DISSERTATION

THREE ESSAYS ON CORRUPTION IN THE MIDDLE EAST AND NORTH AFRICA

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ABSTRACT

THREE ESSAYS ON CORRUPTION IN THE MIDDLE EAST AND NORTH AFRICA

This dissertation focuses on the corruption phenomenon at the macro level in the Middle East and North Africa (MENA) after the Arab uprisings regarding its impacts on economic growth and income inequality. The first chapter investigates the relationship between corruption and economic growth. The results show that after the Arab Spring, corruption lowers economic growth. After clustering the MENA countries into three categories – severe, moderate, and light – according to the magnitude of the Arab protests and their outcomes, the results are obscure due to the low number of observations. Although the results are not significant in sub-sample regressions, they are robust for the entire data set with alternative corruption indexes. Furthermore, the findings verify that the natural resource curse is a valid argument. Lastly, the Chow test confirms that 2011, the year when the Arab protests started, constitutes a structural break. The second chapter examines the impact of corruption on income inequality. The findings concludes that there is no significant relationship between corruption and inequality for the entire data set. Then, the MENA region is categorized into three sub-regions as in the first chapter to test whether results constitute intra-regional heterogeneity. The robust results reveal a negative and significant relationship between the Arab Spring and inequality in severely affected countries. Nevertheless, the results are insignificant for moderately and lightly affected countries. The third chapter analyzes the heterogeneous findings of the previous chapters. In the first part, crony capitalism, democratization of corruption and rentier state models are discussed to explain the political-institutional characterization of severely, moderately and lightly affected countries. In the second part, severely affected countries are further examined on how corruption income inequality nexus rotates in terms of magnitude and sign and still significant after the Arab Spring. The political economy analysis helps to provide country and group-specific policy recommendations.

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DEDICATION

To my father, Huseyin, and my uncle, Orhan, without whom this dissertation would not have been written…

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Introduction

1.1 Corruption

Corruption is a global phenomenon. It has existed across different times in history and is not prevalent only in developing countries (P. Basu, 2006). While evidence of corruption can be seen in a treatise on public administration in 14th century India (Bardhan, 1997), it is also referred to in the works of Aristotle, Plato, Montesquieu, Machiavelli, and Rousseau (Gong, 1994). However, the way that early philosophers defined, and interpreted corruption is different from how it is comprehended today.

Plato interpreted all activities as corrupt except those that seek collective action or typical gain for all members of the society (Gong, 1994). Aristotle said corrupted constitutions serve for the arbitrary gain of rulers, and the law does not guide them. Aristotle also believed that corrupt rulers are corrupt because they exploit society (Gong, 1994). Montesquieu, Rousseau, and Machiavelli considered corruption in politics and commented that struggle for power, loss of public ethics, and living in rampant corruption make both rulers and ruled more corrupt. Since ancient times, definitions and approaches to tackle corruption have changed, but it remains pervasive in many aspects of contemporary human life.

Although corruption is a hidden phenomenon by nature, political, bureaucratic, social, and economic lives struggle with it. Scholars are engaged in debates on tackling and solving corruption at the micro and macro levels. Despite extensive research for solutions to corruption, it is still present and experienced on relatively small to massive scales in different parts of the globe. However, there is no consensus on the definition of corruption, which is one reason impeding the search for a remedy.

The words illegal, immoral, and illicit are frequently used interchangeably with corruption (Bardhan, 1997). This conflation obfuscates the real issue. For example, any payment made to a

blackmailer to ensure that information is not revealed can be considered immoral, but this is not a corrupt transaction (Bardhan, 1997). Other transactions which could be undertaken for a noble cause are considered corrupt but not immoral. The same arguments can be made about illegality and corruption (Bardhan, 1997). This confusion in terminology makes the corruption issue more complex.

There is also no globally accepted definition of corruption (P. Basu, 2006; Rothstein and Varraich, 2017). The Council of Europe has highlighted the absence of a detailed description of corruption that covers all types and degrees of corruption or is acceptable globally to cover all aspects that constitute or contribute to corruption (Pearson et al., 2001). Further, some studies could focus only on the public aspect of corruption, whereas others focus on the private aspect. Also, each field, particularly sociology, anthropology, political science, legal studies, and economics, has its definition of corruption (Rothstein and Varraich, 2017). Perhaps, there are several interpretations even among the existing definitions because of this reason.

Bardhan (2006) talks about the difference between political (grand) and bureaucratic (petty) corruption. Political corruption provides the legal means to maintain political power and bureaucratic corruption gives another type of power to government employees to use the state's resources for personal gain. According to Bardhan (2006), political corruption exists in developed countries, whereas developing countries experience political and bureaucratic corruption.

Olson (1993) compares roving bandits with stationary bandits and argues that roving bandits have more negative impacts than stationary bandits. For roving bandits, theft without any economic development is the way of ruling as in Latin American countries. On the other hand, stationary bandits steal and help the country's economic development by connecting capitalists to give privileges in exchange for bribes. It can be said that roving bandits are more corrupt than stationary bandits. Countries that experience bureaucratic and political corruption might have more roving bandits than stationary bandits since these two types of corruption combined might feed more greed and theft from the government resources without any economic development.

A similar but more specific distinction is made by Alatas (1999), separating extortive corruption from manipulative corruption. In the former, people buy their rights by bribing (e.g., bribing a government employee for a license to open a factory), whereas they deprive others' rights in the latter (e.g., bribing to secure a job for an unqualified person). Also, Bauhr (2012) distinguishes need corruption, where a bribe is paid to get a service, from greed corruption, in which payment is requested for a service required to provide legally. In all these cases, corruption has destructive impacts, and these impacts differ with government regimes where either centralized or decentralized states have the control.

Centralized states that control the volume of bribes might be less distortionary than decentralized states in terms of economic development (Rock and Bonnett, 2004). This is because a potential briber or corrupt individual accomplishes the necessary work with one payment in a centralized government. In contrast, an individual in a decentralized state may not be sure whether the work will be completed even if several payments are made in different parts of the bureaucracy because of decentralization. Thus, the impact of corruption will differ economically depending on government type and whether corruption is political, bureaucratic, extortive, manipulative, need, or greed type. All these kinds of corruption impact the different dynamics of economies at different times.

In sum, corruption is a global phenomenon that is not defined or measured precisely for several reasons. First, it is hidden by nature, and all payments or privileges are provided secretly. Second, there is no globally accepted definition of corruption to measure it in one direct way. Third, existing definitions are insufficient because each field looks at the issue from different perspectives. Fourth, while governments concentrate on formal institutions to measure and eliminate corruption, informal institutions and practices are often preferred where individuals cannot solve the corruption problem formally through legal institutions (Kubbe and Varraich, 2020). Finally, all these practices, including formal and informal, have different sociological components that prevent scholars from working on corruption rigorously both at the micro and macro levels, and this is particularly apparent in the Middle East and North African context (Peleg and Mendilow, 2014).

1.2 Corruption in the Middle East and North Africa

The words "corruption" and "Middle East" are often conjoined for many Westerners.

– Kate Gillespie (2006)

Corruption is a common concern in the Middle East and North Africa (MENA). The reasons ascribed to this susceptibility to corruption are several, including the bureaucratic legacy of the Ottomans (Gillespie, 2006) and high dependence on oil exports, which attracts massive rent-seeking opportunities (Ross, 2001; Djankov et al., 2008; Warf, 2015). Vulnerability to corruption damages institutions and affects the faith of citizens in the legitimacy of the states. The recent survey of ASDA'A BCW, a public relations agency based in the United Arab Emirates (UAE), on Arab youth in 17 countries supports this argument. In the survey, Arab youth consider corruption the third biggest issue after migration and political unrest (BCW, 2021).

According to the recent report of Transparency International (2019), one of the leading institutes to measure the corruption level of countries in a composite index, CPI (Corruption Perception Index), which was constructed through different surveys, and this is why it is known as the survey of the surveys, from 0 (most corrupt) to 100 (least corrupt), MENA scored 39 on average which is less than the average of the world, 43 (Schoeberlein, 2019). This average is only better than Sub-Saharan Africa, Eastern Europe, and Central Asia (Schoeberlein, 2019). Among MENA countries, Yemen, Syria, and Libya had the lowest scores. In fact, Syria and Yemen have the lowest score in MENA and the world. These countries have not made any progress for the last several years because of the civil war in Syria and ongoing Gulf involvement in Yemen, aiming to clear the region from Shi'ite forces. On the other hand, Gulf countries, mainly Qatar, Saudi Arabia, and United Arab Emirates (UAE), are at the top of the MENA in terms of the corruption score.

Taking subjective data sets (e.g., Transparency International) aside, The MENA region has close family, kinship, and tribal connections, and most of the time, decisions within the families are made according to these relationships. Tribal networks and their relations with the administrations also play a vital role in government decisions. For example, getting hired in a government position, speeding the documents in bureaucratic lines, and gaining significant privileges are the

consequences of well-built networks. In this sense, the term wasta (networks and reciprocity) is an important concept to discuss.

In the wasta system, citizens who have connections can quickly process their documents through the government bureaucracy and help their close ones get hired for a job. Similarly, hamula (clientelism), bigger than a tribe, impacts decisions in the country (Kubbe and Varraich, 2020). Membership to more prominent tribes plays a significant role in the state's decision-making process due to their close connections with ruling families.

The same or similar practices of wasta and hamula can be seen as blat in Russia and guanxi in China (Kubbe and Varraich, 2020). They somehow exist in every part of the world; however, their impacts are felt more in MENA. For instance, 64.9% of Jordanians think that wasta is vital to obtain work, and 48.2% look for wasta to finish their work (Jackson et al., 2020). Wasta and hamula might make processes relatively faster for some individuals and families but worse for the overwhelming majority. In 2015, Global Corruption Barometer found that approximately one-third of the region's citizens had paid a bribe for health, education, and basic needs (Pring, 2016). Nevertheless, citizens with wasta may not have to bribe to get fundamental needs. Probably, this is why it is expected for Jordanian MPs to spend most of their time to wasta work (Doughan, 2017).

To conclude, the historical, social, and cultural sides of corruption may keep the MENA region in a vicious cycle. This cycle of informal practices and formal ones makes the region suffer from massive economic issues.

1.3 Outline of the Dissertation

This dissertation focuses on two important economic problems of the MENA region after the Arab uprisings. It investigates the impact of corruption on economic growth after the Arab Spring in the first chapter and the impact of corruption on income inequality in the second chapter. These empirical chapters examine whether the Arab unrests affected the impact of corruption on economic growth and income inequality. The last chapter takes the political economy approach and assesses the heterogeneity in the results obtained from the first two chapters. The dissertation

contributes to the literature in two essential ways. First, the relationship between corruption and economic growth and income inequality has not been tested after the Arab Spring before. This study is unique and provides a novel explanation of how the corruption phenomenon has shaped the region after the Arab Spring. Second, the MENA countries are categorized into three groups as severe, moderate, and light affected countries according to the magnitude of the Arab uprisings. Categorization allows to differentiate the countries and helps to provide future implications for the countries in each group.

In the first chapter, country fixed effect regressions are carried out as a result of Hausman test. Panel data is helpful in controlling time-variant unobserved heterogeneity, and it captures both time and country-specific differences. It will be seen in the first chapter that corruption negatively affects the economic growth in the region and the relationship continues to be negative and statistically significant after controlling several variables. Nevertheless, the relationship becomes vague when the countries are categorized into three groups. The vagueness is expected from the econometrics literature that multivariate regressions may not reach significance due to a lower number of observations. Thus, the negative relationship with the entire data set provides a clear picture that after some time in the future, country categories may likely reach significance.

The same methodology has been followed in the second chapter. There is no observable relationship between corruption and income inequality in the entire region. Nevertheless, corruption increases income inequality in severely affected countries, proving that Arab Spring has affected those countries worse than others. On the other hand, the results are insignificant in moderately and lightly affected countries. The democratization of corruption and rentier state models might explain the results for moderately and lightly affected country-groups.

The last chapter of the dissertation dives into political economy arguments. It examines how and why heterogeneity exists in different country groups and what channels and dynamics can explain the results in the previous chapters. The chapter aims to frame the actual mechanisms behind the relationship between corruption and macroeconomic indicators and provide policy recommendations for the future of each category.

Chapter 2

The Arab Spring, Corruption, and Economic Growth

2.1 Introduction

The Arab Spring, characterized by protests and unrest against the MENA governments, started in 2011 to achieve social justice, equality, and dignity. It is considered one of the most fundamental and historical turning points in the MENA region. A decade ago, the entire region entered a new stage where economies and political history were shaken. Critical chains of events from Tunisia to Egypt, Syria, Yemen, Libya, from Algeria to Morocco and Gulf countries, and from Lebanon to Palestine and Jordan are still waiting for deeper investigations. The countries where corruption was highly spread and pervasive continue to struggle with economic problems after the big protests of the Arab Spring. Even though the Arab Spring was motivated by a struggle for more egalitarian, just, and democratic societies, political, social, and, more importantly, economic circumstances are relatively worse than before (Malik and Awadallah, 2013; Looney, 2015).

GDP and GDP per capita levels vary across the MENA region (Ansani and Daniele, 2012). This heterogeneity is manifested in different levels of economic development in each country. An important reason for this is the heterogeneity in natural resource abundance, especially oil. Oil-exporting countries have two-to-nine-times higher GDP per capita than non-oil exporting countries in MENA (Ansani and Daniele, 2012). Before the Arab Spring, the entire region experienced higher GDP growth rates and GDP per capita. After the Arab Spring, GDP and GDP per capita growth rates have been lower than in the pre-Arab Spring period.

