Economic Growth and Coup Attempts:
Exploring a Conditional Relationship

Early paper draft

ABSTRACT

This paper revisits the oft-cited relationship between economic growth and coup attempts. According to conventional wisdom, such coup attempts are often precipitated by public upheavals and dissatisfaction with the incumbent government's ability to deliver services and increase living standards. However, existing studies have provided inconclusive and contradictory results: some argue that economic performance does matter, while others find no support for the argument. I address this disparity in two ways. First, I argue and show that the relationship – while being insignificant during the Cold War period – is quite significant in the Post-Cold War period. Secondly, I show that the negative effect of economic growth is stronger for more democratic countries – especially during the Cold War period. The estimations hold after instrumenting for economic growth, controlling for country fixed effects, and employing alternative data sources.

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Dear reader,

Thank you for reading this paper. As I have just started my Ph.D. this September, you will be looking at a very early paper draft, which I have been working on for about three weeks. Therefore, the paper may seem somewhat incoherent and incomplete. Especially the theoretical argument and interpretation of the results need some work. Still, all kinds of comments (theory, methods, contribution etc.) are greatly appreciated.

Best
Suthan

INTRODUCTION

Coup attempts remain the single most common strategy for regime change in both democracies and autocracies, affecting the lives and futures of millions of people every year. Since World War II there have been more than 460 instances of coup attempts (of which roughly half succeeded) in about 94 countries (Powell & Thyne, 2011). Such coup attempts – which almost exclusively take place in developing countries – are often precipitated by public upheavals and dissatisfaction with the incumbent government's ability to deliver services and increase living standards.

Despite this empirical pattern, existing studies of the relationship between economic growth and coup attempts have provided inconclusive and contradictory results: some argue that economic performance does matter (see, e.g., Fossum, 1967; Nordlinger, 1977; O'Kane, 1981; Johnson et al., 1984; Galetovic & Sanhueza, 2000; Kim, 2014), while others find no support for the argument (see, e.g., Powell, 2012; Marinov & Goemans, 2013; Svolik, 2012; Thyne, 2010; Singh, 2014).

In this article I reexamine this important relationship and offer a 'conditional' theory of economic growth and coup attempts in two steps. First, I argue and show that the relationship – while being insignificant during the Cold War period – is quite significant in the Post-Cold War period. The structure of the bipolar international system during the Cold War and the ensuing interference from the two superpowers in other countries' affairs effectively blocked the relationship between economic growth and coup attempts, whereas after the Cold War the absence of this massive interference permitted the effect of economic performance to take its natural course.

Second, I show that the relationship between economic growth and coup attempts did even pertain during the Cold War period for more democratic countries. More specifically, I argue that economic growth has an increasing marginal effect on coup attempts in more democratic countries because the larger number of essential constituents with incompatible preferences, causing

incompatible policy demands, makes it more challenging for the incumbent government to take steps to reduce the impact of an economic crisis.

In this way, this article brings a fresh perspective to a relationship that may seem self-evident, and that, despite the lack of empirical foundation, is getting more and more accepted as a well-documented fact. By combining the empirical precision of area specialists and historians with the generalizability of my quantitative approach, I try to disentangle this important relationship by offering a more nuanced explanation. Moreover, the improved understanding of coup attempts provided by this article may improve the understandings of a whole range of related subjects. For example, as coups and coup attempts are empirically (and conceptually) related to civil wars (Powell & Thyne, 2011: 256-258), regime breakdowns (Bermeo, 1997), regime transitions (Marinov & Goemans, 2013), etc., any strong findings may offer valuable theoretical and empirical insights for how economic growth affects these important phenomena as well.

BACKGROUND

The scholarly interest on coup attempts has generally waned in recent years, leaving the subject to decades-old area studies that both employ outdated data and miss the bigger picture. Although, coup attempts do not attract as extensive media attention as civil wars or natural disasters, this waning interest is highly unfortunate for several reasons. First, coup attempts are a frequent worldwide reality. Since World War II there have been more than 460 instances of coup attempts which means that there have been on average more than 7 coup attempts every year occurring at least once in about half of the world's countries. In fact, in non-Western countries coup attempts are more frequent than democratic elections (Singh, 2014: 3). Second, coup attempts can be, and are sometimes, pivotal for world history. One should only try to think of the coup attempts in Germany

(1944), France (1961), Portugal (1974), USSR (1991), and try to imagine the far-reaching changes in World history had these coup attempts gone differently or not happened at all. Last but not least, coup attempts are important for other related phenomena. For example, as three out of every four failures of democracy are the result of coups (Marinov & Goemans, 2013) an improved understanding of coup attempts may improve the understandings of democratic breakdowns and transitions as well.

Yet, a few studies have in fact investigated the relationship between economic growth and coup attempts, either as a primary research question or as a secondary finding in articles examining other relationships (most studies belongs to this latter category). However, these studies have provided inconclusive and contradictory results. Decades-old studies generally argue that economic performance does matter while more recent studies mostly find no support for the argument. Still, despite the lack of an agreement in the literature, the effect of economic growth on coup attempts is getting more and more accepted as a proven fact of contemporary research and has even made its way into political science textbooks (see e.g Ezrow & Frantz, 2011). Researchers generally take the public upheavals and demonstrations preceding a coup attempt as a sign of the importance of economic performance in assessing the risk of a coup attempt, while empirically, this theoretical perception has not been supported by most recent studies.

The literature on economic growth and coup attempts

In a classical study, Fossum (1967) endeavors to explain coup attempts in Latin America with a particular focus on societal factors. By employing a simple typological test, he finds that coup attempts are more frequent in periods of economic downturn. Likewise, Johnson et al. (1984) – seeking to explain coup attempts by extending Jackman's (1978) model with military and economic factors – find support for the argument that coups and coup attempts are more likely to occur in

periods of economic downturn. Thirdly, O'Kane (1981), in an analysis of 125 independent countries, also argues that economic performance does matter, especially in poor countries dependent on primary commodity exports. Finally, Galetovic and Sanhueza (2000), analyzing 89 non-communist autocracies, yet again find the occurrence of coups more likely during recessions.

However, recent studies employing more refined statistical methods with more up-to-date data find no significant relationship between economic growth and coup attempts. The primary purpose of Marinov and Goemans (2013) is to examine which factors are likely to push coup leaders towards democratic elections after a successful coup. In their online appendix, however, they find an insignificant relationship between economic growth and coup attempts. Likewise, Thyne (2010), who analyzes the effect of U.S. foreign policy on coup attempts in Latin America, also finds that economic growth does not significantly affect coup attempts. This result, he argues, is explained by the elite nature of coup attempts: general levels of economic growth, mostly affecting the broader population, have less of an effect on coup attempts as these are undertaken by state elites such as the military (Thyne, 2010: 454). In similar fashion, Svolik (2012) undertakes a game-theoretic analysis of military intervention in autocracies. In his statistical models as well, the economic growth coefficients fail to attain statistical significance.

