

# **Irregular Leadership Transitions and Political Survival: An Analysis of Coup-entry leaders and Autocoup leaders**

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2024-06-09

## **Abstract**

This study explores and compares the survival time of two categories of irregular-entry political leaders: those who ascend to power through coups and those who overstay their legitimate term limits (autocoups). The central hypothesis posits that the mode of accession to power influences the duration of their tenures. Utilizing survival analysis, the results indicate that leaders who overstay their terms through autocoups generally remain in power longer than those who come to power through coups.

*Keywords:* Coups, Autocoups, Survival, Political Leadership, Cox Model

# 1 Introduction

The survival of political leaders has been a well-studied topic in political science. While the general framework has garnered significant attention, specific types of leaders, particularly coup-entry leaders and autocoup leaders (discussed in more detail in Chapter 3), have received comparatively less scrutiny. However, examining the tenures of these leader types is particularly significant.

Leaders who ascend through irregular means, such as coups or autocoups, attract more interest from both academics and journalists. The processes of entry, tenure, and exit are more predictable for leaders who come to power through regular channels, making their survival easier to anticipate and thus less compelling to study. In contrast, the uncertainty surrounding the tenures of irregular leaders draws more attention. According to Goemans, Gleditsch, and Chiozza (2009), leaders with irregular entries or exits are quite common and therefore worth analysing. Between 1945 and 2015, approximately 14.5% (213 out of 1,472) of leaders who assumed office through regular channels exited irregularly. The proportion is even higher among leaders with irregular entries. During the same period, approximately 51.3% (158 out of 308) of those who assumed office through irregular means experienced irregular exits.

Coup-entry and autocoup leaders constitute the majority of those who ascend to or exit from power irregularly. Most leaders who gained power through irregular means did so by launching coups or overstaying in office. According to Goemans, Gleditsch, and Chiozza (2009), out of 374 leaders who exited irregularly, 246 were ousted through coups, accounting for 65.8% of these cases. Frantz and Stein (2016) show that coup-related exits account for roughly one-third of all exits in autocracies, surpassing any other type, including regular transitions. Additionally, between 1945 and 2020, there were 106 autocoup attempts, with 86 being successful (Zhu 2024).

Due to their irregularity and inherent uncertainty, it is challenging to precisely measure the tenure of coup-entry and autocoup leaders. Nonetheless, comparing the tenures of these two types of leaders is both possible and insightful. Conducting a log-rank test in survival analysis on the leaders dataset (Goemans, Gleditsch, and Chiozza 2009) and the autocoup dataset (Zhu 2024) reveals a distinct contrast in the tenures of autocoup leaders and coup-entry leaders.