It is also a fact that the region was affected by the food price boom during 2002-2010, when food prices increased by 32% (Ardic, 2012). The global financial crisis of 2008-2009 played a significant role in price hikes since MENA economies rely heavily on food imports. In addition,

Table 2.1: Average Growth Rates of GDP and GDP Per Capita (1996-2010) and (2011-2020)

Country	GDP (1996-2010)	GDP (2011-2020)	GDP Per Capita (1996-2010)	GDP Per Capita (2011-2020)
Algeria	4.0	1.8	2.2	-0.2
Bahrain	5.0	2.4	-0.4	-0.8
Egypt	5.1	3.6	3.2	1.5
Iran	3.9	0.4	2.7	-0.9
Iraq	9.1	3.9	6.3	0.7
Jordan	5.3	2.0	2.1	-1.4
Kuwait	3.8	2.0	-0.3	-1.8
Lebanon	4.9	-1.7	2.7	-4.9
Libya	3.7	2.5	2.1	1.5
Morocco	4.7	2.4	3.4	1.0
Oman	3.3	3.2	1.0	-2.3
Palestine	5.3	2.5	2.3	0.1
Qatar	11.0	3.4	3.4	-1.1
Saudi Arabia	2.9	2.6	0.3	0.1
Syria	4.6	-7.4	1.3	-5.0
Tunisia	4.7	0.7	3.7	-0.3
UAE	4.5	3.8	-3.9	2.3
Yemen	4.6	-5.0	1.6	-7.4
Average	**5.0**	**1.3**	**1.9**	**-1.0**

Source: World Bank / World Development Indicators

high unemployment rates, inflation, and inequality were exacerbated by the high level of corruption at the bureaucratic and political levels (Ardic, 2012). These economic problems, combined with the negative sociological, and psychological impacts of strict authoritarianism in most MENA countries, were alarming signs before the Arab Spring.

Table 2.1 above illustrates GDP and GDP per capita growth rates before and after the Arab Spring[1]. After the Arab Spring, the growth rates in GDP and GDP per capita are worse for all countries in the region.

Although GDP and GDP per capita averages have fallen in the entire region after the Arab Spring, country-specific growth rates need to be discussed more. Categorically, Egypt, Libya, Tunisia, Syria, and Yemen have experienced the Arab Spring more intensely, and consequently,

[1]GDP and GDP per capita averages of Yemen are until 2020.

they have experienced transformative political changes either as a regime change or civil war. Post Arab Spring, these countries also performed relatively worse than Gulf countries on average.

Libya, one of the countries in North Africa, had positive but lower GDP and GDP per capita growth rate after the unrest, even though it has been affected by the Arab Spring more severely. These averages are not because of the development and economic growth per se, but the oil production and its impact on the average growth. This might suggest that oil production has benefited a certain group of elites rather than the entire population, which might have increased the GDP and GDP per capita on average.

On the other hand, Egypt and Tunisia also experienced drops in their growth rates. For Tunisia, the transition toward democracy is still in progress which has positive effects on the growth rate even if it is not at the targeted levels yet. In other words, the country has benefited from democratic talks between political parties and their consensus on constitutional change (Feldman, 2020); however, the decline shows that Tunisia needs to achieve more in its progress towards a more democratic society. Egypt had more conservative transitions than Tunisia. After Mubarak, they held their first democratic elections, and Mohamed Morsi became the president (Ramadan, 2012; Feldman, 2020). Although there was another military coup subsequently, the first democratic election process was considered a promising sign for the country's future. However, the growth rates are still lower than expected, considering the significant youth population in Egypt.

The economic conditions of Syria and Yemen have been the worst among these five countries. The civil war has been continuing in Syria since 2011, and it has destroyed the country (Feldman, 2020). Also, the conditions are similar in Yemen due to war between Gulf countries and Houthis, the Shi'ite rebellious group.

On the other edge of the spectrum, Gulf countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) have performed slightly better than these five countries on average. However, they have also struggled with lower growth. In the Gulf, Bahrain, Kuwait, and Oman had some protests, but these were suppressed with the help of the repressive force of Qatar, Saudi Arabia, and the United Arab Emirates, which quickly controlled the demonstrations in their

homelands the same way (Looney, 2015). Since all the Gulf countries are oil-exporters and their economic wealth in terms of GDP per capita is overwhelmingly higher than the former group, they control their populations through financial stability. Furthermore, the population of Gulf countries is far less than the former group, suggesting that controlling masses must have been relatively more manageable.

The last group of countries in MENA where the negative impacts of the Arab Spring can be evaluated as somehow limited are Algeria, Iran, Iraq, Jordan, Lebanon, Palestine, and Morocco. Although protests were visible in these countries, their political repercussions were not as severe as in the first group of countries. In this matter, this group can be considered in the middle of the spectrum where economic conditions have not been very dramatic but not striking either.

Apart from the categorization of economic growth challenges, there is one more common issue in the entire MENA region: corruption. MENA is regarded as one of the most corrupt regions after Sub-Saharan Africa, Central Asia, and Eastern Europe (Schoeberlein, 2019). After seeing macroeconomic and political challenges in the MENA region, investigating the role of corruption in these challenges, especially after the Arab Spring, seems more important than before. Thus, this chapter explores how the Arab Spring affected the impact of corruption on economic growth. In contrast to Abdel-Latif et al. (2018), who also investigate the relationship between corruption and growth in the context of the Arab Spring by comparing MENA countries with non-MENA countries, this study focuses on studying the impact of corruption on economic growth within the MENA region. Given the heterogeneity within the MENA region, an investigation of differences within the region would be helpful.

The subsections are as follows; section 2.2 provides more details about the background of the Arab Spring. Section 2.3 reviews three different hypotheses that emerge from the literature on the impact of corruption on growth: a) greases the wheels (positive relationship between corruption and growth) hypothesis, b) sands the wheels (negative association) hypothesis, and c) non-linear relationship hypothesis. Further, I survey the literature on the Arab Spring. Section 2.4 presents the model, data, and estimation strategy of the empirical analysis and results, followed by robust-

ness checks in section 2.5. Section 2.6 discusses the limitations of the research, and section 2.7 concludes.

2.2 Background

Chronic and massive economic problems such as high youth unemployment, national debts, and unbearable inequality have been the common historical problems in the Middle East and North Africa (Looney, 2015). While the small group of elites close to the authoritarian regimes has benefited from the nations' wealth, a growing youth population has struggled to get permanent jobs because of insufficient growth and a high level of inequality. Further, the lower quality of schools at all levels prevented most MENA countries from catching the breakthroughs of the 21st century.

The region also experienced a sharp decline in governance indicators across the six dimensions of the World Governance Indicators (WGI) of the World Bank, namely voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption, failure of integration into the global economic system, and the inability to do structural reforms made conditions worse (Looney, 2015).

In addition to macroeconomic and governance problems, psychological pressures caused by the dictators in the region made the people dissatisfied. In most MENA countries, citizens cannot speak freely against the government; journalists cannot write about the corrupt behavior of politicians, especially the presidents. However, the youth constituting a considerable size of MENA populations, has been unhappy with these living conditions (Mnawar et al., 2015).

Along with internal factors, several external factors contributed to the fires of the Arab Spring. For example, the reliance on food imports for the essential food supplies such as wheat, corn, sugar, rice, and meat affected the MENA region negatively when food prices increased sharply from 2002 to 2010 (Arezki and Bruckner, 2011). Another example is the mortgage crisis of 2008, which started in the US but affected the globe. MENA countries were already in enormous debts, and the financial crisis exacerbated the burden, which further increased dissatisfaction and unhappiness

among the people (Lagi et al., 2011). Internal and external factors combined ignited the massive protests in the MENA, and they had three elements, according to (Ardic, 2012). The crowds sought economic and social justice, demanding social and political freedom and, more importantly, protesting for their dignity and respect.

On 17th December 2010, Tunisian food vendor Mohamed Bouazizi immolated himself. Despite numerous similar incidents before, this self-immolation became the spark that ignited the Arab Spring (Ansani and Daniele, 2012; Mungiu-Pippidi, 2015; Feldman, 2020). The Jasmine Revolution in Tunisia started as a response to big macroeconomic problems, including long-standing high unemployment and a rebellion against government corruption and the extravagance of the regime (Feldman, 2020). The uprisings caused President Zine El Abidine Ben Ali to resign in January 2011. This resignation triggered more protests in Egypt, where the officers killed a young male Khaled Said in late January.

After this incident, protests in Syria, Yemen, Libya, and other countries started (Ansani and Daniele, 2012). In Egypt, Hosni Mubarak decided to step down in February 2011, and the government decided to go for the democratic elections for the first time in its history (Feldman, 2020). In Libya, Muammar Gaddafi did not resign but tried to control the rebels; however, the protesters were frustrated by a high level of corruption and unemployment. Gaddafi was killed in October 2011, and since then there has been no political and economic stability in the country. In Yemen, Ali Abdullah Saleh resigned in February 2012, and then Gulf countries started the war against the Houthi group in 2015 before the government made any successful political transition. In Syria, Bashar Al-Assad did not resign, but oppressed the protestors, and the Syrian civil war has been continuing since 2011.

Egypt, Libya, Tunisia, Syria, and Yemen have felt the extent of protests of the Arab Spring more severely than others since there were transformative political changes in these countries (Looney, 2015). On the other hand, Gulf countries, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE felt the impact relatively less, although there were protests in Bahrain, Kuwait, and Oman. The magnitude of protests also affected the social, political, and economic outcomes. Considering

some countries are oil-rich (Saudi Arabia, UAE), and some are not; some have higher GDP per capita (Qatar, Kuwait), and some others are poor (Egypt); some have democracy (Tunisia), and some do not have (Iran), and some have civil crisis and conflicts (Syria, Yemen, Iraq), and some are stable (Oman, Morocco); economic, political, and social disparities between the countries made the magnitudes of Arab Spring differ in each country (Warf, 2015). Moreover, different corruption scores might be the results of the heterogeneity. For instance, Egypt, Yemen, Syria, and Libya received less than 40 points from Corruption Perception Index (CPI) in 2019, which shows a high level of corruption. Tunisia received 43 points which also illustrates a relatively high level of corruption.

On the other hand, Gulf counties, especially Qatar, Saudi Arabia, and UAE, received scores corresponding to low levels of corruption. Although these are subjective data sets with limitations, they still provide some insight into the corruption phenomenon in the MENA region. Further, despite their limitations, corruption scores help investigate the relationships between corruption and growth. In this regard, the literature on corruption and economic growth assists in understanding their relationship better.

2.3 Literature Review

The overwhelming majority of studies find a negative relationship between economic growth and corruption regardless of region. There is also literature where a positive relationship between corruption and economic growth is supported. In this literature group, the positive relationship between economic growth and corruption operates through different channels, including institutional quality, bureaucracy, and investment. A third strand of the literature argues that there is no linear relationship between corruption and growth. They support that corruption has a positive impact on economic growth up to a certain threshold and then affects it negatively after that threshold or the opposite. In this section, I review these three hypotheses.

2.3.1 Greases the Wheels Hypothesis

The first strand of the literature finds a positive impact of corruption on growth. Corruption helps to overcome bureaucratic hurdles and fosters growth. Huntington (1968) said, "In terms of economic growth, the only thing worse than a society with a rigid, over-centralized, dishonest bureaucracy is one with a rigid, over-centralized, honest bureaucracy." The positive impact of corruption on growth can be seen in different models and theories.

Lui (1985) puts forward a game-theoretic model that demonstrates how bribes decrease the time spent in lines and speed up bureaucratic red tape. Leys (1965) and Bayley (1966) view lower-paid civil servants as more prone to corruption and conclude that corruption increases bureaucratic efficiency. Game theoretics model of P. J. Beck and Maher (1986) shows how corruption can be used as an alternative to competitive bidding in third world countries to purchase government licensing, which also increases bureaucratic slowness. Lien (1986) extended P. J. Beck and Maher (1986) work in another game-theoretic model and found that bribes do not lead to any efficiency loss compared to competitive bidding. None of the papers presents an empirical analysis but illustrates that surpassing bureaucratic hurdles increases economic growth.

Mironov (2005) is an empirical study where the paper investigates the impact of corruption on economic growth in 141 countries. The author finds that residual corruption, which is not correlated with other governance indicators, fosters economic growth in countries where the institutional quality is poor. He supports this conclusion with financial data of over 9000 companies and concludes that corruption greases the wheels of bureaucracy to overcome the barriers.

Likewise, Podobnik et al. (2008) present an empirical analysis. They find that corruption positively affects GDP per capita growth, and the effect is higher when considering European countries only. Furthermore, they find a positive relationship between foreign direct investment (FDI) and corruption.

In sum, game-theoretic approaches conclude that corruption impacts economic growth by increasing efficiency and reducing bureaucratic slowdowns, while Mironov (2005) and Podobnik et al. (2008) conclude through empirical analysis that corruption affects growth positively. These

studies demonstrate the positive relationship between corruption and growth, which can be either a direct relationship or through the investment or institutional quality channel. Other studies show the negative relationship between corruption and economic growth, and they are the proponents of the sands the wheels hypothesis.