Note, however, that the insignificant results of the economic growth variables should be interpreted with caution, as the model specifications in these studies are intended to measure the effect of other main independent variables. Consequently, the effect of economic growth is at risk of being 'taken over' both by the main independent variables and by some control variables included in the models, in this way being prevented from attaining statistical significance. Powell (2012), who attempts to investigate the effect of structural coup-proofing strategies and military characteristics, actually addresses this issue. More specifically, he omits variables that could possibly 'take over' the effect of economic growth, such as societal instability or regime type, only

to realize that the results in these additional models are substantively similar to the other results: economic growth does not significantly affect the risk of coup attempts.

So far, the only attempt to bridge these inconclusive results has been Kim (2014). By employing an instrumental variable (IV) approach, using year-to-year fluctuations of rainfall and temperature as sources of exogenous variation in income to capture the short-run transitory shocks, he finds economic growth to significantly affect coup attempts. Still, in his models the non-IV estimates yield insignificant results for the relationship between economic growth and coup attempts.

Room for Improvement

[Where the literature need improvements and how I attempt to do it here]

THEORETICAL FRAMEWORK

[I intend to formalize the below-presented theoretical argument by using Game theory later on]

Staying in power: Essential constituents and economic crisis

To see how economic growth may affect the risk of coup attempts, and how the effect varies across time periods, assume, following the literature on how to stay in power (e.g. Bueno de Mesquita & Smith, 2011), that governments only are able to stay in power if it has the support of their essential constituents. By essential constituents I mean those individuals whose support is necessary if a government is to stay in power. Next, consider that these essential constituents can consist of one or more of three overall groups: domestic elites, the citizenry, and/or a foreign great power country,

each of which have different interest, preferences, and most importantly, are affected differently during an economic crisis.

Staying in power first and foremost requires the support of some *domestic elites*. This support is acquired if the leader in power provides these elites with more benefits than they might receive under an alternative leadership. Such benefits could take different forms ranging from direct cash flows, favorable access to markets, influence over policy, to more cooperate-like benefits for specific organized interests. Periods of economic crisis undermines the government's abilities to distribute these kinds of benefits, and accordingly, puts the economic interests of these domestic elites at risk. They may see their bank accounts dwindle, lucrative businesses falling behind, cooperate interests like military budgets being cut, all of which may result in discontentment and a wondering of whether another leader would be better able to secure their high-earned economic privileges.

Another potentially essential group is *the citizens* of a given country. As with the domestic elite groups, the support of these citizens is only acquired if they believe that the government in power can provide them with more benefits than they might receive under an alternative leadership. Governments with a decent economic performance more effectively reduce the grievances of citizens, who therefore offer loyalty in return for these benefits. By spending on public goods such as health, education, and infrastructure, governments can address the needs of marginalized groups in society. This consequently lowers the dissatisfaction of citizens toward the government as these groups are being served as they wish. During periods of economic crisis, however, citizens tend to have fewer job opportunities and less income, and when the government fails to deliver what citizens expect of it, it loses legitimacy (Easton, 1975; Lipset, 1959). This subsequently gives citizens more incentives to engage in antigovernment activities and to remove the support to the sitting government.

I final potential constituent is a *foreign great power country*. In general, great powers tend to interfere in the domestic politics of smaller countries in order to advance their interests in the international arena. Yet, in contrast to other essential constituent groups, a foreign great power is not affected by the economic performance of the smaller country; why should the US. during the Cold War care about the growth rates of Chile, as long as the incumbent government sustained capitalist policies and provided access for US mining companies? As long as the smaller client country upholds the agreements made with the great power in terms of specific policies, access to specific markets and so on, the digits on the economic growth statistics play no role. Thus, as I will elaborate below, governments relying on a foreign superpower as a major part of the essential constituency are more likely to whether off an economic crisis without any notable loss in support.

All in all, the essential constituency of a given government can consist of a mix of one or more of three overall groups with different interest and preferences: the domestic elite, the citizenry, and/or a foreign great power country. Which groups a government depends on varies both across time and across regime type, and has consequences for how a government are (un)able to deal with an economic crisis.

Essential constituents: across time and regimes.
The all-important difference between the Cold War period and the Post-Cold War period in terms of essential constituents is whether a foreign superpower was an essential part of the government constituency. As have been studied and documented widely, most governments in the world during the Cold War was either directly or indirectly influenced by one of the two superpowers as the Soviet Union and the United States intervened systematically to secure friendly administrations across the world countries (see e.g. Boix, 2011; Hebditch & Connor, 2008; Boschini & Olofsgård 2007; Muller 1985; Schmidt 2006; Westad 2005). That is, during the cold war, countries not only

received direct financial backing from USA and USSR, but also needed the political backing of one of these superpowers in order to remain in power. Put differently, a pivotal part of the essential constituents of most governments in power at that time consisted of one of the two superpowers. As the support of these external great powers was not affected by the economic performance of a given country (as argued above), economically ill-performing leaders did not face considerably higher risk of removal from power.

After the end of the Cold War, however, the key constituents of governments around the world generally do not consist of these great powers; but instead, consist primarily of domestic elites and/or the citizens of a given country. Although, larger countries and organizations like the EU still exercise remarkable influence on smaller countries (see e.g. Vachudova, 2005), this interference is nowhere as direct or decisive as during the Cold War (xx xx xx). Hence, after the Cold War economically ill-performing leaders suddenly risked losing essential support and ultimately a coup attempt, because now an economic crisis in fact mattered for their essential constituents. The first hypothesis to be tested is then:

> H1: *Lower economic growth is more likely to produce a coup attempt in the Post-Cold war period than during the Cold War period*

Yet, as described above, a government's essential constituency is not only shaped by the presence/absence of a foreign superpower, but also whether it includes the citizens of a given country. Although, even authoritarian regimes depend on some degree of societal support, democratic countries depend more directly on this kind of support. Hence, the major difference between autocracies and democracies in terms of essential constituents is that, in dictatorships the essential constituency is small and consists primarily of domestic elites, whereas in democracies the

essential constituency is larger as it also includes the majority of voting citizens (cf. Bueno de Mesquita & Smith, 2011). This has important implications during times of economic crisis. Even though, both domestic elites and citizens are hit significantly during an economic crisis, they are hit differently, and thus, have different policy demands for the sitting government in order to mitigate the consequences of an economic crisis. For example, citizens would generally demand economic reforms that would increase government efficiency and reduce inequality, whereas such reforms would most-likely endanger the high-earned privileges of the elites. Such high-income/ low-income conflicts are studied and described very well by existing literature (see e.g. Boix, 2003; 2011; Boix & Stokes, 2003; Acemoglu & Robinson, 2006). These incompatible policy demands make it considerably harder for the sitting government to maneuver during an economic crisis, and consequently, increases the risk of a withdrawal in support among one or both group of the essential constituents.