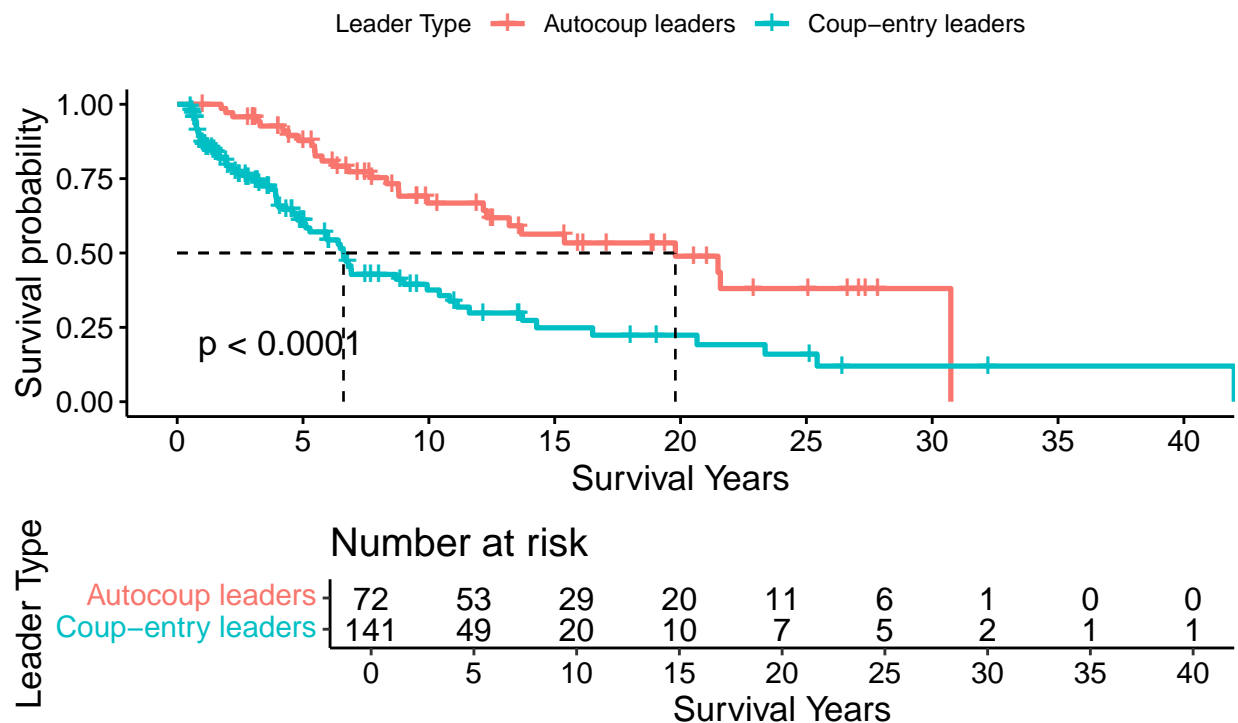


Figure 1: Survival curves of overstaying and coup-entry leaders

Preliminary findings from survival analysis (see Figure 1) indicate a significant difference in leadership tenures. Leaders who consolidate power through autocalps have a longer average tenure post-autocoup (approximately 10.8 years) compared to coup-entry leaders (approximately 5.4 years). This suggests a potential shortfall of about 5 years in the average tenure of coup-entry leaders.

We argue that the method of accession significantly influences leadership longevity. Coup leaders likely face greater challenges to their legitimacy, resulting in a more precarious initial period in power. They encounter higher levels of uncertainty, instability, and pressure to share power, all of which contribute to a shorter average tenure compared to autocoup leaders.

Employing the Cox proportional hazards model and the extended Cox model, our results indicate that autocoup leaders generally experience longer post-autocoup tenures compared to coup-entry leaders.

This study makes two significant contributions. Firstly, it sheds light on a critical factor often

overlooked in leadership survival studies: the impact of the method of accession to power. Leaders' survival is not solely determined by their actions after taking power but also by how they acquired power in the first place. Secondly, utilizing survival models, this research provides empirical evidence of the significant difference in tenure duration between autocoup and coup-entry leaders. This finding may help explain the increasing prevalence of overstaying in power through autocoups since 2000, as more incumbents may be encouraged by precedents, and ruling elites tend to follow and support such actions, benefiting from a relatively longer tenure.

The remainder of the paper delves deeper into this topic. Chapter 2 provides a comprehensive literature review on political survival, establishing the context for this research. Chapter 3 explores the factors influencing the survival of coup and autocoup leaders. Chapter 4 outlines the methodology and data used, including the application of survival models to analyze the determinants of leadership longevity. Chapter 5 presents the findings of the analysis and a detailed discussion of the results. Finally, Chapter 6 concludes by synthesizing the key takeaways and exploring their broader implications.

## **2 Literature review**

The topic of political survival has been a cornerstone of political science research for decades. This enduring interest arises from the wide-ranging variations observed across regimes, countries, and historical periods. Previous studies have identified two crucial yet interconnected aspects of political survival: regime survival and individual leader survival.

Regime survival focuses on the longevity of political systems, such as monarchies, political parties, or specific ideological structures. Leader survival, on the other hand, is concerned with the duration of individual leaders' time in office. These two concepts often exhibit contrasting patterns. For example, in parliamentary democracies like Japan or the UK, specific political parties may hold power for extended periods while individual leaders (Prime Ministers) change frequently. Similarly, communist regimes typically see long-lasting parties in power, with leadership transitions occurring

at a slower pace. In contrast, presidential systems like the United States or some military regimes experience more frequent changes in both the ruling party or junta and the leader of the country. This study specifically investigates the dynamics of individual leader survival, focusing on the factors influencing how long leaders remain in power.

The existing literature on leader survival is vast and multifaceted, offering a wealth of insightful perspectives. Some studies delve into the specific mechanisms that influence leadership longevity within particular regimes, such as democracies or autocracies ([Svolik 2014](#); [Davenport, RezaeeDaryakenari, and Wood 2021](#)). Others seek to develop more generalizable theoretical frameworks that can explain leader survival across diverse political systems ([Bueno de Mesquita et al. 2003](#)). While the development of a universal theory remains an alluring goal, it is important to acknowledge the inherent challenges in creating a single model that encompasses the complexities of leadership survival across all regime types.