2.3.2 Sands the Wheels Hypothesis

A significant strand of the literature finds a negative impact of corruption on economic growth. Myrdal (1989) finds that civil servants may slow down bureaucratic work to get extra bribes, which eventually causes lower efficiency. Kurer (1993) finds that corruption does not make government licensing and contract processes more efficient. Instead, excessive regulations by the government cause delays and misallocations. According to Kurer (1993), corruption worsens allocations and provides rent-seeking activities resources. Kaufmann and Wei (1999), who use firm-level data, find that foreigners who pay more bribes in different countries deal with more bureaucratic hurdles than local citizens since locals know their bureaucratic system better than the foreigners, and they may solve their problems faster.

Using a game-theoretic model, Mauro (2002) finds that the prevalence of corruption makes the fight against corruption difficult. Rampant corruption discourages individuals from combating it since it is believed that the corruption issue cannot be solved, and this widespread belief prevents countries from fighting against corruption. Therefore, corruption continues to affect economic growth negatively. Analogously, Shleifer and Vishny (1993) find that the inability of weak governments to control their institutions causes a high level of corruption, and further, the covert nature of corruption makes it more distortionary and costly than taxation in some undeveloped countries. K. Basu et al. (1992) investigate how corruption can be controlled in a game-theoretic model, from a different perspective. They find that if briber can be caught, then bribee can be caught too, and earlier literature does not take this into account. They suggest controlling corruption by making it more costly for both sides of the bargain.

Several other studies find that corruption has negative impacts on economic growth. Mauro (1995) is the pioneering work using the corruption index for the first time to measure the impact of corruption on growth. He finds that corruption decreases economic growth by lowering investment. Brunetti and Weder (1998) support the finding of Mauro (1995) that corruption impacts economic growth negatively through investment. The difference between the two studies is that Brunetti and Weder (1998) use other institutional variables, including government instability, political violence, uncertainty, and corruption.

Méon and Sekkat (2005), however, find that corruption harms growth regardless of its effect on investment. They find that the lower quality of institutions makes the impact of corruption on growth more harmful, though the effect becomes less damaging when the institutional quality is improved. Thus, in the presence of both high-quality and low-quality institutions, corruption has negative impacts even if its magnitude changes with institutional quality. This finding is unique compared to other studies since Méon and Sekkat (2005) suggest that corruption directly impacts economic growth, irrespective of institutional quality or investment.

Aidt et al. (2008) find the negative effect of corruption on economic growth is quite substantial in countries with stable political institutions, whereas corruption does not affect growth in countries where institutional quality is low. Furthermore, Mo (2001) looks into the same relationship by checking the transmission channels between growth and corruption and finds a negative relationship between corruption and growth. Furthermore, political instability captures more than half of the total impact of corruption on growth. Also, corruption lowers the level of human capital and private investment.

Pellegrini and Gerlagh (2004) study the impact of corruption on investment and schooling, trade openness, and political stability, and conclude that corruption has a substantial adverse effect on these variables. They also conclude that international collaboration to fight against corruption and improve institutional quality is a critical determinant of economic development.

Lučić et al. (2016) find that the impact of corruption on growth is experienced with a lag of six to ten years before any change is observed in the corruption score. Also, Brown and Shackman

(2007) find that an increase in GDP per capita increases corruption in the short run, but the effects become the opposite in the long run. Further, these studies suggest that corruption is a phenomenon that remains constant for a long time. Even if it changes, possible positive and negative impacts take time to be realized.

2.3.3 Non-Linearity Hypothesis

The third segment of the literature concentrates on the non-linear relationship between corruption and economic growth. Studies demonstrate that corruption positively impacts economic growth until a certain threshold, and after that point, its impact becomes negative. For example, Ahmad et al. (2012) find a linear-quadratic relationship between economic growth and corruption. They use the Generalized Method of Moments (GMM) with panel data and find that corruption is growth-enhancing until a certain threshold, and then it is growth-reducing. Méndez and Sepúlveda (2006) investigate the impact of corruption on economic growth in the long run by taking political freedom to determine the relationship between the two. They also find a non-monotonic relationship after controlling for several economic indicators and restricting the data only to free countries.

Swaleheen (2011) also finds both a growth-reducing and growth-enhancing level of corruption. In this study, in countries with the lowest level of corruption, such as Finland, corruption is growth-reducing. The difference between this study from Ahmad et al. (2012) is that it categorizes countries as having low and high corruption levels, whereas Ahmad et al. (2012) do not separate countries into groups with corruption levels but either being developing or developed countries. Baklouti and Boujelbene (2015) investigate the relationship between democracy, economic growth, and corruption and find bi-directional causal relations between democracy and economic growth and between economic growth and the level of perception of corruption. They find a unidirectional causal relationship between democracy and the perception of corruption index.

De Vaal and Ebben (2011) examine the relationship from an institutional perspective and conclude that the relationship between economic growth and corruption depends on the institutional setting. When a country's institutional quality is low, corruption may help spur economic growth

is the opposite of Aidt et al. (2008). However, in a formal growth model, corruption would affect growth negatively because of leakages in public goods and the exploitation of individual rent-seeking opportunities.

Heckelman and Powell (2010) study how economic freedom affects the impact of corruption on growth. They find that corruption is growth-enhancing with the most limited economic freedom in a country, and its importance decreases as economic freedom improves.

The non-monotonic relationship between corruption and growth suggests that the impact of corruption is sensitive to the methodology that is followed or the data sets (i.e., corruption index) and variables that are used. Nonetheless, the common point between the studies is that the impact of corruption is mostly negative in the long run, even if it has positive effects in the short run. This may suggest that finding long-term solutions to eliminate corruption is more important than thinking shortsightedly.

Three strands of the literature explain the existing relationships between corruption and economic growth. However, there is limited number of studies where scholars examine this relationship only in the MENA region. The section below discusses the findings of literature that focus on the MENA region.

2.3.4 Corruption and Growth Nexus in the MENA

Sbaouelgi (2019) examines the impact of corruption on investment and growth in the MENA region and concludes with the same results as Mauro (1995). Sbaouelgi (2019) also finds that political institutions have a substantial impact on investment and growth. Guetat (2006) investigates the impact of corruption on economic growth in MENA countries and compares them with other regions. The author finds that region-specific institutional variables have the highest impact on MENA relative to other regions. Higher institutional and bureaucratic quality increases investment, human capital, and, more importantly, growth in MENA relatively more than in other regions. Amiri et al. (2017) find that the relationship between transparency and growth is direct and significant. That is, transparency leads to economic stability, higher growth, and investment.

Lastly, Abdel-Latif et al. (2018) investigate bidirectional relationships between corruption, growth, and political stability, and they use the Arab Spring as a shock. They show the short-term effects of political shock on corruption levels, political stability, and economic growth in MENA and other countries. They find that corruption affects growth negatively and that the Arab Spring has adverse effects on political stability, corruption, and growth. While the present work is similar to this study, the empirical approach differs significantly, as explained in the econometric specification section.

As the last part of the literature review, the following section discusses the key causes of the Arab Spring, their outcomes, and effects on the future.

2.3.5 The Arab Spring

Most studies imply that the negative impacts of the Arab Spring in terms of economic growth and corruption are more pervasive than the positive impacts (Looney, 2015). Apart from the Gulf countries, the rest of the region had either political changes in Egypt, Tunisia, Libya, Syria, and Yemen or other sociopolitical concerns. Although Tunisia has some positive transition signs, the region is witnessing the Arab Winter rather than the Arab Spring (Feldman, 2020). However, there are reasons why the Arab movements, which aimed for social justice, inequality, respect, and dignity, transformed into a situation where almost all economic, social, and political variables have worsened. In this part, I discuss a) the reasons, b) the outcomes, and c) the future implications of the Arab Spring.

Ansani and Daniele (2012) investigate how the mortgage crisis in 2008, higher food prices, youth unemployment, and low quality of education triggered Arab Spring. Also, inequality and corruption seem important determinants of protests. In similar work, Ozekin and Akkas (2014) examine economic and social factors as the causes of the Arab Spring. These studies could suggest that most scholars agreed on the reasons considered the causes of the Arab movements.

Along with socio-economic concerns, Mnawar et al. (2015) talks about the political aspect of the Arab Spring. The author gives six leading causes of the Arab Spring, related to the rule of

law, public administration, public finance, social culture, institutional framework, and structural relations among the state's authorities. The author also gives a prescription to fight against corruption in the short, medium, and long run since he thinks that all causes of the Arab Spring are interconnected through corruption.

Idris (2016) combines the social, economic, and political causes of the Arab Spring and categorizes them as structural and proximate factors. Structural factors include failure to deliver jobs and services, population explosion and unemployment, youth and education, inflation and inequality, middle-class frustration, corruption, the oppression of autocratic regimes, and the dignity of citizens. Proximate factors are social media, demonstration effect (Bouazizi's self-immolation in Tunisia), and violent response of states and armed forces.

The literature up until this point emphasizes common reasons behind the Arab Spring, which suggests that the solution to those issues would have helped the social, economic, and political development of the MENA region. However, these transformations did not happen, as can be seen from the outcomes of the Arab Spring.

After the Arab Spring movements, Looney (2015) compares the economic growth, unemployment, investment, and governance indicators of Gulf Cooperation Council (GCC) countries with Arab Countries in Transition (ACT). He also makes the same comparison between oil monarchies and autocratic regimes. GCC is an agreement signed by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. ACT is a category used by the IMF where Egypt, Jordan, Libya, Morocco, Tunisia, and Yemen are categorized as countries of transition because these countries maintained macroeconomic stability in the midst of deepening and spreading tensions in the region (IMF, 2014).

In terms of GDP growth rate, total investment rate, unemployment rate, and governance (six dimensions of the WGI), ACT countries perform the worst or the second-worst after autocratic regimes (Syria, Algeria, Sudan, Iran) following Arab risings. Among all groups, GCC countries perform the best before and after Arab Spring. Even though ACT countries have hopes for change, they still struggle with post-Arab Spring's political, economic, and social shocks. Simi-

larly, Arayssi et al. (2019) find that Arab Spring and economic growth are negatively related on average. To conclude, the outcomes of the Arab Spring are mainly negative except the GCC countries.

Another literature set concentrates on the future challenges that the MENA region will face after the Arab Spring. Salamey (2015) talks about how Arab Spring started and what challenges it brought to the MENA region, particularly to Egypt after Mubarak and Tunisia after Abidine. Overall, challenges faced in the region are difficult to handle because of the mismanagement of centralized government systems, devastating international trade and investments, and the prevalence of corruption, particularly in politics. Also, the transition from dictatorship to multi-party democracy is a struggle. Because of the lack of complete transition, the challenges are massive for the MENA region.

Trabelsi (2013) agrees with Salamey (2015) and mentions that the main challenges after the Arab Spring are the political, social, and economic transition. He also discusses the critical role of transparency in preventing corruption at any level of government and society. For Trabelsi (2013), high-quality education is essential in transforming communities for a better future.

In sum, the causes, outcomes, and future challenges of the Arab Spring seem more complex than anticipated. The protests started to seek more egalitarianism, lower corruption, and social justice; however, they have helped keep the status quo and worsen the economic conditions until now. In the following sections, I attempt to show empirically if corruption impacts economic growth negatively in the MENA after the Arab Spring. To do so, I first start with the data description and econometric modeling.

2.4 Model, Data, and Econometric Specification

Drawing on the literature that shows positive, negative, and non-linear relationships between growth and corruption, I investigate the impact of corruption on growth in the MENA after the Arab Spring. I contribute to the corruption literature, particularly from the perspective of the Arab Spring and the MENA region, which has been relatively less studied in the literature.

The econometric analysis of this study contributes to the literature in two ways. First, I use panel data sets, unlike most other growth studies, which focus on cross-sectional data. Country-specific effects of corruption on economic growth are better studied with panel data. Second, apart from Abdel-Latif et al. (2018), the relationship between corruption and economic growth in the context of the Arab Spring has not been studied. However, Abdel-Latif et al. (2018) compare the MENA countries with non-MENA countries to test the Arab Spring as a political shock. In this chapter, I work only within the MENA region. The main reason behind this is that within variations are too dramatic to ignore. Having diverse demographic and economic structures or being ruled by a monarchy, dictatorship or democracy are the variations in the region that pushed economic, political, and social gaps in different directions for each country. Therefore, the magnitude of Arab Spring in terms of protests, unrest, and fundamental economic and political shifts have been experienced differently.

To the best of my knowledge, this is the first study investigating how the Arab Spring affected the impact of corruption on economic growth within the MENA region. This study tests whether and how the Arab Spring changed the relationship between corruption and growth and points to heterogeneity within the MENA region.

2.4.1 Model

Mankiw et al. (1992) and Barro (1991), pioneer studies of economic growth use cross-country regressions. Corruption studies, including those investigating economic growth and corruption nexus, use similar growth regressions. The model of Méon and Sekkat (2005) that I follow in my model also uses the same technique. Méon and Sekkat (2005) paper is unique in showing corruption affects growth negatively regardless of its impact on investment, contrary to (Mauro, 1995). Also, it is different from Heckelman and Powell (2010), who find corruption benefits growth until a certain threshold, since Méon and Sekkat (2005) find that corruption has continuously deteriorating impacts. Moreover, their study is also different from De Vaal and Ebben (2011), who find that the negative impact of corruption on economic growth is dependent on the quality of

institutions since they find that the negative impact of corruption persists even after institutions are taken into account.

