# Prospective Impact of Expected Coup Outcomes on Coup Attempts: A Selection Mechanism Analysis

Zhu Qi
University of Essex
qz21485@essex.ac.uk

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**Abstract**

A substantial body of research has examined coups, with much of it focusing on the factors that lead to coup attempts. However, consensus remains elusive regarding why coups are more prevalent in certain countries while less so in others. Previous scholarship exploring the determinants of coup attempts has often overlooked the crucial aspect of coup success. Given the severe consequences of a failed coup, coup plotters are unlikely to proceed unless they perceive a high chance of success. Thus, the expected outcome of a coup—whether successful or unsuccessful—is not merely incidental but serves as a pivotal determinant of coup attempts. The decision to stage a coup is a self-selected variable contingent upon the anticipated success rate of coups. This study employs a sample selection model (specifically, a two-stage probit model) to elucidate why coups are more common in some autocratic countries but rare in others. I contend that coup attempts are largely shaped by the likelihood of coup success, which, in turn, hinges on the power dynamics between coup perpetrators and incumbents. These power dynamics are influenced by the regime type and their distinct responses to internal and external shocks.

*Keywords:* Coup, Autocracy, Regime types, Sample selection

# 1 Introduction

Coups occur with varying frequency across different countries, with some experiencing them more frequently than others. According to the Global Instances of Coups (GIC)[1] dataset (J. M. Powell and Thyne 2011), Latin American countries such as Bolivia witnessed 23 coups between 1950 and 1984, while Argentina experienced 20 during a similar time frame. However, Mexico's authoritarian period from 1917 to 2000 saw no coups at all. In Africa, Sudan endured 17 coups between 1955 and 2023, whereas South Africa has not experienced any coup since 1950. Similar patterns are observed in the Middle East and South Asia. The question of why coups occur more frequently in certain regions, countries, and periods, while being less common in others, has captivated scholars for decades. Consequently, scholars have delved into extensive research on coups. Despite numerous efforts in past studies to shed light on these disparities, a definitive model or set of determinants for analysing coups remains elusive. As highlighted by Gassebner, Gutmann, and Voigt (2016), although approximately one hundred potential determinants of coups have been suggested, the fundamental question remains unanswered.

However, despite extensive research by scholars, the impact of anticipated outcomes on coup initiation has not received sufficient attention. When analysing the determinants of coups, it's crucial not to overlook the most significant characteristic of coups themselves. As noted by J. M. Powell and Thyne (2011), coups are "illegal and overt attempts by the military or other elites within the state apparatus to unseat the sitting executive."(J. M. Powell and Thyne 2011, 252). Due to their illegality, the consequences of a failed coup could be severe, with perpetrators risking imprisonment, exile, or even death. In some instances, the repercussions extend to the families of the coup perpetrators.

Despite the significant risks associated with coups, as shown in Table 1 since 1950, there have still been as many as 491 coups worldwide. Furthermore, more importantly, half of these coups have been successful. At first glance, coups seem to be a high-success-rate, high-reward political venture and speculation. However, compared to over 12,000 country-years since 1950, the occurrence of

[1] https://www.uky.edu/~clthyn2/coup_data/home.htm, accessed on 2024-05-23

491 coups appears rather rare, accounting for less than 4% (J. M. Powell and Thyne 2011).

The low occurrence rate and high success rate indicate that the initiation of coups is highly selective. In other words, the likelihood of a coup occurring depends greatly on its potential success rate. Coup plotters carefully assess their chances before staging a coup. If they decide to proceed, it suggests that the conditions are relatively ripe, hence the fifty-fifty success rate. Plans with immature conditions and low chances of success are automatically filtered out. Fundamentally, launching a coup is not like participating in a general election, where failure in one election allows for another attempt in the next election. A coup is a high-stakes gamble where success brings substantial rewards, while failure may result in martyrdom. Failure, put differently, means permanent and absolute defeat. Furthermore, the outcomes of coups are typically decided within a matter of days, sometimes even mere hours. Unlike prolonged conflicts where victories or defeats may shift over time, the success of a coup is often sealed at its inception. Every detail must be meticulously planned and arranged beforehand.