This incompatibility in policy demands is further enhanced in the event of a government relying on governing coalitions consisting of all three groups. This was the case for democratic countries during the Cold War as the key constituents for these governments consisted of three vital actors: the domestic elite, an external superpower (US or the USSR), and the majority of the country's voting citizens. The numerous examples of governments trying to accommodate societal demands through increased economic distribution and nationalization (which often ended with 'anti-communist' coups funded by the CIA), or through economic reforms of military budgets and upper class privileges (which often ended with 'veto-coups' by higher level officers), shows how this increased incompatibility in policy demands created a 'Gordian Knot' for sitting governments during the Cold War period.

To sum up then, during periods of low economic growth, democratic governments face powerful pressures from their constituents to enact policies that will reduce the burden of the

economic situation in their country. However, as these groups have mutually incompatible preferences and consequently incompatible policy demands, the governments finds itself in a difficult situation, and ultimately risk being toppled by these discounted constituents. This irreconcilability was especially pronounced during the Cold War period. Thus, the last two hypotheses to be tested are then:

> H2: *Lower economic growth is more likely to produce a coup attempt in more democratic countries*
>
> H3: *The interactive effect of economic growth and degree of democracy is strongest during the Cold War period.*

Economic growth and coup attempts

Before proceeding one last question should be addressed. Although, the above arguments give reasons for why governments loose (or remain) the support of essential constituents during economic crises, it does not tell us anything about why it should happen via *coup attempts.* Regime changes can be carried out by using several other tools than a coup attempt – for instance a civil war or an all-out invasion. So why does economic crises trigger challenges to state authority through a coup attempt? The answer is twofold. First, coup attempts are rather cost-effective, rapid, and produce fewer deaths (Hebditch & Connor, 2005). That is, compared to invasions and civil wars they are quite inexpensive both politically and economically. Second, trying one's luck with a coup attempt gives you a rather decent percentage chance of success – especially during an economic crisis. Coup attempts are structured into a series of (mostly) well-defined acts involving the coordination and recruitment of some key state elites followed by the arrest and capture of others. More specifically, coup plotters make secret preparatory arrangements with key actors within the

state – agreeing on objectives, duties and rewards. They launch the operation by cutting phone lines and arresting political opponents in an attempt to minimize the amount of opposition, and finally surround or take over various strategic locations such as airports, TV stations, and parliament buildings (cf. Needler, 1966; Luttwak, 1968; Farcau, 1994; Hebditch & Connor, 2005). Such operational tasks will go much more smooth during times of economic crises as key individuals are most likely discontented with the economic situation, and thus, less loyal to the sitting government. In addition, the ability to hold on to power after a coup attempt is enhanced during an economic crisis, as this gives coup plotters the perfect opportunity to legitimize the coup with honorable motives such as 'restoring public order' or 'saving the integrity of the nation' (cf. Fossum, 1967: 237; O'Kane, 1981: 289; Hebditch & Connor, 2005: 40-42; Johnson et al., 1984: 633). Thus, coup attempts become the obvious tool for discontented constituents in removing the sitting government during an economic crisis.

DATA AND RESEARCH DESIGN

The empirical strategy

The chosen research design is quantitative statistical analysis consisting primarily of regular logit regressions. The analysis covers a sample of 147 countries in the period 1962–2005, which amount to 4929 country-year observations with 232 coup attempts. These coup attempts occurred in 64 of the included 147 countries. One would expect that observations within the same country over time are unlikely to be independent (cf. Beck, Katz, & Tucker, 1998). To deal with this potential problem of autocorrelation (and heteroscedasticity), all models are estimated using robust standard errors clustered on country. To reduce simultaneity problems, all relevant time-variance variables are lagged by one year.

As argued above, the causal claim in this article implies a set of conditions that need to be satisfied before economic growth can bring about its effects on coup attempts. I therefore examine this conditional relationship between economic growth and coup attempts in two steps. First, I disaggregate the data based on a: whole time period/ Cold War/ Post-Cold War distinction, and compare the coefficients and significance of economic growth for the three different samples. Disaggregating the model explicitly allows the coefficients and standard errors to vary and – given a large-enough sample – allow me to examine the supposedly suppressed effects of economic growth much more closely (cf. Nagler, 1991: 1400). Furthermore, as I intent to include explicit interaction terms in the next step (see below), this approach allow me to investigate possible three-way interactions in a straightforward way.

In the second step, I add a product term equal to the product of economic growth and degree of democracy as an independent variable. Yet, investigating interaction effects between independent variables in discrete choice models is a hazardous exercise. As Norton, Wang, and Ai (2004) – among others (see also Nagler, 1991; Berry et. al, 2010; Bowen, 2010) – have shown, the intuition from interaction terms in linear models does not extend to nonlinear models. Four important differences are worth mentioning. First, the interaction effect could be nonzero, even if the coefficient of the interaction term is zero. Second, the statistical significance of the interaction effect cannot be tested with a simple t test on the coefficient of the interaction term. Third, the interaction effect itself is conditional on the other independent variables in the model. And last, the interaction effect may have different signs for different values of the independent variables. For these reasons, the magnitude of the interaction effect must be computed by taking the cross derivatives (or second derivatives) of the expected value of the dependent variable. That is,

$$\frac{\partial \left(\frac{\partial Prob(Y=1)}{\partial X_1} \right)}{\partial X_2} = \frac{\partial^2 Prob(Y=1)}{\partial X_1 \partial X_2} \neq 0$$

$$\Rightarrow \Pr(Y)\,(1 - \Pr(Y))\beta_p + \left[\Pr(Y)\,(1 - \Pr(Y))(1 - 2\Pr(Y))(\beta_1 + \beta_p X_2)(\beta_2 + \beta_p X_1) \right] \neq 0$$

Following from this, the significance test of the interaction effect must be based on these partial derivatives as well. I do this by employing the *inteff* stata command introduced by Norton, Wang, and Ai (2004).

The dependent variable

As stated above, the dependent variable of this study is coup attempts. That is, the phenomenon to be explained here is whether someone inside the state apparatus − be they military or non-military elites − *attempts* to stage a coup. The aim of this paper is not to explain whether a coup attempt succeeds or fails. I limit the focus in this way mainly because it enables me to scrutinize this particular relationship more closely both theoretically and empirically. This is especially imperative given the relatively modest amount of existing coup literature.

Following Powell and Thyne (2011: 252) this paper defines a coup attempt as an 'illegal and overt attempt by the military or other elites within the state apparatus to unseat the sitting executive'. This definition is preferable to others because it explicitly makes clear 1) who is being targeted, 2) who the perpetrators are, and 3) which tactics they use. The target of a coup attempt is the sitting executive such as a dictator or a democratically elected president.[1] The perpetrators of a coup attempt include non-civilian members of the military and security services as well as civilian members of the state. Last, the activity of overthrowing the sitting executive must be illegal and possibly, but not necessarily, violent (ibid.). In addition, this definition does not mention anything about the outcome of the coup. The definition therefore includes both coup attempts that later succeed as well as those that end in failure.

