EXCHANGE RATE SHOCKS AND ELECTION OUTCOMES

ELİFNUR UYSAL

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ABSTRACT

EXCHANGE RATE SHOCKS AND ELECTION OUTCOMES

Uysal, Elifnur

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Advisor: Prof. Dr. Alper Duman

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This thesis analyzes the impact of exchange rate shocks on election outcomes, supporting that currency shocks increase the probability of an incumbent being voted out of the office or cause voters to reduce their support for the incumbent. A logit analysis of 176 countries and 1,578 legislative elections between 1975 and 2019 reveals that incumbents who implement a weaker currency policy or simply preside over an externally induced shock are more likely to lose their office after one term. This effect is mainly observed in middle-income countries. The results also indicate that voter support for the government declines after a 50-percent depreciation. Voters seem to punish governments for exchange rate policies that leave them vulnerable.

Keywords: Exchange rate shocks, election outcomes, economic voting, political economy, voting behavior

ÖZET

KUR ŞOKLARI VE SEÇİM SONUÇLARI

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Bu çalışma kur şoklarının seçim sonuçları üzerine etkisine odaklanarak, kurda gerçekleşen büyük değer kayıplarının, hükümetin bir sonraki seçimi kaybetme olasılığını artırdığını veya genel olarak seçmenlerin hükümete olan desteğini azaltmasına neden olduğunu savunmaktadır. Bu bağlamda, 176 ülkede 1975-2019 yılları arasında gerçekleşen 1.578 parlamenter seçim incelenmiştir. Sonuçlar, hükümet eliyle gerçekleştirilen veya dış etkenlerden kaynaklanan değer kayıplarının, hükümetin bir sonraki seçimi kaybetme ihtimalini yükselttiğini doğrulamıştır. Bu etki, daha çok orta gelirli ülkelerde görülmüştür. Ek olarak, kurdaki %50 değer kaybının hükümete olan desteği azalttığı da bulunmuştur. Seçmenlerin, kendilerini korunmasız bırakan para politikaları sonucunda hükümetleri cezalandırdığı anlaşılmıştır.

Anahtar Kelimeler: Kur şokları, seçim sonuçları, ekonomik oylama, politik ekonomi, oy davranışı

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CHAPTER 1: INTRODUCTION

Exchange rate has inherently two dimensions: economic and political. It has been a useful policy tool for governments which can directly or indirectly influence it through a series of policies or transactions. Since different interest groups have different policy preferences regarding the exchange rates (Frieden, 1994), the governments are motivated to consider not only the economic consequences of a certain level of exchange rate but also their own fate in the next elections. Considering that their voter base predominantly comprises consumers who wish to maintain their purchasing power, the incumbents may need to tread cautiously when deciding on an exchange rate policy. Large depreciation policies to generate economic growth or correct balance of payments deficits as well as external exchange rate shocks may have implications for the incumbents' chances of re-election (Cooper, 1969; Frankel, 2005; Ahlquist, Copelovitch and Walter, 2018; Steinberg, 2021).

Real prices are strongly hit by sliding currencies in the short to medium term (Walter, 2008), which is mainly the reason why depreciations are not favored by the median voter: it signifies a domestic sacrifice. Loss of value in national currency implies lower real wages, as consumers who mostly rely on imported products or energy cannot afford the same amount of goods or services from abroad as much as they used to before a depreciation. Moreover, higher prices of imported intermediate goods and inputs may exacerbate the inflation. The extra burden on banks and firms which have mismatched balance sheets is another issue that explains the unpopularity of a depreciation, which could potentially lead to increased bankruptcies, unemployment, and a general contraction (Frankel, 2005; Broz and Frieden, 2006; Walter, 2008; Steinberg, 2015).

Even though a weaker currency may potentially prove beneficial for tradables producers, especially export-competing manufacturing sector (Frieden, 1994), or generate greater economic growth in emerging economies (Rodrik, 2008), or improve an economy's balance of payments position (Cooper, 1969), the political costs of it cannot be overlooked. Cooper (1969) reports that devaluation doubles the likelihood of an incumbent to lose elections in his study of 24 countries; Frankel (2005) states that in 103 developing economies, the incumbents lost their office 27 percent of the time following a devaluation; Remmer (1991) concludes that currency depreciations decreased incumbent vote shares in Latin America. More recently, Steinberg (2021)

reports that Turkish voters lowered their support for the incumbent party after experiencing an all-time low currency in 2018. And after 2018, the support for the government in pre-election polls seem to have consistently fallen in parallel to the consistently plummeting Turkish lira.

Therefore, it becomes important to ask: How do the voters respond to a currency shock? Do they really hold the governments accountable for exchange rate policies that leave them vulnerable? This study's main hypothesis is that large depreciations weaken support for the government. As argued above, after a depreciation, voters may see their purchasing power decline or suffer from the hardships introduced by a contraction due to the balance sheet effect. Therefore, they are likely to use elections to punish the government that implemented an undervalued currency policy or simply presided over a currency shock. This hypothesis is examined with two methods, or in other words, two variables of interest. First, it is argued that a currency shock, regardless of its nature as a government-induced policy or an external factor, raises the likelihood for an incumbent to lose its office in the next elections. In this case, the study specifically addresses whether an incumbent falls after a depreciation. In the second method, the variable of interest becomes incumbent vote shares to exclusively investigate how much vote a depreciation costs to an incumbent.

This thesis separates itself from previous research by Cooper (1969) and Frankel (2005) as it incorporates the economic voting theory. The premise of economic voting is quite straightforward: voters hold incumbents responsible for economic outcomes. As suggested by most of the traditional literature, if the election-year growth or unemployment is unsatisfactory, voters are likely to punish the government in the elections by casting them out of the office (Lewis-Beck and Stegmaier, 2000). Accordingly, I study other economic and political variables alongside currency shocks to explain the probability of an incumbent losing the elections. Although this approach was used by Remmer (1991), her analysis only covered presidential elections in Latin America. A similar approach was also adopted by Quinn, Sattler and Weymouth (2019), but their study addresses currency overvaluations and only includes democracies. To my knowledge, this thesis is the first attempt to study the effect of nominal exchange rate shocks on incumbent electoral defeats in the context of economic voting with a large set of countries and legislative elections, to be precise, 176 countries and 1,578 elections between 1975 and 2019.

Additionally, most studies, including Remmer (1991) and Quinn, Sattler and

Weymouth (2019), employ incumbent vote share as the response variable in OLS regressions in an attempt to understand voter response to changing economic and political variables. Although in the second method explained above, I also embrace this approach, in the first method, I use a binary response variable, government change, that takes the value 1 if an incumbent party changes after an election, following the practice in Alesina, Carloni and Lecce (2011) and Aksoy (2016). This *government change* approach may enable us to see the ultimate voter dissatisfaction with exchange rate policies/shocks as voters completely reject re-selecting an incumbent. Consequently, in the first method, I use binomial logistic regressions because of the nature of the response variable and control for unobserved country characteristics (Alesina, Carloni and Lecce, 2011; Kayser and Peress, 2012; Aksoy, 2016). I test whether exchange rate shocks, alongside traditional economic voting variables influence the probability of a government's electoral defeat. The results indicate that currency shocks occurring during an incumbent's term indeed increase the probability of that incumbent falling in the next elections. In addition, the effect of the economy alone explains 40 percent of variance in government change, presenting strong evidence for the existence of economic voting.

After establishing the role of exchange rate shocks on electoral defeats, the thesis moves onto the second method to examine how much vote an incumbent loses following a depreciation by replicating the results reported by Aytaç (2017). Aytaç (2017) supports that voters do not settle for election-year growth rates as the traditional literature posits. Instead, they take into account incumbents' relative economic performance both in the domestic and international context when casting a vote. Namely, voters refer to the past achievements/failures of previous incumbents or the performance of their top trade partners when evaluating the current governments' economic performance. Accordingly, the variable exchange rate shock is introduced into his regressions. The results reveal that incumbent support decreases by nearly 5 percent in the countries that experience a 50-percent exchange rate shock compared to the ones that do not experience any currency shocks in the last three years preceding the elections. Furthermore, Aytaç's (2017) argument relating to the role of relative domestic growth on election outcomes is supported by the results; however, his justification for relative international performance in voting behavior disappears once the currency shock enters the picture. Aytaç (2017) argues that educated voters are able to digest news about foreign economies and then compare this information with

that of their domestic economy to arrive at a voting decision. However, this study's results potentially indicate that relative international economic performance is mainly substantiated by the level of exchange rate, not the level of education. Thus, this thesis contributes to both our understanding of exchange rate politics and economic voting.

Accordingly, the structure of the thesis is as follows: Chapter 2 provides a literature review on currency politics and economic voting; Chapter 3 empirically analyzes the role of exchange rate shocks in triggering incumbent change; Chapter 4 demonstrates the effect of currency shocks on incumbent vote shares by replicating the results reported by Aytaç (2017); Chapter 5 introduces a case study of Turkey to discuss how currency shocks may have affected the support for AKP in pre-elections polls for the past two decades; and Chapter 6 presents the final assessments.

CHAPTER 2: LITERATURE REVIEW

2.1 Exchange Rate Politics

Many consider currency an essential policy tool and exchange rate the most important price in the economy, and the governments have the capacity (and the willingness) to determine or exert a direct effect on exchange rates (Steinberg and Walter, 2013; Frieden, 2015). Rodrik (2008) claims that governments can employ fitting fiscal policies, capital account policies or intervene in exchange rate markets to set the course for exchange rates. Ehrmann and Fratzscher (2008) add that literature strongly supports the existence of political pressures on central banks to shape the monetary policy in favor of the current incumbent. Governments can also manage economic expectations through announcements to affect the trends in exchange rates (Principles of Macroeconomics, 2016). Highlighting that governments' exchange rate policies can significantly affect the size and stability of capital and trade flows, Steinberg and Walter (2013) say that policymakers are often politically motivated when opting for an exchange rate policy.

Governments seem to have clear targets and target groups on their minds when choosing the level of exchange rates, aware of the effect of each policy on economic activities. The literature provides a rich summary on how depreciation/undervaluation and appreciation/overvaluation influence the economy. For instance, some governments may prefer devaluation to stimulate economic growth. Razin and Collins (1997) are one of the first ones to study a large sample of developing and developed countries (total: 93). They find that medium to high level undervaluation may accelerate economic growth. Similarly, Aguirre and Calderon (2006) analyze 60 countries between 1965 and 2003 and discover that small to medium level undervaluation might stimulate the economy while increases in overvaluation tend to trigger a decrease in growth.

Rodrik (2008) is also supporter of devaluation in this regard, arguing that overvaluation damages growth because it is likely to increase the possibility of balance of payments crises, cause business cycles, and decrease the foreign exchange reserves. On the other hand, undervaluation promotes growth as much as overvaluation harms it, but only for developing economies. Since undervaluation favors tradables, developing economies can increase the competitiveness of their exports to achieve greater growth. He also argues that undervaluation shifts resources to industrial

activities, which is another mechanism to generate growth. He examines several East Asian countries including China, as well as India, Uganda, Taiwan, and Mexico. In each case, he concludes that a decrease in undervaluation undermines economic growth, while an increase facilitates it. Furthermore, he supports that a 50 percent undervaluation increases the annual real income per capita by 1.3 percentage points.

Similarly, Levy-Yeyati, Sturzenegger and Gluzzman (2007) argue that exchange rate policies in the 2000s evolved to show fear of appreciation, reflecting a neo-mercantilist view. They also conclude that undervaluation promotes growth in the long run, but the effect does not stem from export boost or import substitution. Instead, undervaluation decreases labor costs, and this allows firms who have found themselves in more debt due to depreciation to allocate more internal funds aside for investment.

Apart from growth and competitiveness concerns, some governments may consider devaluation to be a fitting solution to improve balance of payments. For example, when faced with a trade deficit, a country would want to make domestic goods cheaper compared to foreign goods to boost the exports and make foreign goods more expensive compared to domestic goods to cut the imports (Cooper, 1969; Bahmani-Oskooee, Hegerty and Kutan, 2007; Bird and Willett, 2008).