Hence, the factors influencing the success rates of coups play a significant role in shaping coup attempts. This study employs a sample selection model to examine the factors affecting the success rates of coups and, consequently, the likelihood of coup attempts. I posit that the power dynamics among coup perpetrators, incumbents, and other ruling elites are pivotal in determining the success of coups. These dynamics are largely contingent on regime types, highlighting the pivotal role of regime types in shaping coup attempts.

This study offers two potential contributions to the existing literature: firstly, it highlights the significance of power dynamics within various regime types as critical factors influencing coup attempts; secondly, it demonstrates how sample selection models can enhance our understanding of coup attempts by taking into account the success rates of coups.

Table 1: Top 10 countries with the most coup attempts

| Country | Coup Attempted | Coup Succeeded | Success Rate |
|---|---|---|---|
| Bolivia | 23 | 11 | 47.8% |
| Argentina | 20 | 7 | 35.0% |
| Sudan | 17 | 6 | 35.3% |
| Haiti | 13 | 9 | 69.2% |
| Venezuela | 13 | 0 | 0.0% |
| Iraq | 12 | 4 | 33.3% |
| Syria | 12 | 8 | 66.7% |
| Thailand | 12 | 8 | 66.7% |
| Ecuador | 11 | 5 | 45.5% |
| Burundi | 11 | 5 | 45.5% |
| Guatemala | 10 | 5 | 50.0% |
| Total | 491 | 245 | 49.9% |

*Source: GIC dataset*

The subsequent section of this paper delves into previous research on coups. Following that, in Part 3, I present the research framework and propose hypotheses. Part 4 provides insights into the data and variables utilized in the study. The testing results are discussed in Part 5, followed by the conclusion in Part 6.

# 2 Dynamics of coup attempts and outcomes

When contemplating a coup, plotters grapple with two crucial factors that also occupy coup scholars: ***disposition*** (why they take the risk) and ***capability*** (whether they can succeed).

## 2.1 Disposition: Motivations for Coups

Coup motivations can be categorized into three main types:

**Personal Ambition:** The allure of absolute power, prestige, and wealth for themselves, family, and close associates is a significant motivator. Wintrobe (2019) distinguishes between totalitarian and tinpot dictators based on their use of power. Totalitarian leaders control every aspect of life, relishing their authority. Tinpot leaders, however, prioritize personal enrichment, indulging in extravagant lifestyles.

**Purported National Interest:** Sometimes, coups are justified as rescuing a nation in crisis, upholding the constitution, or facilitating a democratic transition. However, scepticism is warranted, as self-serving plotters often use such rhetoric. Nevertheless, legitimate cases exist. In 2010, a coup in Niger ousted President Tandja, who attempted an unconstitutional third term. His actions, including dissolving the opposing Constitutional Court and calling a self-serving referendum, triggered a coup to protect the constitution (Ginsburg and Elkins 2019).

**Self-Preservation:** In rare instances, coups serve as a last resort against imminent political persecution. Coup leaders might not seek power but fear elimination by the incumbent leader. Consequently, the coup becomes a pre-emptive strike rather than an ambitious power grab. An example is Idi Amin, who, in 1971, staged a coup against Ugandan President Obote, who was attempting to remove Amin from his position as army commander-in-chief (Sudduth 2017).

While these motivations can arise in any regime, autocracies are more susceptible, particularly for the latter two types. Stable democracies rarely face such constitutional crises or political persecutions that necessitate coups to protect them. However, new democracies can be vulnerable to instability, economic downturns, and democratic backsliding which coup plotters can then use as a pretext to justify their actions.

Despite these potential motivations, coups are relatively uncommon, occurring in only $4\%$ of country-years since 1950. This is because even the most determined coup plotters require the capability to succeed, which we will explore in the next section. No rational actor attempts a guaranteed failure.

## 2.2 Capability

While there may be numerous ambitious political figures vying to seize supreme power for various reasons, only a select few have the opportunity to orchestrate a coup. What truly determines their ability to launch a coup, however, is not merely their willingness, but their capability. Yet, compared to the incumbent, coup plotters naturally face disadvantages.