The mechanisms governing power transitions vary significantly across different regimes, particularly between democracies and autocracies. In many autocratic systems, leadership selection is a closed affair. Potential candidates are often restricted to a narrow pool, such as royal families, military elites, or members of the ruling party. While political competition and elections may exist in some autocracies, there are often significant barriers to entry for legitimate challengers. Potential rivals may face threats such as assassination, imprisonment, or exile. Moreover, selection processes are shrouded in secrecy, with outsiders unable to participate or obtain information on the selections, let alone express dissent or complain about the results. This lack of inclusivity and transparency makes it challenging to gauge true levels of public support compared to democracies. Consequently, calculating selectorates or winning coalitions, as explored by Bueno de Mesquita et al. ([2003](#)), becomes a near-impossible task in autocracies.

Therefore, focusing research on more specific regimes or types of leaders may be more appropriate. While regular and anticipated leadership changes are important as well, they offer less fertile ground for exploring the dynamics of leader longevity, as the vast majority of leaders who assume power through established channels also exit power through established mechanisms ([Goemans,](#)

[Gleditsch, and Chiozza 2009](#)). In contrast, the study of political survival among irregular leaders is particularly captivating due to the intricacies and uncertainties associated with irregular leadership transitions.

The diverse mechanisms influencing political leadership survival, as discussed above, have prompted scholars to delve deeper into more specific determinants. Two primary perspectives have emerged to explain the dynamics of leader survival.

The first perspective considers objective factors and resources available to leaders. These include elements such as personal competence ([Yu and Jong-A-Pin 2016](#)), societal stability ([Arriola 2009](#)), economic development ([Palmer and Whitten 1999](#); [Williams 2011](#)), access to natural resources ([Smith 2004](#); [Quiroz Flores and Smith 2012](#); [Wright, Frantz, and Geddes 2013](#)), or external support networks ([Licht 2009](#); [Wright 2008](#); [Thyne et al. 2017](#)).

The second perspective explores subjective factors, focusing on the strategies leaders employ to consolidate their power. This encompasses both the formulation and implementation of political policies and the leaders' responses to opposition, challenges, or even coups and rebellions ([Gandhi and Przeworski 2007](#); [Morrison 2009](#); [Escribà-Folch 2013](#); [Davenport, RezaeeDaryakenari, and Wood 2021](#)).

Unsurprisingly, coups have garnered significant scholarly attention due to their pivotal role in removing leaders ([Svolik 2009](#); [Frantz and Stein 2016](#)). Existing research delves into strategies for thwarting coups ([J. Powell 2017](#); [Sudduth 2017](#); [De Bruin 2020](#)), as well as how leaders extend their tenures after surviving coup attempts ([Easton and Siverson 2018](#)). For instance, Sudduth ([2017](#)) examines the post-coup actions of dictators, focusing on purge strategies. They argue that coup leaders initially wield more power than elites within the regime, rendering them less susceptible to subsequent coups, challenging the conventional view of new leaders as inherently weak ([Roessler 2011](#)). Meanwhile, Sudduth and Bell ([2018](#)) investigates how leaders' entry methods affect their removal in dictatorships, positing that irregular entry does not necessarily increase the likelihood of removal; in fact, some forms of irregular entry may offer protection.

While scholars have extensively analysed leader survival across various contexts, including

universal frameworks, autocratic regimes, and the aftermath of failed challenges, a significant gap persists. There is a lack of research specifically exploring and comparing the survival tenures of leaders who extend their reigns through autocoups compared to coup-entry leaders. This study aims to address this gap by investigating and comparing the duration of leadership survival between these two distinct leader types.

### **3 Survival dynamics of autocoup leaders and coup-entry leaders**

#### **3.1 Autocoup leader and coup-entry leader**

As emphasized in Chapter 2, delving into leadership survival poses inherent challenges, given factors such as the opacity and diverse mechanisms of power transitions. However, these challenges underscore the significance of this research, as it sheds light on understudied dynamics.

While the survival of political leaders manifests complexity and variation, it is not devoid of patterns entirely. Leaders of similar types often exhibit significant comparability. Before delving into the comparison, it is necessary to clarify several relative terminologies.

We define an autocoup as a situation where an incumbent leader utilizes illegitimate or unconstitutional methods to extend their tenure and remain in power. An autocoup is deemed successful if this power extension lasts for at least six months. Coups, on the other hand, are defined as illegal and overt attempts by the military or other powerful groups within the state to unseat the sitting leader (J. M. Powell and Thyne 2011). Similar to coups, successful autocoups in this study will be measured by a power usurpation lasting at least six months, differing from the seven-day duration coded by Powell and Thyne.