Méon and Sekkat (2005) show the direct impact of corruption on economic growth rather than using indirect channels such as investment. I follow their methodology with modifications in the control variables and interaction term because of the distinctive focus of this study. Even though I rely on their work, my analysis differs from Méon and Sekkat (2005) in three aspects.

First, I use a panel (longitudinal) data set to capture cross-sectional effects where they use cross-country regressions. Panel regressions are not quite common in growth empirics. However, the advantage of panel data is that it shows both time and country-specific effects in the regression analysis while capturing time-invariant unobserved heterogeneity. Second, they use as many countries as possible, while I work in MENA countries only. Regarding the selection of countries, my work can give region and country-specific results. Third, the interaction term that I use is between corruption and the Arab Spring dummy, whereas they use corruption and institutional quality indicator. The term shows how the post-Arab Spring affects the impact of corruption on economic growth changes. Hence, the model is the following:

$$\begin{aligned}(\triangle\%)GDPPC_{i,t} = \beta_1(Investment)_{i,t} + \beta_2(Population)_{i,t} + \beta_3(OilRent)_{i,t} \\ +\beta_4(Durability)_{i,t} + \beta_5(Corruption)_{i,t} + \beta_6(ArabSpringDV)_{i,t} \\ +\delta(Corruption\#ArabSpringDV)_{i,t} + \theta_i + \epsilon_{i,t}\end{aligned}$$

In this model, GDP per capita growth rate is the response (dependent) variable for country *i* at time t. Explanatory (independent) variables are investment, population growth rate, oil rent, durability, the duration of time under the current administration, corruption scores, and the interaction term between corruption and the Arab Spring dummy. θ_i is country-specific effects, and ϵ is the stochastic error term. The interaction term measures how the Arab Spring affects the impact of corruption on the GDP per capita growth rate. Arab Spring dummy takes 1 for 2011 and onwards

and 0 before 2011. Therefore, the interaction term measures the change in the impact of corruption on economic growth in MENA after 2011, when the Arab Spring erupted.

The coefficient of interest in this model is δ. If the interaction term is negative, the Arab Spring affects the impact of corruption on economic growth negatively on average. If the interaction term is positive, then Arab Spring positively affected the impact of corruption on economic growth.

2.4.2 Corruption Data

I follow a widely used and cited definition of corruption: the abuse of public power for private gain. This definition of WGI and TI (and others) includes petty (political) and grand (bureaucratic) corruption. Defining corruption this way may raise questions about private corruption since I concentrate on public corruption in my data set. However, private corruption can be eliminated with competition and regulations (Bardhan, 2005). Undoubtedly, private entities engage in corrupt activities; however, the overwhelming majority of corruption studies focus on public corruption, not private corruption Rothstein and Varraich (2017), and there are several reasons behind that.

First, all citizens have a connection with their state either through taxes or public good provision. Thus, if corruption is high, it damages the state's accountability and harms the collective action mechanism available for citizens (Rothstein and Varraich, 2017). Also, public sector corruption is the starting point to control the private sector because of the benefits the private sector gets through bureaucratic corruption (Andvig et al., 2001). Furthermore, public goods are the central character of the public sector, and sometimes private entities or individuals may transform those public goods into their private goods (Rothstein and Torsello, 2014). This behavior supports the idea of controlling public sector corruption is more crucial than controlling private sector corruption.

Even though I use the widely accepted definition of corruption, it is still challenging to measure it precisely. First, the index of corruption should reliably measure the prevalence and the depth of corruption. Second, the data should be comparable over time and across countries (Swaleheen, 2011). Due to the critiques of subjective datasets, some objective datasets that measure corrup-

tion in terms of the number of convictions and press reports of journalists show the efforts of judicial agencies and the voice of the press in addressing corruption (Swaleheen, 2011). Since legal definitions of conviction or corruption that the press mentions differ from country to country, cross-country comparison becomes difficult with objective data sets. Also, for other objective data sets, the definitions of embezzlement, bribery, fraud, and peculation differ too (Swaleheen, 2011). Given these issues with objective data sets, researchers mostly utilize subjective data sets.

Nevertheless, subjective data sets also have deficiencies. According to Bardhan (2006), there are four problems in the subjective data sets. First, the perception of corruption depends on how prevalent the experience of corruption is. Second, subjective data sets are survey data sets, which means a third party, such as a businessman, answers questions to decide how corrupt a specific country is. This is problematic because individuals may experience corruption differently than local people. Third, the businessman usually gives better corruption scores to countries where economic performance is better. Consequently, there is a strong correlation between economic performance and corruption perception. Fourth, corruption rankings usually measure bureaucratic (petty) corruption, not political (grand) corruption. These four deficiencies of subjective data sets are fair critiques that suggest some limitations of the empirical analysis. However, following numerous studies that investigate the relationship between economic growth and corruption, I also utilize subjective data sets in what follows. Additionally, subjective data sets have an advantage over objective indexes. While convictions and other types of reports might be interpreted differently in each society, the perception of corruption in a country may not change significantly among business people.

There are several subjective corruption indexes. The most cited and empirically used ones are World Governance Indicators (WGI) of the World Bank, Corruption Perception Index (CPI) of Transparency International, Corruption data of International Country Risk Guide (ICRG), and corruption data of Varieties of Democracy (V-Dem). There are other corruption indices apart from these (e.g., Hollyer, Rosendorff, Vreeland (HRV) Transparency Index). Although their methodology is different from each other, there is a strong correlation between indexes.

The comparison before and after the Arab Spring is impossible for the CPI data set since TI changed the methodology in 2012. In HRV data, the last year is 2010; this is why it cannot be utilized for this study. There are enough data points in V-Dem and ICRG data sets; however, their corruption scores are too sticky for a long time. For example, Algeria and Lebanon get the same corruption score in V-Dem for 13 and 15 years, and Egypt receives the same ICRG corruption score for 12 consecutive years. This stickiness, which might show an accurate characteristic of corruption, pushed me to look for other indexes to reach better empirical results. However, I still cautiously utilize V-Dem, and ICRG data sets for robustness checks since these data sets have been widely used in other corruption studies. I also use CPI, but I take the interaction term out of the model because of the multicollinearity problem due to the methodology change of TI in 2012. Since the Arab Spring dummy variable represents the year 2011 and onwards, it causes a multicollinearity problem when I run the regressions with CPI itself because data for CPI is not comparable before and after 2012. Therefore, in the regression results for CPI data, we only observe how corruption affected the growth rate after the Arab Spring.

Considering data constraints and limitations, I use WGI for corruption data. WGI data does not stick for a long time, making the data set reasonably more reliable. The index starts in 1996, and it ranges between -2.5 and +2.5, where a higher score represents low corruption. The data is rescaled to interpret the results better, and a higher score means higher corruption. Moreover, since WGI decided to provide corruption scores every year after 2002, it has missing data points for all countries in 1997, 1999, and 2001. I imputed data for these years by taking the average of one year before and after.

2.4.3 Macroeconomic Data

I obtain macroeconomic variables from the World Development Indicators (WDI) of the World Bank, and I get institutional control variables from the Polity IV dataset. Several socioeconomic variables drive GDP per capita growth rate as an independent variable. These are investment as a percentage of GDP, annual population growth rate, oil rent, which is the difference between the

value of crude oil production at world prices and total costs of production, and durability score, which is the number of years that the current political order continuous since the last transition.

I included other control variables in the regression one by one to test whether corruption ceases to impact GDP per capita growth after the Arab Spring. These variables are urbanization as a percentage of total population (Billger and Goel, 2009; Reinsberg et al., 2020; Reinsberg et al., 2021), mineral rents as a percentage of GDP (Treisman, 2000; Reinsberg et al., 2020; Reinsberg et al., 2021), log GDP per capita, unemployment, government expenditure as a % of GDP, and savings also as a % of GDP. Lastly, I included corruption square to test the political Kuznets curve argument.

There were several missing data points for Syria where I used imputations. To tackle this issue, I calculated Syria's GDP per capita by dividing the total GDP by population from 2008 to 2018. Besides, some countries were missing several observations that I could not impute, which is why they were taken out from regressions. Lastly, all variables cover the 1996-2020 period.

2.4.4 Estimation Strategy and Results

I provide the summary descriptive statistics in Table 2.2 and the correlation matrix in Table 2.3 below. The research question and model support FE regressions. All results reflect FE regression results [2]. FE model regressions control the time-invariant unobserved heterogeneity.
FE models also assume that the error is correlated with the intercept. If this is not the case and the error term is not correlated with the intercept, the FE is not suitable.

WGI corruption values range between -2.5 (the most corrupt) and +2.5 (the least corrupt). To show the estimates more precisely, I recalibrated the corruption scores so that larger values represented higher corruption (Méon and Sekkat, 2005; Johnston, 2005).

Table 2.4 below shows the preliminary regression results, where the second column is the result of the preferred model for the entire data set. Here, GDP per capita is the dependent variable, and investment, population, oil rents, and durability are explanatory variables.

[2]Hausman test results with $p<0.024$ supports that the fixed effect is an appropriate model.

Table 2.2: Summary Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Year	450			1996	2020
Growth	445	0.744	9.274	-62.378	121.780
Investment	381	25.662	8.387	7.905	50.781
Population	450	2.782	2.570	-4.537	17.511
Oil Rent	411	19.029	17.796	0	66.713
Durability	425	27.567	24.414	0	94
Mineral Rent	411	0.222	0.707	0	5.805
Urban	450	72.447	17.843	24.249	100
Log [GDPPC]	443	8.872	1.170	6.504	11.152
Unemployment	450	9.554	6.284	0.091	29.770
Gov't Expenditure	385	17.501	5.532	2.442	33.012
Savings	370	28.945	24.301	-36.345	75.550
Corruption	450	0.301	0.714	-1.570	1.713
Arab Spring	450	0.400	0.490	0	1

Table 2.3: Correlation Matrix

Variables	Growth	Investment	Population	Oil Rent	Durability	Mineral Rent	Urbanization	Log [GDPPC]	Unemployment	Gov't Expenditure	Savings	Corruption	Arab Spring
Growth	1												
Investment	0.001	1											
Population	-0.308	0.084	1										
Oil Rent	0.096	-0.145	0.137	1									
Durability	-0.159	-0.094	0.176	0.433	1								
Mineral Rent	0.019	0.177	-0.083	-0.272	-0.035	1							
Urbanization	-0.198	0.068	0.424	0.213	0.284	-0.131	1						
Log [GDPPC]	-0.194	0.045	0.509	0.447	0.506	-0.279	0.776	1					
Unemployment	0.181	-0.044	-0.467	-0.196	-0.380	0.182	-0.566	-0.741	1				
Gov't Expenditure	0.045	-0.089	-0.155	0.189	0.347	-0.021	0.308	0.190	-0.116	1			
Savings	0.036	0.346	0.255	0.608	0.392	-0.082	0.259	0.582	-0.351	-0.058	1		
Corruption	0.200	-0.075	-0.44	0.002	-0.394	0.039	-0.539	-0.696	0.589	-0.139	-0.317	1	
Arab Spring	-0.175	0.129	-0.054	-0.103	0.027	0.085	0.145	0.064	-0.106	0.038	0.000	-0.009	1

Table 2.4: Entire Data Set Regressions

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment		0.0882**	0.0895**	0.0902**	0.0890**	0.112**	0.126***	0.117**	0.120**
		(0.0349)	(0.0354)	(0.0337)	(0.0329)	(0.0401)	(0.0394)	(0.0492)	(0.0518)
Population		-0.668***	-0.666***	-0.665***	-0.665***	-0.681***	-0.545**	-0.531**	-0.517**
		(0.160)	(0.160)	(0.156)	(0.156)	(0.152)	(0.235)	(0.240)	(0.220)
Oil Rent		0.175***	0.176***	0.176***	0.169***	0.176***	0.239***	0.220**	0.220**
		(0.0402)	(0.0402)	(0.0403)	(0.0432)	(0.0421)	(0.0768)	(0.0837)	(0.0806)
Durability		-0.0305**	-0.0300**	-0.0291	-0.0282	-0.0264	-0.0133	-0.0126	-0.0168
		(0.0133)	(0.0134)	(0.0176)	(0.0195)	(0.0178)	(0.0150)	(0.0150)	(0.0164)
Corruption	1.389	-0.301	-0.283	-0.294	-0.0436	-0.308	-0.608	-0.781	-0.244
	(1.279)	(1.044)	(1.066)	(1.068)	(1.047)	(1.102)	(1.182)	(1.260)	(1.301)
Arab Spring	-1.978**	-1.545***	-1.535***	-1.488*	-1.539*	-1.722**	-1.428**	-1.477**	-1.513**
	(0.876)	(0.518)	(0.516)	(0.757)	(0.791)	(0.791)	(0.667)	(0.652)	(0.708)
Corruption*Arab Spring	-2.980**	-1.640*	-1.641*	-1.646*	-1.982*	-1.858*	-2.269**	-2.034*	-2.152*
	(1.247)	(0.867)	(0.871)	(0.894)	(1.028)	(1.053)	(0.892)	(0.989)	(1.027)
Mineral Rent			-0.0856	-0.0773	-0.178	-0.175	-0.183	-0.189	-0.223
			(0.132)	(0.151)	(0.161)	(0.170)	(0.167)	(0.179)	(0.181)
Urbanization				-0.0121	-0.0435	0.0195	-0.00119	0.00409	-0.00427
				(0.0924)	(0.102)	(0.113)	(0.0941)	(0.0928)	(0.108)
Log [GDPPC]					2.045	2.007	2.498	2.658	2.703
					(1.287)	(1.285)	(1.629)	(1.752)	(1.779)
Unemployment						0.149	0.220*	0.242**	0.214*
						(0.0974)	(0.108)	(0.112)	(0.105)
Gov't Expenditure							0.267	0.329	0.347
							(0.189)	(0.233)	(0.236)
Savings								0.0383	0.0397
								(0.0615)	(0.0600)
Corruption^2									1.363
									(0.995)
Constant	1.561***	-0.860	-0.904	-0.0588	-16.14	-22.44*	-32.88**	-36.96**	-37.56**
	(0.393)	(1.209)	(1.228)	(6.831)	(10.78)	(11.56)	(15.33)	(16.43)	(16.72)
Observations	445	344	344	344	344	344	343	328	328
R-squared	0.037	0.213	0.213	0.213	0.218	0.221	0.241	0.248	0.252
Number of Country	18	16	16	16	16	16	16	16	16
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Yemen and Palestine are excluded.