Firstly, as previously mentioned, coups constitute illegal actions against incumbent leaders. To avoid the severe consequences of exposure or failure, coup plots must remain clandestine within a tightly knit core group. Coup plotters cannot openly recruit supporters to bolster their strength, while incumbents can openly implement coup-proofing strategies to thwart coup attempts.

Secondly, coup plotters are uncertain about how other ruling factions might react to their actions, particularly those capable of altering the balance of power. Conversely, incumbent leaders possess a keen understanding of power dynamics and take proactive measures to tilt the balance in their favour. Though unaware of specific coup instigators, incumbent leaders are keenly aware of potential threats and adapt accordingly to those who possess the capability to challenge them.

Thirdly, coup plotters grapple with a loyalty dilemma and unreliable commitment among participants. The risks involved are considerable, and anticipated benefits are highly uncertain. Even in the event of a successful coup, there is no guarantee that promises made by coup leaders will be honoured. Additionally, post-coup purges often target capable assistants to pre-empt future challenges. Consequently, defecting to support the incumbent leader seems less risky and offers a safer bet with predictable rewards.

Given these challenges, rational coup plotters are unlikely to risk their lives for a coup with low odds of success. Instead, they may opt to abandon their plans or bide their time until success becomes more feasible. Therefore, when coup perpetrators decide to take action, they must have meticulously assessed their chances of success and deemed the risk worthwhile.

But what constitutes a ‘good enough’ chance of success for coup plotters to proceed? Before delving into a theoretical framework to analyze this question, let’s first examine historical data to gain a rough idea. Surprisingly, previous coups since 1950 suggest a rather satisfactory success

rate, nearly $50\%$, as depicted in Table 1.

## 2.3 Framework of coup success

An oft-cited framework (**?**; Aidt and Leon 2019) provides a structured approach to assess the disposition and capability of coup attempts by evaluating the anticipated benefits for coup plotters. The expected payoff of coups can be represented by the equation:

$$E(U) = p \times B + (1 - p) \times (-C) \tag{1}$$

Here, **B** represents the return of a successful coup, **C** signifies the cost of a failed coup, and $p$ represents the probability of coup success. The condition for staging a coup is when the expected benefit is positive, meaning that the expected pay-off is greater than 0. Rearranging the equation, we get:

$$p \times B > (1 - p) \times C \tag{2}$$

Equation 2 implies that for Equation 1 to hold, the expected benefits earned from successful coups must outweigh the expected cost of failed coups.

While seemingly clear, the equation faces practical challenges. Quantifying **B** (the value of a successful coup) and **C** (the cost of failure) is difficult. The loss of life, freedom, or loved ones after a failed coup, as well as the value of assuming leadership after a successful coup, are intangible concepts that defy precise measurement. As evidenced by the 1979 coup in Ghana[2], the fate of the coup leader(s) hangs in the balance; they are high likely to be killed if the coup fails, or to execute others if the coup succeeds.

However, these challenges do not render the framework useless. Firstly, its core logic remains valuable, offering insights into how coup plotters might assess the return and cost of their actions.

[2]In the case of the Ghanaian coup, flight lieutenant Jerry John Rawlings narrowly avoided execution after his initial failure, being freed by mutinous soldiers. Three weeks later, following Rawlings' successful overthrow of the government, the deposed leader, General Fred Akuffo, was executed along with many other senior members of his government.

Secondly, given the significant and elusive nature of precise values for **B** and **C**, they can be treated as roughly equal. Consequently, there is no need to fret over how to measure and compare these values precisely. Instead, we can shift our focus from **B** and **C**, to the probability of success ($p$), simplifying Equation 2 to:

$$p > (1 - p) \tag{3}$$

Equation 3 suggests that, to hold Equation 2 true, a success probability greater than $50\%$ is necessary. Interestingly, empirical data on coups since 1950 somewhat supports this notion. As shown in Table 1, the overall success rate is $49.9\%$. While this falls short of the $50\%$ threshold, it's important to consider two factors. Firstly, this is an average rate, not necessarily reflective of the probabilities assessed by coup plotters beforehand. Secondly, outliers such as irrational actors and coups driven by self-preservation may not prioritize success probabilities. Taking these points into account, we can propose our first hypothesis:

> ***H1: The primary determinant of a coup attempt is the perceived chance of success. Coup plotters likely require a success threshold of at least 50%.***

This leads us to the next crucial question: what factors determine a coup's success, influencing the very decision to attempt one? While specifics may vary, the core element hinges on the power dynamic between coup plotters and the incumbent leaders. Logically, the more powerful entity holds a greater advantage in this high-stakes struggle for control.