On the other hand, devaluations do not always produce the intended effects. For instance, Haddad and Pancaro (2010) state that undervaluation seems to stimulate growth and exports, but only for low-income economies with income per capita below $2,400. However, in the long run, this positive effect becomes nullified for exports and even turn negative for economic growth. Their results also indicate a negative lagged effect of undervaluation on growth in developing economies. They support that undervaluation is not sustainable because it generates inefficient and low-yielding foreign reserves, causes inflation, limit monetary policy, and hinder the development of a sophisticated financial sector. Cooper (1969) also argues that governments who undertake devaluation to improve balance of payments may later encounter economic slowdown and increases in costs of living, which may negate the initial advantages of devaluation.

But more importantly, devaluations are thought to be politically costly for the actors who implement them even though there might be economical advantages in the long run (Cooper, 1969; Remmer, 1991; Frankel, 2005, Steinberg, 2015; Quinn, Sattler and Weymouth, 2019). To take above discussion one step further to better understand exchange rate politics, it is important to clearly define the exchange rate interests of

different political groups.

2.2.1 Exchange Rate Level Preferences of Different Political Groups

Proposing an influential classification revolving around tradables and non-tradables producers, Frieden (1994) is one of the first ones to present the exchange rate level preferences of different political groups as below:

i.   Tradable goods producers tend to prefer undervalued exchange rates since it makes their products cheaper than imported goods, which boosts their international competitiveness. On the other hand, their sensitivity to exchange rate variations may differ depending on the price elasticity of demand for their goods. Producers who only depend on price to compete internationally are the most affected by such changes compared to those who compete on quality.

ii.   Non-tradable producers are inclined to prefer overvalued exchange rates as it leads to increased prices for their products and services relative to tradable goods. However, there is a chance that overvaluation may curb the general demand in the economy, which may in turn adversely affect them. Steinberg (2015) gives another explanation for this group's taste for stronger currency: non-tradable producers do not compete with international companies, and they may have imported inputs as well as loans from local banks. So, undervaluation is not advantageous for them if not harmful.

iii.   International traders and investors want an overvalued currency to buy foreign assets at cheaper prices.

Stating that Frieden's classification did not fare well empirically, Walter (2008) addresses the shortcomings of this classification. She supports that exchange level preferences of different groups are not that homogenous and proposes three components regarding the exchange rate vulnerabilities of various economic actors. The first one is the tradeoff between competitiveness and purchasing power. To elaborate, while depreciation may increase the sales of export-oriented domestic firms in the international markets, domestic consumers may be negatively affected by the resulting inflation. Additionally, considering that export-oriented firms may have imported inputs, it is hard to confidently claim that exporting firms mainly opt for a depreciated currency.

The second one is balance sheet vulnerabilities of firms and individuals.

Especially in emerging countries, firms and individuals may have liabilities denominated in foreign currency, and a depreciation makes it harder for them to fulfill their debts. Therefore, economic actors who have mismatched balanced sheets (assets mainly in domestic currency and liabilities in foreign) may primarily prefer exchange rate stability. Finally, a depreciation-induced hike in interest rates also affect domestic actors' ability to pay off their debts in domestic currency or make new investments. Walter (2008) concludes that economic actors prefer the exchange rate policy that reduce their vulnerabilities the most. And how they translate their preferences into policy outcomes may differ based on their size and the institutional setting. Even though only large corporations have the power to directly engage in lobbying, smaller firms, consumers, and homeowners are larger in numbers, and the elections may give them a powerful leverage in influencing exchange rate policies.

Many studies argue that voters mainly prefer exchange rate stability over depreciation (Bird and Willett, 2008; Cooper, 1969, Frankel, 2005; Broz and Frieden, 2006; Steinberg, 2021). So, elections may provide an opportunity for voters to influence exchange rate policies and even reward or punish governments that employed a harmful policy for their interests. Before diving into this topic any further, I need to present key points from the extensive literature on how voters select the next incumbent based on economic outcomes, namely the economic voting phenomenon.

2.3 Economic Voting

2.3.1 How Voters Penalize Governments for Bad Economic Performance

The main idea behind economic voting is remarkably simple: Voters punish (or reward) the government in the elections depending on the good (or bad) economic outcomes. In other words, they hold the government responsible for the economic performance of a country (Kramer, 1971; Fair, 1978; Nannestad and Paldam, 1994; Powell and Whitten, 1993; Drazen, 2000; Lewis-Beck and Paldam, 2000; Lewis-Beck and Stegmaier, 2000; Duch and Stevenson, 2008). The literature generally focuses on VP functions, where V (vote in elections) and P (popularity in polls) are attempted to be explained by economic and political variables. These functions often embrace certain hypotheses. For example, voters are more inclined to think retrospectively rather than prospectively; voters respond more strongly to negative economic outcomes than positive ones; and voters are myopic, meaning that they consider only the things that happened recently (Nannestad and Paldam, 1994; Lewis-Beck and Paldam, 2000).

Kramer (1971) is the first one to employ the V function and study the short-term fluctuations in the US voting behavior between 1986 and 1964. In 31 elections, he finds that the incumbent lost 4 to 5 percent of congressional votes in response to a 10 percent drop in per capita real income. He also explores whether changes in unemployment and inflation have any effect on incumbent votes but concludes that their effects remain nonsignificant holding real income constant. Later, Fair (1978) studies 22 US presidential elections between 1889 and 1976 and further supports that change in economic indicators, including real per capita GNP and unemployment, during the election year affects the incumbent votes. He also confirms the voters' high discount rate. Numerous studies later would support the existence of economic voting in the US with enhanced models and data (Fiorina, 1981; Lewis-Beck, 1988; Hibbs, 2000). The VP models have established their three main variables as unemployment, inflation, and growth of real GDP, with the first two variables sometimes reflecting the change within quarters (Paldam, 1991; Powell and Whitten, 1993).

The single-country studies on other nations, according to the overviews of Lewis-Beck and Stegmaier (2000), produce similar results, especially the effect of the mentioned three variables is significant on incumbent votes and popularity in Britain, France, and Denmark. However, multiple-nation studies present mixed results. Lewis-Beck and Mitchell's 1990 study (cited in Powell and Whitten, 1993) focuses on five Western European countries and reports that economic growth does not have an influence on incumbent losses; on the other hand, unemployment and inflation do but to a modest degree. Chappell and Veiga (2000) analyze 136 elections from 13 Western European countries between 1960 and 1997 to conclude that the incumbent vote changes are not explained by change in unemployment and output growth. Paldam (1991) examines 17 countries and 197 elections and proposes that the primary economic variables add so little to the significance of the models. He infers that VP functions are instable across countries as they produce significant results only for some countries and in certain periods.

Building on Paldam's (1991) results, Powell and Whitten (1993) attempt to refine cross-national models by adding political context. They suggest that international economic performance should influence voters' judgments on their own economy. They also examine short-term swings in votes by adding previous vote share as an independent variable. Yet, their most notable contribution is probably considering clarity of responsibility. They argue that voters hold the government

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responsible in parallel to their perception of the government's actual power over implemented policies. To measure clarity of responsibility, they produce a clarity of responsibility index by considering bicameral opposition, minority governments, and coalitions in each country. Accordingly, by studying 19 countries and over 100 elections, they conclude that when voters have clear perceptions about government economic policies, they hold the government more responsible, thus GDP growth improves the incumbent votes while rise in consumer prices or unemployment decreases them. Anderson (2000) later confirms these results with more countries and adds that abundance of available alternatives heightens the effect of economic indicators on incumbent votes.

Later studies expand the scope of regressions by considering the effects of relative and international growth (Aytaç, 2017), governance indicators (Burlacu, 2013), corruption (Klašnja and Tucker, 2013), distribution of economic growth (Linn and Lagner, 2017), and exchange rates and currency crises (Quinn, Sattler and Weymouth, 2019; Steinberg, 2021).

2.3.3 How Voters Penalize Governments for Bad Currency Performance

It was Cooper's (1969) influential statistics that opened the discussions on how exchange rates might affect election outcomes. He says that although devaluation might be a solution for balance of payments crises, governments might want to avoid depreciation due to national prestige and proud, and more importantly, the fear of voter backlash. He presents that 7 out of 24 governments between 1956 and 1966 lost their seats within 12 months after the devaluation. Later including a control group with no devaluations, he concludes that devaluation makes it nearly twice as likely for an incumbent to fall.

Later, Frankel (2005) updates these figures to analyze 188 currency crashes between 1971 and 2003. He estimates that incumbents change 27 percent of the time within a year following a devaluation, and devaluation increases the likelihood of an incumbent to fall by 32 percent, primarily in middle-income countries. He also looks at a six-month window and observes that currency crashes make it 1.7 times more probable for a government to lose power.

One of the first ones to incorporate exchange rate shocks into economic literature, Remmer (1991) studies the effect of currency depreciations on election outcomes in Latin American countries to find that currency depreciations decrease incumbent vote shares. Similarly, adopting an economic voting approach by regressing

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incumbent vote shares on undervaluation, Quinn, Sattler and Weymouth (2019) analyze 54 countries from 1972 to 2019 and report that one SD increase in undervaluation causes 1.4 percent fall in incumbent votes. They also support that in developed economies, moderate levels of overvaluation are rewarded whereas extreme overvaluation (about 50 percent) is punished. Voters in emerging economies, however, mainly prefer overvaluation over undervaluation.

More recently, Steinberg (2021) studies the July 2018 currency crisis in Turkey when Turkish lira depreciated by 6.6 percent, its largest drop in the preceding eight years. He employs survey data answered by 2000 people in July 2018 and uses a P function with voting intentions as a binary dependent variable and exchange rate devaluation as the main independent variable. He presents that probability to vote for AKP fell by 7 percentage points as a result of the 6.6 percent depreciation, and additionally, government approval declined by 1.6 points on a 11-point scale.

Then, what makes currency crises and devaluations so costly? According to many studies covered at the beginning of this chapter, devaluations should stimulate growth, boost exports, and improve balance of payments, which should ultimately be beneficial for voters. However, according to several studies, the trend in a considerable number of developing and developed countries is quite the opposite, namely governments tend to maintain overvalued currencies mainly due to fear of voter backlash (Steinberg, 2015; Quinn, Sattler and Weymouth, 2019).

A major reason is claimed to be devaluation eroding purchasing power of consumers. Quick price increases in imported goods are not matched by the same level of increases in wages (Steinberg, 2015; Bird and Willett, 2008). Additionally, decreased foreign competition may cause domestic import-competing businesses to increase their prices, resulting in even higher inflation (Quinn, Sattler and Weymouth, 2019). The real wages staying the same amid rising inflation is a concern for all citizens regardless of the industry they are working in (Steinberg, 2021).

Moreover, the negative effects of devaluation may be more powerful than the positive ones in the short term. Frankel (2005) argues that devaluations are often turn out to be contractionary in the short term. Exports do not immediately rise after a devaluation because production is often disturbed by rising imported input costs, increased financial stability risks experienced by firms, and lack of trade credit. Moreover, devaluation is followed by a strong decline in imports, which distresses trade balance within two or three months.

Bird and Willett (2008) further support that the costs of devaluation rise in parallel to the level of devaluation in the short term. The negative impacts of currency drops may be immediately felt by voters while positive effects may not be apparent even after two years. And if foreign-currency-denominated debts of domestic businesses are higher than their foreign assets, insolvencies and bankruptcies may happen, which could distress overall economic activity. Moreover, Bird and Willett (2008) emphasize that the traditional economic actors who are assumed to benefit from devaluation, like tradables producers, may also suffer from inflation-induced wage increases offsetting their competitive advantage in exports. And if they reach a point where they cannot pay wages, they may choose to let go their employees, which increases unemployment (Steinberg, 2021).