The standard errors are in parentheses which are robust and clustered across the countries. Columns 3-9 add each control variable to regressions one-by-one.

In the preferred specification, all the variables are significant except corruption. The second column is the preferred specification since the results do not alter much when control variables are added one by one. Corruption does not have a statistically significant impact on growth before the Arab Spring. It is also seen that the impact of the Arab Spring is to lower economic growth, but when the additional impact of corruption is included in estimating the impact of the Arab Spring, there a is a further decrease in economic growth. In column 2, after the Arab Spring

economic growth decreases by 1.54 percentage points and corruption further decreases economic growth by additional 1.64 percentage points. Thus, an increase in corruption by 1-point post-Arab Spring leads to a decline in economic growth by about 3.2 percentage points. That means, while corruption does not have a statistically significant impact on reducing economic growth prior to the Arab Spring, higher levels of corruption exacerbated the impact of the Arab Spring on economic growth. In the first column, it is seen that corruption affects economic growth negatively after the Arab Spring, which is significant at the 5% level. In the third column, the coefficient of interest continues to be significant after controlling for mineral rent. In this column, the coefficient of the Arab Spring is almost the same in terms of magnitude as the preferred model, and it is significant. All other variables are also significant in the third column except the coefficient of corruption and mineral rent.

Between columns 4-8, I added log GDP per capita, unemployment, government expenditure, and savings to the regressions one-by-one. After adding all the controls, the coefficient of interest is still negative and significant. Also, the coefficient of the Arab Spring is negative and significant. The coefficient of corruption never reaches to significance but is negative in most of the regressions. Population, oil rent, and investment are significant in all columns. Durability is not significant after the second column. Interestingly, except for unemployment, the coefficients of control variables do not reach significance in any of the regressions. Lastly, I tested the political Kuznets curve argument of whether corruption has non-linearity during the time. However, it is not verified in the last column, as seen in the last column.

Overall, the coefficient of interest is negative and significant in all regressions. Economically, the relationship between corruption and economic growth becomes stronger after the Arab Spring, where economic growth is lower. In other words, corruption plays an important role in explaining the decrease in economic growth after the Arab Spring incidents. The negative coefficient shows that after the Arab Spring, the impact of corruption on economic growth is negative and significant. It can also be seen that while corruption does not impact the growth rate before the Arab Spring, its impact is felt more after the protests. While it is true that time-invariant heterogeneity is already

captured by the model's fixed effects, there still may be time-varying heterogeneity post-Arab Spring affecting the aggregate results just presented. Thus, it makes sense to disaggregate the region into sub-groups of similar countries to understand the potential heterogeneous effects of corruption on economic performance in the post-treatment period.

According to Looney (2015), the Arab Spring was more disruptive for Egypt, Libya, Tunisia, Yemen, and Syria. Algeria, Iraq, and Lebanon also had worse corruption scores after the Arab Spring; however, these countries did not experience regime change or civil wars. Iran's corruption score decreased after 2011 up until 2015. However, a higher corruption score after 2015 was not related to the Arab Spring but the structural corruption problems in the government and bureaucracy in Iran (Azadi, 2020). The rest of the countries in the region (Jordan, Morocco, and Palestine) had lower corruption scores after the Arab Spring; however, they also had lower economic growth, perhaps because of structural economic issues. Although most Gulf countries have hidden corruption issues, they have controlled the Arab Spring unrest overall. In this sense, the Gulf region can be considered in a different category than the rest of the MENA because the Gulf countries are economically and financially more stable than the rest of the nations. Therefore, I categorize Egypt, Libya, Syria, Tunisia, and Yemen in severely affected countries; Algeria, Iran, Iraq, Jordan, Lebanon, Palestine, and Morocco as moderately affected group; and the GCC countries as lightly affected group. According to the magnitude of the Arab risings, this categorization might help explain how corruption affected economic growth in each category.

In the figures below, I first illustrate the corruption levels of Egypt, Libya, Syria, Tunisia, and Yemen from 1996 to 2020. Then, I follow the same path for moderately and lightly affected groups.Figures below show that corruption increased after the Arab Spring, especially in Libya, Syria, and Yemen. In fact, the corruption level was rising in Libya since 1996, in Syria since around 2003, and in Yemen since 2008, which supports the idea that corruption was one of the reasons behind the Arab Spring protests. We observe the same trend in Egypt and Tunisia before the Arab Spring. However, in Tunisia, the corruption level has stagnated in the years after the Arab Spring officially started. Tunisia has made significant political, economic, and social

decisions to eliminate the level of corruption (Looney, 2015). Also, its democratization has been improving (Feldman, 2020). Egypt's corruption level also stagnates with the attempts toward a more democratic society; however, their progress is more conservative than Tunisia, which could be because of Mohamed Morsi's democratic election and the subsequent reassertion of military power (Feldman, 2020).

Figure 2.1: Corruption Scores of Severely Affected Countries

Figure 2.2: Corruption Scores of Moderately Affected Countries

Figure 2.2 above illustrate how corruption scores have been behaving for the moderately affected group. For this group, we observe mediocre impacts of the Arab uprisings since some countries (e.g., Iran, Lebanon, Algeria) have corruption as endemic historically; some others have been controlled by the monarchies very quickly by reforming some rights (e.g., Jordan and Morocco); Palestine is having more of Hamas-Fatah conflict, and Iraq has been still experiencing the repercussions of US invasion and on-going conflicts between sects. The figures demonstrate that corruption scores vary among the countries, and they are very volatile from one year to another. Nevertheless, the changes in Iran, Lebanon, and Palestine are quite remarkable to notice.

Lastly, turning to the Gulf region, the impacts of Arab Spring were not uniform. Even though there were more protests in Bahrain, Kuwait, and Qatar, they were repressed with the help of neighboring monarchies, especially Saudi Arabia and the UAE. Nevertheless, corruption levels increased in these countries after the Arab Spring. Figures below show how corruption levels of Gulf countries have changed before and after Arab Spring.

The higher corruption levels in Bahrain, Kuwait, and Qatar could be because of less authoritarian governments in those countries compared to Oman, Saudi Arabia, and the United Arab Emirates because the latter group helped the former take the protests under control. Since corruption levels did not change much -in fact, decreased- in Oman, Saudi Arabia, and UAE after the Arab Spring, this might be another sign of how these countries used their financial resources to suppress the protests not only in their countries but also in their neighbors to maintain the Gulf's security.

Overall, the political and economic impacts of the Arab Spring seem less severe in the Gulf region than in Egypt, Libya, Tunisia, Syria, and Yemen. Another essential reason why the Arab Spring did not cause transformative changes in Gulf countries is that their natural resource abundance and financial position helped them (Looney, 2015). However, Egypt, Libya, Tunisia, Syria, and Yemen did not have similar resources.

Figure 2.3: Corruption Scores of Lightly Affected Countries

In subsequent section, I investigate the impact of the Arab Spring on different country groups. The first group is severely affected groups which includes Egypt, Libya, Tunisia, Syria, and Yemen. The second group is moderately affected groups which include Algeria, Iran, Iraq, Jordan, Lebanon, Morocco, and Palestine. The last group is lightly affected GCC countries which are the six Gulf countries. The purpose is to show how differently the Arab Spring affected the impact of corruption on economic growth in three categories, although the sample size gets reduced. Finally, I test the natural resource curse argument by comparing oil-exporting countries with oil-importing countries; since most MENA countries are heavily dependent on oil, the natural resource curse hypothesis is particularly important for the region.

2.4.5 Sub-Sample Regressions

Tables 2.5 - 2.7 illustrate the regression results for severely, moderately, and lightly affected countries. In Table 2.5, the coefficient of interest never reaches statistical significance except the third column. In the third column, with 1 point increase in corruption score, the impact of the Arab Spring decreases economic growth by 1.9 percentage points, rather than the 3.4 with corruption held constant. Considering the table representing severely affected countries by the Arab Spring, it is expected that the coefficients would still be negative, but with higher absolute value than the entire data set. However, starting from the second column, the number of observations hovers around 70, which is low and multivariate regressions may not reach significance with the lower number of observations. Nevertheless, the coefficient of the Arab Spring is negative and significant in columns 2-5. It shows that after the Arab Spring economic growth of these countries decreased, but corruption did not play a role in that lower economic growth. One plausible explanation for this result could be that the first-order effect of the Arab Spring is so large that the ultimate impact of corruption is basically muted.

On the other hand, the coefficients of population, investment, durability, and corruption are not significant, whereas the coefficient of oil rent is significant only for the first two columns. When I control for urbanization, mineral rent, and savings, their coefficients are not significant, but the

Table 2.5: Severely Affected Countries

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment		0.00970	0.0171	0.0217	0.0286	0.0188	-0.0328	-0.0940	-0.0780
		(0.119)	(0.129)	(0.140)	(0.150)	(0.145)	(0.106)	(0.0825)	(0.0760)
Population		0.976	0.848	0.810	0.790	0.872	1.102	1.624	3.148
		(1.343)	(1.491)	(1.416)	(1.487)	(1.437)	(1.572)	(1.756)	(2.613)
Oil Rent		0.152*	0.150*	0.144	0.137	0.142	0.0219	-0.0218	0.0325
		(0.0607)	(0.0621)	(0.0688)	(0.0747)	(0.0730)	(0.0539)	(0.0685)	(0.0709)
Durability		-0.0410	-0.0389	-0.0400	-0.0409	-0.0484	-0.0566	-0.0575	-0.0768
		(0.0255)	(0.0269)	(0.0267)	(0.0327)	(0.0273)	(0.0352)	(0.0313)	(0.0386)
Corruption	1.199	-1.805	-1.420	-1.279	-1.293	-1.637	-1.265	-2.146	2.068
	(2.699)	(4.505)	(4.965)	(4.842)	(4.850)	(4.714)	(4.728)	(5.089)	(2.238)
Arab Spring	-2.717	-3.513**	-3.465**	-3.977**	-3.777*	-3.278	-3.399	-0.214	-0.643
	(1.543)	(0.907)	(0.985)	(1.241)	(1.235)	(2.397)	(1.702)	(0.673)	(0.649)
Corruption*Arab Spring	-1.857	1.429	1.554*	2.355	1.560	1.402	-1.187	-2.112	-0.901
	(2.315)	(0.661)	(0.575)	(1.584)	(1.494)	(2.149)	(2.163)	(1.496)	(1.268)
Mineral Rent			-0.369	-0.467	-0.482	-0.515	-0.643	-0.407	-0.729
			(0.321)	(0.346)	(0.365)	(0.396)	(0.389)	(0.519)	(0.467)
Urbanization				0.129	0.0117	-0.0473	0.242	-0.247	-0.174
				(0.208)	(0.221)	(0.361)	(0.232)	(0.344)	(0.306)
Log [GDPPC]					1.075***	1.070***	1.400***	1.585***	1.268**
					(0.180)	(0.120)	(0.193)	(0.0358)	(0.283)
Unemployment						-0.214	-0.0583	-0.490**	-0.699*
						(0.349)	(0.181)	(0.135)	(0.263)
Gov't Expenditure							-0.463**	0.00797	0.0612
							(0.0919)	(0.383)	(0.350)
Savings								0.202	0.204
								(0.0980)	(0.0909)
Corruption^2									-8.684
									(3.788)
Constant	1.546	0.811	0.720	-6.681	-8.637	-2.130	-14.32	7.808	6.274
	(1.494)	(1.478)	(1.697)	(12.52)	(12.82)	(24.23)	(15.90)	(17.52)	(15.92)
Observations	123	73	73	73	73	73	72	72	72
R-squared	0.022	0.297	0.301	0.303	0.313	0.318	0.362	0.404	0.473
Number of Country	5	4	4	4	4	4	4	4	4
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Yemen is excluded.

coefficient of log GDP per capita is significant in all regressions. The coefficient of unemployment is significant in the last two columns. The coefficient of government expenditure is significant in the first column that is being introduced to the model. Likewise, the political Kuznets curve hypothesis is not verified in these regressions for the severely affected countries.

Lastly, even though the coefficient of interest is never significant, this relationship might likely occur after couple of years with an increasing number of observations. Tables 2.6 and 2.7 below present the results for moderately and lightly affected countries.

In Table 2.6, the coefficient of interest is negative in all regressions and mostly significant, however, it is insignificant in the second column, the preferred specification. The coefficient of corruption is not significant in any of the regressions meaning corruption did not affect economic growth performance of moderately affected countries before the Arab Spring. This time the coefficient of Arab Spring is not significant opposite to the results compared with the previous table. Put another way, corruption has lowered economic growth for moderately affected economies after the Arab uprisings.