## 2.4 Regime types and power dynamics

When discussing the balance of power, the first aspect that springs to mind is military prowess. It is evident that control over the military grants individuals the upper hand in coup attempts. This elucidates why military coups often take center stage in coup discussions. In much of the literature on coups, the terms "coup" and "military coup" are frequently used interchangeably, as many scholars argue that coups are orchestrated by military personnel through the use or threat of armed

forces. J. M. Powell and Thyne (2011) summarise 14 studies on coups, with half of them attributing coup attempts solely to 'the armed forces'. Consequently, most attention, both from academic researchers and political leaders, is focused on the balance of power between civilian and military authorities, or among military factions. Strategies such as "Keeping the military content" (Aidt and Leon 2019, 15) or "providing them with resources" (Huntington 1991, 252) have been proposed to mitigate military intervention. Many coup-proofing strategies, informed by empirical research, aim to either decrease the military's inclination to stage coups or erect barriers to their success. For instance, studies by Leon (2013) suggest that nations with lower military spending as a percentage of GDP are more vulnerable to coups. Similarly, J. Powell et al. (2018) argue that increased military expenditures may diminish the likelihood of coups among military factions.

However, previous studies have often oversimplified the intricate balance of power within military forces. They have frequently assumed that the military operates as a monolithic entity, uniformly and decisively. Such a notion fails to capture the complexities of real-world dynamics.

It is crucial to acknowledge that the military is not always a unified entity. Regardless of its size, any military force is composed of various groups or factions, each with its own chain of command. Within these factions, mutual suspicion, competition, and vigilance are common, while moments of unity are rare. Due to the clandestine nature of coups and the need for secrecy, coup attempts are often orchestrated within small, tight-knit groups. Coup plotters are uncertain about the stances and intentions of other factions beforehand, and they are particularly worried that once the coup is initiated, other factions may not only refuse to support it but also actively oppose, intervene in, or even suppress it. As in the attempted coup in Niger in 2021, which occurred just two days before the new presidential inauguration, the military unit that staged the coup was swiftly thwarted by Niger's security forces, resulting in the failure of the coup within an hour[3]. Therefore, the success of a coup heavily depends on the reactions of other military factions (Geddes 1999).

More importantly, the relationship between a government and its military varies significantly across different regime types. In democracies, civilian authority reigns supreme. The military is

[3]Niger: Attack on presidential palace an 'attempted coup'. Source: Al Jazeera. Retrieved from https://www.aljazeera.com/news/2021/3/31/heavy-gunfire-heard-near-nigers-presidency. Accessed on 2024-05-23.

considered a national institution, bound by the constitution rather than individual leaders, whether military or civilian. For instance, the United States Armed Forces serve under the President's command but ultimately answer to the Constitution, ensuring they remain politically neutral.

In contrast, non-democracies present a more complex picture. The lines of authority are often either poorly defined in written documents or blatantly disregarded by those in actual power. Identifying the true leader of the military hinges on the specific regime type. To explore this further, we will utilize the foundational concepts outlined by by Geddes, Wright, and Frantz (2014) (GWF), which categorise autocratic regimes based on leadership origins and decision-making factors. These regimes fall into three broad categories: military regimes, personalist regimes, and dominant-party regimes. Democracies and monarchies will also be included in our analysis for comparative purposes.

**Military Regimes**

As defined by GWF, military regimes are characterized by the dominance of a junta – a group of military officers who control the regime's power structure, including leadership selection and policy formulation. Examples include the Brazilian regime (1964-1985), the Argentine regime (1976-1983), and the Salvadoran regime (1948-1984) (Geddes 1999). Notably, political parties might still exist within military regimes, but they typically act as mouthpieces for the junta or align themselves with the military's directives to avoid being categorized as dominant-party regimes. Additionally, while a junta may appoint a senior officer as the head of state or utilize civilian administrators as intermediaries, the authority of these intermediaries over other officers remains limited, differentiating military regimes from personalist ones.