Therefore, my main hypothesis for this thesis finally takes shape: Voters do not want currency depreciations. Although there may be some actors in society who could potentially benefit from depreciation, such as exporters or people who invest in foreign currencies, they are fewer in numbers compared to the rest of the public who are distraught because of their decreased purchasing power. Even an exporter may be adversely affected from rising inflation as a consumer who must pay more for necessities, as a producer who has to allocate more budget for imported inputs, and as an employer who is expected to raise wages in response to the inflation rate. Moreover, banks and firms that have debts in foreign currency and assets in domestic currency may be greatly exposed to bankruptcy risk after a loss of value in the domestic currency. And their bankruptcy could lead to increased unemployment and a general contraction in the economy. Therefore, the median voter may be motivated to use elections to punish the government for bad currency performance.

CHAPTER 3: DO EXCHANGE RATE SHOCKS TRIGGER INCUMBENT CHANGE?

This chapter explores through several regressions whether exchange rate shocks, namely depreciations, trigger incumbent change as suggested by Cooper (1969) and Frankel (2005). Unlike Cooper and Frankel, however, the models in this chapter follow the economic voting theory, where I incorporate other economic and political variables alongside exchange rate to explain the probability of a government being voted out of its office.

3.1 Methodology

In the economic voting literature, the general empirical approach in vote functions is to use OLS models with "incumbent vote" as the dependent variable and an accompanying set of economic and political independent variables. However, in this chapter, I am specifically interested in electoral defeats after a currency depreciation/shock rather than vote change. This approach helps us see the ultimate voter dissatisfaction with currency policies/shocks due to voters' complete rejection of re-selecting the incumbent. Thus, the models in this chapter employ *government change* as the binary dependent variable that takes the value 1 if there is an election at year *t* and the incumbents in year *t* and year t+1 are not the same, following the practice in Alesina, Carloni and Lecce (2011) and Aksoy (2016).

The nature of this binary dependent variable invalidates the usage of OLS models. Therefore, I employ a binomial GLM with logit link function where the dependent variable *y* is defined as;

$$y_{c,t} = \begin{cases} 1, \text{ if the government falls in the elections,} \\ \quad\quad 0, \text{ otherwise.} \end{cases} \tag{1}$$

where $y_{c,t}$ signifies if the government is changed in the elections held in year *t* at country *c*.

The probability of a government defeat in elections is the unknown parameter, μ, where;

$$\Pr(y=1) = \mu, \Pr(y=0) = (1-\mu). \tag{2}$$

And adopting a logistic link function, the general model can be written as;

$$
\begin{cases}
y_{c,t} m_{c,t} \sim \text{Bin}(\mu_{c,t}, m_{c,t}) \\
\text{logit}\left(\mu_{c,t}\right) = \ln\left(\frac{\mu_{c,t}}{(1-\mu_{c,t})}\right) = \beta_0 + \beta \cdot X_{c,t}
\end{cases}
\tag{3}
$$

where *m* is a sample size, β is a vector of regression coefficients and $X_{c,t}$ a vector of covariates (Dunn and Smyth, 2018).

Moreover, the incumbent is defined as a single-party government or the largest government party in case of a coalition government. Therefore, the incumbent change is accepted to happen when either of these parties lost their status. I also control for differences across countries (Alesina, Carloni and Lecce, 2011; Kayser and Peress, 2012; Aksoy, 2016).

Thus, the fitted model explains the relationship between the probability of government party change and a set of economic and political variables given below:

Exchange rate shock. The main independent variable is *exchange rate shock*, which is also a dummy variable that takes the value 1 if any currency shock happened over the last three years before an election by assuming that most governments hold office at least three years. This shock includes both government-induced devaluations and external factors. Regarding government-induced devaluations, Cooper (1969) takes the level of exchange rate shock as 10 percent while Frankel (2005) accepts it as 25 percent, stating that the world had changed since 1970s. However, their windows of analysis extend to only 12 months. This chapter, on the other hand, studies the effect of a 50-percent shock on an incumbent's fate in elections. One reason is that this thesis looks back three years compared to 12 months and supports that voters are more likely to engage in economic voting if they experience the consistent adverse effect of a plummeting currency on their living standards during an incumbent's term. Bird and Willett (2008) argue that voters tend to immediately feel the eroding impact of depreciating currency, but they may not feel the positive effects targeted by the incumbent for at least two years or more. Therefore, considering both the timeframe that a currency depreciation may show its benefits and the timeframe of the next elections, three years seems an appropriate choice for my hypothesis. And the said consistent adverse effect on people's purchasing power over the three years can be better represented with a 50-percent shock.

Another reason for a 50-percent shock is Rodrik's (2008) argument that a 50-percent undervaluation tends to increase real GDP per capita by 1.3 percentage points

during a five-year period. So, it might be interesting to see if there has been an incumbent change due to a government possibly choosing 50-percent undervaluation to boost exports and economic activity during its term. Although Rodrik (2008) consider the impact of real exchange rate on the economy, I consider nominal exchange rate. However, the effect should be similar because nominal depreciations are often followed by real depreciations in the short run in many countries (Bahmani-Oskooee, Hegerty and Kutan, 2007). Finally, previous studies established that currency-shock-triggered government change is primarily observed in developing economies (Frankel, 2005), and a 50-percent undervaluation only generates growth in emerging economies (Rodrik, 2008). Given that my data overwhelmingly includes middle income and upper income countries, a 50-percent shock seems more appropriate.

Regarding the external factor component of a currency shock, Ahlquist, Copelovitch and Walter (2018) present significant evidence: voters in Poland who had been affected by Swiss government's decision to appreciate Swiss franc voted the incumbent out of the office. Therefore, it might be useful to not discriminate against the nature of the exchange rate shock.

Since I test whether voters are more likely to punish the incumbent party if they experience a decrease in their purchasing power due to an exchange rate shock, I expect the sign of this variable to be positive.

Other economic variables. The models also feature the two traditional variables in economic voting: *real GDP growth in the election year* (Nannestad and Paldam, 1994; Lewis-Beck and Paldam, 2000), and *unemployment*. Some papers incorporate change variables for unemployment (Kramer, 1971). However, I consider unemployment in its absolute percentage value in the election year just as in Powell and Whitten (1993), because otherwise it does not enhance the explanatory power of the models.

The single-country literature mainly expects the sign of the real GDP growth to be negative whereas the sign of unemployment to be positive (Lewis-Beck and Stegmaier, 2000). Among the economic variables, I also control for the *share of industry in GDP* to test whether the impact of exchange rate shock on incumbent electoral defeats depends on the level of industrial activities, as particularly a powerful manufacturing sector may act as a buffer in case of a shock by helping stimulate economic activities (Pike, Dawley and Tomaney, 2013). Furthermore, I include an

interaction term between exchange rate shock and *share of trade in GDP*. Some argue that low-income voters in trade-dependent regions may be more affected by currency shocks, and therefore, withdraw their support from the government in the aftermath of a large depreciation (Steinberg, 2021). On the other hand, others argue that countries with structurally high trade-to-GDP ratios are more resilient against currency shocks (Frankel, 2005). Therefore, its sign can either be positive or negative.

Although the single-country studies mainly report significant results for voters reacting to macroeconomic variables in the elections, cross-national studies do not reach a widely accepted conclusion, as discussed before (Powell and Whitten, 1993). Considering this is a multiple-nation study, I follow the footsteps of Powell and Whitten (1993) and attempt to include variables representing political context in each country to improve the model.

Political context. I control for *years of office* (Alesina, Carloni and Lecce, 2011; Aksoy, 2016; Sakurai and Menezes-Filho, 2008) to test whether there is any incumbency advantage. Sakurai and Menezes-Filho (2008) suggest that the more years incumbents stay in the office, the more power and experience they accumulate, which may help them secure their position in the next elections. However, this argument is counterpointed by Powell and Whitten (1993) who claim that voters are more inclined to vote the incumbents out of the office because of unfulfilled promises, scandals, or a general end-of-honeymoon sentiment after an incumbent comes into power with a short-term swing in voter support. Therefore, its sign can either be positive or negative.

Moreover, as voters may attribute less responsibility to the government if they perceive that their role in policymaking is limited in coalition governments (Powell and Whitten, 2013), I include a *coalition* dummy variable that takes the value 1 if there is a coalition government. The sign is expected to be negative.

The models also feature a variable, *frac*, to represent political competition in a country. Rowe (2015) state that voters should have enough viable alternatives that somewhat represent their ideology if they intend to vote the incumbent out of the office. Therefore, this thesis uses the variable *frac*, the probability that two deputies picked at random will be from different parties (Cruz, Keefer and Scartascini, 2021). Accordingly, its sign is expected to be positive.

Additionally, I include a dummy variable, *right*, to control for ideology. It takes the value 1 if the incumbent party is right wing. As Powell and Whitten (1993) argues, voters expect left-wing governments to deliver a better performance than right-wing

governments in tackling unemployment. So, I include an interaction term between unemployment and right and expect its coefficient to be negative.

Lastly, I also consider the impact of good governance practices on the probability of a government losing its office. Burlacu (2013) finds that voters attach importance to governance as much as the economy in her study of 29 countries and 158 elections. Accordingly, I employ the variables *corruption, government effectiveness*, and *stability*, and expect the sign of corruption to be positive whereas stability and government effectiveness to be negative.

3.2 Data

I employ the multi-national legislative election dataset of Cruz, Keefer and Scartascini (2021), named the Database of Political Institutions 2020 – DPI 2020. This dataset currently covers 183 countries between 1975 and 2020. The dependent variable, government change, is created by using this dataset's *gov1* entry, which represents the largest government party.

Additionally, I use DPI 2020's years of office data, which stands for the number of years a chief executive has stayed in power. The variable to control political competition, *frac*, is also from DPI 2020, meaning the probability that randomly selected two deputies are of different parties. Finally, the variable indicating an incumbent party's ideology, *right*, is provided by this dataset, as well.

The nominal exchange rate data is from the Penn World Tables version 10.0 released in 2021 including 183 countries between 1950 and 2019. Since the exchange rate in this data is based on USD, a historical US dollar index[1] is employed only for the USA to account for this country, too. Similarly, the real GDP growth data also comes from the Penn World Tables 10.0. As suggested by Feenstra, Inklaar and Timmer (2015), I selected the data on real GDP at constant national prices to compute the growth rates over time in each country.

The *unemployment*, *trade share,* and *industry share* data are from World Bank's World Development Indicators covering the period from 1970 to 2020. The unemployment data represents unemployed people as percentage of total labor force according to national estimates, and the trade data is the sum of exports and imports as percentage of GDP. Moreover, the variables *corruption*, *stability*, and *government*

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[1] Investing.com. (2022). *USD/TRY - US Dollar Turkish Lira* [Online]. Available at: https://www.investing.com/currencies/usd-try-historical-data. (Accessed: 15 April 2022).

effectiveness from 1996 to 2020 are also from World Bank's WDI database. They are all represented in a percentile rank. The full variable descriptions can be seen in Appendix A.

3.3 Results and Discussion

This thesis studies 176 countries and 1,578 legislative elections between 1975 and 2019. In this period, the number of elections held in lower-middle and upper-middle countries is 839 and in high-income countries is 513. In total, incumbents lost their seats in 553 elections. Out of these electoral defeats, 36.5 percent of them is observed in high-income countries and 52.8 percent in middle-income countries. The number of currency shocks during this period is 1,143, and only 49 of them occurred in high-income countries according to this thesis' definition of shock. The partial regression results are given in Table 1 and the full results including country factors can be seen in Appendix C.

The first model purely employs economic variables, and other models increasingly incorporate political variables. In three out of four models, exchange rate shock seems to have a significant positive impact on the probability of a government being voted out of the office. It maintains its significance with the inclusion of political variables. Thus, voters seem to punish incumbents who preside over currency shocks. Model 4 seems to be the best fit according to the Akaike information criterion and features currency shock as a significant variable at 0.05 level.

The coefficients of growth and unemployment are also significant and in the expected direction. However, while the effect of growth disappears with the addition of political variables, unemployment remains highly significant in all models. Accordingly, positive real GDP growth during the election year reduces the likelihood of an incumbent losing its power while high unemployment is strongly punished by voters. These overall results indeed indicate the existence of economic voting across countries. Considering Model 1 which comprises only economic variables, we can argue that the economy alone explains 40 percent of variance in government change.