It is also crucial to clarify the distinction between an autocoup leader and a coup-entry leader, as the survival of leadership is the main concern of this study.

- **Autocoup Leader:** This refers to an incumbent leader who successfully uses illegitimate or

unconstitutional means to extend their tenure in power. In an autocoup, the leader orchestrates the power grab and continues to rule afterwards.

- **Coup-Entry Leader:** This term designates the leader who assumes power after a successful coup d'état. Unlike in autocoups, coups often involve multiple coup leaders (individuals or groups) who overthrow the incumbent leader. The coup-entry leader is the individual who ultimately takes the reins of power after the coup succeeds. While coup leaders may play a role in selecting the coup-entry leader, this is not always the case. In some instances, they may support someone outside the coup plot to become the new leader. Regardless of the selection process, the coup-entry leader is the one who assumes formal leadership following a successful coup.

Given that autocoup leaders typically exhibit longer overall tenures compared to coup-entry leaders, this study focuses on a more nuanced comparison. Specifically, we will analyse the **post-autocoup** tenure of autocoup leaders and contrast it with the **post-coup** tenure of coup-entry leaders. The examination of the survival tenures of coup-entry leaders and autocoup leaders is motivated by their relevance and similarity in terms of illegitimacy, uncertainty, and instability.

- **Illegitimacy:** Both leader types lack legitimacy, though it manifests differently. Coup leaders seize power through force or the threat of force, making their illegitimacy explicit. Autocoups often employ seemingly legal procedures like court rulings or votes, but these processes are frequently manipulated by incumbents leveraging their control (Zhu 2024). This perception of illegitimacy can be used to justify the removal of such leaders, even if the means of removal are themselves illegitimate.
- **Uncertainty:** The irregular means by which coup-entry and autocoup leaders take or retain power create significant uncertainty regarding their long-term rule and eventual exit. The established power transition process is undermined, raising questions about whether these leaders will enact constitutional succession protocols, and if so, whether those protocols will be followed. This ambiguity affects not only elites and citizens but also the leaders themselves,



who face ongoing uncertainties about when, how, and to whom power might be transferred. Historical data on irregular leaders supports this point. Leader dataset shows that over half of irregular leaders experience irregular exits, and coup-related exits constitute more than two-thirds of all irregular exits (Goemans, Gleditsch, and Chiozza 2009). Furthermore, Frantz and Stein (2016) show that coup-related exits account for roughly one-third of all exits in autocracies, surpassing any other type, including regular transitions.

- **Instability:** Coup-entry and autocoup leaders are aware of their own legitimacy and uncertainty challenges, which can fuel insecurity and a sense of crisis. In attempts to consolidate power, they may resort to reshuffling power structures or purging potential challengers. However, these efforts to maintain stability and strengthen their position often backfire, triggering greater instability.

The interplay of illegitimacy, uncertainty, and instability creates a complex environment that significantly influences leader tenure.

## 3.2 Hypothesis

As previous studies have shown, while many factors can affect the survival of leaders, the fundamental determinant of tenure longevity is the leader's ability to maintain power. As long as they can hold onto power or balance it in their favour, they can remain in office. However, as discussed earlier, although both coup-entry and autocoup leaders face similar challenges related to illegitimacy, uncertainty, and instability, the severity of these challenges differs. This difference places the two types of leaders at varying levels of disadvantage in terms of power balance.

### 3.2.1 Illegitimacy

While both coup-entry and autocoup leaders lack genuine legitimacy, the nature of this illegitimacy differs significantly. Coups represent a more blatant disregard for legal processes, often involving force or the threat of force to seize power. In contrast, autocoups employ a façade of legality through

tactics such as manipulating constitutional interpretations, engineering parliamentary votes, influencing court decisions, and even holding referendums. Despite this veneer, these manoeuvres do not erase the underlying lack of genuine legitimacy, hence this study categorizes them as autocalps. However, there is considerable debate among scholars, with some arguing for less severe terms like “incumbent overstay” or “executive takeover” due to the perceived legality.

This perceived legitimacy can provide a temporary advantage for autocalp leaders. Challengers are often constrained to operate within legal frameworks, making it difficult to directly confront the incumbent.

### **3.2.2 Uncertainty**

Coup-entry and autocalp leaders face different levels of uncertainty immediately following their rise to or overstay power.