**Personalist Regimes**

In a typical personalist regime, absolute power rests with a single dictator. This encompasses policy making, control over the military, and the authority to appoint top officials and successors. Personalist regimes often emerge under charismatic leaders, particularly founding figures of newly independent nations. Regimes like Rafael Trujillo's in the Dominican Republic (1930-1961), Idi Amin's in Uganda (1971-1979), and Jean-Bédel Bokassa's in the Central African Republic (1966-

1979) exemplify personalist rule (Geddes 1999). In such regimes, political parties are either absent or completely subservient to the dictator. Importantly, the dictator may or may not have a military background, but the military itself falls under their control.

**Dominant-Party Regimes**

In a dominant-party regime, supreme power resides within the ruling party, with the leader acting as its representative and subject to its collective leadership. Examples include the Partido Revolucionario Institucional (PRI) in Mexico, the Revolutionary Party of Tanzania (CCM), and Leninist parties in various Eastern European countries (Geddes 1999). The dominant party is a well-organized and disciplined entity with its own ideology and political agenda used to unite and mobilize its members and supporters. While powerful leaders may emerge within such regimes, like Stalin in the Soviet Union (1924-1953) and Mao Zedong in China (1949-1976), they lack the absolute power to dismantle or replace the party altogether.

According to Geddes (1999), different factions within a regime – military officers, party cadres in dominant-party systems, and members of cliques in personalist regimes – have distinct interests. For instance, professional soldiers prioritize military survival and efficacy, party cadres seek to hold office, and members of cliques depend on supporting the incumbent leader for their own survival and relationships. While their strategies may differ, all ruling groups ultimately prioritize self-preservation and advancement.

The key distinction between military, dominant-party, and personalist regimes lies in the unique balance of power established by each. This power dynamic emerges during the power seizure process. The most competent group, be it a military junta, a political party, or a strongman, typically rises to power due to the demanding nature of seizing control. Sudduth (2017) and Roessler (2011) analyse the purging of co-conspirators after power seizures, arguing that these purges are more likely in the early stages of new regimes.

Following internal purges and external challenges, a new power dynamic emerges among the factions within a regime, typically solidifying into one of three main types: military regimes, personalist regimes, or dominant-party regimes.

Dominant-party regimes are the most stable due to their institutionalized structure. A dominant party is a highly organized group with shared political beliefs, goals, and ideologies. This shared ideology fosters internal cohesion and a long-term vision, resulting in a robust structure with no single individual wielding absolute power. The military force aligns with the party itself rather than individual leaders, contributing significantly to greater regime stability compared to personalist or military regimes. Dominant-party regimes also manage leadership succession more effectively, as they typically regulate the process and enforce term limits. As demonstrated by Frantz and Stein (2017), 97% of country-years in dominant-party regimes have formalized institutional succession rules, compared to 77% in personalist regimes and a mere 59% in military regimes.

Personalist regimes also exhibit a degree of stability, as dictators usually emerge from intense internal and external competition, with the most competent, tough, and powerful individuals ultimately prevailing. Potential challengers have often been purged, resulting in a relatively stable status quo within the dictator's close circle. However, personalist regimes are vulnerable due to the sudden death of incumbents. Rarely is there a universally accepted successor during the chaos of power transitions, as incumbent dictators often purge potential rivals. This uncertainty can trigger coups. Thus, while personalist regimes maintain relative stability as long as succession is not an immediate issue.

In contrast, military regimes are typically the least stable. These regimes often rule through a junta, where power is shared equally among members. Mistrust and suspicion are common, leading to frequent conflicts over benefits and policies. Without a single authority figure, resolving these conflicts is challenging, as no member is willing to concede, and no senior authority can enforce resolutions. For example, General Augusto Pinochet was chosen to lead the junta in Chile after the 1973 coup because his colleagues saw him as a safe choice due to his professionalism, respect for rules, and uncharismatic demeanor (Arriagada Herrera 1988). Although Pinochet later surprised them, this example illustrates that juntas are generally unstable leadership groups.