From the political variables, the coefficient of years of office is statistically significant and positive, disputing the argument of incumbency advantage. Accordingly, these results support Powell and Whitten's (1993) argument that incumbents are more likely to lose elections after their honeymoon period ends because they might not have fulfilled the promises they made in their election campaigns, opposition parties might have successfully clouded their accomplishments,

or they have become corrupt with power and scandals broke. *Frac* also showcases a significant and positive coefficient, supporting the claim of Rowe (2015).

Other political variables, *coalition*, *right*, *corruption*, *stability*, and *government effectiveness*, appear to be nonsignificant in these models.

Table 1. Logit regression results

DV: Government Change	Model 1	Model 2	Model 3	Model 4
(Intercept)	-3.38 **	-3.06 *	-6.15 **	-4.79 *
	(1.30)	(1.31)	(2.22)	(2.23)
Exchange rate shock	3.43 *	3.45 *	3.04	3.96 *
	(1.73)	(1.74)	(1.82)	(1.95)
Trade	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Growth	-0.08 **	-0.08 **	-0.05	-0.14
	(0.03)	(0.03)	(0.05)	(0.10)
Unemployment	0.14 ***	0.13 ***	0.20 ***	0.23 ***
	(0.04)	(0.04)	(0.06)	(0.06)
Industry	0.02	0.02		
	(0.03)	(0.03)		
Exchange rate shock x Trade	-0.02	-0.02	-0.05 *	-0.06 *
	(0.01)	(0.01)	(0.03)	(0.03)
Exchange rate shock x Industry	-0.08	-0.08		
	(0.05)	(0.05)		
Years of office		-0.05	0.11 **	0.12 **
		(0.02)	(0.04)	(0.04)
Coalition			-0.34	-0.30
			(0.42)	(0.43)
Frac			4.03 *	4.07 *
			(1.83)	(1.84)
Corruption			-0.00	
			(0.02)	
Stability			-0.01	
			(0.02)	
Right				-0.27
				(0.65)
Government effectiveness				-0.03
				(0.02)

Table 1 (cont'd)

Trade x Growth				0.00
				(0.00)
Unemployment x				-0.04
Right				(0.08)
N	709	709	489	489
AIC	979.17	977.37	709.79	707.61
Pseudo R2	0.41	0.41	0.49	0.50

*** p < 0.001; ** p <0.01; * p < 0.05.

An interesting result is shown in Models 3 and 4, where the interactive term between exchange rate shock and the percentage of trade in GDP seems to have a significant negative impact on the dependent variable. This means that the effect of currency shock on government change becomes less positive with an increasing trade-to-GDP ratio. To test this effect further, the sample is divided into two groups based on the trade median, which amounts to 67.3.

Accordingly, the regression results for high-trade and low-trade countries are displayed in Table 2. The results indeed show that the effect of exchange rate shock is significant and positive in countries with lower trade-to-GDP ratio. On the other hand, in high-trade countries, the coefficient of currency shock is nonsignificant. This result supports Frankel's (2005) findings that trade openness makes countries more resilient against currency crises. Frankel (2005) argues that countries with higher share of trade in GDP are less likely to default on their debts, and therefore, international investors are less inclined to take their money out of the domestic economy. Moreover, countries with structurally high trade ratio recover more rapidly in the aftermath of output contractions. Therefore, in case of a currency shock in high-trade countries, the effect felt by voters would not be the same as the effect felt by voters in low-trade countries, which reduces the likelihood of them punishing an incumbent in the elections.

Table 2 also reveals that although the effect of unemployment on government change is significant in both groups, the significance level is higher in low-trade countries. Growth, on the other hand, is statistically significant only in high-trade countries. Moreover, in low-trade countries, it appears that the impact of exchange rate shock decreases as share of industry in GDP increases. This can be interpreted as the bigger a country's industry, particularly manufacturing sector, the better that economy

performs in the face of a crisis, as powerful manufacturing sectors tend to reduce an economy's vulnerability by helping revive output and productivity and create jobs (Pike, Dawley and Tomaney, 2013). Therefore, strong industrial sector may have dampened the effect of currency shock, which could decrease the degree to which the shock is felt by the voters.

Table 2. Regression Results for Low-Trade and High-Trade Countries

Dependent Variable: Government Change		
	Low trade	High trade
(Intercept)	-4.90 *	-1.78
	(2.23)	(1.44)
Exchange rate shock	4.37 *	2.12
	(2.02)	(3.12)
Growth	-0.08	-0.10 *
	(0.05)	(0.05)
Unemployment	0.15 **	0.11 *
	(0.06)	(0.05)
Years of office	-0.02	-0.04
	(0.04)	(0.04)
Industry	0.07	0.01
	(0.05)	(0.04)
Industry x XR shock	-0.13*	-0.10
	(0.06)	(0.11)
N	322	387
AIC	437.80	571.05
Pseudo R2	0.52	0.42
*** p < 0.001; ** p < 0.01; * p < 0.05.		

Finally, I take advantage of World Bank's classification of income groups and test whether the role of exchange rate shock is more powerful in middle-income countries as suggested by the literature. Table 3 indeed demonstrates that the effect of exchange rate shocks on government change is significant and positive in middle-income countries while nonsignificant in high-income countries. The pseudo R^2 also shows a much better fit for middle-income countries model. Like trade regressions, growth is only significant for voters in high-income countries.

The coefficient of unemployment, on the other hand, is extremely significant for middle-income countries, suggesting that voters in middle-income countries highly

care about employment levels when casting a vote. Furthermore, the coefficient of government effectiveness on incumbent change is negative and significant in middle-income countries, meaning that high levels of government effectiveness are associated with less likelihoods of incumbent defeats in elections.

This suggests that voters care about the quality of public services and the governments' commitment to policy creation and implementation and hold the government responsible if they detect a deterioration in these areas.

Table 3. Regression Results based on Income Groups

Dependent Variable: Government Change		
	Lower-Middle and Upper-Middle Income	High Income
(Intercept)	-5.10	-3.78
	(2.97)	(6.42)
Exchange rate shock	6.42 *	6.70
	(2.63)	(6.34)
Trade	0.00	0.01
	(0.02)	(0.01)
Growth	0.00	-0.16 *
	(0.07)	(0.07)
Unemployment	0.37 ***	0.12
	(0.10)	(0.07)
Years of office	0.08	0.21 **
	(0.06)	(0.06)
Coalition	-0.19	-0.40
	(0.64)	(0.61)
Frac	3.16	5.18
	(2.21)	(3.65)
Corruption	0.02	-0.02
	(0.04)	(0.05)
Government effectiveness	-0.08 *	0.00
	(0.04)	(0.05)
N	236	243
AIC	332.34	362.30
Pseudo R2	0.62	0.37

*** p < 0.001; ** p < 0.01; * p < 0.05.

Additionally, *years of office* is only significant and positive for high-income countries, indicating that the more years an incumbent holds an office in high-income countries, the more likely they are about to lose the next elections. Therefore, *years of office*'s significant and positive result from Table 1 appears to be primarily stemming from high-income countries. So, developed economies are more likely to hold their governments accountable after an initial honeymoon period in case of unfilled promises or political scandals (Powell and Whitten, 1993).

Overall, the results present that a 50-percent exchange rate shock during an incumbent's term (on average, three years) has a significant and positive impact on the likelihood of an incumbent not surviving in the next elections. This effect is mainly observed in middle-income countries or countries whose share of trade in GDP is lower than 65 percent. Economic voting is present across different country groups, as voters in middle-income or low-trade countries significantly factor in unemployment and currency shocks into their voting decisions while the significance of growth in voter behavior is particularly apparent in high-income and high-trade countries.

CHAPTER 4: CURRENCY SHOCKS, RELATIVE ECONOMIC PERFORMANCE, AND INCUMBENT VOTES – A REPLICATION

After examining the role of currency shocks in government electoral defeats, this chapter takes the discussion one step further and explores whether currency shocks decrease incumbent vote shares against the backdrop of relative domestic and international economic performance. To do this, I replicate the results reported by Aytaç (2017) by adding the variable exchange rate shock into his regressions. The results suggest that exchange rate shocks are indeed associated with a decrease in incumbent votes.

4.1 Economic Voting and Relative Performance

Aytaç (2017) is not the first one to study the impact of relative economic performance on incumbent votes. This angle goes back to Powell and Whitten (1993), who attempt to refine cross-national vote functions and include as an independent variable an international benchmark for voters to compare their own economies. They argue that voters may not consider domestic economic conditions independently from international context, and they might compare the performance of their economies to the performance of others when making a voting decision. Studying the effect of international average growth, unemployment, and inflation on incumbent vote share in 19 democracies between 1969 and 1988, Powell and Whitten (1993) conclude that these relative variables were statistically significant as comparative growth is associated with increased incumbent vote shares while comparative unemployment and inflation with the opposite.

Later, Kayser and Peress (2012) investigate the influence of local and global macroeconomic variables on incumbent votes in 385 elections and 22 countries. To construct comparative variables for each country, they also include their trade partners' weighted growth and unemployment information. Their results demonstrate that voters do not care about the international growth rate itself, but they are interested in the deviations of their own economies' performance from the average international performance. However, this benchmark effect was valid only for growth, and the reason, as argued by the authors, could be that voters' opinions about foreign economies are mostly shaped by the media, and the media almost always talks about the growth rather than unemployment in other countries.

Following in their footsteps, Aytaç (2017) enhances this argument by

incorporating domestic relative growth into the equation. He argues that voters are not that myopic, and they might think about how their experiences relating to the economy changed from the previous incumbent to the current one. In other words, voters may refer to some reference points when deciding whether the economy is doing good or bad. And consequently, the incumbents who underperformed economically compared to their domestic or international counterparts should be punished in the elections.

Aytaç (2017) then consider relative domestic and international growth simultaneously, suggesting that election-year growth in its absolute value should lose its significance once relative variables enter the picture. To build the relative domestic growth variable, he takes the difference between annual real GDP growth between the current incumbent term and the previous term. To build the relative international growth variable, he determines the top five exports markets of each country to create an international reference point for the voters. He then considers the weighted average growth rates of these top five export markets during the incumbent's term and subtracts them from the voter country's average growth during the same term to arrive at the relative international growth variable.

His models accept incumbent vote share as the dependent variable and a set of other traditional economic voting variables such as coalition, effective number of parties (to measure political competition), and reelection (a dummy variable indicating 1 if the incumbent is running for reelection). He also adds the variable schooling to justify the existence of relative international growth, as he argues that people learn about other economies mostly through news and higher levels of education facilitates this curiosity and the ability to digest the news stories.

Studying 475 presidential and legislative elections in 62 developing and developed countries between 1965 and 2014, Aytaç (2017) runs several OLS regressions with robust standard errors, and the results are presented in Table 4. He indeed finds that once relative domestic and international growth are included, election-year growth becomes nonsignificant, and the explanatory power of the model improves. The coefficients of both relative variables are significantly positive, suggesting that voters do domestic and international benchmarking in their voting decisions.

Table 4. Relative Performance Regression Results (Source: Aytaç, 2017)

DV: Incumbent Vote	(1)		(2)	
	Coefficient	SE	Coefficient	SE
Relative Domestic Growth			.574***	(.204)
Relative International Growth			.719**	(.276)
International Growth			.298	(.349)
Election-Year Growth	.676***	(.163)	.216	(.143)
Previous Vote	.689***	(.064)	.679***	(.063)
Coalition	.216	(1.039)	.129	(1.015)
Eff. Num. of Parties	-1.435***	(.366)	- 1.536***	(.381)
Presidential	-4.558***	(1.109)	-4.820***	(1.103)
Reelection	12.284***	(2.481)	12.661***	(2.393)
Constant	11.692***	(3.249)	13.040***	(3.405)
Observations	460		460	
R^2	.584		.608	

*p<.10, **p<.5, ***p<.01

Aytaç (2017) later adds a few interaction terms with growth variables, including average schooling, trade intensity, and income to especially test the justification of the relative international income variable through higher levels of education. Table 5 displays a relevant part of the results to this thesis. He concludes that the impact of relative international performance on incumbent vote share enhances with higher levels of education, which is likely to prove his argument that the effect of relative international growth on electoral outcomes is supported by the level of education. However, the level of significance for this coefficient in both models (1 and 4) seems relatively weak at 0.1.