Negative results are expected; nevertheless, not because of the Arab Spring incident per se but because structural corruption problems in these countries that historically exist. For example, Iran has been dealing with corruption issues since 1979 revolution or corruption problems inside the monarchies like in Jordan and Morocco, or natural resource curse challenges like in Algeria. Likewise, in Lebanon, corruption has been a historical issue due to consociationalism, where the power is distributed between the major sects. Lastly, Iraq has political problems because of the invasion of the US in 2003 and ongoing ISIS threats. Thus, all these issues are historical; however, Arab Spring played a role in igniting the issue on a bigger scale.

One last point here is that when control variables of savings and corruption square are added to the regressions, the coefficient of interests jump to -8 rather than -4 range. Considering the magnitude does not alter much after adding corruption square, it reasonable to assume that the coefficient jumps due to savings variables. Although savings rate did not create any issue in all other regressions, it might have caused multicollinearity for moderately affected countries only. Thus, the coefficient may have jumped due to multicollinearity. However, as it did not cause any problem in previous regressions, I continue to keep it in this group as well.

The coefficients of investment, population, and oil rent never reach significance, while the coefficient of durability is significant only in the last two columns. Further, the coefficient of corruption is not significant either. With other control variables, mineral rent, urbanization, unemployment, log GDP per capita, government expenditure, and savings, the coefficients are reaching significance in several regressions. Results with control variables and the coefficient of interest

demonstrate that the results may likely reach significance for severely affected countries after seeing an increase in the number of observations because the number of observations in Table 2.6 is almost double of severely affected countries even with the control variables.

Lastly, in Table 2.7, the regression results represent GCC countries lightly affected by the Arab unrests. The results are in line with the categorization that corruption does not impact economic growth after 2011. The coefficients of corruption, Arab Spring, and the interaction term are insignificant, which I expected when I categorized the MENA region into three.

However, other variables' coefficients are significant, including investment, population, oil rent, urbanization, log GDP per capita, government expenditure, and corruption square. Especially coefficients of oil rent, log GDP per capita, and government expenditure are significant in all regressions. It is interesting to see the corruption square is significant only for lightly affected group; however, since the coefficient of corruption is not significant, the political Kuznets curve hypothesis is not verified.

Overall, in Tables 2.5 - 2.7, the results suggest the need for greater nuance in interpreting the regressions. There are also some interesting results that require further investigation, such as a positive coefficient of interest for severely affected countries, even if it is in just one regression. What is significant is that the intensity of the impact of the Arab Spring has been felt differently in three groups, and this variation also affected the channels by which corruption impacts growth.

Before concluding this chapter, there is another important question in corruption studies: the impact of natural resource abundance on corruption and growth. According to the natural resource curse argument, natural resource-abundant countries are more vulnerable to corruption (Ross, 2001; Djankov et al., 2008). I investigate this question using the IMF categorization of oil-exporting and importing countries in the next section.

Table 2.6: Moderately Affected Countries

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment		0.135	0.149	0.207	0.183	0.236	0.147	0.0915	0.0921
		(0.0843)	(0.0901)	(0.107)	(0.117)	(0.118)	(0.154)	(0.123)	(0.122)
Population		-0.568	-0.490	-0.533	-0.555	-0.562	-0.276	-0.486	-0.480
		(0.312)	(0.332)	(0.307)	(0.350)	(0.348)	(0.644)	(0.565)	(0.574)
Oil Rent		0.170	0.173	0.187	0.190	0.223	0.305	0.435	0.432
		(0.149)	(0.147)	(0.140)	(0.149)	(0.143)	(0.197)	(0.231)	(0.240)
Durability		0.0295	0.0515	0.119	0.0973	0.0890	0.145	0.254*	0.248*
		(0.0997)	(0.102)	(0.0991)	(0.106)	(0.0874)	(0.145)	(0.109)	(0.104)
Corruption	0.454	1.976	2.398	2.563	2.450	1.692	1.705	3.204	2.755
	(3.221)	(3.286)	(3.362)	(2.797)	(3.024)	(3.014)	(3.388)	(3.086)	(5.396)
Arab Spring	-1.791	-1.895	-2.000	-0.0811	0.344	0.209	-0.526	1.562	1.604
	(1.143)	(1.628)	(1.721)	(2.088)	(1.678)	(1.368)	(1.631)	(1.833)	(1.860)
Corruption*Arab Spring	-3.627*	-2.773	-2.897	-4.214	-4.870	-4.531*	-4.714*	-8.467**	-8.482**
	(1.519)	(2.168)	(2.261)	(2.562)	(2.457)	(2.022)	(2.336)	(2.209)	(2.216)
Mineral Rent			-0.346	-0.305	-0.417	-0.440	-0.457	-0.272	-0.275
			(0.248)	(0.190)	(0.224)	(0.250)	(0.351)	(0.310)	(0.325)
Urbanization				-0.309	-0.396*	-0.313**	-0.202	-0.542**	-0.540**
				(0.232)	(0.170)	(0.113)	(0.248)	(0.180)	(0.184)
Log [GDPPC]					4.431	4.313	5.367	18.07***	17.98***
					(6.959)	(6.600)	(7.417)	(3.832)	(3.914)
Unemployment						0.188***	0.273**	0.182*	0.180**
						(0.0443)	(0.0748)	(0.0712)	(0.0681)
Gov't Expenditure							0.594	0.842	0.840
							(0.608)	(0.550)	(0.550)
Savings								-0.122	-0.120
								(0.0946)	(0.104)
Corruption^2									0.389
									(2.143)
Constant	2.881	-2.952	-3.844	15.16	-14.44	-23.07	-50.22	-133.6***	-132.9***
	(1.641)	(4.168)	(4.446)	(12.26)	(53.15)	(47.94)	(47.20)	(24.43)	(24.67)
Observations	175	134	134	134	134	134	134	119	119
R-squared	0.083	0.188	0.190	0.201	0.205	0.210	0.258	0.319	0.319
Number of Country	7	6	6	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Palestine is excluded.

Table 2.7: Lightly Affected Countries

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment		0.0886	0.0891	0.0957	0.104	0.128	0.208*	0.179	0.194*
		(0.0560)	(0.0560)	(0.0651)	(0.0645)	(0.0859)	(0.103)	(0.0977)	(0.0898)
Population		-0.747**	-0.750**	-0.811***	-0.870***	-0.780**	-0.567	-0.523	-0.544
		(0.198)	(0.199)	(0.196)	(0.196)	(0.265)	(0.293)	(0.328)	(0.298)
Oil Rent		0.206***	0.204***	0.217***	0.222***	0.195***	0.349**	0.269*	0.273*
		(0.0464)	(0.0461)	(0.0483)	(0.0497)	(0.0392)	(0.0947)	(0.109)	(0.116)
Durability		-0.0391	-0.0399	-0.0628	-0.0694	-0.0965	-0.0561	-0.0670	-0.0844
		(0.0547)	(0.0547)	(0.0684)	(0.0775)	(0.0924)	(0.0559)	(0.0613)	(0.0600)
Corruption	1.664	-2.209	-2.183	-2.282	-1.395	-1.374	-1.501	-2.054	2.409
	(2.268)	(1.957)	(1.957)	(1.740)	(1.739)	(2.041)	(2.237)	(2.265)	(1.766)
Arab Spring	-2.319	-0.238	-0.303	-0.937	-1.258	-2.001	-1.482	-1.371	-2.602
	(1.403)	(1.064)	(1.159)	(1.285)	(1.500)	(1.930)	(1.663)	(1.744)	(1.493)
Corruption*Arab Spring	-3.926	0.773	0.735	1.165	0.606	-0.909	-2.854	-1.539	-2.922
	(4.387)	(1.889)	(1.911)	(2.162)	(2.860)	(3.395)	(3.174)	(2.784)	(2.370)
Mineral Rent			2.562	4.229	-0.0717	-2.022	-16.44	-14.02	-6.077
			(6.961)	(4.739)	(6.839)	(5.732)	(13.52)	(13.10)	(9.049)
Urbanization				0.282	0.392**	0.627	0.438	0.314	0.479*
				(0.167)	(0.148)	(0.339)	(0.247)	(0.231)	(0.226)
Log [GDPPC]					7.657**	7.637***	14.17***	15.74***	17.83***
					(2.184)	(1.855)	(2.156)	(3.485)	(3.116)
Unemployment						1.303	1.097	0.943	1.190
						(1.267)	(0.795)	(0.641)	(0.613)
Gov't Expenditure							0.456**	0.709*	0.685*
							(0.154)	(0.347)	(0.301)
Savings								0.146	0.120
								(0.127)	(0.115)
$Corruption^2$									3.915**
									(1.301)
Constant	0.797	-3.694	-3.603	-27.32	-115.3***	-138.3***	-206.8**	-219.8***	-253.8***
	(1.038)	(2.216)	(2.248)	(15.59)	(18.14)	(26.53)	(52.17)	(52.98)	(49.22)
Observations	147	137	137	137	137	137	137	137	137
R-squared	0.034	0.268	0.268	0.275	0.299	0.312	0.361	0.376	0.394
Number of Country	6	6	6	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

2.4.6 Oil-Exporting vs. Oil-Importing Countries

There are 17 countries in panel data (Palestine is neither an oil-exporting nor an oil-importing country, according to the IMF). In Table 2.8 and 2.9, I run regressions for oil-exporting countries: Algeria, Bahrain, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Yemen and oil-importing countries: Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia.

In Table 2.8, the coefficient of interest is negative throughout all regressions and significant in the first and the last three regressions. That does illustrate that the natural resource curse hypothesis is valid for oil-exporting countries. The coefficients of corruption and Arab Spring do not reach significance. Also, the coefficients of investment and durability are insignificant throughout. When it comes to control variables, the coefficients of mineral rents, unemployment, government expenditure, and savings are all significant, whereas log GDP per capita is significant in most regressions. Lastly, the political Kuznets curve hypothesis is not supported for oil-exporting countries.

For Table 2.9, the coefficient of interest is all negative but insignificant. That means natural curse argument is not supported for oil-importing countries. Nonetheless, log GDP per capita, investment, and population coefficients are significant. Likewise, the coefficient of corruption is not significant, whereas Arab Spring is significant in the first two regressions.

To conclude, the natural resource curse argument, which is considered a kind of "blanket rule" for oil-exporting countries (Cammett et al., 2015) in the region, is supported in these regressions but not for oil-importing countries.

Table 2.8: Oil Exporting Countries

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)
Investment		0.0454	0.0462	0.0399	0.0335	0.0719	0.110	0.0866	0.0831
		(0.0427)	(0.0429)	(0.0414)	(0.0489)	(0.0582)	(0.0709)	(0.0750)	(0.0699)
Population		-0.645***	-0.647***	-0.654***	-0.656***	-0.678***	-0.390	-0.281	-0.279
		(0.176)	(0.179)	(0.179)	(0.181)	(0.169)	(0.287)	(0.309)	(0.292)
Oil Rent		0.185***	0.190***	0.190***	0.184***	0.198***	0.324***	0.212**	0.210**
		(0.0410)	(0.0398)	(0.0397)	(0.0459)	(0.0449)	(0.0943)	(0.0930)	(0.0877)
Durability		-0.0330	-0.0326	-0.0406	-0.0412	-0.0636	-0.0184	-0.0417	-0.0445
		(0.0417)	(0.0429)	(0.0483)	(0.0515)	(0.0616)	(0.0424)	(0.0388)	(0.0372)
Corruption	1.331	-0.738	-0.601	-0.512	-0.0201	-0.686	-0.915	-1.519	-0.180
	(1.615)	(1.199)	(1.276)	(1.165)	(1.012)	(1.000)	(1.090)	(1.131)	(1.571)
Arab Spring	-1.558	-1.053	-0.956	-1.200	-1.241	-1.548	-0.908	-1.159	-1.116
	(1.178)	(0.616)	(0.619)	(0.831)	(0.871)	(0.887)	(0.724)	(0.647)	(0.727)
Corruption*Arab Spring	-2.927*	-1.387	-1.303	-1.337	-1.855	-1.844	-3.739**	-2.764*	-2.728**
	(1.456)	(0.969)	(0.988)	(0.899)	(1.241)	(1.240)	(1.365)	(1.364)	(1.177)
Mineral Rent			-2.158*	-2.615***	-3.423***	-4.248***	-4.055**	-4.034**	-5.073**
			(0.967)	(0.661)	(0.679)	(0.996)	(1.319)	(1.364)	(1.866)
Urbanization				0.0816	0.0608	0.244	0.0450	-0.0882	-0.130
				(0.116)	(0.133)	(0.142)	(0.157)	(0.195)	(0.235)
Log [GDPPC]					3.484	3.762	10.94***	12.68***	12.97***
					(4.389)	(4.286)	(2.347)	(3.409)	(3.651)
Unemployment						0.278*	0.415**	0.498***	0.413***
						(0.133)	(0.147)	(0.132)	(0.123)
Gov't Expenditure							0.560*	0.947**	0.952**
							(0.250)	(0.384)	(0.386)
Savings								0.215*	0.215*
								(0.0954)	(0.0950)
Corruption^2									1.701
									(1.614)
Constant	1.171**	-1.876	-1.940	-7.989	-39.70	-59.57	-131.4***	-150.0***	-149.5***
	(0.462)	(1.593)	(1.617)	(9.167)	(38.53)	(36.43)	(26.16)	(34.01)	(34.68)
Observations	271	212	212	212	212	212	212	212	212
R-squared	0.022	0.191	0.193	0.194	0.198	0.206	0.267	0.292	0.296
Number of Country	11	10	10	10	10	10	10	10	10
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Yemen is excluded.