These differing power dynamics significantly impact the likelihood of coup attempts. Military regimes, in particular, have an inherent predisposition towards coups, as junta members typically

command their own military factions, eliminating the need to organize an army for a coup. According to Table 2, military regimes face the highest risk, representing only 5.6% of country-years yet accounting for over 22% of coups. Personalist regimes follow, with 23% of coups despite comprising only 13% of country-years. Dominant-party regimes, with their stronger institutions and unified leadership, have the lowest incidence of coups, constituting 22.6% of country-years but responsible for only 16.7% of coups.

Table 2: Regime types and coups since 1950

| Regime Type | Country Year | Share | Num of Coups | Percent of Coups | Success Rate |
|---|---|---|---|---|---|
| Democracy | 5303 | 46.7% | 122 | 24.8% | 51.6% |
| Dominant-Party | 2569 | 22.6% | 82 | 16.7% | 53.7% |
| Personal | 1477 | 13.0% | 113 | 23.0% | 44.2% |
| Monarchy | 1056 | 9.3% | 25 | 5.1% | 56.0% |
| Military | 638 | 5.6% | 110 | 22.4% | 48.2% |
| Other | 322 | 2.8% | 39 | 7.9% | 53.8% |
| Total | 11365 | 100.0% | 491 | 100.0% | 49.9% |

*Source: REIGN and GIC Datasets*

***H2: Due to their balance of power dynamics, military regimes are more prone to coups, followed by personalist regimes, while dominant-party regimes are the least likely to experience coups among the three.***

# 3 Research Design

## 3.1 Two-stage sample selection model

To account for the determinants of coup attempts, this study utilizes a sample selection model (Heckman 1979). While coup attempt rates vary across regimes, success rates tend to converge

around 50% (Table 2). This suggests coup attempts are strategically planned, targeting situations with a perceived high chance of success. Consequently, a standard regression model would yield biased results. Therefore, we use the two-stage `probit` model, as detailed by Van de Ven and Van Praag (1981) and utilized by J. Powell (2012), for empirical analysis. The first stage examines the probability that a regime experiences a coup attempt, while the second stage evaluates the probability of the attempt's success.

The primary explanatory variables are regime types, as previously discussed. Control variables are included in **XB**. The selection equation (first stage) models the probability that a coup attempt occurs and can be expressed as follows:

$$y_1^* = \alpha_0 + \alpha_1 Regime_i + \mathbf{XA} + \mu_{1i} \tag{4}$$

Here, $y_1{}^*$ is an unobserved variable, which may be known to coup plotters. $Regime_i$ is a categorical variable (*military*, *personalist*, or *dominant-party*). ***XB*** captures other control variables, such as the economic crisis index, previous coups, military expenditure, etc.

The observed binary outcome $\mathbf{y_1}$ is:

$$y_1 = \begin{cases} 1 & \text{if } y_1^* > 0 \text{ (coup attempt occurs)} \\ 0 & \text{if } y_1^* \leq 0 \text{ (no coup attempt)} \end{cases}$$

In the first stage, if $y_1^* \leq 0$, no coup attempt occurs in a given country-year, indicating that the unobserved variable does not reach the threshold. If $y_1^* > 0$, at least one coup attempt is made in a country-year, indicating that the unobserved variable surpasses the threshold. The probability is expressed as:

$$\begin{aligned} Prob(y_1 = 1) &= Prob(y_1^* > 0) \\ &= \Phi(\alpha_0 + \alpha_1 Regime_i + \mathbf{XA}) \end{aligned} \tag{5}$$

Similarly, the outcome equation (second stage) models the probability that a coup attempt is

successful, given that it occurs:

$$y_2^* = \beta_0 + \beta_1 Regime_i + \mathbf{XB} + \mu_{2i} \tag{6}$$

The observed outcome $y_2$ is:

$$y_2 = \begin{cases} 1 & \text{if } y_2^* > 0 \text{ (coup succeeds)} \\ 0 & \text{if } y_2^* \leq 0 \text{ (coup fails)} \end{cases}$$

The probability equations is:

$$Prob(y_2 = 1 | y_1 = 1) = \Phi(\beta_0 + \beta_1 Regime_i + \mathbf{XB}) \tag{7}$$

## 3.2 Variables

### 3.2.1 Dependent variable

To test our hypotheses, we use coup attempts and outcomes data from J. M. Powell and Thyne (2011) as the dependent variable. Successful coups are those in which the incumbent is removed from office for more than seven days. The dataset spans from 1950 to 2023, accounting for 491 coup attempts, of which 245 were successful. Descriptive statistics are presented in Table 1 and Table 2.

