and causal drivers of crisis-induced regime change. The basic causal argument in the available literature suggests that crises change motivations of key political actors that determine whether they continue to support the regime, and thereby change the balance of power between regime supporters and regime opponents (see, e.g., Acemoglu and Robinson 2001, Boix 2003, Bueno de Mesquita et al. 2003). From this point of view, only socio-political actors bring about regime change — and nothing else.

Yet, actors and actor coalitions do not operate in a vacuum. Their behavior is structured and constrained by some formal and informal institutions that define the ‘rules of the game’. While institutions do not determine what actions ought to be taken, they affect the cost-benefit calculations of political actors, their strategies, the formation of coalitions, and their decision to act (Katznelson and Weingast 2005). In some cases, institutions may help autocracies survive financial turmoil, while in other cases, they may ‘lock in’ political leaders to make choices that they would not otherwise have chosen. Rather puzzlingly, however, despite the rapid advance of the literature on institutions in autocracies, our knowledge about the impact of institutions on autocratic regime stability during financial and economic crises is still rather rudimentary.

This paper aims to address the existing research gap by focusing on one specific relationship — the relationship between elections and autocratic regime stability during sovereign debt crises. Specifically, it deals with the question of whether elections help autocratic regimes survive sovereign debt crises, or rather facilitate regime change.

To date, the direct effects of elections on autocratic regime stability are subject to robust debate. Some scholars argue that autocrats hold elections in order to enhance authoritarian rule and ensure regime survival (see, e.g., Gandhi 2008, Boix and Svobik 2013, Malesky and Schuler 2010). Other scholars claim that holding elections is very risky for autocrats, as many things around elections may easily spiral out of control, and rigged elections can become focal points for opposition mobilization and popular protests (see, e.g., Howard and Roessler 2006, Bunce and Wolchik 2009, Kuntz and Thompson 2009). At the same time, large-N statistical studies of the direct effects of

elections on autocratic regime stability are scarce and have yielded rather ambiguous findings. While some scholars find no direct effects of elections on autocratic regime stability (Brownlee 2007), but claim that if electoral autocracies break down, they are more likely to democratize (Brownlee 2009b, Miller 2015), other scholars show that elections destabilize autocracies in the short-run, but stabilize them in the long-run (Knutsen, Nygård, and Wig 2017).

Apparently, the reason why elections can have both regime-sustaining and regime-subverting consequences and why empirical evidence has been so inconclusive so far, is that elections are partly endogenous to much deeper forces that determine autocratic regime stability, such as political actors' interests, and the regime's capacity to manipulate elections in order to enhance authoritarian rule and ensure regime survival. In other words, the effects of elections on autocratic regime stability cannot be studied separately from the concrete underlying problems of political actors' interests and behavior within the regime.

Motivated by this observation, I argue that sovereign debt crises not only change political actors' interests as the available literature suggests, but also affect the regime's capacity to maintain, manipulate, and adjust the existing electoral institutions in order to shape electoral outcomes in the regime's favor. My intuition is simple. Sovereign default typically comes with the loss of access to international capital markets, leaving the country with fewer resources to engage in electoral fraud, vote buying, and strategic manipulation of state economic resources during elections. Thus, during sovereign debt crises, autocracies are forced into a much more competitive environment, as many informal arrangements that allow elections to serve autocratic needs are disrupted, while formal electoral rules are still in place.

I hypothesize, therefore, that meaningful qualitative differences between electoral institutions can be seen as a key to determining which autocracies are more stable during debt crises and which are less so. Specifically, I argue that regimes with more competitive electoral institutions should be more vulnerable to regime collapse during debt crises, because *de jure* competitive elections — even when they are *de facto* seriously flawed — provide a set of institutions, rights, and processes that can facilitate regime change, when the regime's capacity to manipulate elections is weak. By contrast, autocracies in which political contestation is explicitly limited should be more stable, as

the very absence of a visible political alternative to the regime hampers opposition coordination and citizen mobilization.

To probe this hypothesis, I classify all autocratic regimes on the electoral dimension. Specifically, I distinguish between non-electoral, non-competitive electoral, and competitive electoral autocracies. I draw the dividing line between electoral and non-electoral autocracies based on whether access to political power is determined by direct national elections or by other non-electoral procedures, whereas the key distinction between non-competitive and competitive electoral autocracies in my typology is ‘actor competitiveness’, which defines the opposition capacity to challenge the regime via electoral procedures. Using data on autocratic elections, their details, as well as narratives of the background events for 280 distinct authoritarian regimes in 120 countries over the period from 1946 to 2010, I have developed a set of coding rules to empirically draw the dividing line between the three electoral regime types, and have classified all autocratic country-years in my dataset into non-electoral, non-competitive electoral, and competitive electoral.

I test my hypothesis by making an important distinction between the effects of elections as electoral institutions, and elections as electoral events. For this, I employ a two-step approach. I first test models that estimate the effects of electoral regime type on autocratic regime stability during sovereign debt crises, and thus focus on whether electoral institutions — as the ‘rules of the game’ — make autocracies more or less stable during sovereign default. I then focus on competitive electoral autocracies only, and test models that estimate the effects of sovereign debt crises on the probability of electoral and election-triggered regime change, and thus focus on whether elections — as a mechanism of political change and as a trigger event — can bring about regime change during sovereign debt crises.

My findings suggest that the effects of elections as electoral institutions are not universal across authoritarian regimes. Over the long-run, competitive electoral autocracies are less likely to survive debt crises than other autocracies, whereas non-competitive electoral autocracies seem to be impervious to sovereign default. Yet, even when debt crises lead to regime breakdown in competitive electoral autocracies — which in and of itself is a rare event — orderly regime change via elections is far less likely than a forceful takeover. In other words, elections as electoral events do not significantly contribute to the likelihood of regime failure during sovereign debt crises. Rather, the

regime's entire electoral-institutional design affects the prospects of autocratic regime survival by defining the competitiveness of the electoral environment, and the extent of restrictions put on the opposition.

This paper thus supports the conventional scholarly view that economic crises destabilize authoritarian regimes, and contributes to the literature by identifying the role of electoral institutions in crisis-induced regime change: Whereas sovereign debt crises create conditions conducive to mass discontent with the regime and reduce the regime's capacity to tilt systematically the playing field in its favor, competitive electoral institutions create environments amenable to regime change, thereby increasing the odds of autocratic regime collapse.

The rest of this paper is structured as follows. Section 4.2 lays out the analytical foundations for the discussion about the effects of elections on autocratic regime stability, and makes an important distinction between electoral institutions and electoral events. Section 4.3 focuses on the nexus between sovereign debt crises, elections, and autocratic regime stability, and presents my hypothesis. Section 4.4 turns to the problem of classification of autocratic regimes on the electoral dimension, and introduces three types of autocracies: non-electoral, non-competitive electoral, and competitive electoral. Section 4.5 explains data selection and research design, while Section 4.6 reports the results of my analysis and provides their interpretation. Section 4.7 concludes by summarizing my main findings.

4.2. Elections and autocratic regime (in)stability

Although not completely new to history, autocratic elections have recently become a major focus of research in regime studies. In attempts to shed light on the complex phenomenon of authoritarian elections, scholars have offered a diverse variety of theories, methodological approaches, and sophisticated quantitative research designs to explain when, where, or why elections work to sustain or undermine authoritarian rule. Nevertheless, controversy continues about whether autocratic elections have regime-sustaining, regime-subverting consequences, or both.

In general, two major approaches dominate the contemporary debate, one that treats elections as *electoral events*, and another that treats elections as *electoral institutions*.

Electoral events and autocratic regime stability

The first body of literature is associated with the democratization paradigm, which sees democracy as a natural demand for all citizens (Huntington 1991, O'Donnell and Schmitter 1986). The general assumption underpinning this literature is that political rule follows an ontological path from autocracy to democracy, and *electoral events* are seen as critical moments in time, after which — if all stars are aligned — an uncertain democratization path may unfold. Accordingly, scholars working in this field explore different factors that make autocratic elections more likely to lead to a regime collapse, a democratic transition, or a “liberalizing electoral outcome” (Howard and Roessler 2006).

While there is a general consensus in this strand of literature that the impact of electoral events on regime change is highly contingent and uncertain, which factors specifically explain the variety of political outcomes is a matter of serious debate. Some authors focus on the nature of the regime itself, and claim that the regime's institutional legacy and historical institutional arrangements that influence the distribution of power are decisive (McFaul 2002, van de Walle 2006). Other authors focus on key political actors, and argue that factors that capture opposition's cohesion, opposition capacity, regime capacity, as well as the strategic behavior of both the ruling elites and the opposition on the eve of elections explain the divergent electoral outcomes (Howard and Roessler 2006, Bunce and Wolchik 2009, van de Walle 2006, Schedler 2009b, Seeberg 2018). Several authors add an international dimension to the debate, and claim that shifts in international pressure, support from external actors, as well as linkages to the West are important (Levitsky and Way 2005, McCoy and Hartlyn 2009, Hyde 2011). Some studies dig deeper and examine factors that structure the electoral procedure itself, such as the context of elections (McCoy and Hartlyn 2009, Levitsky and Way 2002), the timing of elections (Roessler and Howard 2009, Brownlee 2009a), the quality of elections and electoral fraud (Schedler 2009a, Case 2006, Hartlyn and McCoy 2006). Finally, some scholars move beyond studying electoral mode of democratization, and pay attention to factors that contribute to election-triggered regime change, such as post-election protests and uprisings, color revolutions, and military coups (Brancati 2016, Kuntz and Thompson 2009, Casper and Tyson 2014).

Taken together, these diverse academic studies highlight two important facts. First, electoral events per se do not necessarily increase the likelihood of autocratic regime collapse. Autocracies become unstable and vulnerable when some deeper causal factors

put pressure on the regime, whereas electoral events only open up space for change. Second, the fact that so many scholars find it important to emphasize the role of opposition capacity and the competitiveness of the election itself suggests that there should be important qualitative differences between electoral autocracies. In particular, the extent of restrictions put on opposition may cause variation in electoral outcomes.

Electoral institutions and autocratic regime stability

A completely different approach is taken by the comparative autocracy strand of research (e.g., Geddes 2005, Gandhi 2008, Gandhi and Lust-Okar 2009, Svobik 2012). The main research objective of this corpus of work is to explain the internal sources of autocratic regime stability, rather than the final fall of the regime. Accordingly, authoritarianism scholars move away from studying electoral events, and turn the explanatory dilemma upside down by focusing on a more puzzling question of why autocracies hold elections in the first place. Specifically, they argue that elections should be studied alongside other formal and informal institutions that structure authoritarian rule (e.g., parties, parliaments, militaries, patronage, corruption). Elections, like other institutions, are socially constructed, and are designed to serve authoritarian needs. In other words, autocrats hold elections because they believe that *the institution of elections* helps them retain power and ensure regime survival (Gandhi and Lust-Okar 2009).

The authoritarianism literature has identified several mechanisms through which elections may stabilize authoritarian rule. First, autocratic elections serve a power-sharing purpose. By giving key allies a stake in the regime, elections help maintain elite cohesion, deter defections from the regime, facilitate elite recruitment, and distribute patronage (Gandhi 2008, Magaloni and Wallace 2008, Boix and Svobik 2013, Lust-Okar 2006, Magaloni 2006, Blaydes 2008). Second, elections help identify, surveil, co-opt, censor, or target potential challengers of the regime (Gandhi and Przeworski 2007, Lust-Okar 2006, Miller 2015). Third, elections enhance the regime's legitimacy with the wider population, and demonstrate the regime's dominance within the political system (Schedler 2002, Levitsky and Way 2010, Cox 2009). Fourth, elections provide the regime with information about the distribution of popular support, opposition strength, or citizens' dissatisfaction (Schedler 2002, Levitsky and Way 2010, Little 2012). Finally, elections help autocrats legitimize their regimes internationally, as well as attract international aid or foreign direct investment in order to bolster regime survival (van de Walle 2002, Beaulieu and Hyde 2009).

Here, then, is the conundrum. If electoral institutions are endogenous to authoritarian interests, and their main purpose is to stabilize authoritarian rule, why do they ever have unintended consequences of destabilizing the regime? The institutionalist school of thought has offered several explanations to tackle this paradox.

The most prevalent approach to this problem is to invoke historical institutionalism as a theoretical framework, applying notions such as 'path dependency' and 'critical junctures'. While in the beginning electoral institutions are designed to serve autocratic needs, with the passage of time, they become 'institutionalized' (Huntington 1968) and start to act as hard constraints on the regime. In a recent contribution, Bernhard, Edgell, and Lindberg (2020) have tested this claim empirically, and have found that while the institutionalization of elections may enhance autocratic regime survival in hegemonic electoral autocracies, for competitive electoral autocracies, electoral openings are risky: Only those regimes that manage to survive past the first three elections and successfully institutionalize benefit from the diminishing risks of regime breakdown.

A different view suggests that electoral institutions can change over time and evolve into something completely different from what was originally envisioned. This idea lies at the core of the 'democratization-by-elections' theory, which stipulates that repeated competitive autocratic elections gradually improve in quality and eventually lead to democratization (Lindberg 2009, Hadenius and Teorell 2007). Several studies have tested this claim empirically (Hadenius and Teorell 2009, Brownlee 2009a, Miller 2015), nevertheless, the results are mixed. Controversy also continues about whether the effect of elections on democratic transitions is substantive, as well as about the definition and measurement of the term 'democratization' itself.

Finally, some electoral institutions may backfire because they are exogenous to the interests of the ruling elites by design (e.g., inherited from a previous regime, imposed by a foreign force, or erroneously designed and do not serve their purpose from the very beginning). Unsurprisingly, many autocrats try to get rid of such institutions whenever they can: History is replete with examples of autocratic regimes that, once in power, very publicly and deliberately destroyed inherited institutions because they did not suit their needs (e.g., declared martial law, banned opposition, cancelled elections, or proclaimed a single-party rule).

Research design challenges

From a research design perspective, two nagging problems persist.

The central conceptual challenge is the problem of endogeneity. Despite sophisticated research designs and various approaches to tackle this problem, the existing empirical studies have not demonstrated the direct causal effects of elections on autocratic regime (in)stability. Apparently, this is because most scholars have studied the effects of elections separately from the concrete underlying problems of intra-elite conflicts and interests that motivate the actors' behavior within the regime. Yet, if elections are endogenous to the interests of political actors whose behavior they appear to constrain, the research analysis requires rigorous attention to both actors and institutions.

Another important problem is a crucial difference between elections as events and elections as an institution, which is often neglected in the literature. While electoral events serve only as arenas of contestation between different political actors, the institution of elections — as the rules of the electoral game — brings many important dimensions with it (e.g., the strength of the ruling party, opposition capacity, political rights, level of civic freedoms), and thus is indicative of some important qualitative variations between different authoritarian regimes. Therefore, it seems to be useful to study the effects of electoral institutions and electoral events separately.

4.3. Election-crisis combination and autocratic regime (in)stability

Possible causal mechanisms

According to the rational choice theory, the problem of authoritarian regime survival during sovereign debt crises is a classic one. Autocrats face two fundamental internal threats to their rule: the threat of intra-elite conflicts and elite defections, and the threat of popular uprisings (see, e.g., Svolik 2012). Typically, these threats may be countered by a variety of instruments, most notably repression and cooptation (ibid). Yet, unlike other crises, sovereign debt crises directly affect the regime's economic capacity to manage these threats: The regime is simply out of money. What's more, borrowing against the future becomes almost impossible, because sovereign default typically comes with the increase of borrowing costs, and difficulties with finding financing during the restructuring period, leaving the country with the IMF as the major (and often the only)

source of financial support (Rogoff and Zettelmeyer 2002). IMF support, in turn, typically comes in exchange for structural adjustment policies which de facto mean the dismantling of well-entrenched kleptocratic systems. In other words, with no resources left to sustain itself, the regime faces hard times.

Elections add an unpleasant complexity to the problem of autocratic regime survival.

Electoral institutions — as formal and informal rules of the electoral game — define the spectrum of the available options for key political actors, affect their strategic behavior, the formation of viable coalitions, and the eventual action itself. Formal rules — which are created, communicated, and enforced through widely accepted channels — set visible constraints on political actors' behavior, and may even bear some resemblance to democratic electoral institutions. By contrast, informal rules — such as clientelism, patronage, corruption, electoral fraud, vote-buying — affect key actors' incentives and expectations.

In normal times, informal rules mediate the effects of formal rules and shape their performance in ways that allow elections to serve autocratic needs. Yet, sovereign debt crisis disrupts many informal arrangements. At the same time, defaulting government typically lacks the economic and administrative capacity to change formal electoral rules in short order, and, therefore, may get into an 'institutional trap', in which formal electoral rules are still in place, but mechanisms that were designed to circumvent them are no longer working. In this case, opposition actors and/or defecting elites may decide to make use of formal electoral institutions to serve their needs.

Electoral events, on the other hand, provide arena for political contestation which actors may use if doing so is in their interest. Since elections are held at specific and commonly known dates, opposition groups can coordinate their actions right around when the election takes place, and could use grievances of citizens in their electoral campaign against the incumbent regime. With fewer resources left to engage in electoral fraud, vote buying, and strategic manipulation of state economic resources during elections, autocratic regime is forced into a much more competitive environment. To make matters worse, if the regime is under the IMF program, elections monitoring may be introduced.

An important part of the story is that the effect of electoral events on electoral outcome is conditional upon the vulnerability of the regime. And it is electoral institutions that determine how vulnerable the regime is, because they define the competitiveness of the

electoral environment, the coordinating capacities of the elites, citizens, and the opposition, and determine whether the mechanism of elections can be used as an instrument for regime change in the first place.

In other words, the emerging causal mechanism is a complex interplay of several factors: *Sovereign debt crisis* depletes key actors' support for the regime and disrupts the regime's informal power-sharing arrangements, *electoral institutions* structure key actors' incentives, strategies and actions, and thereby determine how vulnerable the regime is, and *electoral events* create opportunities for regime change, because they may serve as focal points around which regime opponents may unite.

Hypothesis

Thus emerges the central research question of this paper: What, exactly, is the relationship between elections and autocratic regime stability during sovereign debt crises? Or, more specifically: Do electoral institutions help sustain authoritarian rule during sovereign default, or rather undermine it? Do electoral events bring about regime change? And if so, then when does regime change occur via elections?

I hypothesize that compelling answers to these questions hinge on meaningful qualitative differences between electoral and non-electoral autocracies, on the one hand, and between different types of electoral autocracies, on the other. Specifically, I distinguish between three types of autocracies: non-electoral autocracies, non-competitive electoral autocracies, and competitive electoral autocracies.