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[1] In this study I generally use the more broader term 'government'

To test the proposed hypotheses, I rely on data from Powell and Thyne (2011). I choose this data first and foremost due to its extensive geographical (almost all world countries) and temporal (1950–2013) coverage combined with its explicit incorporation of earlier datasets, which increases the overall measurement validity. The Powell and Thyne (2011) dataset includes all instances of both failed and successful coups from 1950 to 2013. As all these instances of coups are coup *attempts* before they either fail or succeed, I collapse the occurrence of failed and successful coups into a dependent variable that I call *Coup attempt*. The variable takes the form of a binary indicator where 0 is given for years without a coup attempt and 1 is given for years with one or more coup attempts in a given country. Hence, by nature of my coding procedure, a country can have only one coup attempt in any given year. Country-years with more than one coup attempt are therefore still given the value of 1. Figure 1 portrays the yearly distribution of the 232 coup attempts for the included 147 countries in the period 1962–2005 analyzed in this study.

Figure 1. Number of coup attempts by year included in this study
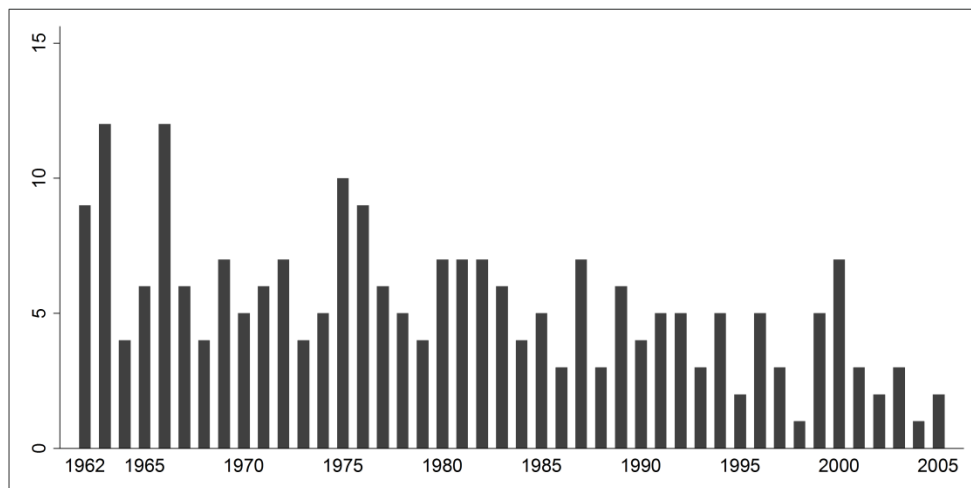
The independent variable

The main independent variable of this study, economic growth, is measured with data from the World Bank's World Development Indicators (WDI). This data gives the annual percentage growth

rate of GDP/cap based on local currency, but is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. I chose this measure because it is widely used, and because this measure gives the weakest and most insignificant results in Kim's (2014) article. The use of the WDI measure thus provides the most conservative test of the proposed hypotheses in this study. Still, I do some robustness checks with other GDP/cap growth measures later in this article (see below).

One could object, though, that the immediate growth rates should not have an effect on coup attempts. Even the most fragile regimes are able to whether off a one-year economic crisis by getting economic support from outside countries, which were both possible during the Cold War (through economic support from one of the two superpowers) and today (through loans from IMF or foreign aid). Instead, one could argue that it takes a more persistent economic crisis before the fiscal capabilities of governments are undermined and subsequently sets the economic interests of key elite groups at risk. I therefore, both employ a simple economic growth specification with a one year lag in order to capture any immediate effects, but also employ several moving averages of economic growth in order to capture the effects of more persistent economic crises. More specifically, I employ three additional measures: A moving average of the current year (lagged) + 1 previous year, a moving average of the current year (lagged) + two previous years, and finally, a moving average of the current year (lagged) + four previous years.

Control variables

I also include a number of control variables based on their potential confounding effects, that is, variables that are theoretically expected to affect both economic growth and the risk of coup attempts.

First, *Economic development* is supposed to affect growth rates (xx xx xx), and coups tend to occur more frequently in poor, underdeveloped countries (Londregan & Poole, 1990). To

control for economic development, I use (logged) GDP per capita with data from the World Bank's World Development Indicators (WDI).

Second, *Regime type* affects economic growth by affecting societal participation in the institutions of the state (xx xx xx) and also affects the risk of coup attempts (see e.g. Svolik, 2009). To control for regime type, I use Unified Democracy Scores (UDS) from Pemstein, Meserve, and Melton (2010). The UDS incorporate information from 10 measures of democracy: Arat (1991), Bowman, Lehoucq, and Mahoney (2005) (BLM), Bollen (2000), Freedom House (2007), Hadenius (1992), Przeworski et al. (2000) (PACL), Polity scores by Marshall, Jaggers, and Gurr (2006), Polyarchy scale by Coppedge and Reinicke (1991), Gasiorowski's (1996) Political Regime Change measure (PRC), and Vanhanen (2003). In this way, the UDS average the uncertainty inherent in each of the often used measures mentioned above and thus seem to be the best solution for a regime measure in this study.

Third, *Oil dependency* reduce economic growth through reduced incentives to extract revenue from society (Ross, 1999, 2012; Karl, 1997), and existing studies have argued that dependency on primary commodity exports increases the risk of coups (see O'Kane, 1983, Kposowa & Jenkins, 1993). To control for oil dependency, I include a variable for the value of oil production (in billions of 2009 dollars), with data from Ross's (2013) Oil and Gas Dataset.

Fourth, *Ethnic fractionalization* could affect growth rates by making it more difficult to create a united country (xx xx xx), and ethnic divisions also increase the risk of coup attempts, especially if those who are in control of major state institutions are composed of different ethnic groups than those at the top of the military (see Jackman, 1978, 1986; Jenkins & Kposowa, 1992). To control for ethnic fractionalization, I use Fearon and Latin's updated ethno-linguistic fractionalization index (ELF). The measure ranges from 0–1 with 1 representing maximum ethnic fractionalization.

Fifth, *Population size* affect economic growth by … (xx xx xx) and also increase the risk of political instability and violent insurgencies against the state (Buhaug, 2006: 701, Collier & Hoeffler, 1998: 566). For this purpose, I use data for population size from the Maddison Project (Bold & Zanden, 2013).

Sixth and seventh, as coup attempts are more frequent in times of civil wars (xx xx xx) and less frequent in times of interstate wars (xx xx xx), and as both affects economic growth (xx xx xx), I control for *Ongoing civil war*, and *Ongoing Interstate War* with data from the Uppsala Conflict Data Program/International Peace Research Institute (UCDP/PRIO) Armed Conflict Data set, version 4 (Gleditsch et al. 2002). In order to avoid cross-codings of the same event as both an instance of coup attempt and a civil war (in the event of a coup attempt causing more than 25 deaths), I follow Powell and Thyne (2010) in recoding all instances of civil wars in the UCDP/PRIO dataset that should most correctly be defined as coup attempts rather than civil wars. [2]

Finally, a prior coup attempt both affect economic growth (xx xx xx) and furthermore affects the likelihood for another coup attempt via the so-called 'coup-trap' (Ezrow & Frantz, 2011: 104-105). Hence, I follow the method of Carter and Signorino (2010) by including cubic polynomials of the time since last coup attempt was observed for each country.