### 3.2.2 Independent variables

The primary independent variable in our analysis is the regime type. We follow the categories defined by Geddes, Wright, and Frantz (2014) (GWF). Our main focus is on military, personalist, and dominant-party regimes, with democracy and monarchy included as reference categories. Descriptive statistics are presented in Table 2.

### 3.2.3 Control variables

In selecting control variables, we draw on the research by Gassebner, Gutmann, and Voigt (2016), who test the robustness of 66 factors proposed in the empirical literature using a monthly sample of 164 countries from 1952 to 2011. They find that slow economic growth rates, previous coup experiences, and other forms of political violence are particularly conducive to inciting coups. Therefore, our main control variables are economic performance, political violence, and the number of previous coups.

**Economic performance:** We use the current-trend ($CT$) ratio developed by Krishnarajan (2019) to measure economic performance. This metric calculates the ratio between the current level of gross domestic product per capita (GDP/cap) and the average GDP/cap level of the previous five years. For a country $i$ at year $t$, the $CT$ ratio is calculated as follows:

$$CT_{i,t} = \frac{GDP/cap_{i,t}}{\frac{1}{5}\sum_{k=1}^{5} GDP/cap_{i,t-k}}$$

Since a given year's situation is primarily determined by the previous year, the variable is lagged by one year. The GDP per capita (in constant 2017 international dollars, PPP) is sourced from the V-Dem dataset provided by Fariss et al. (2022).

**Violence:** The violence index captures all types of violence and wars (internal or interstate), indicating the stability of the regime. This data is sourced from the Major Episodes of Political Violence (Marshall 2005).

**Previous coups:** This variable captures the number of previous coups in each country. In a two-stage sample selection model, the second-stage model cannot be identical to the first-stage model. Therefore, the first-stage model includes the number of previous coups, while the second-stage does not. Previous coups may have a greater impact on coup attempts, while once a coup is launched, the number of previous coups might not significantly explain the outcome.

# 4 Results and Discussion

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Tobit 2 model with binary outcome (sample selection model)

Maximum Likelihood estimation

BHHH maximisation, 20 iterations

Return code 8: successive function values within relative tolerance limit (reltol)

Log-Likelihood: -1665.655

9605 observations (9230 censored and 375 observed)

18 free parameters (df = 9587)

Probit selection equation:

Estimate Std. Error t value Pr(>|t|)

(Intercept) -0.1455091 0.2344089 -0.621 0.534780

regimedemocracy 0.0724835 0.0714468 1.015 0.310366

regimemilitary 0.7322360 0.0836651 8.752 < 2e-16 ***

regimemonarchy 0.3529891 0.1196613 2.950 0.003186 **

regimepersonal 0.3435270 0.0751628 4.570 4.93e-06 ***

ct -1.4376092 0.2231771 -6.442 1.24e-10 ***

violence 0.0476382 0.0137367 3.468 0.000527 ***

gdppc -0.0308403 0.0024607 -12.533 < 2e-16 ***

pre_coups -0.0006740 0.0002355 -2.862 0.004223 **

Outcome equation:

Estimate Std. Error t value Pr(>|t|)

(Intercept) -1.51934 0.62734 -2.422 0.0155 *

regimedemocracy 0.05683 0.16043 0.354 0.7232

regimemilitary 0.49701 0.33004 1.506 0.1321

regimemonarchy 0.17685 0.27766 0.637 0.5242

regimepersonal 0.02751 0.28882 0.095 0.9241

ct 0.13507 1.25933 0.107 0.9146

violence 0.02915 0.02604 1.119 0.2630

gdppc -0.02744 0.01186 -2.315 0.0207 *

Error terms:

Estimate Std. Error t value Pr(>|t|)

rho 0.7086 0.4445 1.594 0.111

## 4.1 Interpretation and Discussion

The findings from the two-stage probit model, as presented in Table 4, provide valuable insights into the dynamics of coup attempts and their likelihood of success across different regime types:

As hypothesized, both the coefficients for military and personalist regimes are positive and significant at the 1% level, indicating a higher likelihood of experiencing coup attempts compared to dominant-party regimes, holding other factors constant. This higher propensity for coup attempts in military and personalist regimes aligns with our hypothesis that these regimes face distinct internal power dynamics, increasing the likelihood of coup attempts.