Non-electoral autocracies are autocracies, in which access to political power is regulated by non-electoral procedures (such as hereditary rights, party decree, or military order). Including non-electoral autocracies in the analysis allows me to test whether the presence (or rather absence) of elections per se, irrespective of their design or quality, makes the regime more or less stable during sovereign debt crises. I expect no significant relationship between 'non-electoral' regime type and autocratic regime stability during sovereign debt crises. My intuition is simple: If elections are endogenous to the elite's interests and are introduced in order to stabilize the regime, then they should also appear only in those regimes that are in need of some additional instruments to generate regime stability. Accordingly, 'non-electoral' is a residual category that includes all autocracies that have a variety of other, non-electoral, instruments to sustain their rule.

Non-competitive electoral autocracies are autocracies, in which the institution of elections is present, but the opposition is suppressed, fragmented, forced into exile, or physically eliminated. These regimes routinely ban political activities, repress and censor opponents, and keep critics quiet and fractured. I hypothesize that the very absence of a visible political alternative to the regime makes non-competitive electoral regimes more stable during debt crises. The reason is that potential regime opponents see no easy ways to coordinate, and citizens see no political force around which they can unite in their protests. Thus, dictators in non-competitive electoral autocracies should profit from coordination problems among the opposition, and electoral institutions should serve their main autocratic purpose, i.e., stabilize the regime.

Finally, competitive electoral autocracies are regimes that allow opposition groups to operate in an ostensibly freer space while closely monitoring them, creating uneven level playing field, and rigging elections. De jure competitive elections in these regimes — even when they are de facto seriously flawed — provide a set of institutions, rights, and processes that can facilitate regime change, when the regime's capacity to manipulate elections is weak. Thus, during debt crises, competitive electoral autocracies should be more prone to regime change than other electoral regime types. Moreover, electoral events should play an important role in bringing about regime collapse during debt crises, as the regime has fewer resources available to rig an election and to employ the military and police to quell popular protests.

In sum, since sovereign debt crises force autocratic regimes into a much more competitive environment, it is the presence or absence of visible and organized opposition, coupled with de jure competitive electoral institutions, that should determine how unstable the regime is.

Thus, I formulate my hypothesis as follows:

The capacity of autocratic regimes to survive sovereign debt crises depends on their electoral regime type, with competitive electoral autocracies being especially prone to regime change during sovereign debt crises, and non-competitive electoral autocracies being the most stable.

4.4. Classification of autocracies on the electoral dimension

Classificatory challenges

Very few concepts have gained as much attention in both political science and media as 'electoral authoritarianism' during the last decades. Yet, the global spread of autocratic elections has not resulted in scholarly consensus on what exactly constitutes an 'electoral autocracy'. The term has been used to refer to autocracies that hold any elections (Howard and Roessler 2006), autocracies that hold any regular multiparty elections (Lindberg 2009), autocracies that hold any regular multiparty elections in which the opposition is allowed to compete but incumbents create an uneven playing field and engage in electoral fraud to guarantee their electoral victory (Reuter and Gandhi 2011), and autocracies that hold regular multiparty elections both for the chief executive and a national legislative assembly, but violate the principles of freedom and fairness (Schedler 2002). The issue is compounded by the fact that scholars have coined a variety of other terms to describe the phenomenon of 'electoral authoritarianism', such as 'illiberal democracy' (Zakaria 1997), 'semi-democracy' (Diamond, Linz, Lipset 1989), 'hybrid regime' (Diamond 2002), 'mixed regime' (Bunce and Wolchik 2008), 'competitive authoritarianism' (Levitsky and Way 2002), 'semi-authoritarianism' (Ottaway 2003), 'contested authoritarianism' (van de Walle 2002), etc.

In addition to the lack of accord on what exactly constitutes an 'electoral autocracy', there is also no agreement among scholars about how to classify different types of autocracies along the electoral dimension, and where exactly to draw the dividing line between 'electoral autocracy' and 'democracy'. So, for example, Wahman, Teorell, and Hadenius (2013) focus on the institutional setup of the regime, and develop a typology that distinguishes between monarchic, military, and electoral autocracies, with the latter being classified into no-party, one-party, and multiparty electoral autocracies. To distinguish the latter from flawed democracies, they rely on a combined Freedom House and Polity IV index. Similarly, Seeberg (2013) distinguishes between non-electoral autocracies, one- and no-party electoral autocracies, and hegemonic autocracies, but claims that multiparty autocracies with an uneven electoral playing field but sufficient level of competition should be considered as 'minimalist democracies' even if their elections are not fully free and fair.

Other scholars, most notably Levitsky and Way (2002) and Diamond (2002), seem to agree that the most important criterion for classifying all electoral regimes into different subtypes is the level of 'electoral competitiveness'. According to their view, one can think of all electoral regimes as a continuum, where on the one extreme there are purely 'non-competitive electoral autocracies' with sham elections and elections that can be interpreted only as referenda, on the other extreme there are true 'democracies' with free and fair elections, and in the middle, there is a gray zone of 'competitive electoral autocracies' that allow opposition candidates to contest elections in ostensibly competitive environment, thereby generating at least some amount of uncertainty over electoral outcomes.

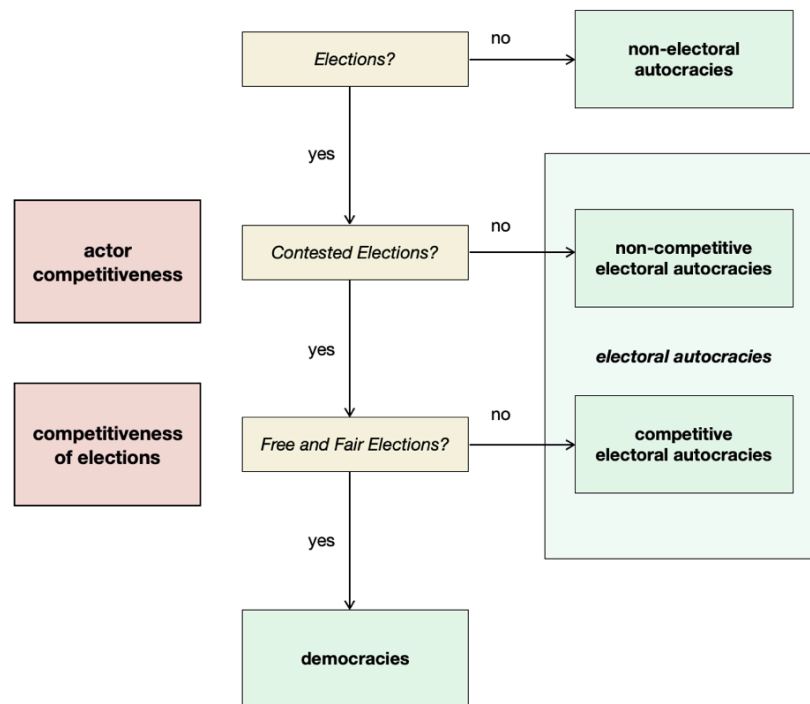
Yet, among those who share this view, choices abound in deciding how to conceptualize, operationalize, and measure the fuzzy concept of 'electoral competitiveness', and where to draw the exact boundaries between non-competitive and competitive electoral autocracies, on the one hand, and competitive electoral autocracies and democracies, on the other. So, for example, for Levitsky and Way (2002) any violation of the fairness of elections renders a regime autocratic, and any restriction of opposition renders electoral autocracy non-competitive. By contrast, Howard and Roessler (2006) rely on Polity IV and Freedom House data on the quality of elections and political rights to determine the exact empirical threshold between electoral autocracies and flawed democracies, and use a 70 percent vote share as the empirical threshold to distinguish hegemonic electoral autocracies from competitive electoral autocracies. Magaloni (2006), on the other side, uses a longevity requirement of at least 20 years in power to draw the line between hegemonic autocracies and competitive electoral autocracies.

In sum, two things seem to be clear from the available literature. First, the term we label 'electoral authoritarianism' resides in a conceptual space between non-electoral autocracies and true democracies. Second, the distinction between non-competitive electoral autocracies, competitive electoral autocracies, and democracies involves a lot of subjective judgments, which depend on the direction of the scholar's bias and specific research purposes.

Conceptualization

For the purposes of this study, I place the institution of elections at the center of the analysis. I classify all political regimes — which are formal and informal rules that

Figure 4.1. Classification of regimes on the electoral dimension



regulate access to political power — along the electoral dimension. Methodologically, I largely follow the approach of Howard and Roessler (2006), who disaggregate all political regimes into five different subtypes based on the sets of rules adopted to select national leaders. However, my approach differs in the way I operationalize the concepts of ‘electoral autocracy’ and ‘competitive electoral autocracy’, as I aim to cover a far larger time period than the approach of Howard and Roessler (2006) permits.

Figure 4.1 presents the classification of all political regimes into four different types based on the role of elections in structuring the access to and maintenance of political power.

I draw the line between ‘non-electoral autocracies’ and all other regimes based on whether access to power is determined by direct national elections or by other non-electoral procedures (e.g., hereditary rights, party decree, military order). Thus, ‘electoral autocracy’ is any autocracy that has incorporated direct national elections into the common practices of the regime, irrespective of the design and quality of elections.

In order to distinguish between non-competitive electoral autocracies, competitive electoral autocracies, and democracies, I disaggregate the concept of ‘electoral competitiveness’ into two sub-concepts: ‘actor competitiveness’ and ‘competitiveness of elections’.

By ‘actor competitiveness’, I mean the competitiveness of the main political actors (i.e., the regime and the opposition), and — most importantly — the opposition capacity to challenge the regime via electoral procedures. Thus, I draw the line between ‘non-competitive electoral autocracies’ and all other electoral regimes based on whether the regime allows opposition to contest elections, irrespective of the quality of elections and constraints upon opposition.

By ‘competitiveness of elections’, I mean the competitiveness of the electoral process itself (e.g., quality of elections, level of electoral fraud, degree of uncertainty in the outcome of an election). Since regimes with free and fair competitive elections are by definition democracies (Dahl 1989), ‘competitive electoral autocracies’ are the residual category that includes all electoral autocracies that have sufficient level of ‘actor competitiveness’ but uneven level playing field.

The key distinction between non-competitive and competitive electoral autocracies is, therefore, ‘actor competitiveness’. By definition, all electoral autocracies hold unfair and flawed elections, in which the regime uses coercive and unfair means to disadvantage the opposition and to ensure its own electoral success. First and foremost, however, the regime faces a dilemma: whether to allow opposition to contest elections and to engage in electoral fraud, or to shut out opposition from holding electoral campaign at all. This distinction is crucial for my research, because according to my hypothesis, regimes that legalize opposition parties and allow them to participate in elections, should be particularly unstable during sovereign debt crises.

Operationalization

As Figure 4.1 suggests, classification requires difficult and justified distinctions between (i) an electoral and a non-electoral autocracy, (ii) between an electoral autocracy and a democracy, and (iii) between different forms of electoral autocracies. Below I provide my general approach to drawing the dividing lines between the four regime types. Yet, as any classification is, of course, arbitrary and involves many subjective decisions, in the supplementary Online Appendix, I provide not only the detailed coding rules, but also the narratives of each individual case, and — in boundary cases — my arguments for classifying them into certain category.

I begin by drawing the dividing line between autocracies and democracies. To avoid any conceptual stretching or shrinking vis-à-vis the complex concept of a ‘democratic

regime', I resist the temptation to assess the degree and extent of electoral manipulation and violation based on my subjective judgments, and instead rely on Geddes, Wright, and Frantz (2014) data on the beginning and downfall of autocratic regimes to separate autocracies from democracies.

In order to draw the line between non-electoral autocracies and electoral autocracies, I combine the above mentioned data with data on elections. The data on election dates come mainly from the National Elections across Democracy and Autocracy dataset (NELDA, version 5.0) collected by Hyde and Marinov (2012), whereas information on the details of elections, as well as the narratives of the background events come from a variety of other sources, the full list of which is provided in the supplementary Online Appendix.

Electoral autocracies in my classification are autocracies, in which *direct* national elections are held *on a regular basis* for national legislatures, chief executives, or both. Since the unit of analysis in my dataset is country-years, and not regimes, I code the regime as an electoral autocracy in the observation year if either direct executive or direct legislative elections were held within the past 5 years. The 5-year rule also applies to newly independent countries, new autocratic regimes that come to power in a *regular* fashion (i.e., according to the formal rules of the previous regime), and countries that transition from democracy to autocracy through a self-coup — in these cases, I assume that the institutional legacy of the previous regime remains. If, however, the regime comes to power in an *irregular* fashion (e.g., through military coup, civil war, foreign invasion), then I code all observation years from the year of the regime start as non-electoral until the next election is held (regardless of whether any elections were held within the past 5 years). Similarly, observation years are coded as non-electoral if the regime explicitly proclaims a martial law, an emergency rule, a ban on political parties or elections, or any other significant institutional change. Note also that elections that are conducted by a provisional government as part of a transition to democracy, are excluded from the analysis, as they occur after the ruling elites concede the regime.

In the next step, I split electoral autocracies into two subgroups: competitive and non-competitive. My main concern in this step is to determine whether the opposition can challenge the regime via elections — even if fraudulent — or whether only forceful takeover is possible (e.g., via a military coup or mass uprising).

I begin by coding as non-competitive all electoral country-years in which the regime does not have the adequate institutional setup for competitive elections. Thus, all officially declared no-party and one-party states, as well as all de facto single-party states are coded as non-competitive from the year they declare a no-party vs. single-party rule, regardless of whether any competitive elections were held within the past 5 years prior to this declaration.

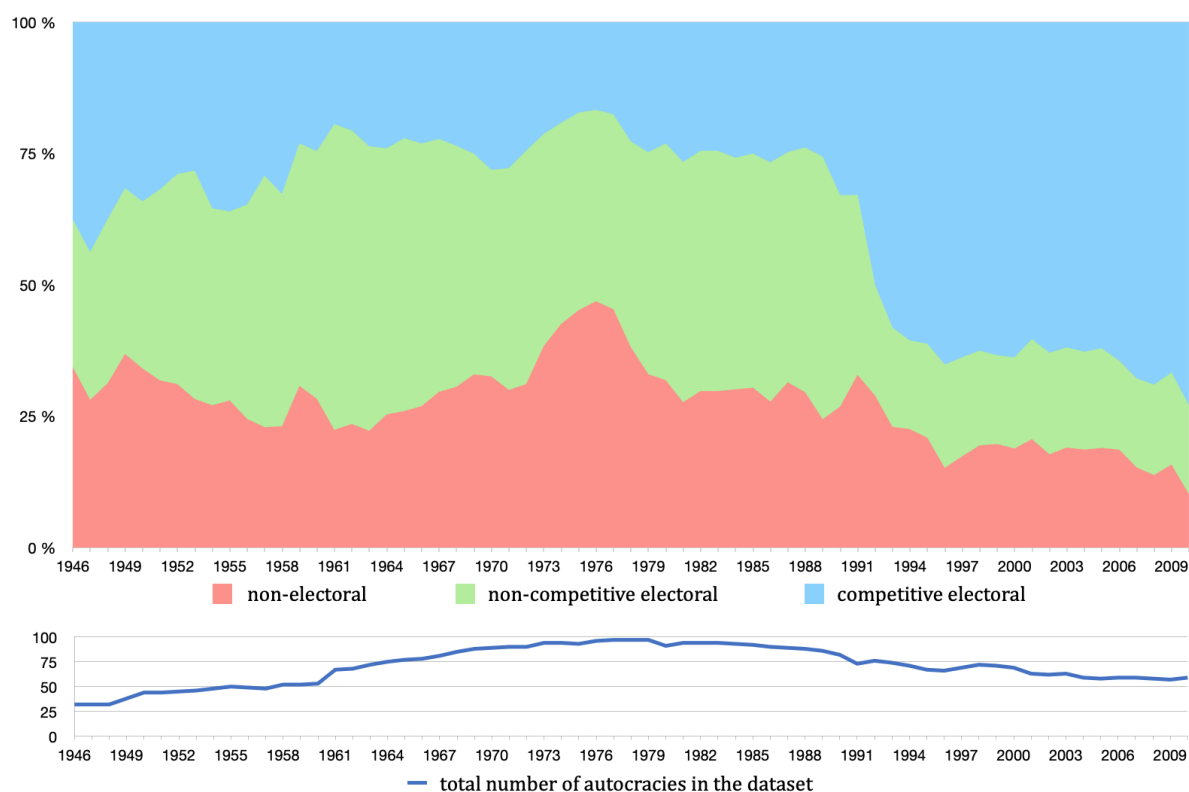
I then code as non-competitive all electoral autocracies with de jure multiparty elections, which are de facto so constrained as to be essentially non-competitive. This includes all electoral autocracies, in which either only regime-sanctioned candidates or parties are allowed to compete, or opposition candidates are allowed to run only as independents (i.e., without opposition party affiliation), or opposition parties are officially banned.

Next, I code as non-competitive all regimes in which there are no legal restrictions on the opposition, yet the level of repression is so rampant that no organized opposition is likely to emerge, because the slightest suspicion of disloyalty to the regime can expose opposition leaders to torture and persecution (e.g., Nicaragua during the Somoza rule).

Finally, I distinguish nominally contested elections (i.e., in which all parties on the ballot are just factions of the same ruling party) from competitive elections (i.e., in which the opposition is allowed to compete, and the regime creates an uneven playing field and engages in electoral fraud to defeat it). Those are hard cases, and I deal with them on a case by case basis by checking various election data sources, the full list of which is provided in the supplementary Online Appendix. So, for example, I classify Egypt from 1976 until 1983, and Uzbekistan for the whole period of 1991-2010 as non-competitive electoral, in spite of regular multiparty elections, because all legal parties were aligned with the ruling party, endorsed the president, and were put into parliamentary elections only to give them a semblance of choice.

For the rest of the electoral autocracies, the 5-year rule applies: If the regime held multiparty elections within the past 5 years and none of the above provided coding rules for non-competitive electoral regimes applies, then I code the observation country-year as competitive electoral. Additionally, I code the observation country-year as competitive electoral if the ruling regime establishes or restores multiparty elections in the observation year, and holds competitive multiparty elections within a year after the official announcement.

Figure 4.2. Classification of autocracies on the electoral dimension



Historical developments in electoral regime types of autocracies

Figure 4.2 depicts the main trends in the development of electoral regime types of autocracies from 1946 until 2010. Two things become apparent.