Table I provides summary statistics for all included variables in this study.

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[2] Following Powell and Thyne's list of recommended recodings, 32 civil war onsets in the UCDP/PRIO dataset are recoded as coup attempts.

Table I. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
Dependent variable:						
Coup attempt	4929	0.047	0.212	0	1	Powell & Thyne (2011)
Independent variables:						
GDP/cap growth	4929	0.018	0.061	-0.500	0.905	World Bank's World Development Indicators
Av. growth (1 prev. year)	4929	0.017	0.052	-0.429	0.612	World Bank's World Development Indicators
Av. growth (2 prev. year)	4929	0.017	0.048	-0.429	0.580	World Bank's World Development Indicators
Av. growth (4 prev. year)	4929	0.017	0.043	-0.429	0.580	World Bank's World Development Indicators
Democracy	4929	0.058	0.968	-1.999	2.116	World Bank's World Development Indicators
Control variables:						
GDP per capita (log)	4929	4900.8	7449.8	6.223.7	46605.7	World Bank's World Development Indicators
Ongoing intrastate war	4929	0.039	0.194	0	1	UCDP/PRIO (Gleditsch et al., 2002)
Ongoing civil war	4929	0.157	0.364	0	1	UCDP/PRIO (Gleditsch et al., 2002)
Oil exports value	4929	4.72e+09	1.83e+10	0	3.44e+11	Ross's (2013) Oil and Gas Dataset
Population size	4929	35613.7	121882.1	363.4	1296075	Maddison Project (Bold & Zanden, 2013)
Ethnic fractionalization	4929	0.4818371	0.2638574	0.004	1	Fearon & Latin (2003)

FINDINGS AND INTERPRETATION

Economic growth and coup attempts through time

The results from the examination of the proposed hypotheses are presented in Table II. Table II consists of 12 conventional logit models, measuring the effect of economic growth on coup attempts in the period 1962–2005. The effect of the four economic growth variables – the current year growth, and the three moving averages (all lagged by one year) – is shown for three different subsamples: The whole time period, the Cold War period, and the Post-Cold War period. In addition, a graphical presentation of the predicted probabilities (with all other variables set at their mean values) for all economic growth variables and models are available in the appendix.

[The graphical presentations have not been ready for this presentation]

Model 1 reveals that – as with most other recent studies – the estimating immediate effect of economic growth is insignificant for the whole time period. For a given country with mean values on all other included variables, increasing the economic growth variable from the 25th

percentile to the 75th percentile, that is, from approximately -0.3% to 4.7%, only reduces the annual risk of a coup attempt from approximately 2.3% to about 2.2%.[3] As the baseline risk for a coup attempts for countries with mean values on all included variables in the whole time period is 2.2%, this decrease in coup-risk is negligible. Model 2 further reveals that the relationship is also weak in the Cold War period. Increasing economic growth from the 25th percentile to the 75th percentile, that is, from -0.7% to about 4.9%, while holding all other variables at their mean values, reduces the annual risk of a coup attempt from approximately 3.7% to about 3.5%.

On the other hand, Model 3 shows that economic growth does have a quite significant effect in the Post-Cold war period. For a given country with mean values on all other included variables, increasing economic growth variable from the 25th percentile to the 75th percentile, that is, from approximately -0.12% to 4.5%, reduces the annual risk of a coup attempt from approximately 0.1% to about 0.088%. This may seem as a small decrease in coup-risk at first. Yet, taking into consideration that the baseline risk for countries with mean values on all variables is only 0.1 % in the Post-Cold War period,[4] the increase in economic growth from 25th to the 75th percentile in fact reduces the coup risk with 12%.

All in all, the results show that the effect of economic growth – while being insignificant during the Cold War period – is quite significant in the Post-Cold War period. This supports the assertion that the structure of the bipolar international system during the Cold War, and the ensuing interference from the two superpowers in other countries' affairs, effectively blocked the relationship between economic growth and coup attempts, whereas after the Cold War the absence of this massive interference permitted the effect of economic performance to take its natural course.

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[3] The predicted probabilities are calculated by using the 'margins' command in Stata. The results do not change significantly when using the Clarify software packet by King, Tomz, and Wittenberg (2000). In addition, all predicted probabilities are calculated by setting all other variables at median values as well as using the 'observed values approach' (see Hamner & Kalkan, 2013) without any significant changes in the results.
[4] The overall baseline risk (without setting variables at mean values) for the Post-Cold War period is 2.4%

Moreover, Table II reveals that this pattern is generally the same regardless of the economic growth measure. In the Post-Cold War period both short term crises and more persistent economic crises affect the coup-risk. On the other hand, as all economic growth variables are insignificant in the Cold War period, this seems to suggest that the extensive interference from the superpowers during the Cold War were able to suppress even highly persistent economic crises. The strength of the significant effect in the Cold War period varies a little across the different measures, but not much. Increasing the 4 year moving average economic growth variable from the 25th percentile to the 75th percentile, that is, from 0.3% to about 3.7%, while holding all other variables at their mean values, reduces the annual risk of a coup attempt from approximately 0.11% to about 0.009%, which is slightly more than the immediate growth effect.