All control variables are statistically significant at the 1% level. As expected, better economic performance and higher levels of GDP per capita help reduce the risk of coups. Surprisingly, more previous coups appear to reduce the risk of coups, but this finding is not substantially significant. This indicates that even after accounting for various relevant factors, regime type remains a critical determinant of coup likelihood. This underscores the robustness of our findings and the importance of regime type in understanding coup dynamics.

In the outcome equation, most variables are not significant at the 5% level. This supports our hypothesis that coup attempts are highly selective at the attempt stage, which removes the influence of these variables on the coup outcome. Interestingly, higher GDP per capita shows a positive relationship with the likelihood of coup success at the 5% significance level. This suggests that

Table 4: Results of the two-stage sample selection model

| | *Dependent variable:* | |
|---|---|---|
| | Selection | Outcome |
| | (1) | (2) |
| Constant | −0.146 | −1.519** |
| | (0.234) | (0.627) |
| regimedemocracy | 0.072 | 0.057 |
| | (0.071) | (0.160) |
| regimemilitary | 0.732*** | 0.497 |
| | (0.084) | (0.330) |
| regimemonarchy | 0.353*** | 0.177 |
| | (0.120) | (0.278) |
| regimepersonal | 0.344*** | 0.028 |
| | (0.075) | (0.289) |
| ct | −1.438*** | 0.135 |
| | (0.223) | (1.259) |
| violence | 0.048*** | 0.029 |
| | (0.014) | (0.026) |
| gdppc | −0.031*** | −0.027** |
| | (0.002) | (0.012) |
| pre_coups | −0.001*** | |
| | (0.0002) | |
| Observations | 9,605 | 9,605 |
| Log Likelihood | −1,665.655 | −1,665.655 |
| $\rho$ | 0.709 (0.445) | 0.709 (0.445) |
| *Note:* | *p<0.1; **p<0.05; ***p<0.01 | |

better economic conditions may provide more resources to coup plotters, thereby increasing the chances of a successful coup once attempted. Conversely, weak economies may trigger more coup attempts, though many of these are less likely to succeed.

The correlation coefficient ($\rho$) between the error terms of the selection and outcome equations is 0.7086 with a p-value of 0.111. Although positive, this correlation is not statistically significant, indicating that there may not be a strong correlation between the errors in the selection and outcome equations. This suggests that the selection bias might not be as severe as initially hypothesized.

Overall, the regression results indicate that the sample selection model is a well-specified choice for this research. The significant coefficients and theoretically consistent directions suggest that the model effectively captures key aspects of coup dynamics. Specifically:

- The direction and significance of the coefficients align with theoretical expectations. Regimes with less institutional stability, such as military and personalist regimes, are more likely to experience coup attempts.
- Better economic conditions, while reducing the likelihood of coup attempts, increase the likelihood of coup success.
- Coup attempts are not random events; they occur under specific conditions. Thus, treating the selection process (whether a coup attempt occurs) separately from the outcome (whether the coup is successful) effectively captures this non-randomness.
- The Heckman two-step model is designed to correct for selection bias. The similar success rates of coups across different regimes, despite varying attempt rates, indicate potential selection bias. This supports the need for a sample selection model, as coup plotters are likely to attempt coups only when they perceive a high likelihood of success.

In conclusion, the use of a sample selection model is appropriate for this research, providing robust insights into the factors influencing coup attempts and their outcomes across different regime

types. The results highlight the significant role of regime type in coup dynamics and the selective nature of coup attempts, thereby validating the theoretical framework and empirical strategy employed in this study.

# 5 Conclusion

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