First, authoritarian elections are not a new phenomenon. Even 70 years ago, the majority of autocratic regimes held some form of elections. The number of non-electoral autocracies has been gradually declining during the last century, and as of 2010, all but six authoritarian regimes were holding direct national elections of some kind. Worthy of note is that even countries like Oman have recently started to experiment with direct national legislative elections, which suggests that most autocrats find elections valuable.

Second, the end of the Cold War led to a dramatic uptick both in the number of democracies in the world, and in the adoption of pseudo-democratic institutions by autocracies: The majority of electoral autocracies nowadays hold elections that are at least nominally contested. At the same time, anecdotal evidence suggests that autocratic leaders have not only discovered ways to incorporate competitive elections into their rule while maintaining political control, but also learned to manipulate elections in ways that enhance authoritarian rule and ensure regime survival.

4.5. Data and research design

In this paper, I focus on the problem of authoritarian regime survival during sovereign debt crises and therefore restrict my sample to autocratic country-years only. My dataset covers the period from 1946 to 2010, and includes 4591 autocratic country-years, which correspond to 280 distinct authoritarian regimes in 120 countries, including some countries which are no longer in existence. 28% of all autocratic country-years in my dataset are classified as non-electoral, 36,5% as non-competitive electoral, and 35,5% as competitive electoral. Out of 120 countries in my sample, 71 have experienced at least one sovereign debt crisis during the observation period, whereas in total, my dataset contains 115 sovereign debt crises.

Appendices 4.9.1 and 4.9.2 list all authoritarian country years and sovereign debt crises that I study, Appendix 4.9.3 presents the classification of all autocracies on the electoral dimension, whereas Appendix 4.9.4 includes definitions and data sources of all variables used in the analysis, as well as their descriptive statistics. My R program files and datasets that can be used to replicate my results, as well as supplementary online materials are available at: <https://github.com/marina-pavlova/easdc>.

4.5.1. Data

Dependent variable

Regime change: The data on autocratic regimes' start and end dates come from Geddes, Wright, and Frantz (2014), who code each regime failure, regime failure type (e.g., via elections, military coup, popular uprising), and the subsequent regime as autocracy or democracy. Following their definition, by 'regime change' I mean fundamental changes in the formal and informal rules for choosing leaders and policies. I use the variable REGIME_CHANGE, which is a simple binary variable, to capture any regime change that occurs in a given country-year. I also use variables RC_ELECTIONS, RC_COUPS, and RC_UPRISINGS to capture three most common types of autocratic regime failures.

Independent variables

Elections: The data on election dates come mainly from the National Elections across Democracy and Autocracy dataset (NELDA, version 5.0) collected by Hyde and Marinov (2012). Only direct national elections for national legislatures and chief

executives are included in the analysis. All indirect elections, provincial or local elections, and annulled elections are not recorded. For two-round elections, only the first round is recorded.

Electoral regime types: I classify all autocratic country-years in my dataset into non-electoral, non-competitive electoral, and competitive electoral, as described in Section 4.4 and in my coding notes available online. I use variables EA, NEA, NCEA, and CEA to capture electoral, non-electoral, non-competitive electoral, and competitive electoral autocracies, respectively. Additionally, I create variables EA_EXP and CEA_EXP that capture institutionalization of electoral autocracy and competitive electoral autocracy, respectively. For this, I count reiterated elections / competitive elections held within the current electoral sequence (i.e., until a different electoral regime type occurs), up to but not including the observation year.

Sovereign debt crises: The data on sovereign debt crises come from several sources: the Reinhart and Rogoff's (2009) dataset of financial crises, the Bank of Canada's database of sovereign defaults (Beers and Mavalwalla 2017), and Standard & Poor's. By sovereign debt crises, I mean economic and financial problems caused by the regime's failure to service its public debt. I use the variable DEFAULT to capture sovereign debt crises. For crises that last longer than 5 years, only the first 5 years are taken into account.

Control variables

GDP per capita and GDP per capita growth: Because richer autocracies may be more stable than poorer ones, I include a control for the level of economic development, logged GDP per capita (LN_GDPPC), which allows me to compare income levels and the standard of living across countries. Additionally, I include the annual growth rate of GDP per capita (GDPPCGR) to control for economic performance. The data for both variables come from the Maddison Project Database (version 2018). For some countries, missing data have been filled in with the data from the Penn World Table (version 9.1) and the World Bank WDI database.

Oil and gas resources: To control for the 'resource curse' argument (i.e., that oil rich autocracies are more stable than autocracies that lack natural resources), I include the share of oil and natural gas rents in total GDP (OILGAS). The data on oil and gas production come from the Ross-Mahdavi Oil and Gas Dataset, version 2.0 (2015).

Democracy index: To account for the possibility that autocracies are more likely to break down if they are surrounded by democracies, I include the average regional polity score (POLITY2_AVG). I employ the World Bank regional classification to calculate this variable from individual polity2 indices that come from the Polity IV dataset.

Autocratic regime type: Because institutional differences between autocratic regimes may create different incentives for the ruling elites, I control for the organizational roots of the regime leadership and include PARTY, MILITARY, and PERSONAL variables, the data for which come from Geddes, Wright, and Frantz (2014).

Other variables: To control for the age of the regime, I use the variable DURATION from Geddes, Wright, and Frantz (2014). To account for the possibility that recent instability enhances the regime's prospects for future instability, I create the variable PREVRC, which measures whether a country has experienced regime change within the past three years prior to the current year. Finally, I include dummies to control for the regional patterns of regime instability, for the decade patterns, and for any effects stemming from belonging to low-, lower-middle-, upper-middle-, or high-income countries.

4.5.2. Method

I test my hypothesis presented in Section 4.3 in two steps. I first test models that estimate the effects of electoral regime type on autocratic regime stability during sovereign debt crises, and then test models that estimate the effects of sovereign debt crises on the probability of electoral transition and election-triggered regime change. This two-step approach allows me to make an important distinction between the effects of elections as electoral institutions (i.e., as the 'rules of the game' that determine how stable the regime is during sovereign default), and the effects of elections as electoral events (i.e., as an instrument or a trigger event that can bring about regime change).

In the first step, I run models that group all autocratic country-years together and test the effects of each electoral regime type on autocratic regime stability during sovereign debt crises. I run three types of models: (i) pooled probit with robust standard errors clustered by country, (ii) random effects probit to control for unobserved cross-country heterogeneity, and (iii) conditional logit to fully control for all time-invariant country-specific factors that may be correlated with both my independent variables, and the

latent propensity for regime change. This approach allows me to control for both between-country effects that measure whether different electoral types of autocracies bear on regime stability during sovereign debt crises, and within-country effects that measure whether changes in electoral regime type in a single country alter its prospects for regime breakdown during sovereign debt crises. Both effects are of interest for understanding of how electoral regime type affects autocratic durability. The within-country effects may better capture the idea that holding competitive elections may be risky for autocrats that are in debt crises. Yet, conditional logit models drop all countries from the analysis that do not experience regime change during the period of study, which may significantly bias estimates. Thus, including pooled and random effects probit models is nevertheless very important.

In the second step, I restrict my sample to competitive electoral autocracies only. I first test models that estimate the effects of sovereign debt crises on the probability of regime change via elections, and compare them to the effects of debt crises on the probability of two other most common types of autocratic regime failure (i.e., military coups and popular uprisings). Next, I focus on elections as electoral events and run models that measure the effects of elections held during debt crises on the probability of election-triggered regime change (e.g., post-election uprisings, revolutions, and military coups).

4.6. Results and interpretation

4.6.1. Electoral regime type and autocratic regime collapse during debt crises

The effects of electoral regime type

I begin with estimating the effects of electoral regime type on the probability of regime change during sovereign debt crises. Table 4.1 reports the estimation results of pooled probit, random effects probit, and conditional logit models for three electoral regime types: non-electoral (columns 1-3), non-competitive electoral (columns 4-6), and competitive electoral (columns 7-9). Pooled probit models treat all explanatory variables as strictly exogenous. Random effects models jointly capture cross-country and within-country determinants of regime change, but rely on a problematic assumption that the individual unobserved heterogeneity is uncorrelated with the independent variables. Conditional logit models account for within-country effects, including unobserved ones,

Table 4.1. Debt crises, electoral regime types, and regime change in autocracies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.642 (0.425)	-0.583 (0.475)		-0.652 (0.413)	-0.609 (0.469)		-0.671 (0.420)	-0.646 (0.475)	
ln_gdppc	-0.096* (0.052)	-0.106* (0.058)	0.448 (0.296)	-0.093* (0.051)	-0.102* (0.058)	0.467 (0.297)	-0.103** (0.052)	-0.110* (0.058)	0.407 (0.296)
gdppcgr	-0.021*** (0.006)	-0.022*** (0.006)	-0.040*** (0.011)	-0.022*** (0.006)	-0.023*** (0.006)	-0.050*** (0.012)	-0.022*** (0.006)	-0.023*** (0.006)	-0.046*** (0.011)
oilgas	-0.010* (0.005)	-0.012** (0.006)	-0.052** (0.021)	-0.010* (0.005)	-0.013** (0.006)	-0.054*** (0.020)	-0.010* (0.005)	-0.012** (0.006)	-0.056*** (0.021)
polity2_avg	0.049*** (0.011)	0.056*** (0.013)	0.185*** (0.041)	0.046*** (0.011)	0.053*** (0.013)	0.144*** (0.043)	0.041*** (0.011)	0.047*** (0.013)	0.147*** (0.046)
party	-0.501*** (0.090)	-0.509*** (0.100)	-0.713** (0.363)	-0.453*** (0.092)	-0.457*** (0.104)	-0.602* (0.357)	-0.471*** (0.089)	-0.477*** (0.101)	-0.709** (0.360)
personal	-0.125 (0.086)	-0.154 (0.097)	-0.750** (0.310)	-0.104 (0.087)	-0.133 (0.098)	-0.613* (0.314)	-0.108 (0.086)	-0.138 (0.098)	-0.701** (0.311)
military	0.386*** (0.086)	0.420*** (0.100)	0.620* (0.339)	0.352*** (0.086)	0.386*** (0.100)	0.566* (0.334)	0.374*** (0.085)	0.413*** (0.100)	0.707** (0.339)
duration	-0.001 (0.002)	0.000 (0.002)	0.060*** (0.012)	-0.001 (0.002)	0.001 (0.002)	0.067*** (0.012)	-0.001 (0.002)	0.000 (0.002)	0.060*** (0.012)
prevrc	-0.080 (0.106)	-0.130 (0.112)	-0.220 (0.247)	-0.117 (0.106)	-0.173 (0.112)	-0.277 (0.246)	-0.088 (0.106)	-0.141 (0.112)	-0.233 (0.249)
sigma		-0.305*** (0.108)			-0.320*** (0.109)			-0.320*** (0.109)	
default	0.343*** (0.129)	0.344** (0.134)	0.511* (0.277)	0.396*** (0.122)	0.411*** (0.126)	0.860*** (0.254)	0.065 (0.165)	0.048 (0.172)	-0.233 (0.370)
nea	-0.033 (0.097)	-0.035 (0.104)	0.137 (0.261)						
default:nea	-0.149 (0.252)	-0.147 (0.267)	-0.078 (0.540)						
ncea				-0.135 (0.097)	-0.136 (0.105)	-0.479 (0.300)			
default:ncea				-0.508* (0.308)	-0.565* (0.325)	-1.957*** (0.735)			
cea							0.139 (0.087)	0.145 (0.096)	0.233 (0.263)
default:cea							0.446* (0.229)	0.486** (0.243)	1.338*** (0.502)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	1367.937		1149.930	1361.541		1134.091	1359.433		1139.394
BIC	1449.420			1443.025			1440.916		
Log Likelihood	-670.968	-669.366		-667.771	-666.002		-666.716	-664.981	
Deviance	1341.937			1335.541			1333.433		
R ²			0.027			0.031			0.030
Max. R ²			0.271			0.271			0.271
Num. obs.	3897	3897	3897	3897	3897	3897	3897	3897	3897
Num. events			182			182			182
Missings			694			694			694

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

but drop all countries with stable authoritarianism. In all models, all explanatory variables are lagged by one year to lessen concerns about endogeneity.

Looking at all interaction terms in Table 4.1, the results indicate that non-electoral autocracies are neither more nor less stable during debt crises than electoral ones, and among electoral autocracies, competitive electoral are associated with a higher likelihood of autocratic regime breakdown during sovereign debt crises, whereas non-competitive — with a lower one. This relationship holds regardless of the model used. Moreover, leaving out the most stable autocracies only increases the effect of competitive and non-competitive electoral regime types in models 6 and 9, respectively: Whereas the estimates of the interaction terms in pooled probit and random effects probit models are only statistically significant at conventional levels, in conditional logit models, they become statistically significant at the 1% level. This finding suggests that holding competitive elections is associated with greater regime instability during sovereign debt crises, both across countries and across differences in electoral regime types within countries: Competitive electoral autocracies are less able to resist ouster during debt crises than non-competitive ones (a between-country effect), and adopting competitive elections may be risky for autocrats that have high levels of debt, because during debt crises they are more likely to collapse (a within-country effect).

To get a more nuanced picture, I repeat the models from Table 4.1, but estimate the direct effects of electoral regime types and sovereign debt crises on autocratic regime stability, separately (see Tables 4.6 and 4.7 in Appendix 4.9.5).

In models that focus on the direct effects of electoral regime types only, competitive electoral is found to be the least stable electoral regime type both across countries and across differences within countries (the estimates are significant in all models). By contrast, non-competitive electoral — shows no statistically significant effects on the likelihood of regime change in pooled probit and random effects probit models. Yet, in conditional logit model, which omits the most stable autocracies, the estimate of non-competitive electoral regime type is negative and highly significant, suggesting that non-competitive electoral is the most stable electoral regime type within countries. This finding implies that countries with non-competitive electoral institutions are neither more nor less stable than countries without them, yet, routinely repressing, censoring, and even eliminating opponents reinforces the durability of regimes that hold elections.

Looking only at the direct effect of sovereign debt crises, all three models yield a statistically significant coefficient for debt crises in non-electoral and competitive electoral autocracies, but a non-significant one in non-competitive electoral autocracies, suggesting that the latter ones are neither more nor less stable during debt crises than in normal times. The positive correlation between sovereign debt crises and regime breakdown in the full sample of autocracies is consistent with the bulk of literature on the direct effects of economic crises (see, e.g., Geddes 1999), while the absence of any relationship between debt crises and the likelihood of regime collapse in non-competitive electoral autocracies is consistent with the main finding in Smith (2005), who finds no relationship between economic performance and the likelihood of regime survival in single-party regimes.

The results from additional models suggest that the positive and statistically significant interaction term between competitive electoral regime type and sovereign debt crises picked up in all three models in Table 4.1 is due to both the effects of electoral regime type and sovereign debt crises. Holding competitive elections is risky for autocrats, but holding competitive elections during sovereign debt crises, when there are fewer economic resources left to engage in electoral fraud and to quell popular protests, is even more so: The odds of regime breakdown increase, because electoral institutions in competitive electoral regimes create environments amenable to regime change. By contrast, sovereign debt crises pose no real threats to regime stability in non-competitive electoral autocracies: Non-competitive electoral institutions help autocrats survive financial turmoil, as there is no visible political alternative to the regime.

The effects of institutionalization of elections

The bulk of the empirical literature suggests that the effects of elections on autocratic regime stability may well depend on how institutionalized the elections are (e.g., Gandhi and Przeworski 2007, Bernhard, Edgell, and Lindberg 2020). By ‘institutionalization’ of elections, scholars typically mean the ability of autocracies to create patterns of regime maintenance and to reduce uncertainty over electoral outcomes as the regime regularly holds elections.

In Table 4.2, I test this hypothesis by investigating whether the risks of regime collapse diminish as the regime gets more experience in holding elections. For this, I rerun the regressions from Table 4.1, but substitute the variables that capture electoral regime

Table 4.2. Debt crises, experience with elections, and regime change in electoral autocracies

	all electoral			non-competitive electoral			competitive electoral		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.187 (0.507)	-0.171 (0.567)		0.018 (0.906)	0.042 (0.966)		-0.335 (0.623)	-0.428 (0.791)	
ln_gdppc	-0.155** (0.063)	-0.161** (0.071)	-0.023 (0.365)	-0.225** (0.114)	-0.234* (0.123)	-1.415 (1.584)	-0.110 (0.079)	-0.108 (0.100)	-0.170 (0.423)
gdppcgr	-0.021*** (0.006)	-0.022*** (0.007)	-0.043*** (0.013)	-0.027** (0.011)	-0.028** (0.011)	-0.056* (0.033)	-0.020** (0.008)	-0.021** (0.009)	-0.027 (0.017)
oilgas	-0.011* (0.006)	-0.013* (0.007)	-0.049** (0.024)	-0.007 (0.011)	-0.008 (0.012)	-0.004 (0.048)	-0.017* (0.009)	-0.020* (0.010)	-0.033 (0.034)
polity2_avg	0.055*** (0.013)	0.059*** (0.014)	0.145*** (0.048)	0.045** (0.022)	0.047* (0.024)	0.513*** (0.177)	0.073*** (0.019)	0.091*** (0.023)	0.174*** (0.067)
party	-0.504*** (0.098)	-0.531*** (0.113)	-1.052** (0.418)	-0.390** (0.167)	-0.395** (0.181)	-1.010 (1.398)	-0.577*** (0.129)	-0.648*** (0.173)	-0.877 (0.566)
personal	-0.147 (0.099)	-0.170 (0.112)	-0.819** (0.388)	0.013 (0.167)	0.029 (0.184)	0.079 (1.345)	-0.246* (0.130)	-0.301* (0.167)	-0.914* (0.508)
military	0.583*** (0.100)	0.624*** (0.117)	0.840** (0.405)	0.365* (0.189)	0.366* (0.196)	-0.498 (1.294)	0.709*** (0.126)	0.839*** (0.168)	0.886* (0.495)
duration	0.001 (0.003)	0.002 (0.003)	0.048*** (0.016)	-0.002 (0.005)	-0.002 (0.006)	0.006 (0.062)	0.006 (0.004)	0.011** (0.006)	0.104*** (0.022)
prevrc	0.072 (0.128)	0.034 (0.134)	0.115 (0.280)	-0.124 (0.290)	-0.156 (0.308)	-1.795* (0.922)	0.017 (0.156)	-0.096 (0.168)	0.253 (0.332)
sigma		-0.328** (0.138)			0.254 (0.370)			-0.606*** (0.158)	
default	0.517*** (0.177)	0.508*** (0.184)	0.475 (0.379)	0.208 (0.434)	0.225 (0.442)	-0.191 (1.732)	0.545*** (0.186)	0.561*** (0.205)	0.870** (0.396)
ea_exp	-0.006 (0.012)	0.000 (0.014)	0.107** (0.053)	0.054** (0.026)	0.061* (0.034)	1.041*** (0.286)			
default:ea_exp	-0.027 (0.026)	-0.026 (0.027)	-0.012 (0.056)	-0.042 (0.076)	-0.047 (0.079)	-0.150 (0.270)			
cea_exp							-0.055*** (0.018)	-0.059*** (0.022)	0.000 (0.069)
default:cea_exp							-0.016 (0.034)	-0.013 (0.034)	-0.009 (0.065)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	1081.777		852.283	411.752		203.556	724.322		515.579
BIC	1159.433			480.248			793.514		
Log Likelihood	-527.889	-526.837		-192.876	-192.803		-349.161	-344.605	
Deviance	1055.777			385.752			698.322		
R ²			0.028			0.054			0.038
Max. R ²			0.269			0.165			0.305
Num. obs.	2903	2903	2903	1435	1435	1435	1514	1514	1514
Num. events			152			47			115
Missings			474			321			163

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

types with variables that capture the number of successful reiterated elections within the current electoral sequence (i.e., until a different electoral regime type occurs) in all electoral and competitive electoral autocracies, respectively. Note that columns 1-3 in Table 4.2 report the results for all electoral autocracies, rather than non-electoral autocracies as it was in Table 4.1, whereas columns 4-6 and 7-9 report the results for non-competitive and competitive electoral autocracies, respectively.