Table II. Logit Regression of Coup attempts, 1962–2005

	(1) Whole time period	(2) Cold War period	(3) Post-Cold War period	(4) Whole time period	(5) Cold War period	(6) Post-Cold War period	(7) Whole time period	(8) Cold War period	(9) Post-Cold War period	(10) Whole time period	(11) Cold War period	(12) Post-Cold War period
GDP/cap growth $_{t-1}$	-1.375 (0.965)	-0.753 (1.553)	-4.149*** (1.453)									
Av. growth $_{t-1}$ (prev. 1 year)				-0.621 (1.332)	0.787 (2.189)	-5.314** (2.101)						
Av. growth $_{t-1}$ (prev. 2 years)							-1.053 (1.353)	-0.380 (2.469)	-5.392*** (1.992)			
Av. growth $_{t-1}$ (prev. 4 years)										-2.033 (1.347)	-2.895 (2.415)	-6.119*** (2.311)
Democracy $_{t-1}$	-0.188 (0.115)	-0.047 (0.133)	0.392 (0.280)	-0.188 (0.116)	-0.041 (0.134)	0.406 (0.287)	-0.191* (0.116)	-0.047 (0.134)	0.397 (0.283)	-0.201* (0.116)	-0.059 (0.133)	0.390 (0.283)
GDP/cap. (log) $_{t-1}$	-0.000** (0.000)	-0.000** (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000** (0.000)	-0.001** (0.000)
Ongoing Interstate war $_{t-1}$	-0.375 (0.500)	-0.511 (0.614)	-0.111 (1.096)	-0.369 (0.498)	-0.521 (0.617)	-0.010 (1.041)	-0.369 (0.497)	-0.516 (0.614)	0.058 (1.008)	-0.362 (0.497)	-0.506 (0.609)	0.186 (0.974)
Ongoing civil war $_{t-1}$	0.460** (0.180)	0.398* (0.223)	0.930** (0.370)	0.470*** (0.180)	0.415* (0.222)	0.958** (0.377)	0.467*** (0.180)	0.403* (0.223)	0.972** (0.380)	0.463** (0.180)	0.380* (0.221)	0.993** (0.386)
Oil production value $_{t-1}$	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Population size $_{t-1}$	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)
Ethnic fractionalization	0.217 (0.340)	0.024 (0.381)	0.001 (0.727)	0.232 (0.339)	0.071 (0.381)	-0.003 (0.740)	0.226 (0.340)	0.037 (0.382)	0.005 (0.739)	0.215 (0.342)	-0.035 (0.384)	0.032 (0.733)
t^1	-0.029 (0.044)	0.059 (0.068)	0.025 (0.087)	-0.033 (0.044)	0.054 (0.068)	0.031 (0.091)	-0.032 (0.044)	0.057 (0.068)	0.028 (0.090)	-0.029 (0.043)	0.062 (0.068)	0.028 (0.092)
t^2	-0.001 (0.002)	-0.009* (0.005)	0.001 (0.004)	-0.001 (0.002)	-0.008 (0.005)	0.001 (0.004)	-0.001 (0.002)	-0.008* (0.005)	0.001 (0.004)	-0.001 (0.002)	-0.009* (0.005)	0.001 (0.004)
t^3	0.000 (0.000)	0.000* (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000* (0.000)	-0.000 (0.000)
Constant	-2.272*** (0.291)	-2.028*** (0.333)	-3.081*** (0.630)	-2.269*** (0.291)	-2.056*** (0.334)	-3.150*** (0.660)	-2.271*** (0.291)	-2.034*** (0.333)	-3.145*** (0.669)	-2.279*** (0.290)	-1.986*** (0.331)	-3.178*** (0.686)
N	4929	2937	1992	4929	2937	1992	4929	2937	1992	4929	2937	1992
No. of coups	232	185	47	232	185	47	232	185	47	232	185	47
Log pseudolikelihood	-840.37702	-624.23566	-188.4653	-841.25525	-624.28424	-188.17736	-831.22835	-614.64496	-188.71682	-840.35999	-623.4782	-188.58804

Note: Robust standard errors (clustered on country) are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Economic growth, democracy, and coup attempts.

The results for hypothesis 2 and 3 are present in Table III and Figure 2. Table III consists of 12 conventional logit models with interaction terms, measuring the effect of economic growth on coup attempts conditioned by democracy in the period 1962–2005. As with Table II, the effect of the four economic growth variables is shown for three different subsamples: The whole time period, the Cold War period, and the Post-Cold War period.

As is evident from Table III, the interaction terms are generally significant for the whole time period and particularly significant for the Cold War period. This seems to suggest that the effect of economic crisis is stronger for democratic countries than less democratic countries, and that this interaction effect is especially strong in the Cold War period. One should be careful though, not to use Table III exclusively when interpreting the interaction effects. As stated above, even when the coefficient for the interaction term in Table III (which influences the unbounded latent variable $Y*$) is statistically significant, there may not be significant interaction between the two variables in influencing Pr(Y). In addition to that, the sign of the coefficient for the interaction terms (again: which influences the unbounded latent variable $Y*$) may give a misleading signal about the direction of the interaction between economic growth and democracy in influencing Pr(Y). For these reasons, let's move on to Figure 2-5.

Figure 2-4 depict the interaction effect between economic growth (immediate effects) and democracy in predicting the probability of coup attempts for the three time periods respectively: the whole period, the Cold War period, and the Post-Cold war period. Each figure consists of two graphs: one that shows the magnitude of the interaction effect (the left graph) and one that displays whether the interaction effect is statistically significant, that is, whether the effects of X_1 on Pr(Y) varies with different values of X_2 to a significant degree (the right graph). In order to see how the

interaction effect varies with values on the other independent variables, both graphs depicts coefficients and z-statistics respectively over the entire sample range of Pr(Y).

As is evident from the left graph in figure 2-4, the interaction effect between economic growth and democracy on coup attempts is negative throughout the whole spectrum of Pr(Y). That is, the negative effect of economic growth on the risk of coup attempts is stronger in more democratic countries. Democracies simply have a higher chance of experiencing a coup attempt during an economic crisis.[5] However, as illustrated in the right hand side graphs, the interaction effects are insignificant for most observations especially in the whole time period and Post-Cold War period, but also somewhat in the Cold War period (which otherwise was quite significant in Table IV). This goes against the theoretical argument posited in this study, as we should expect the effect of economic growth to be conditioned on the degree of democracy – especially during the Cold War.

On the other hand, this conclusion pertains only for the immediate effects of economic growth. Figure 5 gives the interaction effects of the three economic growth moving averages and democracy for the Cold War period. These are strongly negative and significant in Table IV (which means that they significantly affects Y^*), and as figure 5 reveals, are significance for most observations here as well (which means that they also significantly affects Pr(Y)). This is quite interesting as it indicates that the interactive effect of economic crises and democracy in increasing the risk of coup attempts only pertains for more persistent crises. Seemingly, societal dissatisfaction and mobilization take a few years to build up steam. Therefore, only persistent disappointing economic growth rates are able to bring about coup attempts in democratic countries during the cold war.

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[5] Note, that the positive interaction coefficient from model 3 in table IV (depicted by the upward sloping light grey line in figure 4) is completely misleading, as the true effects are negative throughout the whole spectrum of Pr(Y) (depicted by the downward sloping dark grey dots in figure 4). This highlights the potential pitfalls by exclusively using table 4 when assessing the interaction effect.

All in all, by focusing on the persistent effect of economic growth, the results largely support the notion that economic growth and democracy interact in bringing about a coup attempt – especially during the Cold War. Apparently, the increased number of essential constituents with incompatible preferences resulted in incompatible policy demands and consequently did make it much more difficult for the incumbent government to take steps to reduce the impact of an economic crisis on their constituents, ultimately leading to coup attempts.