In sum, Aytaç (2017) proposes that when making an electoral choice, voters refer to their past economic experiences with the previous government and the performance of their countries' trade partners. He supports that the impact of international relative performance on electoral outcomes is primarily substantiated by the education level of voters who are obtaining information about other economies from the news and make sound judgments accordingly.

Table 5. Interaction terms with schooling, income, and trade (Source: Aytaç, 2017)

DV: Incumbent Vote	(1)		(2)		(3)		(4)	
	Coef	SE	Coef	SE	Coef	SE	Coef	SE
Rel. Intl. Growth	-.518	(.806)	-.053	(1.497)	.835	(1.379)	-.530	(.796)
x Avg. Schooling	.157*	(.091)					.159*	(.090)
x Income			.094	(.157)				
x Trade Intensity					.009	(.255)		
Rel. Dom. Growth	.999*	(.593)	2.287	(1.485)	1.971**	(.857)	1.129*	(.588)
x Avg. Schooling	-.051	(.074)					- .065	(.073)
x Income			- .191	(.157)				
x Trade Intensity					.261*	(.148)		
(…)								
Observations	457		457		458		452	
R^2	.614		.614		.614		.616	

*p<.10; **p<.5;***p<.01

4.2 Refining the Model: Adding Currency Shocks into the Equation

To see how currency shocks affect incumbent vote shares and whether it could improve the previous economic voting models, first I add the variable 50-percent exchange rate shock into the initial equations generated by Aytaç (2017) without including the interaction terms. I too run OLS regressions with robust standard errors. The results are shown in Table 6.

Indeed, exchange rate shock appears to be highly significant and in the expected direction in both absolute growth and relative growth models. And model 2 estimates that, compared to countries with no currency shocks in the last three years preceding the elections, in the countries with 50-percent exchange rate shocks, the government votes are expected to decline by around 5 percent.

Table 6. The impact of exchange rate shocks on incumbent vote shares against the backdrop of relative domestic and international growth

DV: Incumbent vote %	Model 1	Model 2
(Intercept)	10.25 **	12.24 **
	(3.43)	(3.80)
Exchange rate shock	-5.70 **	-4.78 **
	(1.80)	(1.59)
Election year growth	0.72 ***	0.12
	(0.19)	(0.17)
Previous vote	0.72 ***	0.70 ***
	(0.07)	(0.07)
Coalition	1.07	0.94
	(1.21)	(1.10)
Effective no. of parties	-1.40 ***	-1.52 ***
	(0.39)	(0.42)
Presidential	-3.34 *	-3.68 **
	(1.30)	(1.28)
Relection	11.05 ***	11.66 ***
	(2.66)	(2.58)
Relative domestic growth		0.71 **
		(0.25)
Relative international growth		0.86 **
		(0.32)
International growth		0.25
		(0.46)
Observations	368	368
R^2	0.58	0.61
Adj. R^2	0.57	0.60

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Election-year growth turns out to be nonsignificant after including the relative growth rates, as reported by Aytaç (2017). The coefficients of relative domestic growth and relative international growth remain significant and positive. In fact, 1 percentage point increase in relative domestic growth and relative international growth leads to a 1.57-percentage point increase in incumbent vote share, 0.27 percentage points higher than Aytaç's (2017) results. Previous vote share, effective number of parties, presidential, and reelection maintain their significance and direction while coalition

continues to be nonsignificant.

Next, I test Aytaç's (2017) argument that the influence of the relative international growth on electoral outcomes should depend on the availability of information about foreign economies and the citizens' ability to digest this information through the news. He includes an interactive variable with relative international growth and average years of schooling and expect this variable to be significantly positive. Although his results were in line with his expectations, the coefficient for the relevant interaction term seemed weak. In fact, after I introduce the exchange rate shock variable into his models, this argument seems to become void. The results are demonstrated in Table 7.

Table 7. Replication with schooling, income, and trade

DV: Incumbent vote %	Model 1	Model 2	Model 3	Model 4
(Intercept)	10.99 *	7.89	13.98 **	12.23
	(4.16)	(6.23)	(4.21)	(10.19)
Exchange rate shock	-4.76 **	-4.56 **	-5.00 **	-4.71 **
	(1.64)	(1.67)	(1.71)	(1.68)
Relative domestic growth	1.37	2.18	2.59 **	1.37
	(0.74)	(1.59)	(0.84)	(0.74)
Education x Rel. dom. growth	-0.08			-0.08
	(0.09)			(0.09)
Relative international growth	-0.40	-0.58	0.94	-0.43
	(0.97)	(1.66)	(1.50)	(0.95)
Education x Rel. int. growth	0.16			0.16
	(0.11)			(0.11)
International growth	0.34	0.36	0.16	0.34
	(0.47)	(0.46)	(0.46)	(0.48)
Election growth year	0.78	1.56	-0.34	0.78
	(0.70)	(1.19)	(0.70)	(0.72)
Education x growth year	-0.08			-0.08
	(0.08)			(0.09)
Previous vote share	0.70 ***	0.71 ***	0.70 ***	0.71 ***
	(0.07)	(0.07)	(0.07)	(0.07)
Coalition	0.86	0.88	0.94	0.84
	(1.11)	(1.11)	(1.06)	(1.10)
Effective no. of parties	-1.58 ***	-1.55 ***	-1.53 ***	-1.58 ***
	(0.41)	(0.41)	(0.41)	(0.41)

Table 7 (cont'd)

Presidential	-3.91 **	-3.82 **	-3.50 *	-3.96 **
	(1.31)	(1.40)	(1.38)	(1.39)
Reelection	11.27 ***	11.30 ***	11.50 ***	11.26 ***
	(2.41)	(2.44)	(2.52)	(2.44)
Education	0.17			0.18
	(0.24)			(0.27)
Income x Rel. dom. growth		-0.16		
		(0.17)		
Income x Rel. int. growth		0.16		
		(0.18)		
Income x Election-year growth		-0.16		
		(0.13)		
Income		0.44		-0.10
		(0.54)		(0.82)
Trade x Rel. dom. growth			0.34 *	
			(0.15)	
Trade x Rel. int. growth			0.02	
			(0.27)	
Trade x Election-year growth			-0.08	
			(0.13)	
Trade intensity			0.28	0.08
			(0.50)	(0.67)
Observations	368	368	368	368
R^2	0.61	0.61	0.62	0.61
Adj. R^2	0.60	0.60	0.60	0.60

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

In all specifications, exchange rate shock has a significant negative effect at 0.01 level on incumbent votes, which suggests that the incumbents who preside over a 50-percent exchange rate shock during their terms tend to lose about 4.5-5 percent of their votes compared to the incumbents who do not experience any currency shocks. Moreover, the currency shock seems to be the most powerful factor in determining election outcomes after political context (namely, previous vote share, number of parties, and reelection). It might be even argued that it is the most powerful economic variable explaining election outcomes as among the other economic variables, only

relative domestic growth turned out to be significant at 0.01 level in the third model.

The more striking point is that the inclusion of exchange rate shock into these more sophisticated models render the coefficient of the relative international growth nonsignificant. Additionally, the interactive term between the relative international growth and the average years of schooling also becomes nonsignificant, and the education variable has no significant effect on its own either. Moreover, the interactive term's coefficient continues to remain nonsignificant at the 0.10 significance level, originally used by Aytaç (2017). Consequently, these results rebut Aytaç's (2017) hypothesis that the effect of international relative growth on incumbent votes is justified and improved by higher levels of education.

Accordingly, it may be argued that voters are not likely to factor into their voting decisions international growth – whether it is in absolute or relative value – by following and absorbing news stories about foreign economies. However, they might think about other economies, especially their countries' trade partners, by comparing the value of their currency against the foreign currencies. If voters think that their currency becomes weaker relative to other similar economies, they are more likely to withdraw their support from the government. As argued by Frankel (2005), currency shocks are often contractionary, mainly because of the balance sheet effect. Firms, banks, and individuals who have debts denominated in foreign currency will face higher amounts of obligations following a devaluation, which results in bankruptcies and an increase in unemployment. Considering that Aytaç's (2017) sample included country clusters who are each other's top trade partners, it is not unreasonable to expect that these countries have also strict financial ties with each other, which may have exacerbated the impact of currency shock on election outcomes.

Another point worth noting is that the number of observations in Table 6 and Table 7 are smaller than Aytaç's (2017) results in Table 4 and Table 5. Since Aytaç's (2017) argument on relative international performance mostly relies on highly educated countries, as well as high-income countries which are less likely to experience a 50-percent shock, it is important to check whether such countries are dropped in the analysis. It seems that the decline in observations is mainly caused by the exclusion of three countries from the analysis, Lebanon, Sri Lanka, and Madagascar, due to missing values. These countries are not in the high-income and/or highly educated category, and therefore, the sample still includes country groups that Aytaç (2017) uses to validate the relationship between relative international income

and education. Furthermore, a closer look at regressions reveals that the coefficients of a group of low-income and middle-income countries[2] return NA coefficients because of low number of observations in the dataset while high-income countries in their entirety feature results other than NA. So, even though the number of observations decreases compared to Aytaç's (2017) regressions, this does not appear to significantly harm this thesis' argument for the nonsignificant relationship between relative international growth and education.

In sum, the results in this chapter confirmed the existence of relative domestic growth effect on incumbent votes. Voters' reaction to change in economic indicators from one term to another seems robust in different model specifications. On the other hand, relative international growth results reported by Aytaç (2017) lose their robustness once the currency shock variable enters the picture. Voters might consider the international context in their vote choices; however, the effect does not seem to stem from the level of their education but the level of their currency. Indeed, governments tend to be strongly punished for bad currency performance.

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[2] These countries are Bangladesh, Indonesia, Kenya, Malaysia, Mali, Peru, Sierra Leone, and Zambia.

CHAPTER 5: CASE STUDY – TURKEY

Turkey can provide a special example to illustrate the role of currency depreciations in government defeats or the incumbents' decline in popularity. This chapter explores the course of the USD/TRY exchange rate over the last two decades and how the incumbent popularity in pre-election polls may be linked to the drops in Turkish lira.

In the 1990s, the Turkish coalitions governments often offered short-term, high-interest rate opportunities for foreign investors to finance budget deficits, which resulted in a series of boom-and-bust cycles (Aytaç and Öniş, 2014). During these lost decades, as many call, Turkey experienced poor macroeconomic indicators, poor fiscal discipline, runaway inflation, and an overall uncertain and unstable environment. The governments' pro-capital policies as part of capital account liberalization resulted in an overvalued Turkish lira, a deteriorating current account deficit, and increased external debt stocks. Coupled with an extremely vulnerable banking industry, Turkey experienced two twin crises in 1994 and 2001 (Ari and Cergibozan, 2015). After the currency crisis in 1994 triggered by the downgrading of Turkey's credit rating, the first party in the coalition government, DYP, lost nearly 8% of its votes in the 1995 elections and fell to the second place.

Ari and Cergibozan (2015) state that although Turkish economy was relatively stable after the 1995 elections, the Russian crisis in 1998 hit the country's economy and the banking industry, consumer prices soared, an IMF disinflation program was introduced, and then Turkish lira suffered speculative attacks following a public disagreement between the president and the prime minister in February 2001. This currency crisis basically forced the coalition government out of the office and brought AKP into power in the 2002 elections (Aytaç and Öniş, 2014; Steinberg, 2021).

Aytaç and Öniş (2014) explain that until the 2008-2009 crisis, AKP implemented IMF policies revolving around fiscal discipline and did not even introduce stimulus packages during the 2008 crisis. The government set the path for Turkish lira to appreciate by adopting high interest rates and an anti-inflationary stance. The strong Turkish lira even pushed the share of imported inputs in industrial production up to 35-40% in mid 2000s. From 2002 to 2008, Turkey saw exceptional capital inflows because of international investors' interest in emerging market assets and the government's pro-capital policies. The country also enjoyed consistently high growth rates and political stability compared to the people's frantic experience with

the previous coalition governments (Ari and Cergibozan, 2015). The 2008-2009 crisis, on the other hand, led to a considerable slowdown in economic activity, rise in unemployment, decreased export revenues, and a stop to capital inflows (Ari and Cergibozan, 2015). Although there were not any general elections around these crisis dates, Turkey had a mayoral election in 2009 which saw AKP's votes declining by 8 points (Konda, 2015).