After a coup, at least three major uncertainties arise regarding leadership and its tenure. First, it is unclear who will assume leadership. Although coup leaders often take power, some may return or promise to return power to civilian leaders. Even among coup leaders, determining who will lead can be problematic, as coup plotters are sometimes a group without a clear core leader. For instance, following the 1973 Chilean coup, the initial plan for a rotating presidency among military leaders was abandoned when General Pinochet consolidated control and remained in power until 1990 (Svolik 2014). Second, the duration of the coup leader’s rule is uncertain. Leaders like Gamal Abdel Nasser in Egypt (1954 coup), Muammar Gaddafi in Libya (1969 coup), and Idi Amin in Uganda (1971 coup) aimed to retain power for life (Geddes, Wright, and Frantz 2018), but their ability to do so was uncertain. Others promise to transfer power to civilian authorities, but the timing and fulfillment of these promises are unclear. For example, Myanmar’s military junta (2021 coup) has repeatedly extended a state of emergency, clinging to power beyond the promised time-frame<sup>1</sup>. Conversely, after the 2010 coup in Niger, the military honoured their promise by restoring civilian rule within the same year (Ginsburg and Elkins 2019). Third, the successors of coup leaders

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<sup>1</sup><https://thediomat.com/2023/08/myanmar-junta-extends-state-of-emergency-for-fourth-time/>: Myanmar Junta Extends State of Emergency for Fourth Time. Accessed on 2024-06-09.

are uncertain. Some may designate successors from their inner circle, including family members, while others may support general elections, though whether this will be fulfilled as intended remains uncertain.

In contrast, autocoup leaders present a clearer picture regarding leadership and tenure. There is no ambiguity about who will rule after an autocoup. In the medium term, autocoup leaders typically hold office themselves. Many, like Putin in Russia and Xi Jinping in China, seek to extend their rule indefinitely and are unlikely to relinquish power voluntarily. Others attempt to extend their terms incrementally, such as President Menem of Argentina, who overstayed until 1993 but failed in his bid for another term in 1999 ([Llanos 2019](#)).

### **3.2.3 Instability**

The stability of a regime, particularly in an autocracy, hinges on maintaining a balance of power. Coups, however, inevitably disrupt this balance, even when they are bloodless, necessitating the creation of a new equilibrium. The ousting of previous rulers requires dismantling the established governing structure and reshuffling high-ranking officials, actions that inherently generate instability and create adversaries for the new leadership. This makes restoring order and establishing a balanced power structure notably challenging. Studies show that new leaders often purge rival elite groups to consolidate their power at the outset of their tenure ([Sudduth 2017](#); [Roessler 2011](#)). Such actions can provoke backlash even from close allies. For instance, in Uganda, President Obote's attempt to undermine the army commander-in-chief, Idi Amin, led to Amin gaining the army's support and ultimately ousting Obote in a 1971 coup. Similarly, in Pakistan in 1999, shortly after Prime Minister Sharif dismissed powerful army chief General Pervez Musharraf, Sharif himself was ousted in a coup orchestrated by Musharraf and his supporters ([Sudduth 2017](#)).

To consolidate power, coup-entry leaders often have to compromise with internal or external power challengers. However, these compromises are frequently unstable and easily broken. The situation becomes even more complex when there is a risk of civil war. Leaders may attempt to reduce the likelihood of subsequent coups, potentially increasing the chances of societal rebellions

and civil wars ([Roessler 2011](#)).

Moreover, instability extends beyond leadership to policies. A new leadership group often brings new policies, and coups are sometimes triggered by disagreements over significant policies. Major policy shifts can instigate dissent or grievances from various ruling factions, communities, regions, ethnicities, or religions.

In contrast, autocoup leaders encounter far fewer of these issues, as their regimes experience fewer abrupt changes. They face less pressure to dismantle the existing ruling paradigm and establish a new order. Even when adjustments are necessary, they have more time to implement changes gradually.

Table 1: Main features of autocoup and coup-entry leaders

Feature	Autocoup Leader	Coup Entry Leader
Illegitimacy	Normally attained through lawful procedures, but lacking consensus legitimacy	Blatantly illegal
Uncertainty	Initially with some certainty, but decreases as the leader's age grows or health worsens	Significant uncertainty initially
Instability	Relatively stable	Unstable except when a strongman emerges or constitutional institutions are established
Balance of Power	Generally in a better position of power	Initially unclear and challenging to establish a balance

In conclusion, coup-entry leaders typically face a greater degree of the challenges discussed earlier, placing them at a significant disadvantage in the balance of power compared to autocoup leaders. This disadvantage creates a self-perpetuating cycle. Weaker leaders struggle to attract and retain strong support, making them more vulnerable to challenges. The perception of risk

discourages potential allies, further eroding their power base. As shown in Table 2, the top 10 countries with the most coup attempts between 1950 and 2023 are predominantly autocracies. This suggests that the more coups occur in a country, the more likely additional coups are to happen in the future.