Table 2.9: Oil Importing Countries

Dept. Var: Growth	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)
Investment		0.247**	0.285**	0.284**	0.267**	0.281**	0.276**	0.281**	0.278**
		(0.0854)	(0.0966)	(0.0954)	(0.0912)	(0.0910)	(0.0703)	(0.0778)	(0.0822)
Population		-0.774***	-0.731***	-0.731***	-0.718***	-0.706***	-0.864***	-0.872***	-0.851***
		(0.139)	(0.119)	(0.113)	(0.110)	(0.105)	(0.166)	(0.170)	(0.135)
Oil Rent		-0.0946	-0.0907	-0.0863	-0.170	-0.172	-0.139	-0.135	-0.150
		(0.142)	(0.139)	(0.130)	(0.0986)	(0.101)	(0.0757)	(0.0869)	(0.0872)
Durability		-0.0370**	-0.0356**	-0.0325**	-0.0306	-0.0246	-0.0317	-0.0331	-0.0335
		(0.0118)	(0.0118)	(0.0114)	(0.0158)	(0.0172)	(0.0208)	(0.0206)	(0.0209)
Corruption	3.167	1.719	1.940	1.986	2.430	2.722	1.869	1.701	1.100
	(2.035)	(2.505)	(2.741)	(2.804)	(2.574)	(2.447)	(1.835)	(2.033)	(2.968)
Arab Spring	-3.071**	-1.442**	-1.223	-0.899	-1.070	-1.342	-0.674	-1.258	-1.131
	(0.812)	(0.508)	(0.628)	(1.386)	(1.376)	(1.252)	(1.604)	(1.795)	(1.965)
Corruption*Arab Spring	-3.013	-2.712	-2.916	-3.239	-3.752	-3.481	-4.011	-3.514	-3.887
	(1.804)	(1.778)	(1.957)	(2.269)	(1.945)	(1.819)	(2.265)	(2.245)	(2.754)
Mineral Rent			-0.304	-0.272	-0.338	-0.322	-0.271	-0.267	-0.257
			(0.218)	(0.227)	(0.250)	(0.259)	(0.232)	(0.260)	(0.263)
Urbanization				-0.0517	-0.112	-0.0758	-0.244	-0.167	-0.187
				(0.157)	(0.183)	(0.167)	(0.256)	(0.257)	(0.300)
Log [GDPPC]					2.553**	2.558**	3.032**	2.858**	2.909**
					(0.813)	(0.854)	(1.136)	(1.059)	(1.130)
Unemployment						0.141	0.0148	0.0310	0.0370
						(0.159)	(0.197)	(0.212)	(0.217)
Gov't Expenditure							-0.344*	-0.311	-0.303
							(0.157)	(0.178)	(0.162)
Savings								-0.0261	-0.0216
								(0.0731)	(0.0697)
Corruption^2									0.954
									(2.644)
Constant	1.498*	-1.184	-2.173	1.069	-14.98	-19.54	-4.808	-8.655	-7.965
	(0.719)	(2.382)	(2.709)	(10.19)	(12.39)	(12.05)	(12.73)	(13.72)	(15.04)
Observations	149	132	132	132	132	132	131	116	116
R-squared	0.229	0.425	0.433	0.433	0.470	0.472	0.507	0.570	0.571
Number of Country	6	6	6	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

2.5 Robustness Checks

In the previous two sections, I investigated how the Arab Spring affected each country differs in terms of the impact on how corruption affects economic growth. Although the regression results clearly illustrate that corruption lowered economic growth after the Arab Spring, it is challenging to make similar arguments for country categorizations. When I clustered the MENA region into three groups depending on the magnitude of the Arab Spring protests, I have not obtained as clear as the entire data set. This might be due to the lower number of observations for severely affected countries since their results do not reach significance, although it is expected that they were hit by the Arab Spring more than others.

After that, I tested the natural resource curse hypothesis and verified that oil-exporting countries have natural resource curse, even though it is not always the case in all the regressions. Natural resource curse argument is not a valid argument for oil-importing countries. Thus, the significant results need to be checked for robustness. In the next section, I first present the results with alternative corruption indexes and finally, I show whether 2011, when the Arab uprisings started, was a structural break or not.

2.5.1 Alternative Corruption Indexes

To check the validity of results for the entire data set, I use ICRG, V-Dem, and CPI data sets. Although ICRG and V-Dem provide identical corruption scores for several consecutive years for some MENA countries, they are widely used in other studies. Likewise, CPI data is not comparable before 2012; however, since the Arab Spring started in 2011, it can only be used to show the impact of the Arab Spring, not before. Tables 2.10 and 2.11 demonstrate the correlation matrix between corruption indexes and regressions.

The coefficient of interest shows that the Arab Spring negatively affects the impact of corruption on economic growth in the entire data set. This result is robust with respect to different corruption indexes. It can be said that The Arab Spring uncovered corruption that was already present, thus making the negative impacts of corruption more visible.

Table 2.10: Correlation Matrix of Corruption Indexes

Variables	WGI	ICRG	CPI	V-Dem
WGI	1			
ICRG	0.951	1		
CPI	0.979	0.951	1	
V-Dem	0.825	0.777	0.786	1

Table 2.11: Entire Data Set Regressions with Alternative Corruption Indexes

Dept. Var: Growth	ICRG	V-Dem	CPI
Investment	0.0733*	0.0820**	-0.0365
	(0.0358)	(0.0380)	(0.108)
Population	-0.696***	-0.716***	-0.282
	(0.174)	(0.177)	(0.239)
Oil Rent	0.171***	0.168***	-0.0303
	(0.0476)	(0.0413)	(0.0762)
Durability	-0.0247*	-0.0274	-0.253*
	(0.0130)	(0.0161)	(0.138)
Corruption	0.228	1.347	
	(0.484)	(1.570)	
Arab Spring	3.702	2.418	
	(2.237)	(2.813)	
Corruption Arab Spring	-1.516**	-5.315*	-0.112**
	(0.535)	(2.805)	(0.0397)
Constant	-1.366	-2.059	16.13***
	(1.494)	(1.867)	(4.303)
Observations	334	334	108
R-squared	0.211	0.211	0.044
Number of Country	16	16	14
Country FE	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Iraq, Lebanon, Palestine, and Yemen are excluded.

The reason is that before the Arab Spring, the coefficient of corruption is not significant in any of the alternative corruption indexes. However, after the Arab Spring, corruption lowers economic growth, and the result is robust with different corruption indexes.

2.5.2 Chow Test

Also, the question could be whether the Arab Spring constitutes any structural break. To check this question while utilizing the main corruption data set of this chapter (WGI) [3] , I conduct a Chow test where I run three regressions, one for the complete data set and two for before and after the Arab Spring data sets. After running each regression, I obtain the residuals by using the formula of the Chow test:

$$\frac{\frac{(RSS_t - RSS_1 - RSS_2)}{k}}{\frac{(RSS_1 + RSS2}{T-2k}}$$

The test resulted with F_{value} = 2.064 and $F_{critical}$ = 0.00001. The null hypothesis of the Chow test that there is no structural break is rejected. Thus, I find that there was a structural break in 2011 when the Arab Spring started, which makes the results robust.

2.6 Limitations of the Research

Like any other study, this work faces limitations arising from the nature of the corruption itself. The first limitation is the measurement of corruption, which applies to both subjective and objective data sets. Subjective data sets examine the corruption issue from the eye of a third party, such as businessmen or entrepreneurs. The businessman's perception of corruption may depend on several factors, including the bureaucratic hurdles being faced, the country's economic position, the other factors such as the country's legal situation, freedom of press, and freedom of speech.

Because of subjectivity, the results could be biased; however, most of the studies still focus on subjective data sets. The results I get here with WGI, ICRG, V-Dem, and CPI data sets are

[3]ICRG and V-Dem data also show that there exists a structural break in 2011. Since there is no data before 2012, I do not check the Chow test for the CPI data set.

consistent, although their corruption score measurement methodology is different. However, the corruption scores of V-Dem and ICRG are sticky for several countries over long periods, so these results need to be interpreted with caution.

One critique could be then objective data sets might be better to use than subjective data sets. However, as Bardhan (2006) argues, there are issues with objective indexes. The main critique is that since there is no unique and universal definition of corruption, there will be biases in conviction reports or journalists' investigations. In other words, a particular corrupt attitude or behavior may not be considered corruption in another society. These differences also lead to biased results in regressions. Nevertheless, by considering a specific definition of corruption, abuse of public office for private gain, as described by WB and TI, I narrowed the attention to one aspect: public corruption, because private corruption can be controlled via regulations and competition (Bardhan, 2005). Having been aware of all these critiques, this study still contributes to corruption literature in the MENA context, where corruption is widely seen as an important concern.

Another limitation of the study is the small number of observations comparing country categorizations and oil-exporting versus oil-importing countries. First, I work on fixed effect panel data to capture time-invariant unobserved heterogeneity. Second, I only cover countries affected by the Arab Spring. Nevertheless, this restricts my data and the number of observations, which highly affects the results because multivariate regressions may not reach significance with a smaller number of observations. However, I still find statistical significance for the entire data set and alternative corruption indexes. On average, corruption decreases economic growth, which aligns with the sands the wheel hypothesis.

The last limitation is about the region that I focus on. Each MENA country experiences Arab Spring differently, and there is considerable heterogeneity among the countries. It might be expected that the adverse effects of the Arab Spring on the impact of corruption on growth are higher in some countries, especially in Egypt, Libya, Tunisia, Syria, and Yemen. Other countries, especially Gulf countries, have not been affected by the Arab Spring as much as others. However, the

results do not reflect these arguments yet. After a decade or later, we might be able to see the country-specific impacts of the Arab Spring more explicitly with a greater number of observations.

2.7 Conclusion

In this study, I investigate how Arab Spring affected the impact of corruption on economic growth in the MENA region. Overall, the results align with most of the literature, which finds the adverse effects of corruption on growth. My results confirm the sands the wheel hypothesis in the entire data set. However, the main result is the differences among countries regarding the impact of corruption on growth. My preliminary results show that, on average, countries that had higher corruption were hit by the Arab Spring more than other countries. For example, Egypt, Libya, Tunisia, Syria, and Yemen had worse economic performance than Gulf countries and other members of the MENA region. This is because these countries had worse corruption scores before Arab Spring, so they were hit more severely by the Arab Spring, and it caused fundamental political changes in these countries.

On the other hand, Gulf countries were not affected either because of their financial stability to handle the economic issues of the Arab Spring or because their oppressive monarchies used excessive power to eliminate the negative repercussions of the Arab Spring. In either case, their economic growth stayed relatively stable. Nevertheless, countries such as Egypt, Libya, Tunisia, Syria, and Yemen are still struggling to reach their pre–Arab Spring economic performance, although there are some positive signals in Tunisia and more conservatively in Egypt.

Furthermore, although the MENA region seems to share the same culture, religion, and language, the impact of corruption on growth and the Arab Spring experienced in each country is different. Therefore, policymakers need to consider and evaluate each nation separately to make political, social, and, more importantly, economic decisions. MENA is the fourth most corrupt region after Eastern Europe, Central Asia, and Sub-Saharan Africa. Having said that, the level of corruption is different in each country which means within-country dynamics also play a pivotal role in dealing with corruption's impact on economic performance.

While being utterly aware of all limitations of corruption studies, I can say that corruption is one of the fundamental issues of the MENA region. Warf (2015) thinks that corruption is widespread and intractable in MENA and that MENA experiences every type of bribery, kickbacks, embezzlement, and peculation. Corruption becomes more ubiquitous and uncontrollable with weak civil society and institutions since government elites and officers are already corrupted (Warf, 2015). The region suffers from a vicious cycle in which high corruption feeds lower economic growth, and lower economic growth increases corruption. The Arab Spring paradoxically seems to have exacerbated this cycle.

Chapter 3

The Arab Spring, Corruption, and Income Inequality

3.1 Introduction

Almost all of the revolutions which have changed the aspect of nations have been made to consolidate or to destroy social inequality. Remove the secondary causes which have produced the great convulsions of the world, and you will almost always find the principle of inequality at the bottom.

– De Tocqueville

The disposition to admire, and almost to worship, the rich and the powerful, and to despise, or, at least, to neglect persons of poor and mean condition is the great and most universal cause of the corruption of our moral sentiments.

– Adam Smith

Inequality is a prevalent problem in the Middle East and North Africa (MENA). Along with other macroeconomic issues in the region, inequality has significantly increased the gap between rich and poor over the last three decades, especially after discovering oil despite its initial positive impacts in reducing poverty and inequality (Page, 2007). During the 1980s and 1990s, the inequality level was the lowest in history, and MENA was considered among the world's more equal developing regions (Page, 2007; Acar and Dogruel, 2012). However, since then, especially in the Gulf region, the income gap between and within countries has increased. The figure below shows this historical trend of income inequality in the MENA region.