It seems clear that before 2002, currency depreciations played a significant role in the governments' loss of power. On the other hand, the AKP government has not yet experienced a complete electoral defeat even though there have been large depreciations in its term. However, this does not mean that they did not face any voter backlash due to the weak Turkish lira. To examine voter's potential behavior against TRY depreciations during the AKP term, I present Figure 1 and 2, the first displaying the trajectory of AKP's popularity in pre-election polls featuring data from all available survey companies between 2011 and 2022[3] and the latter the trend in the USD/TRY exchange rate over the same period[4].

Figure 1 shows an overall significant downward trend in AKP's popularity in polls since 2011. The party starts with an average of 48-percent respondent support in 2011 and a relatively stable exchange rate until the Gezi Park Protests in May 2013 and corruption scandals in December 2013. Turkish lira fell by more than 20 percent in May and around 25 percent in December 2013 (Ari and Cergibozan, 2015). During this period, we observe a 5-percentage-point decline in AKP's popularity from its peak in 2011 to the first month of 2014. However, AKP shortly regained its popularity by mostly benefitting from increased political polarization in the country, as it again managed to be the first party in March 2014 mayoral elections (Konda, 2015).

The next drop we see in AKP's popularity is around June 2015. Respondents, on average, seem to have gradually lowered their support since the beginning of 2015. The reason may be that 2015 was the second worst year during AKP's tenure in terms of the economy following the 2008 crisis (Akarca, 2015). The USD/TRY exchange rate went from 2.33 at the beginning of the year to 2.66 in June (Bonfield, 2016). Indeed, AKP lost the majority in the parliament in the June 7 elections.

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[3] The pre-election poll data for 2011-2019 is from Aydaş (2020), featuring the results reported by each survey company. The rest is from a Wikipedia (2022) article with confirmed newspaper sources.
[4] Investing.com. (2022). *USD/TRY - US Dollar Turkish Lira* [Online]. Available at: https://www.investing.com/currencies/usd-try-historical-data. (Accessed: 9 June 2022).
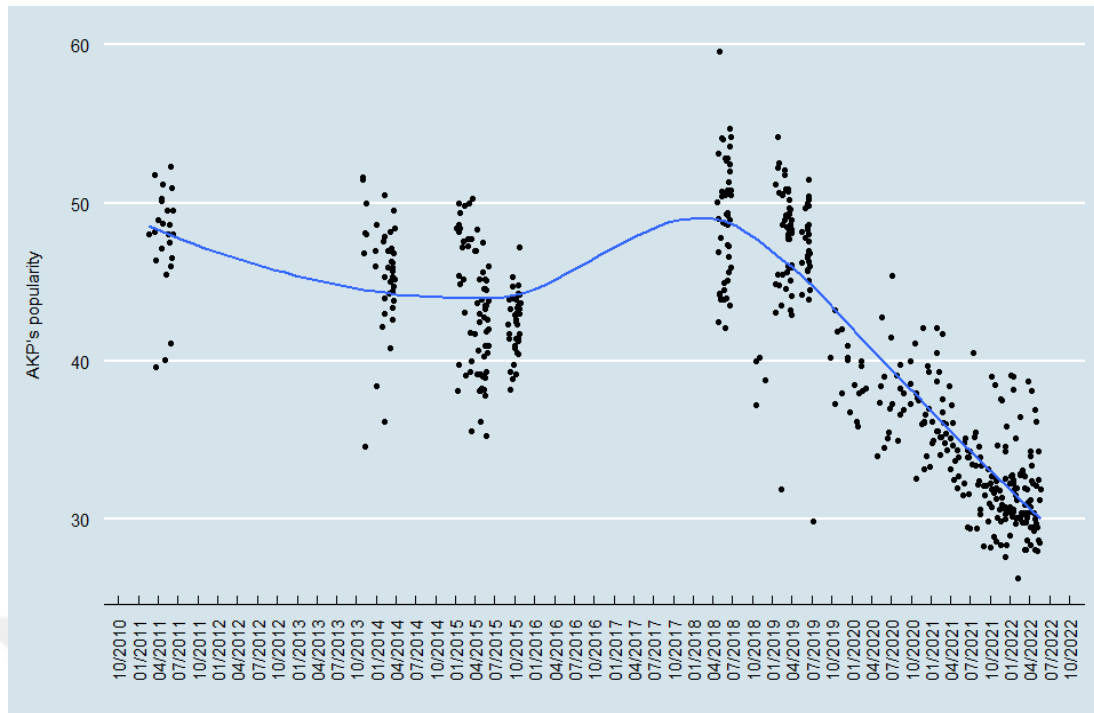
Figure 1. AKP's Popularity (%) in Pre-Election Polls from 2011 to 2022

Akarca (2015) found that if AKP could have re-created the positive economic atmosphere in 2011, its vote would be 1.5 percentage points higher in the June elections. However, the resulting political instability and the rise of terrorist incidents led to the re-holding of elections in November 2015, and AKP was re-selected as a single-party government. Meanwhile, the currency continued to fall between the two elections, and although it showed a brief recovery after November 1, it resumed its downward trend to end the year at 2.95 (Bonfield, 2016). It may be argued that economic voting led to AKP's defeat in the first elections, but they still managed to secure a victory in the latter, despite the weaker Turkish lira. In this case, it seems that extraordinary circumstances overrode economic voting.

The most striking parts of Figures 1 and 2 start in 2018, as from that point onwards, we see a clear negative trend in AKP's popularity, which could be caused by a plunging Turkish lira. Steinberg (2021) state that in 2017, Turkey saw expansionary monetary and fiscal policies, increased consumer prices, and a resulting decline in foreign reserves. And in 2018, when the US increased interest rates and drove the value of US dollar, coupled with changing global financial conditions, Turkish lira's vulnerability to external shocks has become apparent, hence the currency crisis in

2018. The lira first lost 21 percent of its value during the first six months of the year. There was actually a general election on June 24, and despite the depreciation, AKP again managed to secure more than half of the votes.
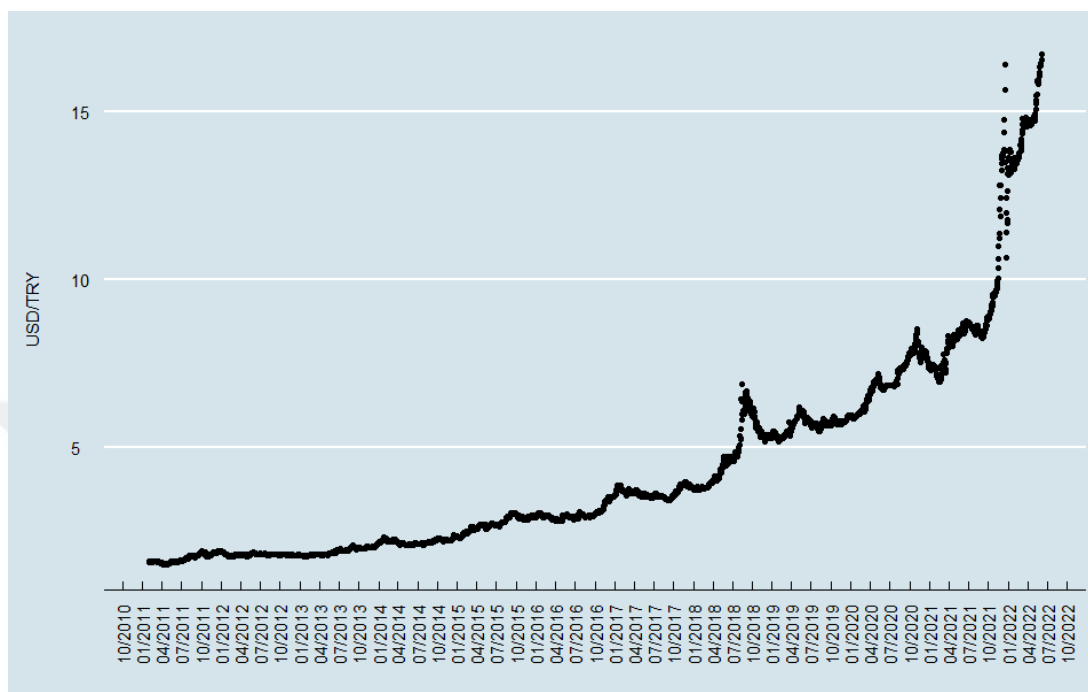
Figure 2. The change in the USD/TRY exchange rate from 2011 to 2022

Steinberg (2021) argues that the reason behind the AKP's sweeping victory was probably the extreme partisan polarization in Turkey and the AKP-controlled media's successful attempts to censor the news about depreciation. It might also be that the 21-percent depreciation in a developing country did not register as severe enough for voters to factor into their voting decisions.

However, as Steinberg (2021) recounts, immediately after the election, Turkish lira nose-dived 42 percent between July and August 2018. Between July 9 and 11, the three-day losing streak in the lira, amounting to a total of 6.6 percent depreciation, kicked off this trend, as it marked the largest depreciation of Turkish lira in eight years and its weakest value up until then against the US dollar. Steinberg (2021) found that the 6.6 depreciation led to a decline in government approval by 1.6 points on an 11-point scale and reduced the likelihood of voting for AKP by 7 percentage points by using a poll that was held immediately after this depreciation. The government attempted to offset the rapid depreciation in the first three quarters by raising interest

rates in September. At the end of the year, Turkish lira found itself 31 percent weaker in value, followed by many bankruptcy declarations and rising unemployment (Akçay and Güngen, 2019). Additionally, capital inflows to the country suddenly stopped in the third quarter of 2018, a situation only happened in Turkey compared to other emerging economies. During this period, Turkey's External Market Pressure Index, whose largest component is the exchange rate, has increased to the 2008-crisis levels (World Bank, 2019). Mirroring these developments, Figure 1 displays that AKP's poll popularity fell from May 2018 to December 2018. In May 2018, AKP had on average 47 percent approval rate whereas during the last quarter of the year, this rate dropped to 40 percent.

In 2019, Turkish lira managed to stabilize thanks to a contractionary monetary policy, tight fiscal stance, and the Central Bank's focus on disinflation (Türkiye Cumhuriyeti Merkez Bankası, 2020), which seems to have revived some of the respondent support for AKP in the first half of 2019 as shown in Figure 1. On the other hand, AKP lost in the March 2019 mayoral elections the two largest cities in Turkey, a result that was not predicted by most survey companies. This has reflected some degree of loss of confidence in their urban voter base. And the respondent support after the second half of 2019 again declined to around 39 percent on average. For instance, a survey company's November 2019 poll asked the respondents "what is the biggest problem in Turkey?" and around 34 percent of respondents said, "the economy", while 16 percent replied, "unemployment" (T24, 2019).

After a relatively stable course in 2019, Turkish lira depreciated to new record-lows in 2020. In early March, current account deficits, capital outflows, and the rise in the value of US dollar caused Turkish lira to be down by 20 percent. In May, the nominal effective exchange rate index dropped to an all-time low, later accompanied by highly volatile currency day to day. This overburdened corporate and bank balance sheets that contained substantial amounts of debt denominated in US dollar. The melting of foreign reserves to offset the effect of depreciations heighted the country's external vulnerability (World Bank, 2020). Moreover, amid the COVID-19 crises, the government injected liquidity into the economy and cut interest rates to help affected businesses. However, even when the inflation reached two digits, the government refused to raise the rates and continued to use reserves to support the currency by embracing an unorthodox policy (Turak, 2020). The potential political effect of this policy can be seen in Figure 1, as AKP's popularity throughout the year, on average,

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declined from 46 percent in 2019 to 37 percent in 2020.