Table 2: Top 10 countries with the most coup attempts (1950–2023)

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*

Conversely, autocoup leaders, often benefiting from a veneer of legitimacy and a stronger initial position, are better able to consolidate power and attract supporters. This advantage can be self-reinforcing, as a strong power base discourages challenges and fosters loyalty. This dynamic is evident in cases like China (2018), where the National People’s Congress granted Xi Jinping the potential to rule for life<sup>2</sup>, and Russia (2020), where constitutional changes allow Putin to potentially

<sup>2</sup><https://www.bbc.co.uk/news/world-asia-china-43361276>: China’s Xi allowed to remain ‘president for life’ as term limits removed. Accessed on 2024-06-09.

remain in power until 2036<sup>3</sup>.

These features and the balance of power contribute to a shorter expected tenure for coup-entry leaders compared to the relatively longer tenures of autocoup leaders. The average survival period following an autocoup is approximately five years longer than that of coup-entry leaders (Figure 1). Based on these observations and discussions, I propose the following hypothesis:

***H1: Political leaders who successfully extend their tenure through autocoups are more likely to experience longer leadership survival compared to coup-entry leaders.***

In the subsequent section, I will outline the research methodology used in this paper. I will introduce several control variables to determine if the hypothesis remains persistent and robust.

## **4 Research Design**

### **4.1 Methodology: Survival analysis**

To test the hypothesis, I will employ two Cox models to analyse the survival tenures of coup-entry leaders and autocoup leaders. Unlike the Kaplan-Meier model, the Cox model enables the estimation of the impacts of multiple factors. Although it does not directly estimate the duration of tenure in office, it evaluates the hazard rate associated with being ousted from power. Essentially, this represents different facets of the same phenomenon: as a leader's cumulative hazard of being ousted increases, their probability of survival in office decreases.

The first model will utilize the Cox proportional hazards model (referred to as the Cox PH model), where I will only use the variables present at the entry year, without considering the changes in these variables over the leaders' survival times.

However, apart from the primary variable of interest in this research—the leader type—control variables such as economic performance, Polity5 scores, and political stability do change over

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<sup>3</sup><https://www.ucl.ac.uk/news/2020/jul/analysis-vladimir-putin-secures-constitutional-changes-allowing-him-rule-until-2036>: Analysis: Vladimir Putin secures constitutional changes allowing him to rule until 2036. Accessed on 2024-06-09.

time. Therefore, the second model will account for these variations by using the time-dependent Cox model.

## 4.2 Data

The main variables are as follows.

### 4.2.1 Dependent variables

- **Survival Time:** The duration of a leader's tenure, measured in days. For coup-entry leaders, the survival time begins on the day they assume power through a coup. For autocoup leaders, the survival time starts on the expiration date of their original legitimate term. For example, Xi Jinping assumed power in 2013 and removed term limits in 2018. His original legitimate tenure was set to end in 2023, so his survival time begins in 2023, not 2013 or 2018, marking the start of his post-autocoup tenure. The survival time concludes on the day the leader exits office, applicable to both coup-entry and autocoup leaders.
- **End point status:** This variable indicates the manner in which the leader's tenure concluded, categorized as follows:
  - **0 = Censored:** This status is assigned to leaders who leave office through means other than being ousted. This includes leaders who appoint their successors, opt for democratic transitions, or leave office due to health issues or natural death.
  - **1 = Ousted:** This status is assigned to leaders who are forced out of office. This includes cases where leaders "voluntarily" resign under pressure, reflecting a de facto ousting by force.

### 4.2.2 Key Independent variable: Leader type

This variable categorizes leaders into two distinct groups:

- Group A = Autocoup Leader: Leaders who extend their tenure through autocoups.
- Group B = Coup-Entry Leader: Leaders who assume power through coups. This variable is the primary independent variable of interest, serving as the basis for comparing the survival time between these two types of leaders.

The data for both dependent and independent variables are sourced from Zhu (2024) and Goe-mans, Gleditsch, and Chiozza (2009).