Looking at competitive electoral autocracies only, the estimates for differences in experience with competitive elections within individual countries are substantively negligible and statistically insignificant (column 9), suggesting that changes in experience with competitive elections within countries have no effect on the likelihood of regime collapse. At the same time, pooled probit and random effects probit models (columns 7 and 8) reveal the negative and statistically significant relationship between experience with competitive elections and the likelihood of regime change. Combined with the results from column 9, these tests suggest that the effects of experience with competitive elections are due to cross-country variations in average levels of experience with competitive elections.

By contrast, the highly significant estimate of experience with elections that shows up in conditional logit model for non-competitive electoral autocracies (column 6) and is replicated with lower statistical significance in pooled probit and random effects probit models (columns 4 and 5) suggests that the positive relationship between experience with elections and regime change is largely due to within-country effects.

Columns 1-2 that lump non-competitive and competitive electoral autocracies together yield non-significant estimates in pooled probit and random effects probit models, suggesting that the effect of experience with elections is not universal across all electoral autocracies, but is rather mediated through something else (e.g., electoral regime type). The conditional logit model (column 3) — that excludes all regimes that never broke down — shows a statistically significant positive effect of experience with elections on the likelihood of regime change, which is likely due to the significant effect of experience with non-competitive elections that shows up in the conditional logit model in column 6.

All nine models in Table 4.2 yield a negative, though substantively small, coefficient for the interaction term, which does not reach standard levels of statistical significance. This finding suggests that whereas experience with elections contributes to autocratic regime

(in)stability in normal times, in crisis times, the data lacks the precision to conclude whether its effects are different. At the same time, the main effects of sovereign debt crises are highly significant in all models that include competitive electoral autocracies only, and non-significant in all models that include non-competitive electoral autocracies only, confirming the findings from Table 4.1.

The main result from Table 4.2, therefore, is that gaining experience with elections has ambiguous effects. Repeated non-competitive autocratic elections eventually increase the likelihood of autocratic regime breakdown, whereas autocracies that have more experience in holding competitive elections are less likely to break down than newly established competitive electoral regimes. In both cases, however, experience in holding elections has no statistically significant effects on the likelihood of autocratic regime survival during sovereign debt crises.

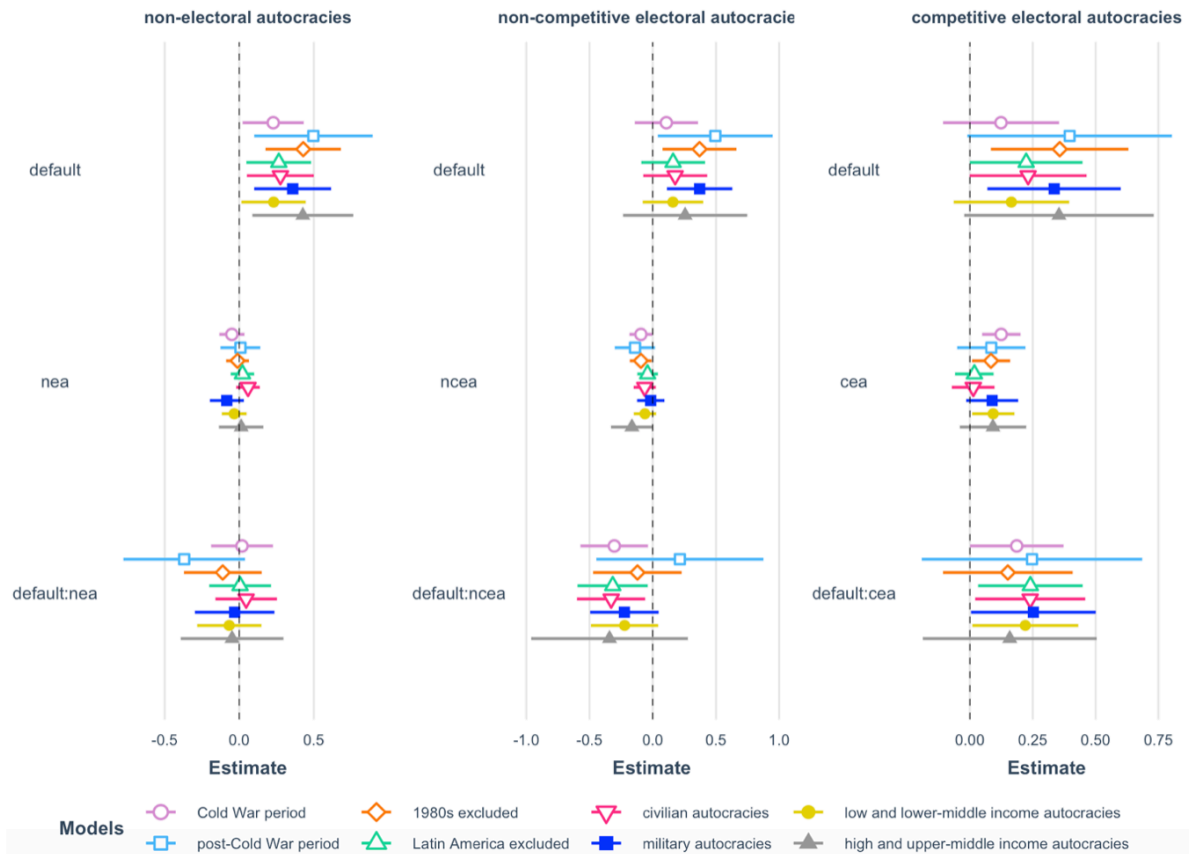
In sum, comparing the results from Tables 4.1 and 4.2 indicates that electoral regime type — that is aimed to capture the regime's entire electoral-institutional design — affects the prospects of autocratic regime survival during sovereign debt crises by defining the competitiveness of the electoral environment, rather than by creating electoral patterns of regime maintenance, as the institutionalization literature suggests.

Robustness tests

Figure 4.3 summarizes coefficient estimates and 90% confidence intervals for my independent variables in pooled probit models from the robustness tests that I run. The full regression tables with all models can be found in the Online Appendix available at: <https://github.com/marina-pavlova/easdc>.

I begin with addressing the possibility that the end of the Cold War had a profound effect on the relationship between electoral regime types, debt crises, and autocratic regime stability. During this period, the number of competitive electoral autocracies expanded significantly, whereas the number of non-competitive ones — dropped. Thus, it is possible that the effects of electoral regime types changed drastically. To test this, I rerun the regressions from Table 4.1 for the Cold War and post-Cold War periods separately. A distinct pattern emerges. While the main empirical results — the positive effect of competitive electoral regime type on regime collapse during sovereign debt crises and the negative effect of non-competitive one — hold for the Cold War period, they become statistically insignificant in the post-Cold War period, a period in which competitive

Figure 4.3. Robustness checks for non-electoral, non-competitive electoral, and competitive electoral autocracies



electoral autocracy has become the most common type of authoritarian rule in the world. It may well be that in the post-Cold War era, autocrats have not only massively adopted the institution of competitive elections, but also learned to effectively manipulate elections in ways that enhance regime stability. Modern competitive electoral autocracies seem to be more durable than their Cold War predecessors, both in normal times and during sovereign debt crises. Unsurprisingly, many scholars working in this field are now recognizing the need to compare modern competitive electoral autocracies relative to one another (e.g., by focusing on the ‘competitiveness of elections’) rather than to other electoral regime types, which I do here.

I next test the main findings while excluding one decade at a time. The only notable change arises when I exclude the 1980s, which produces non-significant coefficients of the expected signs and the same order of magnitude for competitive and non-competitive electoral autocracies in all three models of interest. This finding suggests that the results in Table 4.1 are largely driven by the effects of the 1980s, which was exactly the period when a wave of sovereign defaults coincided with the “third wave” of democratization identified by Huntington (1991).

As Latin America was the region most affected by the debt crises of the 1980s, I also test whether my main findings hold if I exclude this region from my dataset. Additionally, I test my findings while excluding other geographic regions, one at a time. For this, I employ the World Bank eightfold regional classification. The main findings remain robust to the exclusion of any one region, even Latin America, suggesting that the results are not driven by regional patterns.

Given the literature on how civilian and military autocracies systematically differ in regime stability, vulnerabilities to external shocks, and their propensities for holding elections (see, e.g., Geddes 1999, Gandhi 2008), I rerun the regressions from Table 4.1 for civilian and military regimes separately. For civilian autocracies, the estimates of my main independent variables and interaction term remain largely unchanged with respect to both coefficients and significance levels. Yet, for military autocracies, the findings for competitive electoral regime type hold, while for non-competitive electoral regime type, only the findings from conditional logit model remain unaffected. Apparently, this result may be explained by a simple fact that elections are far more common in civilian regimes than in military ones (Ulfelder 2005). Unlike other autocracies, civilian regimes derive their legitimacy from elections, and thus often construct elections in ways that enhance regime stability (e.g., hold non-competitive elections). By contrast, military-led regimes often do not hold elections during their rule, but when the military concede the regime, they typically first voluntarily step down, and then arrange and oversee transitional competitive elections in order to select a new civilian government in an orderly manner (Geddes, Frantz, and Wright 2014).

A final robustness test addresses the possibility that the main findings are different across low-, lower-middle-, upper-middle-, and high-income countries. Again, I separate my sample into two subsets — low- and lower-middle-income countries, and upper-middle and high-income countries — and rerun my regressions from Table 4.1 for each of the two subsets separately. All my findings about competitive electoral regime type remain robust for the subset of low- and lower-middle-income countries, while for non-competitive one — only the within-country effect remains. By contrast, all models for the subset of high- and upper-middle income countries yield a non-significant interaction term of the expected sign. While I have no immediate grounds for believing so, this result may well be driven by particularly stable oil rich autocracies, that remain in power longer than autocracies that lack oil reserves.

In sum, although this finding is not entirely robust, in the long-run, competitive electoral autocracies seem to be related to higher risks of regime breakdown during sovereign debt crises than other electoral regime types, lending some credence to my hypothesis that the regime's entire competitive electoral-institutional design creates an environment amenable to regime change, particularly when the regime's capacity to manipulate electoral institutions is weak.

4.6.2. Electoral events and autocratic regime collapse during debt crises

The evidence presented above indicates that sovereign debt crises pose particular threats to competitive electoral autocracies by forcing them into a much more competitive environment. Below, I test two potential mechanisms through which elections as electoral events can facilitate regime change during sovereign default: direct (by providing a set of formal institutions, rights, and processes for an orderly regime change), and indirect (by becoming focal points around which regime opponents may unite).

Elections and orderly regime change during sovereign debt crises

De jure competitive elections in competitive electoral regimes provide a set of formal institutions that allow citizens to signal their dissatisfaction with the regime by voting for the opposition. In normal times, these institutions are seriously flawed, as autocrats have a variety of tools to manipulate the electoral process and to falsify election results. Yet, debt crises reduce the regime's capacity to engage in electoral fraud, as economic resources are scarce. Since sovereign debt crises are found to increase the probability of regime change in competitive electoral autocracies, they may well be correlated with regime change via elections.

In Table 4.3, I test this proposition by comparing the electoral mode of regime change to two other most popular types of autocratic regime ouster, military coups and popular uprisings, which I identify by relying on the coding of transition modes by Geddes, Wright, and Frantz (2014). I retain the research design from Table 4.1, but run my models on the subset of competitive electoral autocracies only (and thus, debt crisis is my only independent variable). Columns 1-3, 4-6, and 7-9 report the estimation results for regime change via elections, military coups, and popular uprisings, respectively.

Table 4.3. Debt crises and types of regime change in competitive electoral autocracies

	via elections			via military coups			via popular uprisings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.328 (0.828)	0.307 (1.448)		-2.139** (1.052)	-2.147** (1.054)		-2.688** (1.224)	-2.688** (1.252)	
ln_gdppc	-0.215** (0.106)	-0.392** (0.190)	-0.308 (0.729)	0.043 (0.130)	0.043 (0.131)	0.520 (1.137)	0.057 (0.150)	0.057 (0.153)	1.239 (0.858)
gdppcgr	-0.018 (0.011)	-0.024 (0.016)	-0.010 (0.039)	-0.016 (0.012)	-0.016 (0.012)	-0.036 (0.034)	-0.002 (0.014)	-0.002 (0.014)	0.016 (0.040)
oilgas	-0.003 (0.010)	-0.007 (0.015)	0.012 (0.036)	-0.036 (0.023)	-0.036 (0.024)	-0.363 (0.266)	-0.002 (0.012)	-0.002 (0.011)	-0.111 (0.077)
polity2_avg	0.068*** (0.023)	0.136*** (0.042)	0.302*** (0.117)	-0.043 (0.027)	-0.044 (0.028)	-0.112 (0.138)	0.043 (0.033)	0.043 (0.034)	-0.271 (0.258)
military	0.924*** (0.159)	2.093*** (0.427)	6.174*** (1.207)	-0.215 (0.224)	-0.222 (0.236)	-2.408** (1.008)	0.226 (0.249)	0.226 (0.251)	0.560 (1.656)
party	-0.394** (0.165)	-0.375 (0.324)	3.015** (1.222)	-0.356* (0.213)	-0.359 (0.218)	-1.260 (0.901)	-0.352 (0.299)	-0.352 (0.299)	-3.366 (2.375)
personal	-0.389** (0.157)	-0.649** (0.286)	0.353 (0.830)	0.098 (0.223)	0.097 (0.223)	-1.020 (0.915)	0.212 (0.265)	0.212 (0.271)	-0.973 (1.716)
duration	0.009* (0.005)	0.025** (0.010)	0.148*** (0.042)	-0.010 (0.007)	-0.010 (0.007)	0.117*** (0.045)	-0.016 (0.012)	-0.016 (0.012)	0.110* (0.062)
prevrc	0.161 (0.199)	0.033 (0.260)	0.697 (0.628)	0.049 (0.226)	0.044 (0.232)	-0.301 (0.637)	-0.025 (0.275)	-0.025 (0.278)	0.101 (0.996)
sigma		1.421*** (0.305)			-0.149 (0.552)			-0.000 (0.401)	
default	0.241 (0.192)	0.109 (0.260)	0.105 (0.534)	0.522** (0.205)	0.524** (0.207)	1.505** (0.650)	0.455* (0.267)	0.455* (0.266)	3.645** (1.560)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	409.305		173.393	281.043		145.400	187.395		90.435
BIC	467.852			339.591			245.942		
Log Likelihood	-193.652	-179.832		-129.522	-129.512		-82.697	-82.697	
Deviance	387.305			259.043			165.395		
R ²			0.045			0.021			0.012
Max. R ²			0.137			0.098			0.057
Num. obs.	1514	1514	1514	1514	1514	1514	1514	1514	1514
Num. events			53			29			17
Missings			163			163			163

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

The results in Table 4.3 reveal no statistically significant relationship between sovereign debt crises and electoral type of regime change, suggesting that even during debt crises, autocrats can rarely be voted out of power. By contrast, estimates of sovereign debt crises are statistically significant at conventional levels in all models that measure their effects on regime ouster via military coups and popular uprisings.

It is important to note, however, that the control variable for military regimes is not only statistically significant at the 1% level in all models in columns 1-3, but also extremely large in absolute terms. When I remove this variable entirely from the model, the estimates of debt crises become statistically significant at the 5% level in two out of three models (see Table 4.8 in Appendix 4.9.5), suggesting that the effect of debt crises on electoral mode of regime change is almost totally driven by military regimes. This finding is totally consistent with the literature on military regimes (e.g., Geddes, Frantz, and Wright 2014, Geddes 1999): In contrast to all other autocratic regimes, military-led regimes, when faced with economic crises, often voluntarily extricate themselves from power by overseeing a competitive election among civilians. Note also that the estimates of debt crises become statistically significant in pooled probit and random effects probit models, while remaining statistically insignificant in conditional logit model. Thus, the effects of debt crises on regime change via elections are due to cross-country variation, rather than within-country effects: Across countries, competitive electoral regimes faced with debt crises are more likely to experience regime change via elections (the effect is largely driven by military regimes that often voluntarily concede the regime), whereas within countries, debt crises are more strongly associated with a forceful regime takeover. Indeed, for the regime to lose power via an election, regime insiders must first agree to hold elections. Yet, if the ruling elites anticipate that elections can affect the regime's survival, they may opportunistically select the timing of elections.

The positive and statistically significant relationship between sovereign debt crises and regime ouster via military coups (columns 4-6 in Tables 4.3 and 4.8) is consistent with the bulk of literature on different types of autocratic regime failures (see, e.g., Kendall-Taylor and Frantz 2014). Since the end of the Second World War, military coups have been the most prevalent type of autocratic regime collapse, encompassing roughly one-third of all regime failures (Svolik 2012). Coups are easier to orchestrate than other types of regime ouster, as they often require just a couple of officers with a few hundred soldiers and weapons, whereas regime change via elections or popular uprisings typically require large numbers to succeed. That being said, the statistically significant relationship between sovereign debt crises and the likelihood of regime ouster via popular uprisings (columns 7-9 in Tables 4.3 and 4.8) is consistent with past trends in authoritarian politics: Since the end of the Cold War, the proportion of regime failures via military coups has been gradually decreasing, while mass revolts have become a more

prominent way to oust dictators, comprising almost a quarter of all regime failures in the first decade of the 21st century (Kendall-Taylor and Frantz 2014).