Table IV. Logit Regression of Coup attempts with interaction terms, 1962–2005

|	(1) Whole time period	(2) Cold War period	(3) Post-Cold War period	(4) Whole time period	(5) Cold War period	(6) Post-Cold War period	(7) Whole time period	(8) Cold War period	(9) Post-Cold War period	(10) Whole time period	(11) Cold War period	(12) Post-Cold War period
GDP/cap growth $_{t-1}$	-2.594** (1.010)	-3.374* (1.826)	-4.087*** (1.530)									
Growth*Democracy	-2.413* (1.245)	-3.907** (1.831)	0.190 (2.157)									
Av. growth $_{t-1}$ (1 prev. year)				-2.496* (1.319)	-3.135 (2.569)	-5.349*** (2.025)						
Av. Growth/1 * Democracy				-3.537*** (1.230)	-5.073*** (1.742)	-0.117 (3.065)						
Av. growth $_{t-1}$ (2 prev. year)							-2.683** (1.256)	-4.413* (2.680)	-5.443*** (1.957)			
Av. Growth/2 * Democracy							-2.968*** (1.125)	-4.785*** (1.608)	-0.169 (2.979)			
Av. growth $_{t-1}$ (4 prev. year)										-2.932** (1.469)	-6.438** (3.002)	-5.635** (2.209)
Av. growth /4 * Democracy										-1.825 (1.426)	-4.910** (1.953)	1.570 (3.341)
Democracy $_{t-1}$	-0.161 (0.116)	0.013 (0.136)	0.394 (0.279)	-0.135 (0.123)	0.058 (0.145)	0.404 (0.288)	-0.149 (0.123)	0.044 (0.141)	0.395 (0.283)	-0.178 (0.121)	0.025 (0.138)	0.402 (0.286)
GDP/cap. (log) $_{t-1}$	-0.000** (0.000)	-0.000* (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.001** (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.001** (0.000)
Ongoing Interstate war $_{t-1}$	-0.352 (0.497)	-0.485 (0.609)	-0.122 (1.124)	-0.343 (0.498)	-0.486 (0.612)	-0.007 (1.050)	-0.348 (0.497)	-0.485 (0.610)	0.061 (1.012)	-0.351 (0.496)	-0.478 (0.606)	0.180 (0.973)
Ongoing civil war $_{t-1}$	0.465*** (0.180)	0.393* (0.223)	0.929** (0.368)	0.472*** (0.180)	0.383* (0.225)	0.958** (0.376)	0.468*** (0.180)	0.361 (0.224)	0.973*** (0.378)	0.465*** (0.179)	0.344 (0.219)	0.984** (0.384)
Oil production value $_{t-1}$	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Population size $_{t-1}$	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000* (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000 (0.000)
Ethnic fractionalization	0.235 (0.340)	0.027 (0.377)	-0.000 (0.729)	0.260 (0.341)	0.063 (0.376)	-0.002 (0.752)	0.251 (0.341)	0.028 (0.377)	0.007 (0.753)	0.233 (0.342)	-0.023 (0.378)	0.011 (0.745)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
t^1	-0.027	0.060	0.025	-0.028	0.062	0.031	-0.026	0.068	0.029	-0.027	0.069	0.026
	(0.043)	(0.068)	(0.087)	(0.043)	(0.067)	(0.091)	(0.043)	(0.068)	(0.090)	(0.043)	(0.068)	(0.092)
t^2	-0.001	-0.009*	0.001	-0.001	-0.009*	0.001	-0.001	-0.009*	0.001	-0.001	-0.009*	0.001
	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)	(0.004)	(0.002)	(0.005)	(0.004)
t^3	0.000	0.000*	-0.000	0.000	0.000*	-0.000	0.000	0.000*	-0.000	0.000	0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-2.286***	-2.003***	-3.078***	-2.291***	-2.013***	-3.152***	-2.298***	-2.003***	-3.148***	-2.296***	-1.971***	-3.153***
	(0.291)	(0.337)	(0.630)	(0.293)	(0.340)	(0.664)	(0.291)	(0.337)	(0.685)	(0.290)	(0.331)	(0.688)
N	4929	2937	1992	4929	2937	1992	4929	2937	1992	4929	2937	1992
No. of coups	232	185	47	232	185	47	232	185	47	232	185	47

Note: Robust standard errors (clustered on country) are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
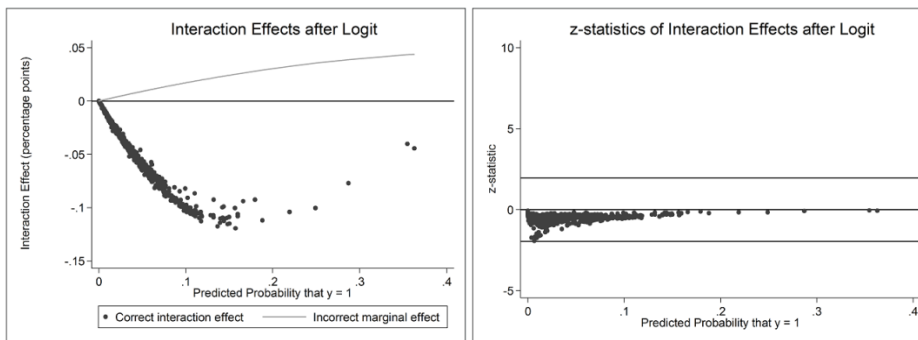
Figure 2: Interaction effects of economic growth and democracy for the whole time period
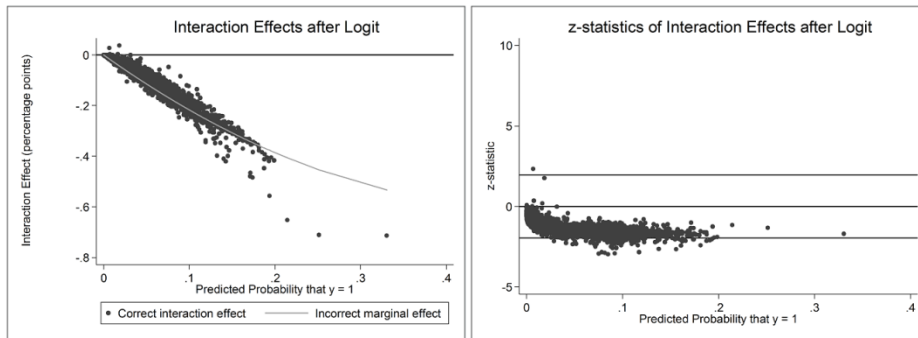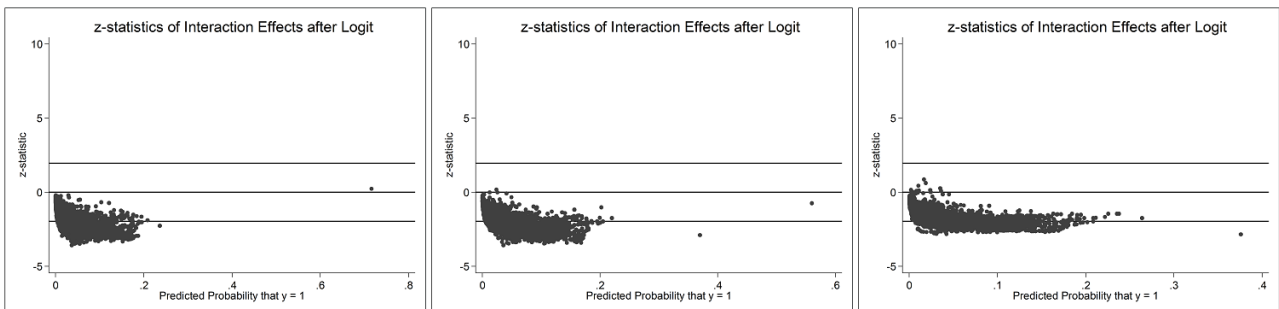