### 4.2.3 Control variables

- **Economic Performance:** This variable is measured using two indicators: economic level and economic growth rate.
  - **Economic Level:** Represented by GDP per capita. This measure provides an indication of the overall economic health and standard of living in a country.
  - **Economic Growth Trend:** Assessed using the current-trend (CT) ratio, developed by Krishnarajan (2019). The CT ratio compares a country's current GDP per capita to the average GDP per capita over the previous five years. A higher CT ratio signifies stronger economic performance.

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

The GDP per capita data (in constant 2017 international dollars, PPP) is sourced from the V-Dem dataset by Fariss et al. (2022). To capture the prior year's economic impact, the data is lagged by one year.

- **Political Stability:** This variable captures overall regime stability by including a violence index that encompasses all types of internal and interstate wars and violence. The data for this index is sourced from the Major Episodes of Political Violence dataset by Marshall.



This index provides a comprehensive measure of the level of violence and conflict within a country, which can significantly impact leadership survival. (Marshall 2005).

- **Degree of Democracy:** The level of democracy is gauged using Polity 5 scores (polity) at the entry year for each respective country. These scores range from -10 (fully autocratic) to +10 (fully democratic), capturing the extent of democratic versus autocratic governance. This dataset is sourced from the Center for Systemic Peace (CSP)<sup>4</sup> and provides an essential measure of political regime type, which can influence the stability and survival of leaders in power.
- **Population Size:** To account for its potential impact on leaders' tenures, the log of the population size (pop\_log) is considered. This transformation helps in managing the wide range of population sizes across different countries. The data is sourced from the V-Dem dataset and is evaluated to understand its influence on leadership survival. Larger populations may present more governance challenges and potential sources of opposition, thereby affecting the stability and longevity of a leader's tenure.
- **Leader's Age:** The age of the leader at the entry year is included as an additional variable in the analysis, offering insights into potential correlations with leadership survival. Older leaders may have different experiences, networks, and health considerations that could influence their ability to maintain power. This data is sourced from the leaders dataset by (Goemans, Gleditsch, and Chiozza 2009).

Based on the methods and variables, we have the model as:

$$Surv(survival\_time, status) = Group + GDP\_growth\_trend + GDP\_per\_capita + pop\_log + polity5 + Stability + age$$

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<sup>4</sup>Center for Systemic Peace: <https://www.systemicpeace.org>. Accessed on 2024-06-09.

## 5 Results and discussion

Building on the preceding discussion, I investigated my hypothesis regarding the likelihood of prolonged regime survival among leaders who overstay their terms compared to those who assume power through coups. The regression results of both the Cox PH model and the Time-dependent Cox model are presented in Table 3.

Table 3: Cox models for survival time of different types of leaders

Characteristic	Cox PH Model				Time-dependent Cox Model			
	N	Event N	HR <sup>1,2</sup>	SE <sup>2</sup>	N	Event N	HR <sup>1,2</sup>	SE <sup>2</sup>
<b>Leader Type</b>								
Autocoup leaders	72	28	1.00	—	734	27	1.00	—
Coup-entry leaders	141	70	2.61***	0.266	794	72	2.42***	0.260
<b>GDP Growth Trend</b>	213	98	0.91	0.911	1,528	99	0.17	1.07
<b>GDP per capita</b>	213	98	0.97	0.020	1,528	99	0.94**	0.026
<b>Population: log</b>	213	98	0.91	0.088	1,528	99	0.86*	0.082
<b>Polity 5</b>	213	98	1.00	0.026	1,528	99	1.02	0.024
<b>Political stability</b>	213	98	1.03	0.052	1,528	99	1.09	0.050
<b>Age</b>	213	98	1.00	0.011	1,528	99	1.00	0.011

<sup>1</sup>\*p<0.05; \*\*p<0.01; \*\*\*p<0.001

<sup>2</sup>HR = Hazard Ratio, SE = Standard Error

It is evident from the table that both models produce comparable outcomes, indicating that the type of leader indeed significantly influences the survival duration of their regime, even when controlling for other pertinent factors. Here I use the Time-dependent Cox model to illustrate the results.

The hazard ratio for coup-entry leaders is 2.41, signifying that coup-entry leaders are 1.41 times more likely to face ousting compared to overstaying leaders, all else being equal.

Additionally, the hazard ratio associated with the logarithm of GDP per capita is 0.73, suggesting that a 1% increase in GDP per capita is correlated with a 27% reduction in the hazard of being ousted, or 1% decrease in GDP per capita is correlated with a 37% reduction in the hazard of being ousted.

It is noteworthy that the remaining variables did not exhibit statistical significance in this analysis.