As a final check, I replicate models from Table 4.3 on the full sample of electoral autocracies (see Table 4.9 in Appendix 4.9.5). The main finding is that the effect of debt crises on regime ousters via mass revolts becomes statistically insignificant, when non-competitive electoral autocracies are added to the sample. Comparing the results from Tables 4.3 and 4.9 reveals that the type of regime failure can partially be explained by electoral regime type. Relative to other autocracies, competitive electoral autocracies allow more political liberties. Thus, the opposition in these regimes is visible and operates in relatively freer environment, which improves its ability to reach large masses of citizens and mobilize them for anti-regime movements.

Elections and election-triggered regime change during sovereign debt crises

Apart from providing a mechanism for political change, elections can also serve as focal points around which regime opponents can unite in order to challenge the regime. While debt crises tilt the balance of power in favor of the opposition and weaken the regime's capacity to engage in electoral fraud and to harass the opposition, elections allow regime opponents to organize around one specific and commonly known date (the election): If the election is rigged, the opposition can bring people to the streets to defend their choice, or the elites may mount an election-triggered coup by drawing on popular support from the recently mobilized opposition.

Thus, in Table 4.4, I test whether the regime-subverting effects of sovereign debt crises are amplified by the effects of elections as events. For this, I use data on direct national executive and legislative elections from Hyde and Marinov (2012), and score my independent variable — authoritarian elections — as 1 if an election occurred within the past one year. Because my data are in country-year format, I manually compare all election dates to the exact start and end dates of the regime from Geddes, Wright, and Frantz (2014) to ensure that elections held prior to a regime start or after a regime end are not included in the sample. In columns 1-3, I test the proposition on the entire population of competitive electoral autocracies. In columns 4-6, I restrict the sample to crisis years only, and test the impact of elections on the probability of regime change during sovereign debt crises, whereas in columns 7-9, I focus on electoral years only, and test the effects of debt crises on the likelihood of regime collapse in election years.

Table 4.4. Debt crises and election-triggered regime change in competitive electoral autocracies

	all country-years			default years only			electoral years only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.642 (0.642)	-0.561 (0.829)		-0.395 (1.936)	-0.395 (1.954)		0.206 (0.888)	0.482 (1.152)	
ln_gdppc	-0.133* (0.080)	-0.151 (0.104)	-0.150 (0.422)	-0.048 (0.242)	-0.048 (0.249)	-1.033 (1.593)	-0.147 (0.111)	-0.198 (0.144)	0.188 (0.499)
gdppcgr	-0.019** (0.008)	-0.022** (0.009)	-0.028* (0.017)	-0.027 (0.027)	-0.027 (0.029)	-0.088 (0.088)	-0.027** (0.012)	-0.033** (0.014)	-0.041 (0.026)
oilgas	-0.017* (0.009)	-0.021* (0.011)	-0.029 (0.032)	-0.014 (0.023)	-0.014 (0.023)	0.362 (0.343)	-0.018 (0.013)	-0.021 (0.016)	-0.015 (0.042)
polity2_avg	0.044*** (0.017)	0.069*** (0.023)	0.179*** (0.063)	0.053 (0.047)	0.053 (0.047)	0.561 (0.447)	0.079*** (0.024)	0.116*** (0.034)	0.237*** (0.079)
party	-0.517*** (0.129)	-0.592*** (0.178)	-0.890 (0.576)	-0.452 (0.341)	-0.452 (0.343)	0.286 (2.077)	-0.474** (0.184)	-0.526** (0.252)	0.138 (0.737)
personal	-0.109 (0.127)	-0.218 (0.172)	-0.885* (0.501)	-0.258 (0.303)	-0.258 (0.315)	-0.429 (1.890)	-0.397** (0.182)	-0.567** (0.245)	-0.699 (0.584)
military	0.545*** (0.122)	0.739*** (0.175)	0.802* (0.485)	0.422 (0.338)	0.422 (0.451)	0.209 (1.655)	0.695*** (0.169)	0.975*** (0.249)	1.502** (0.612)
duration	0.000 (0.004)	0.007 (0.006)	0.105*** (0.022)	-0.004 (0.010)	-0.004 (0.010)	0.081 (0.066)	0.002 (0.005)	0.008 (0.007)	0.083*** (0.030)
prevrc	0.029 (0.153)	-0.103 (0.168)	0.291 (0.330)	-0.077 (0.357)	-0.077 (0.486)	-0.294 (1.604)	0.251 (0.212)	0.228 (0.235)	0.754* (0.443)
sigma		0.678*** (0.160)			0.026 (1.153)			0.832*** (0.234)	
default	0.750*** (0.265)	0.761*** (0.287)	1.602*** (0.551)				0.388* (0.208)	0.428* (0.236)	0.360 (0.417)
any_el	0.507*** (0.130)	0.495*** (0.140)	0.856*** (0.293)	0.143 (0.292)	0.143 (0.298)	1.064 (0.951)			
default:any_el	-0.372 (0.312)	-0.364 (0.336)	-1.054 (0.619)						
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	722.811		505.805	144.526		54.706	393.010		218.253
BIC	792.004			177.421			439.458		
Log Likelihood	-348.406	-342.371		-61.263	-61.263		-185.505	-181.207	
Deviance	696.811			122.526			371.010		
R ²			0.045			0.121			0.071
Max. R ²			0.305			0.306			0.373
Num. obs.	1514	1514	1514	147	147	147	504	504	504
Num. events			115			26			81
Missings			163			1			60

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

The results in Table 4.4 reveal no particular patterns. In columns 1-3, the coefficients on debt crisis and a recent election are positive and statistically significant at the 1% level, confirming that the individual direct effects of both crises and elections are regime-destabilizing. The interaction term is negative, but statistically insignificant, suggesting that the difference between the individual effects and the joint effect of debt crises and

elections is too small relative to the noisiness of the data to conclude whether the effects of crises and elections reinforce or undermine each other. The positive, but statistically insignificant estimates of elections in columns 4-6 do not allow to conclude that there is any statistically significant relationship between elections and autocratic regime collapse during debt crises. Finally, the estimates of debt crises in columns 7-9 are positive and statistically significant at the 10% level in two out of three models, suggesting that across countries, defaulting autocracies are slightly more likely to break down in electoral years than autocracies that do not experience a debt crisis.

Although I cannot conclude from the results above that the effects of debt crises and elections mutually reinforce each other, this does not mean that their joint effect is negligible. This finding rather suggests that autocrats are well aware of extremely high risks of holding elections amidst a sovereign debt crisis and tend to avoid holding elections when regime stability is under threat. As the choices related to both the timing of elections and the decision to default are endogenously determined, it is not surprising that my models produce so inconclusive results.

In Table 4.10 (Appendix 4.9.5), I lump competitive and non-competitive electoral autocracies together, and repeat the models from Table 4.4 on the full sample of electoral autocracies. The results remain unchanged, with the only difference that the effects of both independent variables on the likelihood of regime collapse become substantively smaller, suggesting that the correlations between independent and dependent variables are largely driven by the subsample of competitive electoral autocracies.

In sum, comparing the results from Tables 4.3 and 4.4 indicates that elections as electoral events do not significantly contribute to the likelihood of regime failure during sovereign debt crises, neither as a mechanism of political change, nor as a trigger event for widespread protests or military coups. Rather, elections as electoral institutions are the key to understanding why competitive electoral autocracies are more prone to regime collapse during sovereign debt crises than other autocracies: Whereas debt crises create conditions conducive to mass discontent with the regime and reduce the regime's capacity to tilt systematically the playing field in its favor, competitive electoral institutions facilitate the organization and coordination of anti-regime movements and create environments amenable to regime change, thereby increasing the odds of autocratic regime collapse.

4.7. Conclusion

The wave of studies on the regime-destabilizing effects of economic crises has revealed important information about the role of political actors and actor coalitions in bringing about regime change in autocracies. Yet, their conclusions tell only one part of the story. Political institutions (such as elections) may also affect autocratic regime stability by creating environments amenable to regime change. The elections literature, in contrast, has focused heavily on how elections can destabilize autocracies by alleviating collective action problems and serving as triggering events for widespread protest, often omitting any discussion of when, where, and why citizens are willing to transfer their support to the opposition in the first place.

In this paper, I combined the insights from these two strands of research, and examined the joint effects of elections and sovereign debt crises on autocratic regime survival. I argued that whereas debt crises create conditions conducive to mass discontent with the regime and reduce the regime's capacity to tilt the playing field in its favor, electoral institutions define the competitiveness of the electoral environment, the coordinating capacities of the elites, citizens, and the opposition, and determine whether the mechanism of elections can be used as an instrument for regime change.

My findings contribute to the existing literature in several ways.

First, I highlighted the difference between the effects of elections as electoral institutions and elections as electoral events. Previous authors have usually focused only on one of the two effects, making it difficult to grasp that ambiguous effects of elections result from the differences between the causal mechanisms that are in play in each case. The few studies that have looked at both effects lumped them into the same statistical model, thereby assuming that elections rather than other factors determine authoritarian regime dynamics. Yet, elections per se are not causing revolts or regime change. Neither do they explain why citizens or the elites abandon their loyalty to the regime, and why the regime may lose its capacity to manipulate elections that were designed to serve autocratic needs.

Second, I found that the effects of elections as electoral institutions are not universal across authoritarian regimes. Autocracies with competitive electoral institutions are less likely to survive debt crises than other autocracies. By contrast, non-competitive electoral autocracies seem to be impervious to sovereign default. Yet, although this effect

is present over the long-run, it is largely driven by the Cold War period, most notably, by the “third wave” of democratization. In the post-Cold War era, however, — a period in which competitive electoral autocracy has emerged as the most common type of authoritarian rule in the world — autocrats seem to have learned to effectively manipulate elections in ways that enhance the regime durability. This finding suggests that accounting for other factors, such as competitiveness of elections, is crucial to understanding the stability of modern competitive electoral autocracies.

Third, I showed that even when sovereign debt crises lead to regime breakdown in competitive electoral autocracies — which in and of itself is a rare event — orderly regime change via elections is less likely than a forceful takeover. When faced with a sovereign debt crisis, only military-led regimes voluntarily extricate themselves from power by overseeing a competitive election among civilians, whereas other autocracies are typically ousted via military coups or popular uprisings. I am cautious about interpreting this finding, however. It may be that elections as electoral events do not affect the likelihood of autocratic regime survival during debt crises. Yet, I cannot rule out the possibility that autocrats are simply well aware of extremely high risks of holding elections amidst a sovereign debt crisis and may be opportunistically selecting the timing of elections and/or sovereign default, so as to minimize threats to their rule.

The main implication of this study is that strategies employed by the elites, citizens, and the opposition are difficult to understand unless the ‘rules of the game’ under which they operate are included in the analysis. Competitive electoral regimes are less prone to regime collapse during sovereign debt crises because they tolerate some aspects of democracy: They allow opposition groups to operate in a relatively freer space and to challenge the regime via electoral procedures. Thus, unlike other autocracies, competitive electoral autocracies have to contend with threats emanating not only from the regime-insiders, but also from the citizens they govern. Given that the majority of modern-day autocracies are competitive electoral, understanding the citizens’ ability to unseat autocrats is of utmost importance.

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4.9. Appendix

4.9.1. Authoritarian regimes, 1946-2010

Country	Start	End	Country	Start	End	
Afghanistan	1946*	1973	Bulgaria	1946*	1990	
	1974	1978		Burkina Faso	1961	1966
	1979	1992			1967	1980
	1997	2001			1981	1982
	2010	2010**			1983	1987
1946*	1991	1988	2010**			
Albania	1946*	1991	Burundi	1963	1966	
Algeria	1963	1992		1967	1987	
	1993	2010**		1988	1993	
Angola	1976	2010**	1997	2003		
Argentina	1946*	1946	Cambodia	1954	1970	
	1952	1955		1971	1975	
	1956	1958		1976	1979	
	1959	1966	1980	2010**		
	1967	1973	Cameroon	1961	1983	
	1977	1983		1984	2010**	
Armenia	1995	1998	Central African Rep.	1961	1965	
1999	2010**	1966		1979		
Azerbaijan	1992	1992		1980	1981	
Bangladesh	1994	2010**	1982	1993		
	1972	1975	2004	2010**		
	1976	1982	Chad	1961	1975	
	1983	1990		1976	1979	
2008	2008	1983	1990			
Belarus	1992	1994	1991	2010**		
	1995	2010**	Chile	1974	1989	
Benin	1961	1963		China	1950	2010**
	1964	1965		Colombia	1950	1953
	1966	1967			1954	1958
	1968	1969		Congo, Rep.	1961	1963
	1970	1970	1964		1968	
1973	1990	1969	1991			
Bolivia	1946*	1946	1998	2010**		
	1947	1951	Congo, Dem. Rep.	1961	1997	
	1952	1952		1998	2010**	
	1953	1964	Costa Rica	1949	1949	
	1965	1969		Cote d'Ivoire	1961	1999
	1970	1971	2000		2000	
	1972	1979	2001		2010**	
	1981	1982	Cuba	1953	1959	
1967	2010**	1960		2010**		
Botswana	1967	2010**				
Brazil	1965	1985				

Country	Start	End	Country	Start	End
Czechoslovakia	1949	1989		1992	1994
Dominican Republic	1946*	1962		2000	2004
	1964	1965	Honduras	1946*	1956
	1967	1978		1964	1971
Ecuador	1946*	1947		1973	1981
	1964	1966	Hungary	1948	1990
	1971	1972	Indonesia	1950	1966
	1973	1979		1967	1999
Egypt	1946*	1952	Iran	1946*	1979
	1953	2010**		1980	2010**
El Salvador	1946*	1948	Iraq	1946*	1958
	1949	1982		1959	1963
	1983	1994		1964	1968
Eritrea	1994	2010**		1969	1979
Ethiopia	1946*	1974		1980	2003
	1975	1991	Jordan	1947	2010**
	1992	2010**	Kazakhstan	1992	2010**
Gabon	1961	2010**	Kenya	1964	2002
Gambia	1966	1994	Korea, North	1949	2010**
	1995	2010**	Korea, South	1949	1960
Georgia	1992	1992		1962	1987
	1993	2003	Kuwait	1962	2010**
Germany, East	1950	1990	Kyrgyzstan	1992	2005
Ghana	1961	1966		2006	2010
	1967	1969	Laos	1960	1960
	1973	1979		1961	1962
	1982	2000		1976	2010**
Greece	1968	1974	Lesotho	1971	1986
Guatemala	1955	1958		1987	1993
	1959	1963	Liberia	1946*	1980
	1964	1966		1981	1990
	1967	1970		1998	2003
	1971	1985	Libya	1952	1969
	1986	1995		1970	2010**
Guinea	1959	1984	Madagascar	1961	1972
	1985	2008		1973	1975
	2009	2010		1976	1993
Guinea Bissau	1975	1980		2010	2010**
	1981	1999	Malawi	1965	1994
	2003	2003	Malaysia	1958	2010**
Haiti	1946*	1946	Mali	1961	1968
	1951	1956		1969	1991
	1958	1986	Mauritania	1961	1978
	1987	1988		1979	2005
	1989	1990		2006	2007

Country	Start	End	Country	Start	End
	2009	2010**	Saudi Arabia	1946*	2010**
Mexico	1946*	2000	Senegal	1961	2000
Mongolia	1946*	1993	Serbia	1992	2000
Morocco	1957	2010**	Sierra Leone	1968	1968
Mozambique	1976	2010**		1969	1992
Myanmar	1959	1960		1993	1996
	1963	1988		1998	1998
	1989	2010**	Singapore	1966	2010**
Namibia	1991	2010**	Somalia	1970	1991
Nepal	1946*	1951	South Africa	1946*	1994
	1952	1991	Soviet Union	1946*	1991
	2003	2006	Spain	1946*	1976
Nicaragua	1946*	1979	Sri Lanka	1979	1994
	1980	1990	Sudan	1959	1964
Niger	1961	1974		1970	1985
	1975	1991		1986	1986
	1997	1999		1990	2010**
Nigeria	1967	1979	Swaziland	1969	2010**
	1984	1993	Syria	1947	1947
	1994	1999		1950	1951
Oman	1946*	2010**		1952	1954
Pakistan	1948	1958		1958	1958
	1959	1971		1963	1963
	1976	1977		1964	2010**
	1978	1988	Taiwan	1950	2000
	2000	2008	Tajikistan	1992	2010**
Panama	1950	1951	Tanzania	1965	2010**
	1954	1955	Thailand	1946*	1947
	1969	1982		1948	1957
	1983	1989		1958	1973
Paraguay	1946*	1948		1977	1988
	1949	1954		1992	1992
	1955	1993		2007	2007
Peru	1949	1956	Togo	1961	1963
	1963	1963		1964	2010**
	1969	1980	Tunisia	1957	2010**
	1993	2000	Turkey	1946*	1950
Philippines	1973	1986		1958	1960
Poland	1946*	1989		1961	1961
Portugal	1946*	1974		1981	1983
Romania	1946	1989	Turkmenistan	1992	2010**
Russia	1994	2010**	Uganda	1967	1971
Rwanda	1963	1973		1972	1979
	1974	1994		1981	1985
	1995	2010**		1987	2010**

Country	Start	End	Country	Start	End
United Arab Emirates	1972	2010**		1963	1967
Uruguay	1974	1984		1968	1974
Uzbekistan	1992	2010**		1975	1978
Venezuela	1949	1958		1979	2010**
	2006	2010**	Yemen, South	1968	1990
Vietnam	1955	2010**	Yugoslavia	1946	1990
Vietnam, South	1955	1963	Zambia	1968	1991
	1964	1975		1997	2010**
Yemen	1946*	1962	Zimbabwe	1981	2010**

* left-censored cases

** right-censored cases

Notes:

- (i) Data on regime start and end dates are drawn from Geddes, Wright, and Frantz (2014). Their data code the date for 'regime start' as the calendar year for the first January 1 in which the regime holds power (i.e., if the regime comes to power in year t, year t+1 is the first observation year).
- (ii) All democratic periods, periods of foreign occupation, periods of provisional government, and periods in which the central government fails to control the majority of its territory are excluded.