Figure 3: Interaction effects of economic growth and democracy for the Cold War period
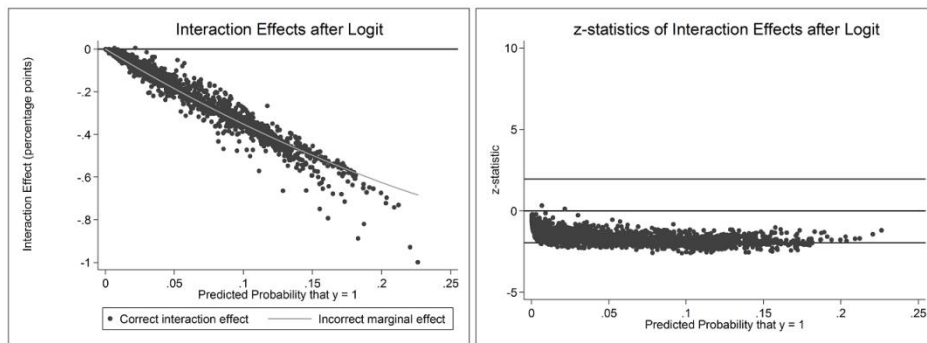
Figure 4: Interaction effects of economic growth and democracy for the Post-Cold War period

Figure 5: Interaction effects of economic growth MA's (1, 2, 4 years) and democracy for the Cold War period

ROBUSTNESS CHECKS

To test the robustness of the results three additional analyses are undertaken: 1) An Instrumental Variable estimation approach in order to account for simultaneous bias, 2) a Fixed-effects estimation approach in order to account for omitted variable bias and within-effects, and 3) employment of different economic growth and democracy measures in order to tests whether the results are simply an artifact of the used data.

IV estimation

A major reservation with the results of this study is the possibility of simultaneous causation in the relationship between economic growth and coup attempts. On could possibly argue that coup attempts do not only occur because of weak economic growth, but also that the economy in coup-prone countries is weak due to the risk of those exact same coup attempts. Even though this problem is partly overcome by including the time polynomials and by lagging the independent variables, we still need a more explicit way of testing for this kind of endogeneity. This calls for an exogenous measure of economic growth. Therefore, I employ an IV strategy with rainfall and temperature variation as instruments for economic growth, in order to isolate the exogenous variation in economic growth – an approach that has been employed by several other studies (see e.g. Satyanath & Sergenti, 2004; Burke & Serginti, 2004; Kim, 2014). Similar to Burke & Leigh (2010) and Kim (2014), I interact rainfall variation with the median share of labor force in the agricultural sector in order to capture the differencing effect of rainfall on economic growth in agriculture/non-agriculture countries. In addition, as higher temperatures increase growth in cold countries and reduce growth in already warm countries, I follow Burke & Leigh (2010) and Kim (2014) by multiplying change in temperature by -1 for countries with $<12^o$ C for the period 1960-1970. The use of both weather shock measures ensures that the instruments capture the effects of both poor agricultural countries and more modernized countries. The instruments are instrumented

against the lagged economic growth variable without any moving averages. The results are presented in Table V.

Table V. IV probit estimation of Coup attempts, 1962–2005

	(1) Whole time period (1962-2005)	(2) Cold War period (1962-1991)	(3) Post-Cold War period (1992-2005)
Second stage			
GDP/cap growth $_{t-1}$	-7.392 (6.332)	-8.051[*] (4.642)	-14.731[***] (1.403)
Democracy $_{t-1}$	-0.088 (0.061)	-0.031 (0.064)	0.113[*] (0.058)
GDP/cap. (log) $_{t-1}$	-0.000[*] (0.000)	-0.000 (0.000)	-0.000 (0.000)
Ongoing Interstate war $_{t-1}$	-0.160 (0.227)	-0.205 (0.288)	-0.177 (0.274)
Ongoing civil war $_{t-1}$	0.242[**] (0.120)	0.246[**] (0.107)	0.040 (0.128)
Oil production value $_{t-1}$	-0.000 (0.000)	-0.000[**] (0.000)	0.000 (0.000)
Population size $_{t-1}$	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Ethnic fractionalization	-0.024 (0.252)	-0.189 (0.266)	-0.241 (0.148)
t^1	-0.004 (0.036)	0.017 (0.036)	0.100[***] (0.027)
t^2	-0.001 (0.002)	-0.003 (0.002)	-0.004[***] (0.001)
t^3	0.000 (0.000)	0.000 (0.000)	0.000[***] (0.000)
First stage			
Rainfall deviation$_{t-1}$ * Median agriculture	0.014[***] (0.005)	0.022[***] (0.006)	0.008[**] (0.004)
Temperature deviation$_{t-1}$	-0.347[**] (0.142)	-0.411[***] (0.139)	-0.282 (0.236)
Kleibergen-Paap F statistic			
N	4294	2390	1904

Note: Coefficients of most variables in the first stage estimation are omitted in order to save space. Robust standard errors (clustered on country) are in parentheses. [*] $p < 0.10$, [**] $p < 0.05$, [***] $p < 0.01$

[Interpretation of the results here]

Fixed effects estimation

A second robustness check is employed by testing each specification of the main models with fixed-effects logistic regression. One could argue that the effect of the economic growth variables in this study is due to omitted variable bias, that is, unobserved characteristics with the units that influence both their level of economic growth and the risk of coup attempts. In addition to that, one could wonder whether it is simply variation in economic growth *between* countries that explains the results, or whether changes in economic growth *within* countries also reduce the risk of coup attempts. With the employment of fixed-effects logistic regression, it becomes possible to control for such time-invariant unobserved heterogeneity as well as to analyze the within-countries effects.

[Fixed effects estimation here]

I haven't done these estimations yet.

Alternative measures

Last, but not least, one could argue that the results of this study are due to the measures used. The notable dissimilarities in different GDP measures are well-known especially for the developing countries (see e.g. Daton, 2010). Hence, different GDP measures could potentially reveal different conclusions. In addition, a much more pronounced disagreement exists with regard to the measurement of democracy (see e.g. xx xx xx). For these reasons, I redo the main analyses presented above with three alternative GDP measures from the Maddison Project (2010), the Penn World Table (PWT) 7.0, and Gleditsch (200). Furthermore, I employ alternative democracy scores from Polity IV (Marshall & Jaggers, 2011) and Vanhanen's (2011) Index of democratization.

[Models with alternative measures here]

I have done these estimations, and the results generally remain the same

CONCLUSION

[Conclusion and discussion of the contribution here]