The popularity of AKP continued its downward trend in 2021 and 2022, as Turkish lira dipped to new all-time lows. In March 2021, the lira depreciated by 9.3 percent in one day after the head of the Central Bank was replaced for the second time in four months (World Bank, 2021). Throughout the year, the lira became the worst-performing currency in emerging markets and depreciated by around 44 percent in 2021 and nearly 20 percent in December, mostly because of the continuation of the low-interest rate policy despite high inflation to boost exports and economic growth (Toksabay and Gümrükçü, 2021). To pull the lira back from its historic lows, which went as far as 1 USD=18 TRY, the government introduced new state-backed saving accounts to protect holders from inflation and central bank continued its multi-billion-dollar interventions at the end of 2021, which helped ensure a temporary stability at the beginning of 2022 (Pitel, 2022). However, this stability ended in May 2022 as the lira plummeted back to its December 2018 levels amid geopolitical tensions, revealing its high vulnerability with dwindling foreign reserves (Yılmaz, 2022).

Respondents' answer to an all-time weak lira and rampant inflation seems to be a further 6 percentage point decline in approval rates, from an average of 37 percent popularity in 2021 to an average of 31 percent popularity in the first five months of 2022. Although the government has adopted a policy to stimulate exports at the expense of weaker currency with the promise of greater economic growth in the future, just like Rodrik (2008) suggested for developing economies, this does not appear to be favored by voters in Turkey. This may stem from Turkey's high dependence on imported energy and intermediate goods, as a weak currency pushes up production prices, and then, consumer prices. The picture in Turkey also supports that real wages do not rise as quickly as imported goods prices during this large devaluation episodes (Steinberg, 2015; Bird and Willett, 2008), and this erodes the purchasing power of voters.

Even though AKP remained as a single-party government for two decades, weaker Turkish lira could have implications on its popularity. From its peak in 2011 until May 2022, AKP, on average, saw its popularity decline by 16 percentage points. Especially from 2021 onwards, economic context, mostly driven by weak currency, seems to overshadow political context in voting behavior.

CHAPTER 6: CONCLUSION

This study argued that exchange rate shocks weaken support for the governments. Large currency depreciations reduce voters' purchasing power or expose the vulnerabilities of incorporations who have mismatched balance sheets, which lead to a recession in the economy. Subsequently, distraught voters punish incumbents who implemented a depreciated currency policy or simply presided over an externally induced currency shock. Incorporating the economic voting theory to address the effect of a 50-percent currency shock on electoral outcomes, the study revealed that a 50-percent depreciation during an incumbent's term increases the likelihood of that incumbent to lose the next elections. This is mainly observed in middle-income countries or countries with lower share of trade in GDP. The results also indicated that voters engage in economic voting, as unemployment and currency shocks are particularly cared about in middle-income or low-trade countries while growth in high-income and high-trade countries.

Additionally, a 50-percent depreciation reduces incumbent vote shares by nearly 5 percent according to the replication of Aytaç (2017). It is also found that voters think about relative economic and international performance when making a voting decision, supporting the claim of Aytaç (2017). On the other hand, how they think about relative international performance are likely to be shaped by exchange rates, not education levels, a result contradicting to Aytaç (2017). Lastly, a case study of Turkey highlighted the potential impact of currency depreciations on both electoral defeats and poll popularity declines.

Hence, in an integrated global economy, exchange rates become increasingly important and even seem to have the potential to decide who stays in power. Governments, especially in developing economies, should carefully formulate their exchange rate policies and avoid interventions that would significantly disrupt voters' living standards. Moving on from the findings of this study, it might be interesting to analyze whether delaying depreciations after the elections (Bird and Willett, 2008) is effective for the government's chances of survival in the next elections. Moreover, recent years have seen the rise of political polarization around the world, which has the potential to strongly influence voting decisions and overshadow economic voting. Yet, lack of global/historical data in this context has made it difficult to study it empirically. It might be useful in the future to conduct a large cross-cultural study to

see the impact of political divide on election outcomes.

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APPENDICES

Appendix A – Data Description

Table A1.

Variable	Description	Unit	Source
Government change	A dummy variable that takes the value 1 if an incumbent changes in an election	0 or 1	Own calculation from Cruz, Keefer and Scartascini (2021)
Exchange rate shock	A dummy variable that takes the value 1 if a currency loses 50% of its value within the last three years	0 or 1	Own calculation from Penn World Tables 10.0
Trade	The sum of exports and imports of goods and services measured as a share of gross domestic product	Percentage	World Bank
Growth	Growth rate of real GDP at constant national prices	Percentage	Own calculation from Penn World Tables 10.0
Unemployment	The percentage of unemployed people in total labor force according to national estimates	Percentage	World Bank

Table A1 (cont'd)

Industry share	Industry (including construction), value added (% of GDP). Includes value added in mining, manufacturing, construction, electricity, water, and gas.	Percentage	World Bank
Years of office	The number of years that the chief executive has been in office	Years	Cruz, Keefer and Scartascini (2021)
Coalition	A dummy variable that takes the value 1 if a government is in coalition	0 or 1	Own creation from Cruz, Keefer and Scartascini (2021)
Frac	The probability that two deputies picked at random from the legislature will be of different parties.	Decimal from 0 to 1	Cruz, Keefer and Scartascini (2021)
Right	A dummy variable that takes the value 1 if a government is right-wing.	0 or 1	Own creation from Cruz, Keefer and Scartascini (2021)
Corruption	The perceptions of corruption regarding the abuse of public power and the degree to which the elite occupy the state	Percentile Rank	World Bank

Table A1 (cont'd)

Stability	The perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism	Percentile Rank	World Bank
Government Effectiveness	The perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	Percentile Rank	World Bank

Appendix B – Summary Statistics

Table B1.

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 50	Pctl. 75	Max
Government change	8033	0.069	0.253	0	0	0	0	1
Exchange rate shock	6321	0.181	0.385	0	0	0	0	1
Growth	6637	3.61	6.466	-66.12	1.413	3.789	6.131	106.28
Frac	6671	0.493	0.294	0	0.286	0.559	0.726	1
Years of office	8190	-56.004	245.173	-999	2	4	9	50
Trade	6352	77.553	48.614	0.021	46.065	67.329	96.731	437.327
Unemployment	3764	8.056	5.742	0.05	4.08	6.8	10.39	38.8
Industry share	6139	27.984	12.326	3.243	20.082	25.806	32.924	90.47
Corruption	3702	47.049	29.243	0	21.832	44.712	70.244	100
Stability	3704	45.564	27.886	0	21.801	43.478	67.773	100
Government effectiveness	3699	48.084	28.955	0	22.628	47.115	71.566	100
Right	8200	0.195	0.397	0	0	0	0	1

Appendix C – Full Table of Logit Regression Results

Table C1.

	Model 1	Model 2	Model 3	Model 4
(Intercept)	-3.38 **	-3.06 *	-6.15 **	-4.79 *
	(1.30)	(1.31)	(2.22)	(2.23)
Exchange rate shock	3.43 *	3.45 *	3.04	3.96 *
	(1.73)	(1.74)	(1.82)	(1.95)
Trade	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Growth	-0.08 **	-0.08 **	-0.05	-0.14
	(0.03)	(0.03)	(0.05)	(0.10)
Unemployment	0.14 ***	0.13 ***	0.20 ***	0.23 ***
	(0.04)	(0.04)	(0.06)	(0.06)
Industry	0.02	0.02		
	(0.03)	(0.03)		
factor(country)Algeria	-0.95	-0.66	-2.42	-3.28
	(1.54)	(1.59)	(1.66)	(1.70)
factor(country)Argentina	0.27	0.27	-0.42	-0.63
	(1.00)	(1.00)	(1.55)	(1.57)
factor(country)Armenia	-0.32	-0.09	-1.70	-2.07
	(1.47)	(1.47)	(1.59)	(1.65)
factor(country)Australia	0.94	0.93	2.60	3.52 *
	(1.07)	(1.07)	(1.92)	(1.79)
factor(country)Austria	1.08	1.15	2.56	3.39
	(1.05)	(1.05)	(1.99)	(1.83)
factor(country)Azerbaijan	-16.83	-16.61	-16.95	-17.64
	(3158.41)	(3183.01)	(3596.02)	(3652.11)
factor(country)Bahamas	3.00 *	3.11 *	21.15	21.78
	(1.39)	(1.38)	(3115.68)	(3041.53)
factor(country)Bahrain	-16.70	-16.26	-17.33	-16.95
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Bangladesh	21.36	21.28	21.23	20.69
	(4612.17)	(4608.02)	(6522.64)	(6522.64)
factor(country)Barbados	0.07	0.12	2.09	2.62
	(1.19)	(1.19)	(1.98)	(1.73)
factor(country)Belarus	0.91	1.54	-18.29	-19.21
	(1.56)	(1.60)	(2566.93)	(2567.25)

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Table C1 (cont'd)

factor(country)Belgium	0.83	0.92	1.13	2.14
	(1.17)	(1.17)	(2.13)	(1.98)
factor(country)Belize	2.37	2.53	1.94	1.83
	(1.42)	(1.43)	(1.69)	(1.65)
factor(country)Benin	-15.48	-15.45	-15.57	-15.99
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Bhutan	20.15	20.38	23.50	23.45
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Bolivia (Plurinational State of)	3.06 *	3.08 **	2.27	1.93
	(1.19)	(1.19)	(1.53)	(1.53)
factor(country)Bosnia and Herzegovina	0.21	0.25	-1.93	-3.19
	(1.49)	(1.49)	(1.87)	(2.03)
factor(country)Botswana	-19.20	-19.10	-18.12	-17.49
	(3763.41)	(3737.65)	(4462.50)	(4509.75)
factor(country)Brazil	1.09	1.06	0.18	-0.47
	(1.15)	(1.15)	(1.59)	(1.58)
factor(country)Bulgaria	2.66	2.67	2.38	2.39
	(1.39)	(1.39)	(1.62)	(1.62)
factor(country)Burkina Faso	-15.99	-15.47	-16.77	-17.98
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Cambodia	-16.03	-15.36	-16.54	-17.83
	(4610.80)	(4598.51)	(4604.88)	(4606.46)
factor(country)Cameroon	-16.11	-15.15		
	(6522.64)	(6522.64)		
factor(country)Canada	0.69	0.74	1.41	2.28
	(1.17)	(1.17)	(1.99)	(1.87)
factor(country)Chile	0.82	0.84	1.54	1.97
	(1.10)	(1.10)	(1.83)	(1.67)
factor(country)Colombia	0.24	0.27	1.54	1.58
	(1.12)	(1.13)	(1.73)	(1.57)
factor(country)Congo	-17.73	-17.04	-19.30	-20.82
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Costa Rica	2.87 *	2.89 *	2.68	2.71

Table C1 (cont'd)

	(1.17)	(1.17)	(1.70)	(1.48)
factor(country)Cote d'Ivoire	2.56	2.59	21.44	20.94
	(1.70)	(1.70)	(6522.64)	(6522.64)
factor(country)Croatia	0.77	0.78	0.76	1.05
	(1.13)	(1.13)	(1.44)	(1.42)
factor(country)Cyprus	0.61	0.66	-17.01	-16.13
	(1.19)	(1.19)	(3082.79)	(3029.61)
factor(country)Czech Republic	1.28	1.34	1.93	2.27
	(1.18)	(1.18)	(1.64)	(1.58)
factor(country)Denmark	0.76	0.78	2.18	3.23
	(1.00)	(1.00)	(2.12)	(1.93)
factor(country)Dominican Republic	-16.41	-16.41	-16.00	-16.44
	(3235.37)	(3228.57)	(3257.04)	(3249.91)
factor(country)Ecuador	1.82	1.82	0.79	0.04
	(1.06)	(1.06)	(1.42)	(1.46)
factor(country)Egypt	0.04	0.50	-0.80	-1.47
	(1.17)	(1.20)	(1.56)	(1.55)
factor(country)El Salvador	0.62	0.58	0.41	0.41
	(1.06)	(1.06)	(1.55)	(1.52)
factor(country)Estonia	1.57	1.69	1.71	2.00
	(1.20)	(1.20)	(1.98)	(1.83)
factor(country)Fiji	-16.99	-16.75		
	(4585.93)	(4611.20)		
factor(country)Finland	0.83	0.87	2.06	2.77
	(1.03)	(1.03)	(2.14)	(1.94)
factor(country)France	2.63 *	2.58 *	2.08	2.82
	(1.04)	(1.04)	(1.83)	(1.69)
factor(country)Gambia	-16.65	-16.44	-16.83	-17.63
	(4609.51)	(4530.56)	(4588.04)	(4589.36)
factor(country)Georgia	-1.05	-0.91	-1.46	-1.58
	(1.35)	(1.36)	(1.64)	(1.58)
factor(country)Germany	0.40	0.62	0.87	1.62
	(1.17)	(1.18)	(1.98)	(1.78)