4.9.2. Sovereign debt crises in autocracies, 1946-2010

Country	Start	End	Country	Start	End
Albania	1991	1991**		1999	1999**
Algeria	1991	1996	Iran	1978	1995
Angola	1985	2003	Iraq	1987	2003**
Argentina	1956	1965	Jordan	1989	1993
	1982	1983**	Kenya	1994	1998
Bangladesh	1974	1974		2000	2000
Bolivia	1981	1982**	Korea, North	1974	2010**
Brazil	1983	1985**	Liberia	1963	1963
Bulgaria	1990	1990**		1968	1968
Burkina Faso	1983	1996		1981	1990**
Cameroon	1985	2003		1998*	2003**
Central African Rep.	1980	1993**	Madagascar	1981	1993**
	2004*	2010**	Malawi	1982	1982
Chile	1974*	1975		1988	1988
	1983	1989	Mali	1967	1967
Congo, Rep.	1983	1991**		1989	1991
	1998*	2007	Mauritania	1992	1996
Congo, Dem. Rep.	1976	2010**	Mexico	1982	1990
Costa Rica	1949*	1949**	Morocco	1983	1983
Cote d'Ivoire	1983	1996		1986	1990
	1998	2010**	Mozambique	1983	1992
Cuba	1960	1960	Myanmar	1997	2010**
	1982	2010**	Nicaragua	1979	1990**
Czechoslovakia	1959	1960	Niger	1983	1991**
Egypt	1984	1984	Nigeria	1987	1994
Ethiopia	1991	1999	Pakistan	1981	1981
Gabon	1978	1978	Panama	1983	1989**
	1986	1994	Paraguay	1968	1969
	1999	2005		1986	1992
Gambia	1986	1990	Peru	1949*	1951
Ghana	1966	1974		1969	1969
	1987	1987		1976	1976
Guatemala	1986	1986		1978	1978
	1989	1989		1980	1980
Guinea	1986	1988		1993*	1997
	1991	1998	Philippines	1983	1986**
Guinea Bissau	1983	1996	Poland	1946*	1952
Haiti	1952	1952		1981	1989**
	1965	1965	Romania	1946*	1958
	1982	1994**		1981	1983
Honduras	1981	1981**		1986	1986
Hungary	1948	1967	Russia	1998	2000
Indonesia	1966	1970	Senegal	1981	1985

Country	Start	End	Country	Start	End
	1990	1990	Tunisia	1958	1958
	1992	1996		1963	1963
Sierra Leone	1983	1984		1979	1982
	1986	1998**	Turkey	1958	1958
South Africa	1985	1987		1982	1983**
	1989	1989	Uganda	1981	1985**
	1993	1993		1987*	1993
Sri Lanka	1979*	1979	Uruguay	1983	1984
	1981	1983	Vietnam	1985	1998
Sudan	1979	2010**	Yemen	1985	2001
Tanzania	1984	2004	Yugoslavia	1965	1969
Togo	1979	1980		1983	1990**
	1982	1984	Zambia	1983	1991**
	1988	1988	Zimbabwe	2000	2010**
	1991	1997			

* left-censored cases

** right-censored cases

Notes:

- (i) Data on sovereign debt crises come from Reinhart and Rogoff (2009), Beers and Mavalwalla (2017), and Standard & Poor's.
- (ii) Only autocratic country-years are included. All democratic periods, periods of foreign occupation, periods of provisional government, and periods in which the central government fails to control the majority of its territory are excluded.

4.9.3. Classification of autocracies on the electoral dimension, 1946-2010

country	non-electoral	electoral	
		non-competitive	competitive
Afghanistan	1946-1948	1949-1972	
	1973-1987	1988-1992	
	1996-2001		2009-2010
Albania		1946-1991	
Algeria		1962-1969	
	1970-1975	1976-1990	
			1991
	1992-1994		1995-2010
Angola	1975-1991		1992
	1993-2007		
			2008-2010
Argentina			1946
			1952-1973
	1977-1982		1983
Armenia			1994-2010
Azerbaijan			1992-2010
Bangladesh			1971-1974
	1975-1977		1978-1981
	1982-1985		1986-1990
			2008
Belarus		1991-1993	1994-2010
Benin		1960-1969	1970
	1972-1978		
		1979-1990	
Bolivia			1946-1968
	1969-1977		
			1978-1982
Botswana			1966-2010
Brazil			1964-1985
Bulgaria		1946-1990	
Burkina Faso		1960-1969	
	1974-1977		1970-1973

country	non-electoral	electoral	
		non-competitive	competitive
	1980-1990		1978-1979
Burundi	1966-1981	1982-1986	1991-2010 1962-1965
	1987-1992		1993
	1996-2003		
Cambodia	1987-1992	1956-1986	1953-1955
			1993-2010 1960-1964
Cameroon		1965-1991	1992-2010
Central African Republic	1966-1980	1960-1965	1981
	1982-1985	1986-1991	1992-1993
	2003-2004		2005-2010
Chad	1975-1988	1960-1974	
	1991-1995	1989-1990	
			1996-2010
Chile	1973-1987	1988	1989
China	1949-2010		
Colombia			1949-1958
Congo	1969-1972	1960-1968	
	1997-2001	1973-1991	
			2002-2010
Congo, Democratic Republic	1960-1964		1965
	1966-1969	1970-1992	
	1993-2005		2006-2010
Cote d'Ivoire		1960-1989	1990-2001
	2002-2009		

country	non-electoral	electoral	
		non-competitive	competitive
Cuba	1959-1992		2010 1952-1958
Czechoslovakia		1993-2010 1948-1989	
Dominican Republic		1946	1947
		1948-1961	1962
	1963-1965		1966-1978 1946-1947
Ecuador	1963-1965		1966
	1970-1977		1978-1979 1946-1951
Egypt	1952-1955	1956-1983	1984-2010
El Salvador	1949	1946-1948	1950-1994
Eritrea	1993-2010		
Ethiopia	1946-1956	1957-1973	
	1974-1986	1987-1990	
	1991-1993		1994-2010
Gabon		1960-1963	1964-1966
		1967-1989	1990-2010 1965-1993
Gambia	1994-1995		1996-2010 1992-2003
Georgia		1949-1989	
Germany, East			1990
Ghana	1966-1968	1960-1965	
	1972-1978		1969
	1981-1991		1979
Greece	1967-1974		1992-2000

country	non-electoral	electoral	
		non-competitive	competitive
Guatemala			1954-1995
Guinea		1958-1983	
	1984-1992		1993-2008
	2009		2010
Guinea-Bissau	1974-1993		1994-1997
	1998-1999		2000-2002
	2003		1946
Haiti		1950-1956	1957-1960
		1961-1985	1986-1987
	1988-1989		1990-1991
	1992-1994		1999-2004
Honduras			1946-1956
	1963-1970		1971
	1972-1979		1980-1981
Hungary			1947-1948
		1949-1989	1990
Indonesia	1949-1954		1955-1958
	1959-1970		1971-1999
Iran	1946-1959		1960-1962
		1963-1977	
	1978-1979		
		1980-2010	
Iraq			1946-1958
	1959-1979		
		1980-2002	
Jordan		1946-1953	1954-1956
		1957-1972	
	1973-1988		
		1989-1992	
Kazakhstan			1993-2010
			1991-2010
Kenya			1963-1968
		1969-1991	

country	non-electoral	electoral	
		non-competitive	competitive
			1992-2002
Korea, North	1948-1956	1957-2010	
Korea, South	1948-1949		1950-1960
	1961-1962		1963-1987
Kuwait			1961-1975
	1976-1980		1981-1985
	1986-1989		1990-2010
Kyrgyzstan			1991-2010
Laos	1960-1962		
	1975-1988	1989-2010	
Lesotho	1970-1992		1993
Liberia		1946-1979	
	1980-1984		1985-1990
			1997-2003
Libya			1952
		1953-1968	
	1969-2010		1960-1972
Madagascar	1973-1976		
		1977-1991	1992-1993
	2009-2010		
Malawi	1964-1977	1978-1992	
			1993-1994
Malaysia			1957-2010
Mali		1960-1968	
	1969-1978		
		1979-1991	
Mauritania		1960-1978	
	1979-1991		1992-2004
	2005-2006		
			2007
	2008		
			2009-2010
Mexico			1946-2000
Mongolia	1946-1950		
		1951-1989	
			1990-1993

country	non-electoral	electoral	
		non-competitive	competitive
Morocco	1956-1962		1963-1964
	1965-1969		1970-1971
	1972-1976		1977-2010
	1975-1993		1994-2010
Mozambique	1958-1959		1960
	1962-1973		1989-1990
	1991-2009	1974-1988	2010
			1990-2010
Namibia	1946-1958		1959-1964
	1965-1980	1981-1989	1990-1991
Nepal	2002-2006		1990-1991
	1946		1947-1956
	1979-1983	1957-1978	1984-1990
			1996-1999
Nicaragua	1966-1978	1960-1973	
	1974-1988	1989-1991	
			1996-1999
Niger	1966-1978		1979
	1984-1991		1999
		1992-1998	
			1999
Nigeria	1946-1999	2000-2010	
	1947-1969		
Pakistan	1947-1969		1970-1971
	1978-1984		1975-1977
		1985-1987	
	1999-2001		1988
Panama			2002-2008
			1949-1951

country	non-electoral	electoral	
		non-competitive	competitive
	1968-1971		1953-1955
		1972-1979	
Paraguay		1946-1962	1980-1989
Peru	1948-1949		1963-1993
		1950-1955	
			1956
	1968-1977		1962-1963
			1978-1980
Philippines	1972-1977		1992-2000
			1978-1986
Poland	1946		1947-1951
		1952-1988	
			1989
Portugal		1946-1968	
			1969-1974
Romania			1946-1951
		1952-1989	
Russia			1993-2010
Rwanda		1962-1972	
	1973-1977		
		1978-1993	
	1994-2002		
			2003-2010
Saudi Arabia	1946-2010		
Senegal		1960-1977	
			1978-2000
Serbia			1991-2000
Sierra Leone			1967-1977
		1978-1991	
	1992-1995		
	1997		1996
			1998
Singapore			1965-2010
Somalia	1969-1978		
		1979-1990	
	1991		
South Africa			1946-1994
Soviet Union		1946-1991	
Spain	1946-1976		

country	non-electoral	electoral	
		non-competitive	competitive
Sri Lanka			1978-1994
Sudan	1958-1964		1965
	1969-1970	1971-1984	
	1985		1986
	1989-1995	1996-1999	
	2006-2009		2000-2005
			2010
Swaziland	1973-1992	1993-2010	1968-1972
Syria	1946		1947
	1949-1952	1953	
			1954
			1957-1958
			1961-1962
	1963-1970	1971-2010	
Taiwan	1949-1968	1969-1991	
			1992-2000
Tajikistan		1992-2010	
Tanzania		1964-1991	
			1992-2010
Thailand			1946-1957
	1958-1968		1969-1970
	1971-1973		
	1976-1978		
			1979-1988
	1991		
	2006		1992
			2007
Togo		1960-1966	
	1967-1978	1979-1991	
			1992-2010
Tunisia		1956-1986	
	1987-1988	1989-1993	
			1994-2010
Turkey			1946-1950

country	non-electoral	electoral	
		non-competitive	competitive
	1960		1957-1959
	1980-1981		1961
Turkmenistan		1991-2010	1982-1983
Uganda	1966-1979		1980-1984
	1985-1993	1994-2005	2006-2010
United Arab Emirates	1971-2010		
Uruguay	1973-1983		1984
Uzbekistan		1991-2010	
Venezuela	1948-1951		1952-1958 2005-2010
Vietnam	1954-1959	1960-2010	
Vietnam, South	1954-1955	1956-1962	
	1963-1965	1966-1975	
Yemen	1946-1970	1971-1973	
	1974-1987	1988-1989	
	1990-1992		1993-2010
Yemen, South	1967-1977	1978-1989	
Yugoslavia		1946-1990	
Zambia		1972-1990	1967-1971
			1991
Zimbabwe			1996-2010 1980-2010

Notes:

Coding rules for the classification of autocratic regimes on the electoral dimension, as well as individual case narratives are provided in the Online Appendix at: <http://github.com/marina-pavlova/easdc>.

4.9.4. Variable definitions, data sources, and descriptive statistics

Variable name	Description & coding	Data source
regime_change	Binary indicator of regime change: marks year in which regime change occurs (regime change is defined as fundamental changes in the formal and/or informal rules for choosing leaders and policies).	Geddes, Wright, and Frantz (2014).
rc_elections	Binary indicator of regime change via elections:	Geddes, Wright, and Frantz (2014).
rc_el_lost	coded 1 if (i) the ruling group lost an executive or legislative election in the observation year, and allowed the winner of the election to take office, or	
rc_el_no_run	if (ii) the ruling group conceded the regime in the observation year, and held an election (or handed power to a transitional government for the purpose of holding an election) in order to determine the next government; and coded 0 otherwise.	
rc_uprisings	Binary indicator of regime change via uprisings: coded 1 if the regime was ousted by popular uprisings, demonstrations, riots or strikes in the observation year; and coded 0 otherwise.	Geddes, Wright, and Frantz (2014).
rc_coups	Binary indicator of regime change via military coups: coded 1 if the regime was overthrown by military coup in the observation year; and coded 0 otherwise.	Geddes, Wright, and Frantz (2014).
democratization	Binary indicator of democratization: transition to a democratic political regime (i.e., a subset of regime breakdowns that resulted in transition to a democratic rule).	Geddes, Wright, and Frantz (2014).
prevrc	Previous regime change: binary indicator of previous regime changes occurring over the period [t-3, t-1], where t is the observation year.	Calculated from Geddes, Wright, and Frantz (2014).

default	Binary indicator of sovereign debt crises: a sovereign default is defined as either (i) a legal default (i.e., a failure of an obligor to meet a principal or interest payment on the due date), or (ii) a distressed debt restructuring (i.e., when an exchange offer of new debt contains less favorable terms than the original issue). For crises that last longer than 5 years, only the first 5 years are taken into account.	Reinhart and Rogoff (2009), Beers and Mavalwalla (2017), Standard & Poor's.
el_exec	Binary indicator of direct executive elections held in the observation year.	NELDA dataset, version 5.0.
el_leg	Binary indicator of direct legislative elections held in the observation year.	NELDA dataset, version 5.0.
el_any	Binary indicator of direct executive, legislative, or constituent assembly elections held in the observation year.	NELDA dataset, version 5.0.
ea	Binary indicator of electoral autocracies: coded 1 if the regime is classified as an electoral autocracy in the observation year, and 0 otherwise.	Own calculations using different sources: see Online Appendix for coding rules.
ea_exp	Experience with elections: this variable counts the number of consecutive direct elections held within the current electoral sequence, up to but not including the observation year. An electoral break (ea=0) resets ea_exp to 0.	Calculated from ea and el_any variables.
cea	Binary indicator of competitive electoral autocracies: coded 1 if the regime is classified as a competitive electoral autocracy in the observation year, and 0 otherwise.	Own calculations using different sources: see Online Appendix for coding rules.
cea_exp	Experience with competitive elections: this variable counts the number of consecutive competitive elections held within the current competitive electoral sequence, up to but not including the observation year. An electoral break (cea=0) resets cea_exp to 0.	Calculated from cea and el_any variables.

ncea	Binary indicator of non-competitive electoral autocracies: coded 1 if the regime is classified as a non-competitive electoral autocracy in the observation year, and 0 otherwise.	Calculated from ea and cea variables.
gdppc	GDP per capita: real GDP per capita in 2011 US dollars: cgdppc variable in Maddison Project Database.	Maddison Project Database (version 2018), Penn World Table (version 9.1), World Bank WDI database.
gdppcgr	GDP per capita growth: annual percentage growth rate of GDP per capita in 2011 US dollars as given in country National Accounts: rgdnpac variable in Maddison Project Database.	Maddison Project Database (version 2018), Penn World Table (version 9.1), World Bank WDI database.
oil_gas_value_pc	Total value of oil and gas production: country's total volume of oil and natural gas production multiplied by the world price for oil and natural gas and divided by population size in a given year. Since world prices are taken for a benchmark type of oil / natural gas, they only approximate the actual price, which varies by country.	Ross-Mahdavi Oil and Gas Dataset, version 2.0 (2015).
oilgas	Total value of oil and gas production (% of GDP): country's total volume of oil and natural gas production as percentage of GDP.	Calculated from oil_gas_value_pc and gdppc.
polity2	Polity2 is a revised combined POLITY Score that captures political regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy).	Polity IV dataset.
polity2_avg	Average annual regional polity2 score: score that measures average regional polity2 index for each observation year.	Calculated from polity2, using the World Bank classification by regions.

duration	Time-varying duration of an autocratic regime: marks the number of consecutive calendar years in which an autocratic regime has ruled the country, up to and including the observation year.	Geddes, Wright, and Frantz (2014).
military	Binary indicator of military regime type (groups military, military-personal, and indirect military regimes in Geddes' classification).	Geddes, Wright, and Frantz (2014).
party	Binary indicator of party regime type (groups party-based, party-personal, party-military, party-personal-military, oligarchy, and Iran 1979-2010 in Geddes' classification).	Geddes, Wright, and Frantz (2014).
personal	Binary indicator of personalist regime type.	Geddes, Wright, and Frantz (2014).
gwf_civilian	Binary indicator of civilian autocracy: party or personalist autocracies according to Geddes' classification.	Geddes, Wright, and Frantz (2014).
cgv_civilian	Binary indicator of civilian autocracy according to Cheibub, Gandhi, and Vreeland classification.	Cheibub, Gandhi, Vreeland (2010).

Notes:

- (i) Table provides an overview and description of all variables used in the analysis. Motivation for their inclusion is provided in the text.
- (ii) My R program files and datasets that will allow you to replicate my results are available at:
<http://github.com/marina-pavlova/easdc>.