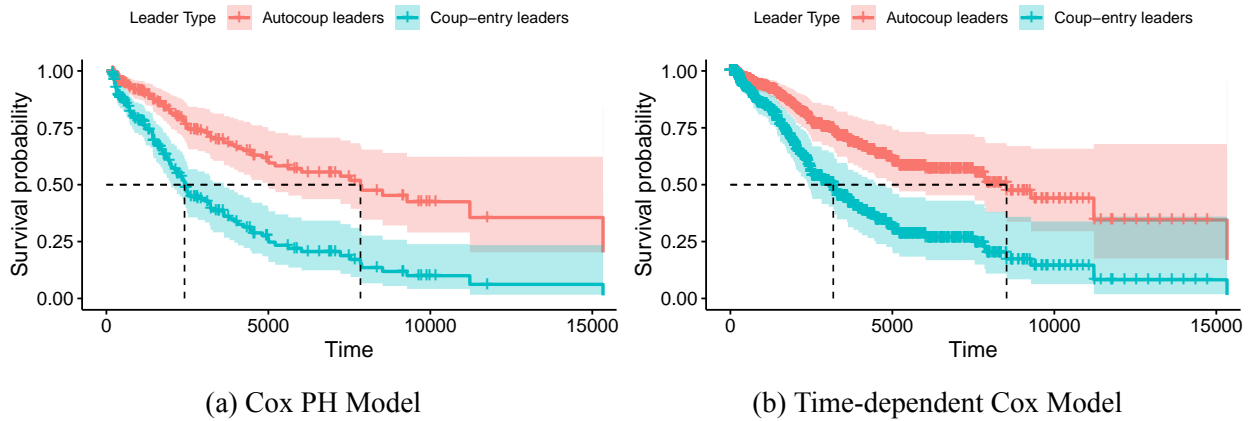


Figure 2: Survival curves for Cox Model

The survival curves depicted in Figure 2 illustrate the respective survival rates for leaders of both types. Once more, both the Cox proportional hazards (PH) model and the Time-dependent model generate analogous plots. Notably, the survival curve for leaders who enter through coups exhibits a significantly lower trajectory compared to those who overstay their terms. This disparity suggests that overstaying leaders are more inclined to endure for longer durations than their coup-entry counterparts.

Figure 3 displays the hazard ratios and corresponding 95% confidence intervals for the variables incorporated in the Cox model. Both the Cox proportional hazards (PH) model and the Time-dependent model yield nearly identical plots. Notably, the hazard ratio for leaders who assume power through coups and the logarithm of GDP per capita emerge as statistically significant factors.



Figure 3: Hazard ratios and 95% CIs for Leader Ousting

## 6 Conclusion

Adipiscing netus morbi facilisis parturient nunc habitant. Mauris penatibus taciti penatibus nisi aliquet himenaeos, auctor lobortis tellus. Metus eget ornare nullam quisque primis nec ornare bibendum auctor. Nunc tempus natoque phasellus senectus pellentesque hendrerit, turpis hac vel odio fames, suscipit quisque egestas eros quis.

Adipiscing rutrum, enim est eu, luctus; leo tristique posuere taciti, iaculis quisque torquent! Torquent phasellus dis aliquam maecenas aptent himenaeos a duis semper fringilla fringilla. Arcu volutpat nam sociis nullam sociosqu tristique eu habitant. Pellentesque lobortis taciti sodales, habitant posuere massa nascetur velit eleifend.

Ipsum sociis; risus torquent molestie senectus porttitor, pharetra magna ad rutrum convallis. Imperdiet eleifend habitant sociis, aliquet mi, dui himenaeos dictum fames? Dis sem ut, vel; lacus tortor duis aptent sociosqu litora cras nisi? Nam conubia in vivamus porttitor taciti?

Elit vitae leo ante orci, erat vestibulum primis elementum laoreet? Ante massa condimentum pellentesque odio ligula velit fringilla. Hac habitant ullamcorper interdum phasellus, pulvinar orci mi, convallis gravida odio taciti. Elementum ligula per donec fermentum class duis nisi ultrices?

Consectetur maecenas sociosqu, netus ad nisi, class urna aptent convallis imperdiet nostra tellus. Hendrerit himenaeos sagittis sapien venenatis, eu senectus varius lectus. Condimentum dictum arcu ornare lacinia ornare lectus magna! Inceptos tempus tempus imperdiet suspendisse mattis

enim accumsan quisque, proin ridiculus congue, nulla cursus primis.

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