Table C1 (cont'd)

factor(country)Ghana	20.50	21.34	21.28	21.41
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Greece	1.45	1.44	1.59	1.95
	(1.12)	(1.12)	(1.50)	(1.52)
factor(country)Guatemala	20.97	20.97	20.88	20.62
	(3240.00)	(3242.50)	(3230.80)	(3170.19)
factor(country)Guinea	-16.39	-15.73	-17.65	-18.67
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Guyana	22.28	22.80		
	(6522.64)	(6522.64)		
factor(country)Honduras	1.93	1.99	1.75	1.56
	(1.22)	(1.23)	(1.55)	(1.60)
factor(country)Hungary	2.11	2.25	3.14	3.48 *
	(1.28)	(1.28)	(1.79)	(1.73)
factor(country)Iceland	1.59	1.56	3.21	3.96 *
	(1.14)	(1.13)	(2.09)	(1.87)
factor(country)India	-16.32	-16.28	-15.48	-14.67
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Indonesia	1.58	1.99	0.86	0.96
	(1.22)	(1.25)	(1.70)	(1.71)
factor(country)Iran (Islamic Republic of)	-0.47	-0.34	-0.02	-0.70
	(1.52)	(1.53)	(1.72)	(1.72)
factor(country)Iraq	-18.21	-17.92	-18.82	-19.96
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Ireland	0.39	0.57	-0.21	0.44
	(1.45)	(1.46)	(2.41)	(2.16)
factor(country)Israel	2.46 *	2.46 *	1.56	2.96
	(1.16)	(1.16)	(2.00)	(1.70)
factor(country)Italy	3.28 *	3.23 *	20.60	20.86
	(1.34)	(1.34)	(2841.05)	(2739.22)
factor(country)Jamaica	0.88	1.03	2.53	2.80
	(1.15)	(1.15)	(1.63)	(1.69)
factor(country)Japan	0.14	0.05	1.76	2.39
	(1.39)	(1.39)	(2.01)	(1.93)
factor(country)Jordan	-1.02	-0.37	-0.48	-0.72

Table C1 (cont'd)

	(1.40)	(1.43)	(1.81)	(1.69)
factor(country)Kazakhstan	1.22	1.69	-17.81	-18.71
	(1.18)	(1.23)	(2976.79)	(2859.62)
factor(country)Kuwait	20.18	20.57	-0.32	-0.52
	(6522.64)	(6522.64)	(1.94)	(1.79)
factor(country)Kyrgyzstan	2.81	3.06 *	2.04	1.17
	(1.44)	(1.45)	(2.01)	(1.98)
factor(country)Latvia	1.96	1.95	1.59	2.12
	(1.19)	(1.19)	(1.59)	(1.54)
factor(country)Lebanon	21.01	20.89	20.81	21.24
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Lithuania	2.55	2.63	2.35	2.39
	(1.39)	(1.39)	(1.82)	(1.79)
factor(country)Luxembourg	-0.65	-0.19	-1.37	-0.74
	(1.87)	(1.88)	(3.09)	(2.93)
factor(country)Malaysia	0.92	1.15	2.43	2.93
	(1.36)	(1.37)	(1.84)	(1.93)
factor(country)Maldives	2.12	2.03	2.40	1.81
	(1.72)	(1.72)	(1.93)	(1.92)
factor(country)Mali	2.71	2.66	20.30	19.60
	(1.68)	(1.69)	(6522.64)	(6522.64)
factor(country)Malta	0.93	1.17	1.44	1.83
	(1.46)	(1.46)	(2.44)	(2.27)
factor(country)Mauritius	19.98	20.12	21.23	21.47
	(2874.23)	(2879.49)	(3130.74)	(3143.94)
factor(country)Mexico	1.09	1.12	1.99	2.47
	(1.11)	(1.11)	(1.39)	(1.42)
factor(country)Mongolia	1.14	1.25	1.53	0.73
	(1.55)	(1.54)	(1.69)	(1.67)
factor(country)Morocco	0.96	1.60	0.96	0.62
	(1.15)	(1.18)	(1.65)	(1.62)
factor(country)Myanmar	-15.78	-15.75	-15.18	-16.07
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Namibia	-18.50	-18.23	-19.08	-19.67
	(3745.94)	(3697.67)	(4577.21)	(4586.77)
factor(country)Nepal	-16.26	-16.40	-17.24	-18.13

Table C1 (cont'd)

	(4517.99)	(4506.40)	(6522.64)	(6522.64)
factor(country)Netherlands	0.95	1.11	1.47	2.47
	(1.07)	(1.07)	(2.12)	(1.95)
factor(country)New Zealand	1.35	1.34	2.16	2.93
	(1.04)	(1.03)	(2.06)	(1.84)
factor(country)Nicaragua	2.80	2.94 *	2.31	1.32
	(1.48)	(1.48)	(1.80)	(1.89)
factor(country)Niger	21.29	21.13	22.42	21.97
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Nigeria	1.31	1.27	1.60	0.89
	(1.51)	(1.51)	(1.90)	(1.96)
factor(country)North Macedonia	-1.18	-1.10	-2.33	-3.07
	(1.25)	(1.25)	(1.64)	(1.79)
factor(country)Norway	2.10	2.13	2.68	3.51
	(1.11)	(1.11)	(2.16)	(2.01)
factor(country)Pakistan	21.20	21.24	20.47	20.04
	(2430.83)	(2406.11)	(3717.78)	(3705.49)
factor(country)Panama	19.68	19.76	20.46	20.50
	(2357.64)	(2348.90)	(3050.84)	(3099.64)
factor(country)Paraguay	0.72	1.10	1.69	1.22
	(1.19)	(1.22)	(1.51)	(1.56)
factor(country)Peru	20.61	20.75	20.48	20.44
	(2878.45)	(2898.34)	(3204.92)	(3241.59)
factor(country)Philippines	1.17	1.30	0.57	0.82
	(1.07)	(1.07)	(1.65)	(1.57)
factor(country)Poland	1.48	1.52	2.25	2.52
	(1.13)	(1.13)	(1.67)	(1.56)
factor(country)Portugal	0.32	0.40	1.08	1.74
	(1.15)	(1.15)	(1.77)	(1.62)
factor(country)Republic of Korea	2.07	2.09	3.89 *	4.67 **
	(1.14)	(1.13)	(1.61)	(1.66)
factor(country)Republic of Moldova	1.14	1.18	0.37	-0.15

Table C1 (cont'd)

	(1.22)	(1.22)	(1.57)	(1.61)
factor(country)Romania	3.68 **	3.74 **	3.50 *	3.12 *
	(1.39)	(1.39)	(1.56)	(1.55)
factor(country)Rwanda	-17.26	-16.62	-17.96	-18.21
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Senegal	-16.00	-15.95	-14.79	-15.16
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Sierra Leone	19.45	19.73	21.02	19.28
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Singapore	-18.04	-17.49	-16.01	-16.25
	(2136.58)	(2108.39)	(3738.12)	(3694.67)
factor(country)Slovenia	1.22	1.32	1.05	1.05
	(1.29)	(1.29)	(1.75)	(1.71)
factor(country)South Africa	-19.51	-19.53	-19.95	-20.19
	(2895.22)	(2886.77)	(3142.23)	(3157.04)
factor(country)Spain	0.18	0.28	-0.14	0.59
	(1.11)	(1.11)	(1.74)	(1.65)
factor(country)Sri Lanka	2.14	2.32	2.71	2.64
	(1.25)	(1.26)	(1.73)	(1.71)
factor(country)Sudan	0.15	0.15		
	(1.71)	(1.71)		
factor(country)Suriname	20.07	20.42	19.78	19.37
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)Sweden	1.75	1.78	1.30	2.06
	(1.03)	(1.03)	(2.08)	(1.86)
factor(country)Switzerland	0.89	0.87	1.22	1.85
	(1.21)	(1.21)	(2.27)	(2.10)
factor(country)Syrian Arab Republic	-17.19	-16.92	-16.69	-17.97
	(3740.37)	(3633.30)	(4610.22)	(4571.37)
factor(country)Tajikistan	-15.57	-15.22	-17.14	-18.37
	(3459.73)	(3449.17)	(6522.64)	(6522.64)
factor(country)Thailand	2.74 *	2.77 *	2.50	3.00
	(1.19)	(1.19)	(2.01)	(1.96)
factor(country)Tunisia	-0.03	0.53	-1.70	-2.00
	(1.24)	(1.28)	(1.94)	(2.00)

Table C1 (cont'd)

factor(country)Turkey	1.59	1.61	0.00	0.11
	(1.09)	(1.09)	(1.79)	(1.75)
factor(country)Uganda	-17.19	-17.10		
	(6522.64)	(6522.64)		
factor(country)Ukraine	2.30	2.35 *	1.82	1.16
	(1.18)	(1.18)	(1.40)	(1.41)
factor(country)United Arab Emirates	-17.16	-16.65	-16.24	-15.55
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
factor(country)United Kingdom	0.86	0.84	1.47	2.48
	(1.17)	(1.17)	(2.10)	(1.98)
factor(country)United States of America	1.23	1.23	2.14	3.00
	(1.11)	(1.11)	(1.87)	(1.78)
factor(country)Uruguay	1.69	1.73	2.04	2.05
	(1.11)	(1.11)	(1.92)	(1.60)
factor(country)Uzbekistan	1.31	1.79	21.13	20.06
	(1.45)	(1.49)	(6522.64)	(6522.64)
factor(country)Venezuela (Bolivarian Republic of)	1.21	1.44	-17.03	-18.25
	(1.47)	(1.48)	(4558.63)	(4591.37)
factor(country)Viet Nam	-16.55	-16.37	-14.37	-14.83
	(2898.73)	(2901.04)	(3127.01)	(3158.40)
factor(country)Zambia	-17.40	-17.24	-16.92	-18.63
	(6522.64)	(6522.64)	(6522.64)	(6522.64)
XR Shock x Trade	-0.02	-0.02	-0.05 *	-0.06 *
	(0.01)	(0.01)	(0.03)	(0.03)
XR Shock x Industry	-0.08	-0.08		
	(0.05)	(0.05)		
Years of office		-0.05	0.11 **	0.12 **
		(0.02)	(0.04)	(0.04)
Coalition			-0.34	-0.30
			(0.42)	(0.43)
Frac			4.03 *	4.07 *
			(1.83)	(1.84)

Table C1 (cont'd)

Corruption			-0.00	
			(0.02)	
Stability			-0.01	
			(0.02)	
Right				-0.27
				(0.65)
Government effectiveness				-0.03
				(0.02)
Trade x Growth				0.00
				(0.00)
Unemployment x Right				-0.04
				(0.08)
N	709	709	489	489
AIC	979.17	977.37	709.79	707.61
Pseudo R2	0.41	0.41	0.49	0.50

*** p < 0.001; ** p < 0.01; * p < 0.05.

Appendix D –Hosmer-Lemeshow goodness of fit test for logistic regressions

Table D1.

	Model 1	**Model 2**	**Model 3**	**Model 4**
X-squared	2.9757	5.6025	7.9884	4.6554
p-value	0.7037	0.4692	0.5353	0.9467
g	7	8	11	13

The null hypothesis in Hosmer-Lemeshow test is that the fitted model is correct, and higher p-values (above the significance level) indicate a better fit. In this case, all models in Chapter 3, Table 1 are acceptable as the null hypothesis cannot be rejected. Number of groups, g, is selected based on g>p+1, where p is number of covariates.