Table 4.5. Descriptive statistics

Variable	n	mean	sd	min	max
duration	4,591	22.019	30.815	1	269
regime_change	4,591	0.049	0.215	0	1
prevrc	4,591	0.153	0.360	0	1
democratization	4,591	0.022	0.147	0	1
rc_elections	4,591	0.013	0.113	0	1
rc_el_lost	4,591	0.006	0.078	0	1
rc_el_no_run	4,591	0.007	0.082	0	1
rc_uprisings	4,591	0.008	0.091	0	1
rc_coups	4,591	0.017	0.128	0	1
party	4,591	0.472	0.499	0	1
military	4,591	0.194	0.395	0	1
personal	4,591	0.431	0.495	0	1
monarchy	4,591	0.130	0.336	0	1
default	4,316	0.082	0.275	0	1
el_exec	4,591	0.086	0.280	0	1
el_leg	4,591	0.178	0.383	0	1
el_any	4,591	0.222	0.415	0	1
ea	4,591	0.720	0.449	0	1
ea_exp	4,591	3.459	3.917	0	25
cea	4,591	0.355	0.478	0	1
cea_exp	4,591	1.406	2.932	0	24
gdppc	4,405	5,149.678	9,217.154	94	114,351
ln_gdppc	4,405	7.962	0.974	4.543	11.647
gdppcgr	4,377	1.999	6.759	-63.880	92.188
oil_gas_value_pc	4,211	997.588	4,703.401	0	83,360.410
oilgas	4,172	5.018	11.165	0	90.404
vdem_index	4,589	0.198	0.123	0.008	0.753
polity2	4,562	-5.001	4.438	-10	10
polity2_avg	4,591	-1.473	3.645	-7.667	7.621
europe	4,591	0.144	0.351	0	1
latam	4,591	0.133	0.339	0	1
mideast	4,591	0.180	0.385	0	1
africa	4,591	0.353	0.478	0	1
eastasia	4,591	0.149	0.357	0	1
southasia	4,591	0.040	0.197	0	1
cgv_civilian	4,591	0.528	0.499	0	1
gwf_civilian	4,591	0.744	0.436	0	1
civil_war	4,591	0.075	0.263	0	1
1940s	4,591	0.039	0.193	0	1
1950s	4,591	0.106	0.308	0	1
1960s	4,591	0.170	0.376	0	1
1970s	4,591	0.205	0.403	0	1
1980s	4,591	0.196	0.397	0	1
1990s	4,591	0.154	0.361	0	1
2000s	4,591	0.130	0.336	0	1
cold_war	4,591	0.732	0.443	0	1
low_income	4,430	0.104	0.306	0	1
lower_middle_income	4,430	0.564	0.496	0	1
upper_middle_income	4,430	0.253	0.435	0	1
upper_income	4,430	0.079	0.270	0	1

4.9.5. Additional models

Table 4.6. Electoral regime types and regime change in autocracies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.776** (0.381)	-0.706 (0.431)		-0.769** (0.375)	-0.696 (0.430)		-0.821** (0.377)	-0.773* (0.432)	
ln_gdppc	-0.070 (0.047)	-0.081 (0.053)	0.215 (0.278)	-0.071 (0.046)	-0.081 (0.053)	0.205 (0.279)	-0.078* (0.047)	-0.087 (0.054)	0.168 (0.280)
gdppcgr	-0.022*** (0.005)	-0.022*** (0.005)	-0.043*** (0.010)	-0.022*** (0.005)	-0.022*** (0.005)	-0.045*** (0.011)	-0.022*** (0.005)	-0.022*** (0.005)	-0.045*** (0.010)
oilgas	-0.010* (0.005)	-0.011** (0.006)	-0.040** (0.019)	-0.010* (0.005)	-0.012** (0.006)	-0.041** (0.019)	-0.010* (0.005)	-0.011** (0.006)	-0.043** (0.019)
polity2_avg	0.043*** (0.011)	0.050*** (0.012)	0.184*** (0.038)	0.043*** (0.010)	0.049*** (0.012)	0.143*** (0.040)	0.038*** (0.011)	0.043*** (0.013)	0.141*** (0.043)
party	-0.514*** (0.085)	-0.529*** (0.094)	-0.810*** (0.314)	-0.476*** (0.086)	-0.488*** (0.097)	-0.737** (0.314)	-0.488*** (0.084)	-0.501*** (0.095)	-0.815*** (0.314)
personal	-0.143* (0.081)	-0.180* (0.093)	-0.853*** (0.278)	-0.130 (0.081)	-0.168* (0.093)	-0.784*** (0.283)	-0.132 (0.081)	-0.171* (0.093)	-0.814*** (0.284)
military	0.384*** (0.083)	0.415*** (0.095)	0.565* (0.304)	0.368*** (0.082)	0.398*** (0.095)	0.573* (0.301)	0.380*** (0.082)	0.416*** (0.096)	0.717** (0.307)
duration	-0.002 (0.002)	-0.000 (0.002)	0.047*** (0.011)	-0.001 (0.002)	0.000 (0.002)	0.052*** (0.011)	-0.001 (0.002)	-0.000 (0.002)	0.047*** (0.011)
prevrc	-0.015 (0.100)	-0.068 (0.105)	-0.188 (0.230)	-0.034 (0.098)	-0.093 (0.105)	-0.190 (0.226)	-0.013 (0.099)	-0.067 (0.104)	-0.130 (0.228)
sigma		-0.303*** (0.103)			-0.316*** (0.103)			0.315*** (0.103)	
nea	-0.057 (0.087)	-0.052 (0.094)	0.103 (0.232)						
ncea				-0.129 (0.087)	-0.148 (0.094)	-0.721*** (0.266)			
cea							0.160** (0.079)	0.178** (0.088)	0.510** (0.238)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	1469.209		1263.956	1467.442		1256.475	1465.704		1259.568
BIC	1538.551			1536.783			1535.045		
Log Likelihood	-723.605	-721.902		-722.721	-720.800		-721.852	-719.992	
Deviance	1447.209			1445.442			1443.704		
R ²			0.024			0.026			0.025
Max. R ²			0.283			0.283			0.283
Num. obs.	4039	4039	4039	4039	4039	4039	4039	4039	4039
Num. events			197			197			197
Missings			552			552			552

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 4.7. Debt crises and regime change in different electoral types of autocracies

	non-electoral			non-competitive electoral			competitive electoral		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-1.172* (0.635)	-1.250 (0.972)		-0.347 (0.856)	-0.347 (0.860)		-0.336 (0.625)	-0.290 (0.839)	
ln_gdppc	-0.001 (0.078)	0.027 (0.121)	1.424*** (0.536)	-0.162 (0.107)	-0.162 (0.107)	0.171 (1.356)	-0.130* (0.079)	-0.146 (0.106)	-0.166 (0.418)
gdppcgr	-0.031*** (0.010)	-0.034*** (0.011)	-0.060*** (0.022)	-0.027*** (0.010)	-0.027*** (0.010)	-0.053* (0.027)	-0.019** (0.008)	-0.023** (0.009)	-0.027 (0.017)
oilgas	-0.028** (0.012)	-0.038** (0.017)	-0.095* (0.050)	-0.006 (0.011)	-0.006 (0.010)	-0.031 (0.045)	-0.015* (0.008)	-0.019* (0.011)	-0.033 (0.033)
polity2_avg	0.039* (0.021)	0.079*** (0.030)	0.208*** (0.076)	0.043** (0.021)	0.043** (0.021)	0.419*** (0.152)	0.048*** (0.017)	0.073*** (0.023)	0.173*** (0.063)
party	-0.282* (0.164)	-0.208 (0.210)	0.094 (0.500)	-0.311* (0.165)	-0.311* (0.166)	-0.101 (1.053)	-0.525*** (0.126)	-0.603*** (0.181)	-0.878 (0.566)
personal	-0.196 (0.136)	-0.443** (0.207)	-0.962** (0.459)	0.044 (0.166)	0.044 (0.165)	0.805 (1.082)	-0.129 (0.125)	-0.253 (0.175)	-0.915* (0.508)
military	0.166 (0.141)	0.140 (0.198)	0.425 (0.522)	0.320* (0.187)	0.320* (0.184)	-1.861 (1.193)	0.591*** (0.120)	0.808*** (0.178)	0.890* (0.494)
duration	0.000 (0.003)	0.004 (0.004)	0.061*** (0.016)	0.001 (0.003)	0.001 (0.004)	0.199*** (0.046)	0.000 (0.004)	0.008 (0.006)	0.104*** (0.022)
prevrc	-0.126 (0.143)	-0.372** (0.179)	-0.867** (0.378)	-0.167 (0.283)	-0.167 (0.283)	-1.275 (0.849)	0.064 (0.151)	-0.086 (0.167)	0.252 (0.329)
sigma		0.817*** (0.221)			0.000 (0.423)			0.732*** (0.161)	
default	0.329* (0.173)	0.372* (0.196)	0.801** (0.368)	0.013 (0.236)	0.013 (0.234)	-0.941 (0.730)	0.489*** (0.144)	0.510*** (0.164)	0.837*** (0.316)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	548.103		348.971	411.808		217.639	735.434		511.600
BIC	603.730			469.766			793.981		
Log Likelihood	-263.051	-257.544		-194.904	-194.904		-356.717	-349.139	
Deviance	526.103			389.808			713.434		
R ²			0.059			0.042			0.038
Max. R ²			0.291			0.165			0.305
Num. obs.	1161	1161	1161	1435	1435	1435	1514	1514	1514
Num. events			78			47			115
Missings			249			321			163

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 4.8. Debt crises and types of regime change in competitive electoral autocracies, controls for military regime type dropped

	via elections			via coups			via uprisings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-1.557** (0.672)	-1.768* (0.984)		-1.694* (0.931)	-1.696* (0.930)		-2.416** (1.076)	-2.416** (1.100)	
ln_gdppc	-0.020 (0.087)	-0.016 (0.126)	0.675 (0.593)	-0.013 (0.121)	-0.014 (0.121)	-0.766 (1.045)	0.054 (0.137)	0.054 (0.141)	1.466* (0.830)
gdppcgr	-0.010 (0.009)	-0.014 (0.012)	-0.022 (0.037)	-0.018 (0.012)	-0.018 (0.012)	-0.046 (0.032)	-0.002 (0.013)	-0.002 (0.013)	0.022 (0.040)
oilgas	-0.012 (0.010)	-0.010 (0.012)	0.034 (0.030)	-0.034 (0.023)	-0.035 (0.025)	-0.459 (0.302)	-0.001 (0.011)	-0.001 (0.011)	-0.087 (0.067)
polity2_avg	0.027 (0.019)	0.041 (0.027)	0.038 (0.093)	-0.037 (0.025)	-0.037 (0.026)	-0.143 (0.133)	0.045 (0.029)	0.045 (0.029)	-0.327 (0.237)
party	-0.327** (0.141)	-0.413** (0.210)	-0.313 (0.699)	-0.376** (0.181)	-0.377** (0.182)	-0.606 (0.771)	-0.461* (0.279)	-0.461* (0.278)	-2.648* (1.586)
duration	-0.000 (0.005)	0.005 (0.007)	0.080** (0.034)	-0.009 (0.006)	-0.009 (0.007)	0.100** (0.041)	-0.017 (0.012)	-0.017 (0.012)	0.100* (0.060)
prevrc	0.205 (0.180)	0.178 (0.203)	0.852 (0.535)	0.029 (0.223)	0.027 (0.228)	-0.349 (0.615)	-0.055 (0.271)	-0.055 (0.273)	0.319 (0.917)
sigma		0.925*** (0.274)			-0.097 (0.795)			-0.000 (0.410)	
default	0.386** (0.176)	0.365* (0.209)	0.410 (0.493)	0.485** (0.202)	0.486** (0.202)	1.398** (0.635)	0.478* (0.263)	0.478* (0.264)	3.527** (1.471)
AIC	454.492		221.936	278.587		148.326	184.370		87.676
BIC	502.394			326.489			232.273		
Log Likelihood	-218.246	-214.138		-130.293	-130.291		-83.185	-83.185	
Deviance	436.492			260.587			166.370		
R ²			11			16			11
Max. R ²			137			98			57
Num. obs.	1514	1514	1514	1514	1514	1514	1514	1514	1514
Num. events			53			29			17
Missings			163			163			163

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 4.9. Debt crises and types of regime change in electoral autocracies

	via elections			via coups			via uprisings		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.745 (0.768)	-0.110 (1.111)		-1.919** (0.886)	-1.919** (0.880)		-1.574* (0.901)	-1.574* (0.902)	
ln_gdppc	-0.166* (0.095)	-0.275* (0.142)	-0.708 (0.716)	-0.003 (0.110)	-0.003 (0.109)	1.078 (0.943)	-0.098 (0.111)	-0.098 (0.111)	1.029 (0.741)
gdppcgr	-0.015 (0.010)	-0.021 (0.013)	-0.037 (0.037)	-0.015 (0.009)	-0.015 (0.009)	-0.025 (0.023)	-0.014 (0.010)	-0.014 (0.011)	-0.019 (0.032)
oilgas	-0.007 (0.010)	-0.010 (0.014)	0.010 (0.037)	-0.058** (0.028)	-0.058** (0.028)	-0.512** (0.235)	0.002 (0.008)	0.002 (0.008)	-0.084* (0.043)
polity2_avg	0.092*** (0.021)	0.149*** (0.035)	0.519*** (0.112)	-0.037* (0.020)	-0.037* (0.021)	-0.089 (0.105)	0.050** (0.021)	0.050** (0.022)	0.080 (0.141)
military	0.945*** (0.148)	1.519*** (0.294)	4.739*** (0.956)	-0.118 (0.177)	-0.118 (0.183)	-2.972*** (0.878)	0.318* (0.175)	0.318* (0.177)	2.605** (1.250)
party	-0.501*** (0.151)	-0.651*** (0.232)	0.560 (0.933)	-0.166 (0.159)	-0.166 (0.159)	-0.256 (0.644)	-0.503*** (0.180)	-0.503*** (0.183)	-2.546 (1.717)
personal	-0.477*** (0.150)	-0.746*** (0.224)	-1.132 (0.691)	0.100 (0.166)	0.100 (0.163)	-1.383* (0.752)	0.150 (0.181)	0.150 (0.184)	1.197 (1.317)
duration	0.004 (0.003)	0.007 (0.005)	0.134*** (0.038)	-0.011* (0.006)	-0.011* (0.006)	0.103*** (0.033)	0.002 (0.003)	0.002 (0.003)	0.140*** (0.047)
prevrc	0.145 (0.183)	0.018 (0.214)	0.518 (0.563)	0.050 (0.192)	0.050 (0.194)	-0.381 (0.540)	0.107 (0.212)	0.107 (0.213)	0.788 (0.802)
sigma		0.909*** (0.227)			0.038 (1.589)			-0.000 (0.302)	
default	0.280 (0.184)	0.184 (0.224)	-0.160 (0.498)	0.406** (0.168)	0.406** (0.169)	1.247*** (0.473)	0.239 (0.215)	0.239 (0.215)	0.899 (0.686)
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	443.726		219.305	429.412		240.508	318.794		165.000
BIC	509.434			495.120			384.502		
Log Likelihood	-210.863	-204.197		-203.706	-203.706		-148.397	-148.397	
Deviance	421.726			407.412			296.794		
R ²			0.031			0.017			0.012
Max. R ²			0.095			0.089			0.060
Num. obs.	2903	2903	2903	2903	2903	2903	2903	2903	2903
Num. events			53			43			29
Missings			474			474			474

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table 4.10. Debt crises and election-triggered regime change in electoral autocracies

	all country-years			default years only			electoral years only		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(Intercept)	-0.280 (0.511)	-0.290 (0.574)		0.396 (1.819)	0.396 (1.816)		-0.126 (0.783)	-0.038 (0.867)	
ln_gdppc	-0.162** (0.063)	-0.164** (0.071)	0.089 (0.351)	-0.156 (0.225)	-0.156 (0.227)	-1.387 (1.565)	-0.121 (0.096)	-0.136 (0.107)	0.189 (0.471)
gdppcgr	-0.021*** (0.006)	-0.022*** (0.007)	-0.041*** (0.013)	-0.019 (0.016)	-0.019 (0.017)	-0.114 (0.074)	-0.023** (0.010)	-0.024** (0.011)	-0.040* (0.024)
oilgas	-0.011* (0.006)	-0.013* (0.007)	-0.052** (0.024)	-0.028 (0.023)	-0.028 (0.023)	0.430 (0.392)	-0.018* (0.011)	-0.019* (0.012)	-0.038 (0.033)
polity2_avg	0.050*** (0.012)	0.056*** (0.014)	0.161*** (0.047)	0.068* (0.040)	0.068* (0.040)	0.911** (0.400)	0.100*** (0.020)	0.110*** (0.023)	0.276*** (0.068)
party	-0.503*** (0.097)	-0.522*** (0.112)	-0.963** (0.410)	-0.506 (0.315)	-0.506 (0.312)	0.110 (2.055)	-0.604*** (0.154)	-0.620*** (0.173)	-0.393 (0.632)
personal	-0.137 (0.098)	-0.162 (0.113)	-0.698* (0.378)	-0.383 (0.281)	-0.383 (0.286)	-0.462 (1.909)	-0.408*** (0.156)	-0.464*** (0.178)	-0.898* (0.505)
military	0.541*** (0.098)	0.601*** (0.118)	0.828** (0.389)	0.630* (0.322)	0.630* (0.324)	0.555 (1.641)	0.716*** (0.149)	0.794*** (0.180)	1.408*** (0.532)
duration	0.000 (0.003)	0.002 (0.003)	0.063*** (0.015)	-0.003 (0.010)	-0.003 (0.009)	0.111 (0.068)	0.003 (0.004)	0.004 (0.004)	0.093*** (0.025)
prevrc	0.058 (0.129)	0.011 (0.135)	0.168 (0.280)	0.027 (0.351)	0.027 (0.344)	0.408 (1.660)	0.360* (0.186)	0.370* (0.191)	1.079*** (0.400)
sigma		-0.344*** (0.125)			0.000 (0.546)			-0.405* (0.210)	
default	0.480** (0.196)	0.481** (0.201)	0.689* (0.417)				0.322* (0.188)	0.320 (0.195)	0.015 (0.371)
any_el	0.245*** (0.094)	0.248** (0.096)	0.460** (0.206)	0.005 (0.244)	0.005 (0.246)	0.515 (0.777)			
default:any_el	-0.184 (0.245)	-0.181 (0.252)	-0.372 (0.493)						
Models	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE	Probit, pooled	Probit, RE	Logit, FE
AIC	1076.876		851.165	177.761		62.915	481.568		283.170
BIC	1154.531			217.384			533.932		
Log Likelihood	-525.438	-523.973		-77.880	-77.880		-229.784	-229.094	
Deviance	1050.876			155.761			459.568		
R ²			0.028			0.096			0.073
Max. R ²			0.269			0.228			0.316
Num. obs.	2903	2903	2903	271	271	271	863	863	863
Num. events			152			29			89
Missings			474			3			143

Notes: Clustered standard errors in brackets.
Significance levels: *** p<0.01, ** p<0.05, * p<0.1

5. General Conclusion

5.1. Summary of main findings

The common notion about financial crises is that they destabilize authoritarian regimes, opening up avenues for regime change. This belief is based on numerous case studies of prominent examples of autocratic regime breakdowns and transitions to democracy during economic crises. Yet, history is also replete with odious examples of authoritarian regimes that managed to survive severe financial turbulences and economic downturns without any political turmoil whatsoever. So, why do financial crises only sometimes lead to autocratic regime instability and regime breakdown? What mechanisms do (de)stabilize authoritarian regimes during financial crises? And under what conditions is autocratic regime breakdown likely to happen?

This dissertation has addressed these questions by bringing together insights from the democratization, comparative autocracy, and political economy strands of research. It has argued that the relationship between financial crises and autocratic regime breakdown is highly conditional, and depends on a complex interplay of economic and political factors. This dissertation has shown, for example, that the destabilizing effects of financial crises may vary by crisis type, that certain crisis policies may shield autocracies from regime collapse, and that formal and informal institutions that structure authoritarian rule may help autocracies muddle through financial crises, or, by contrast, precipitate elite defection and regime collapse. The preceding three chapters have presented empirical evidence of these links, of which Chapter 2 focused on the direct effects of financial crises, Chapter 3 — on the effects of crisis policy response, and Chapter 4 — on the effects of autocratic elections.

In Chapter 2, I have provided empirical evidence that financial crises and autocratic regime instability are intricately linked, and have highlighted the importance of choosing appropriate and theory-relevant measures of both economic crises and autocratic regime breakdown. Specifically, I have distinguished between three most commonly used measures of autocratic regime breakdown (i.e., leadership change, regime change, and democratization), and between three main types of financial crises (i.e., currency crises, banking crises, and sovereign debt crises, as well as their various combinations). Using a time-series cross-sectional dataset of authoritarian years of 97 countries from 1960 to 2011, I have shown that the direct effects of financial crises are not universal for all types of crises. Most types of financial crises have little effect on autocratic leadership change, but have a robustly significant direct positive impact on autocratic regime

change. Yet, the direct effect of crises on democratization varies considerably by financial crisis type: Only sovereign debt crises have a statistically significant positive impact on the probability of democratic transition. Other types of financial crises have only regime destabilizing effects, and increase not only the probability of transition to a democracy, but also the probability of transition to a new authoritarian regime.

From academic point of view, the most important finding in chapter 2 is that choosing different measures of both autocratic regime breakdown and economic crises could have significant effects on empirical findings and important implications for our understanding of autocratic regime (in)stability and processes that are behind autocratic regime breakdown and democratization. The results in this chapter also suggest that there is no single causal process that could explain the relationship between all types of crises and autocratic regime instability and regime collapse.

In Chapter 3, I have taken a political economy view and have focused on the effects of crisis policy response on the probability of autocratic regime survival during currency crises. I have explicitly highlighted the fact that autocratic governments are not just impartial observers of financial turmoil and economic collapse, but rather active participants in choosing policies aimed at containing and resolving financial crises. Using a dataset of 184 currency crises and 187 autocratic regimes in 99 countries from 1960 to 2010, I have shown that autocracies that respond to plummeting exchange rates and capital flight with capital account restrictions are less likely to break down during currency crises than autocracies that opt for IMF-style austerity measures combined with currency devaluation or depreciation and free capital mobility. I have argued that in contrast to IMF-style crisis policy response that is particularly painful in the short-term, capital controls give autocratic governments more room to simultaneously stabilize the exchange rate and stimulate economic recovery, and buy off time to solve intra-elite conflicts and crash the opposition.

The key finding in chapter 3 is that the questions of how autocracies respond to financial crises and why they survive are closely connected. Therefore, crisis policy response may act not only as an economic tool, but also as an important political shield that could help autocracies muddle through financial turmoil relatively unscathed. This result suggests intuitions about why some autocratic regimes resort to capital controls during financial crises: Autocrats may well be aware that certain crisis policies could have profound political implications, and may threaten regime stability. Therefore, the incentives to

impose capital controls in response to capital flight may originate in the regime's desire to survive politically.

In Chapter 4, I have analyzed the effects of elections on autocratic regime stability during sovereign debt crises. By making an important distinction between elections as electoral institutions and elections as electoral events, I have examined how electoral institutions determine the regime's capacity to survive sovereign debt crises, and how electoral events interact with debt crises in shaping autocratic regime instability and triggering autocratic regime breakdown. Using a dataset of 280 distinct authoritarian regimes and 115 distinct sovereign debt crises in 120 countries from 1946 to 2010, I have shown that autocracies with competitive electoral institutions are more likely to break down during sovereign debt crises than other types of autocracies, and that orderly regime change via elections is less likely than a forceful takeover. This chapter has thus provided empirical evidence that the regime's ability to muddle through financial crises may depend on political institutions by which autocracies govern: Some political institutions may create environments that are amenable to regime change, thereby increasing the odds of autocratic regime collapse during financial crises.

The central academic contribution of chapter 4 is the explicit focus on the important difference between the effects of elections as electoral institutions and elections as electoral events. The central finding is that internal institutional configurations in the regime are key to understanding the phenomenon of autocratic regime (in)stability during financial crises: Leaders of different autocratic regimes face different kinds of challenges to their survival in power, because different political institutions create different incentives for socio-political actors to form coalitions and to challenge the regime. The effects of electoral events, by contrast, are less obvious. While it is true that electoral events could serve as important focal points around which regime opponents may unite, the timing of elections is endogenously determined: If the ruling elites anticipate that elections could threaten regime stability, they may well opportunistically select the timing of elections, and postpone, or even cancel them.

Taken together, all three chapters in this dissertation demonstrate that the relationship between financial crises and autocratic regime (in)stability and regime breakdown is highly complex, uncertain, and could be influenced by myriad political and economic factors. In other words, absent very compelling reasons to think otherwise, one should not put great hopes in crises to trigger imminent autocratic regime demise and

subsequent democratic transition. Even in highly constrained situations such as financial crises, autocracies still stand an extremely good chance to survive and thrive. This is depressing news for policymakers in advanced economies, as it appears to offer little hope for crisis-induced democratic changes.

5.2. Policy implications

Even though this dissertation is first and foremost an academic work, it nevertheless has a number of policy implications, which may be of use to democratic forces abroad, policymakers in advanced economies, as well as policy advisors of the international financial institutions, such as the IMF, the World Bank, and regional development banks.

First and foremost, economic policymakers and policy advisors need to understand that no economic policy is viable without clear and coherent reference to politics and political incentives. Even the most reasonable and the most effective economic policies are likely to be ignored by domestic policymakers in crisis-hit countries, if they are associated with high political costs and pose threats to their political careers or autocratic regime stability. Ignoring the political constraints under which autocratic leaders operate would thus make the implementation of economic policies difficult, if not impossible. Thus far, international policy advisors, most notably the IMF, have infamously treated each financial crisis with a one-size-fits-all approach, advocating for similar austerity policies in response to similar types of financial crises. The argument and evidence presented in this dissertation suggest that developing economic proposals that are viable under existing political constraints could ultimately contribute to more efficient and effective policy implementation.

Second, the evidence presented in this dissertation suggests that democratization stands a better chance for success if authoritarian regimes face challenges in sovereign debt management, and have limited access to external financial support. Therefore, if democracy promotion is seen as a fundamental part in Western countries' strive towards a better and safer world, they should promote reforms regarding democracy and the rule of law through the provision of conditional financial assistance. The IMF, as the lender-of-last-resort, could act as the most important political actor in this regard. When sovereign debt crisis is imminent, well-designed programs of financial assistance conditional on democratic reforms, such as the holding of free and fair elections, could

help bring some authoritarian regimes on a democratic path. Even though democracy promotion might be a lesser priority for influential international actors like the IMF, inaction in this case would also be a choice. By providing financial assistance contingent on the implementation of economic policies only, Western donors may indirectly promote autocracy and set the stage for autocratic regime stability.

Third, the main findings of this dissertation can help to assess the breakdown-risk in autocracies hit by financial crises. So, for example, when assessing the probability of crisis-induced regime breakdown, one could account for the fact that autocracies with competitive electoral institutions and fixed exchange rates face a higher risk of regime collapse. If they are also affected by a sovereign debt crisis, they stand a better chance to democratize. Obviously, even if all these factors coincide, it does not mean that an autocracy will inevitably break down. It only means that the odds of regime breakdown have risen. In reality, many other factors could come into play and change the overall picture. Identifying and accounting for all such factors could significantly improve our ability to forecast crisis-induced autocratic regime collapse.

Finally, some findings of this dissertation can also be used to predict crisis policy response of autocratic regimes. Predicting crisis reactions may be beneficial both for neighboring countries and for certain sectors in advanced and developing democracies, since what happens in crisis-hit countries, could easily send ripples across the whole globe. Certain crisis policies could have substantial spillover effects, both across geographies and markets. They could also lead to social upheavals, revolutions, or regime collapse, which could send a massive tide of refugees into the Western world. Predicting such events in advance can support the mitigation of their negative impacts.

5.3. Limitations

Despite the importance of the academic contributions and policy implications of this dissertation, certain limitations persist and need to be made explicit.

The most serious shortcoming of this dissertation is that many of my findings suffer from unresolved endogeneity concerns. Although I do provide strong empirical evidence that financial crises and autocratic regime breakdown are correlated, the relationship between crises and regime instability is likely to be reciprocal. Financial crises might

plausibly contribute to public dissatisfaction with the regime, lead to a backlash among domestic socio-political actors, and thereby increase the probability of autocratic regime collapse. Similarly, however, autocratic regime instability might trigger capital flight, hinder the flow of international capital to local banks, or increase the costs of government borrowing — all of which could lead to a financial crisis. In other cases, statistically significant correlation between crises and regime breakdown might be explained by something else (e.g., conflicts and political instability in neighboring countries, or natural disasters, such as tsunamis, floods, earthquakes, or droughts).

The problem of endogeneity between financial crises and autocratic regime breakdown persists in all three papers of this dissertation. In paper 1, I explicitly acknowledge that the relationship between financial crises and autocratic regime instability and regime collapse is likely to be one of tangled cause and effect, and that the presence of correlation patterns between varieties of financial crises and varieties of political change does not imply the existence of a causal link. Therefore, I make no claim about the presence and the direction of causality.

In paper 2, I explicitly address only two of the three possible endogeneity issues (i.e., between capital account policy and currency crisis, and between crisis policy response and autocratic regime stability), while the problem of endogenous relationship between currency crises and autocratic regime collapse remains unresolved. In fact, this problem is partially mitigated, because by focusing only on those regime breakdowns that occur *during* currency crises or shortly after their end, I assume that plummeting exchange rates increase public dissatisfaction with the incumbent regime, and thereby contribute to the probability of regime collapse. Yet, this assumption is clearly arbitrary, because time precedence is an ill-suited indicator of the direction of causality. Therefore, a degree of caution is advisable when interpreting my findings.

In paper 3, the problem of crisis-breakdown endogeneity is compounded by the fact that economic conditions may affect not only the timing of autocratic regime instability, but also the timing of elections. Again, I explicitly acknowledge in this paper that the non-significant relationship between electoral events and autocratic regime breakdown during debt crises does not mean that the effects of sovereign debt crises and elections do not mutually reinforce each other. Rather, this finding might suggest that autocrats are well aware of extremely high risks of holding elections amidst a sovereign debt crisis, and tend to avoid holding elections when regime stability is under threat.

The unresolved endogeneity problems that persist in this dissertation are well-known in the academic literature, but not easily remedied. Admittedly, this dissertation does not provide any breakthroughs in this regard. Indeed, it is extremely difficult to come up with a truly exogenous instrument for crises. Some scholars have tried to account for reverse causality by employing instrumental variable approach. Yet, all proposed instruments have been heavily criticized, since they do not satisfy the exclusion restriction. Apparently, the best way to address endogeneity problems would be to complement quantitative evidence with in-depth case studies that could demonstrate the chain of causation. The problem with this approach is that the direction of causality may vary from case to case for historical, political, economic and other reasons, while case selection might depend on the direction of scholars' bias, since scholars have deeper knowledge about some cases than others, and naturally, they base their arguments on the cases they know best rather than on those they know less well.

A closely related limitation of this dissertation is that I do not account for all possible alternative explanations. This is likely to further contribute to the endogeneity problem discussed above. Given the quantitative nature of this study, each paper in this dissertation provides only a simplified view of the actual reality. Due to the risk of overfitting, I had to neglect an array of political and economic factors that could contribute to autocratic regime (in)stability and regime collapse, such as alternative sources of revenue stemming from foreign aid, international lending, financial support from authoritarian superpowers like the USSR or China, or political turbulence in neighboring countries. Therefore, although I have included all the most frequently used control variables in my models, there is still a possibility that my results are biased, because the impact of some important potential alternative explanation has been neglected. While this problem might seem easy to solve, in reality, the relationship between crises and regime breakdown is so complex and uncertain that it is often impossible to account for all alternative explanations: Many of confounding factors may vary across countries and may be difficult to quantify.

Another shortcoming of this dissertation is that it does not provide any evidence about the exact causal mechanisms at play. While I do my best to provide a comprehensive theoretical argument about the suggestive causal impact of the respective economic or political variable on autocratic regime survival or collapse in each chapter of this dissertation, my arguments do not allow to uncover the specific causal mechanisms or

explanations that underlie my causal descriptions. For example, my findings about statistically significant relationship between sovereign debt crises and democratic transitions would be of no value for policymakers unless they can understand the exact step-by-step process that leads from sovereign default to regime instability, regime breakdown, and democratic transition. Similarly, while it is clear from my findings that the relationship between capital controls and regime stability during currency crises exists at an aggregate level, it is less clear whether this relationship would hold for any particular country, if yes, then under what conditions, and what the exact chain of causation would be. It would clearly be wrong to conclude from my findings that failure to repay sovereign debt *per se* would trigger the process of democratization, or that the imposition of capital controls *per se* could save the regime from collapse.

A well-balanced combination of quantitative and qualitative evidence could mitigate this problem. On top of quantitative evidence that allows to assess the generality of causal relationships, some qualitative evidence could support the hypothesized causal mechanisms. One could, for example, complement this research with small-N comparative research designs, and in-depth qualitative case studies, and apply process tracing to illuminate the exact concatenation between a cause and its effect.

Finally, there are some concerns about the quality of the data I use. The available databases on financial crises employ different definitions of currency, banking, and sovereign debt crises. Consequently, they provide different start and end dates of crisis events: Events identified as a crisis by one database are often not considered a crisis by another. These differences in dating financial crises may cause ambiguity in determining the sequence of crisis-breakdown events, and thus could further exacerbate the extent of endogeneity bias. While I have used some of the best available data sources, I cannot completely rule out data set selection bias. Thus, my results need to be interpreted cautiously, and require replications on other datasets.

To remedy all these shortcomings, I have done two things. First, I have provided a comprehensive theoretical argument about the possible underlying mechanisms in each of my papers. Each of my arguments yields empirically testable implications that can be subject to statistical analysis using data. Second, to ensure the reproducibility and validation of my empirical findings, I have made all my data, data coding scheme, and programming files sufficiently detailed and fully accessible to the scientific community.

5.4. Agenda for future research

This dissertation has emphasized that crisis-breakdown relationship is highly complex, and depends on an array of political and economic factors. Concentrating on the effects of some specific conditional factors during certain types of financial crises has allowed me to explore in detail some sources of autocratic regime (in)stability during financial crises. At the same time, the narrow focus only on several specific issues entails that a number of questions remain unanswered. This dissertation thus opens up a number of promising directions for future research.

First, future studies would do well to elucidate the exact causal mechanisms identified in this dissertation. For example, one could spell out more carefully the causal processes behind the relationship between sovereign debt crises and democratic transitions. Does this relationship hold for all types of autocracies? Can certain institutions mitigate or facilitate regime collapse? Do autocracies break down violently, or do they decay gradually? Is the process of regime collapse endogenously or exogenously driven? When and why do democratic institutions emerge? Our understanding of crisis-induced democratization would benefit from in-depth qualitative case studies aimed explicitly at testing different causal mechanisms that link sovereign debt crises to democratic transitions. Another genuine promising direction for future research is to focus on sovereign debt composition. Given that many debt crises are international in nature, it would be interesting to investigate whether debt composition affects institutional transformations of the regime (e.g., influences the design of electoral and other domestic institutions that could facilitate regime change).

Second, in this dissertation, autocratic regime instability and regime collapse are assumed to be exclusively domestically-driven processes: The basic causal argument is that crises lead to regime dissatisfaction among key domestic socio-political actors, and induce them to challenge the regime. Yet, many financial crises are international in nature, and foreign actors play a crucial role in crisis containment and resolution strategies. Future research should, therefore, take the role of foreign actors and international factors more seriously into account. One option would be to investigate the political-economic influence of international financial institutions, such as the IMF. Another option would be to look closer at the influence of global and regional superpowers, such as the United States, Russia, and China. China's enduring financial support for autocratic regimes like Myanmar is of particular interest in this regard.

Third, autocratic regime stability during financial crises is likely to be influenced by myriad of other economic and political factors, such as the amount of foreign exchange reserves, the degree of central bank independence, the degree of government control over the financial sector and the economy in general, the extent of media freedom, the regime's ability to censor critical media, etc. All of these factors might plausibly influence autocratic regime (in)stability during financial crises. Yet, thus far, it is unclear how they interact with crises in creating regime (in)stability, and whether they are likely to affect the regime's propensity to collapse. Future studies would, therefore, do well if they examine these and other political and economic factors that could yield some conditional effects.

Finally, future research may build upon my findings about the role of autocratic elections, and investigate whether financial crises affect the timing of electoral events in autocratic regimes. In a similar vein, future research could explore in more detail whether electoral events and electoral cycles in general affect the timing of sovereign default and lead to delays in sovereign debt restructuring. Another option would be to investigate the impact of other types of financial crises on electoral outcomes in autocracies. Given that electoral autocracy is the most prevalent type of authoritarian rule in the modern world, understanding the sources of its (in)stability is of utmost importance.

This wealth of questions opened by this dissertation suggests that our knowledge about the mechanisms that (de)stabilize authoritarian regimes during financial crises is still rather rudimentary. This dissertation hopefully provides a framework for further work in this field, and inspires future research in this direction.

List of Papers

This dissertation consists of a general introduction, three self-contained research papers, a general conclusion, and three supplementary online appendices that contain all datasets, data coding scheme, R programming files that can be used to replicate my results, and full results of all model specifications from robustness tests.

Paper 1: Financial Crises and Political Change in Autocracies
single-authored
Online Appendix: <https://github.com/marina-pavlova/fcpca>

Paper 2: Autocratic Regime Survival during Currency Crises:
The Effects of Crisis Policy Response
single-authored
Online Appendix: <https://github.com/marina-pavlova/arscc>

Paper 3: Electoral Authoritarianism and Sovereign Debt Crises:
Do Elections Sustain or Undermine Authoritarian Rule?
single-authored
Online Appendix: <https://github.com/marina-pavlova/easdc>