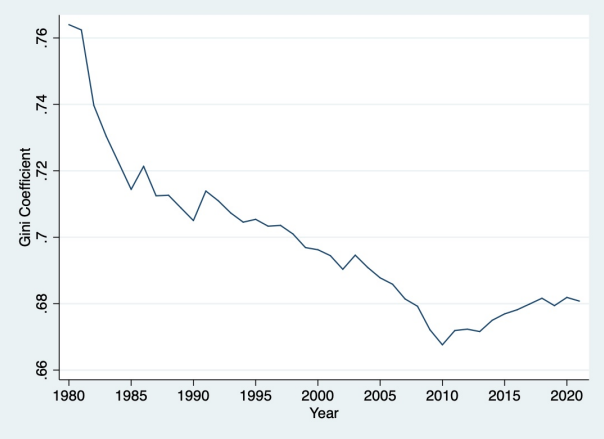

Figure 3.1: Gini Coefficient Trends in the MENA

Despite a growing awareness of the problem of inequality, the MENA countries have not implemented effective policies to decrease inequality. The government institutions have not worked efficiently to provide sufficient data to inform effective policies. Obtaining data in the MENA is challenging and almost impossible sometimes (Lanchovichina et al., 2015). However, this has been improving recently. According to Bibi and Nabli (2009), the data process is improving, but the region is still behind other regions regarding coverage of data accessibility and comparability.

The available data suggests that the top decile income share in the MENA region is 64%, the highest in the world compared with others, for example, 37% in Western Europe, 47% in the United States of America and 55% in Brazil. The higher income inequality in the MENA is due to between countries (oil-exporting vs. oil-importing) and within countries (Alvaredo et al., 2019). The high level of inequality is also conceived to be one of the reasons for the Arab Spring movements (Cammett et al., 2015).

Before the Arab Spring, there were long-lasting economic problems in the MENA. On top of already existing issues such as poverty, unemployment, lower educational attainment (although this has been increasing for the last two decades), lower female labor force participation, import dependency (particularly for essential items such as maize, sugar, rice, and meat), low-quality institutions; inequality has made the situation worse in the MENA region (Ncube and Anyanwu, 2012).

Corruption was also prevalent in the region, both in formal and informal practices. Higher inequality resulting from higher corruption continued as a vicious cycle and created a trap called the "inequality trap" (Rothstein and Uslaner, 2005; Uslaner, 2006; Ariely and Uslaner, 2017).

Similarly, inequality itself has negative repercussions in the MENA region. Ncube et al. (2014) concentrate on the MENA region only and show in an empirical model that how income inequality lowers economic growth and increases the poverty levels in the MENA region. The negative impacts of income inequality on macroeconomic indicators are undeniably high in the MENA region.

However, the main interest of this study will be the relationship between inequality and corruption. More specifically, I will be investigating how the Arab Spring affects the impact of corruption on income inequality in the MENA region. Considering high corruption and inequality as the fundamental causes of the Arab movements, the relationship between the two has not been investigated. This study will be the first attempt to explore it to the best of my knowledge.

The econometric investigation concludes that no significant relationship is observable between corruption and inequality for the entire data-set. The absence of robust relationship at the regional level raised the question of whether the regional aggregation obscures intra-regional heterogeneity. To explore this heterogeneity, I categorize the countries in the region into severely affected, moderately and lightly affected countries. The analysis of within-region sub-samples reveals a negative relationship between the Arab Spring and inequality in severely affected countries. However, this impact of the Arab Spring in reducing inequality is attenuated by a rise in corruption. On the other hand, the relationship between corruption and inequality remains insignificant for moderately and lightly affected countries both before and after the Arab Spring. These results underscore the significance of the Arab Spring.

The structure of the chapter is as follows; the following section, 3.2, reviews the literature. There are three strands a) positive relationship between corruption and income inequality, b) negative relationship, and c) non-monotonic relationship. I will also touch upon inequality and corruption literature in the MENA region. Next, section 3.3 presents the model, data, and econometric

specification; 3.4 discusses the results; 3.5 looks for robustness checks; 3.6 addresses limitations of the study, and the last section, 3.7, concludes.

3.2 Literature Review

Johnston (1989) is the first paper to show the relationship between corruption and inequality. The author answers the political question of who gets what, when, and how. He says inequality answers the "who" question, and corruption addresses the "how" question. According to him, corruption increases existing inequality levels. From this early paper to the recent literature on the relationship between corruption and inequality, the conventional wisdom is that there is a positive relationship between the two. However, in the literature, three significant strands can be discerned.

The overwhelming majority of the studies find a positive relationship between inequality and corruption which means higher levels of corruption increases income inequality. A second strand finds a negative relationship between the two variables meaning that higher corruption lowers the inequality. In this strand, a negative relationship occurs through channels such as the size of the informal sector. The last group finds corruption and inequality have a non-linear relationship where inequality decreases until a certain point of corruption and starts to increase again.

3.2.1 Negative Relationship

Researchers find the negative connection between corruption and inequality, which means that higher corruption leads to lower inequality. At first, this might sound counter-intuitive; however, after reviewing the channels of this relationship, it is reasonable to consider the negative relation. In this regard, Andres and Ramlogan-Dobson (2011) show that lower corruption leads to higher inequality in Latin America through three channels. First, institutional reforms in the region increase institutional quality and lower corruption levels. However, inequality will continue to increase because the educational attainment of the workers in the informal sector is not high enough, and institutional reforms would force them to be unemployed in the new system since the higher quality of institutions will demand well-educated employees. Eventually, this will increase the gap

between the rich and the poor. Second, Latin Americans may consider paying bribes or engaging in other forms of corruption to attain some specific end. For example, corruption is likely in big government procurements that aim to increase the welfare of the poor. Thus, authorities may allow corruption in government projects to help the poor. If they do not do so and lower the corruption, the poor will not get the service. Third, there is a possibility that corruption channels the needs of the poor through government provisioning and lowering this might harm the poor and increase inequality.

Similarly, Dobson and Ramlogan-Dobson (2012) find that higher corruption leads to lower inequality due to the size of the informal sector in Latin America. They suggest that eliminating corruption should be accompanied by policies to engage informal sector workers in the new system. This could be managed by policies such as training the employees and helping them get a job in the formal sector, incentivizing companies to educate and train their employees such as extra payments and tax helps.

Huang (2012) uses a panel vector error correction model on ten Asian countries between 1995 and 2010 to study the relationship between corruption, economic growth, and income inequality. His findings support the negative relationship between corruption and income inequality; however, the findings are statistically insignificant.

Thus, the negative relationship between corruption and inequality has been attributed to the informal sector channel among the existing studies. The informal sector helps to decrease inequality levels through the mechanisms of corruption (Andres and Ramlogan-Dobson, 2011; Dobson and Ramlogan-Dobson, 2012).

3.2.2 Positive Relationship

A major strand of the literature finds that higher levels of corruption are associated with higher inequality. Within this strand, some studies find bidirectionality between corruption and inequality. In other words, both variables impact each other.

Chong and Gradstein (2007) find that the causality between corruption and inequality is bidirectional. Using dynamic panel data (GMM), the authors find two-way causality between institutional quality and income inequality. Similarly, Apergis et al. (2010) find a bidirectional Granger causality between corruption and inequality in the US. In their study, the panel cointegration test indicates that corruption impacts income inequality positively in the long run. With panel vector error correction model, they conclude that there is bidirectionality between corruption and inequality in both the short and long run.

In the same vein, Jong-Sung and Khagram (2005) find a positive relationship between corruption and inequality and describe the relationship as a vicious cycle because income inequality increases corruption leading to higher inequality. They illustrate that income inequality affects corruption positively through various channels. For example, small government size because of lower taxes, subsidies and transfers increases inequality and corruption. Moreover, wealthy elites have mechanisms to protect themselves from their corrupt activities, whereas the poor stays poor since they do not have any opportunity for corruption. Also, higher inequality increases the perception of corruption. Further, this study finds that corruption is a channel through which inequality negatively impacts economic growth and investment. Although the focus of Jong-Sung and Khagram (2005) is on the impact of income inequality on corruption, the authors also examine the impact of corruption on income inequality and find that bidirectionality exists between corruption and inequality. Apart from this literature that focuses on the bidirectional relationship between corruption and inequality, there are other studies that concentrate either on the impact of income inequality on corruption or the impact of corruption on income inequality.

In the first group, Policardo and Carrera (2018) find, using dynamic panel data and GMM methodology, that inequality positively affects corruption, and corruption is not a determinant of income inequality. In a similar work, with panel data estimations Badinger and Nindl (2012) find that inequality has a positive impact on corruption, and once inequality is introduced, the impact of globalization on corruption decreases. Also, Glaeser et al. (2003) cross-sectional study finds that where institutions are strong, the impact of inequality on corruption and economic growth

is negligible, and conversely where the institutions are low-quality, the impact of inequality on corruption is larger and significant.

In the same vein, You (2015) finds the positive impacts of income inequality on corruption works through the channels of clientelism during the elections, bureaucracy, and state capture in Korea, Taiwan, and the Philippines. The author finds the robust positive relationship between corruption and inequality using panel data and the generalized method of moments (GMM) regressions. Most of the studies investigating the impact of income inequality on corruption work with panel data estimation strategies. On the other hand, some other studies also investigate the relationship between corruption and income inequality. However, they seek an answer to how corruption impacts income inequality rather than what impact income inequality has on corruption.

The first study in this group Dincer and Gunalp (2008) finds that higher corruption increases income inequality and poverty in the US using OLS, IV, and spatial autoregressive estimations. Gupta et al. (2002) find that higher corruption increases income inequality and poverty and this impact occurs through effects on economic growth, broken tax systems, and the ineffectiveness of social programs, including lower-quality education and human capital formation. Gyimah-Brempong (2002) and Ullah and Ahmad (2016) work with dynamic panel data methods and also find that corruption increases income inequality in the African context. In a very similar work in the Indonesian context, Iskandar (2018) also concludes that higher corruption leads to higher income inequality since higher corruption lowers the effectiveness of the government, spending on education and health increase income inequality, echoing Gyimah-Brempong (2002) finding for Africa.

Finally, Barreto (2001) concludes that corruption is positively correlated with income inequality and economic growth using cross-sectional data from developed and undeveloped countries. While these studies find that higher corruption leads to higher inequality, this magnitude might differ in different regions. Gyimah-Brempong and de Gyimah-Brempong (2006) find that decreased corruption has different but positive effects in Asian, African, Latin American, and OECD countries.

One channel through which corruption impacts income inequality is generalized trust. Uslaner (2006) finds that corruption lowers generalized trust in Romanian society. Further, when increased inequality is considered a consequence of corruption, the government also loses its legitimacy, and the market economy does not develop anymore. Rothstein and Uslaner (2005) find that existing inequalities provide space for less generalized trust which means higher in-group trust, lower out-group trust, which feeds for more corruption and higher inequality. Uslaner (2010) also shows that higher inequality leads to higher in-group trust and lower out-group trust leading to more corruption and much higher inequality. In other words, when the inequality levels are high, this increases the trust of people who belong to the same kinship, tribe, and nation and lowers the trust for others who are outside of their group. Corruption increases and this also causes inequality to increase a leading to a challenging and sometimes impossible cycle to break (Uslaner, 2017). In these studies, the trust channel plays a crucial role in explaining how corruption increases inequality. When a trust variable is introduced into the model causality does not run from inequality to corruption but the other way around (Rothstein and Uslaner, 2005; Uslaner, 2007; Ariely and Uslaner, 2017).

Another channel transmitting the impact from corruption to more inequality is the size of the government. In a game-theoretic model, Alesina and Angeletos (2005) find that a bigger size of government increases the possibility of corruption, leading to higher demand for a fairer distribution of government revenue. However, taxation policies or the demands for taxation policies might depend on the perceptions. For example, Alesina and Angeletos (2005) show that if a member of the society believes that income results from personal effort, this person may choose lower taxation. On the other hand, if the same person believes luck and connections decide the income, then it is expected from the same person to demand more tax and redistribution. Therefore, redistribution or taxation depends on the belief of the person who believes if corruption is the mean of higher income. Similarly, Baymul (2016) shows that perceived inequality increases corruption, and government policies that aim to reduce inequality should target reducing corruption also.

Although most scholars are in the positive relationship strand of the literature, what can be characterized as the "conventional wisdom", there is a third group that finds that the relationship between corruption and inequality is not monotonic.

3.2.3 Non-Linear Relationship

Li et al. (2000) show that there is an inverted U-shape relationship between corruption and inequality. With OLS and 2SLS (IV) approaches, the study finds that the relationship between inequality and corruption is inverse U-shaped.

Chong and Calderon (2000) investigate whether institutional quality matters for income distribution and find a non-linear relationship between corruption and income inequality. This finding seems to challenge Glaeser et al. (2003), which finds a linear relationship between corruption and income inequality by using institutional quality. The difference between two papers might be the result of two different methodologies. The authors use OLS, IV, and GMM approaches in the former, whereas the latter mostly rely on theory and use cross-sectional evidence.

Fakir et al. (2017) study of the non-linear relationship between corruption and inequality concludes that corruption has more negative impacts on inequality than Piketty's second fundamental law of capitalism; (i.e., the short-run impact of r-g where r is rate of return on capital and g is economic growth, is not as strong as corruption. Here, the higher the r-g difference, the higher income inequality). Also, the impact of r-g on inequality is insignificant in unequal countries, suggesting that corruption is more harmful to inequality than the second fundamental law of capitalism.

Overall, most of the studies concentrate on the positive relationship between corruption and inequality and there are not many studies that find a negative relation. There is also a group scholar who find a non-linear, mainly non-linear relationship between corruption and inequality. In the next section, I review the literature on the MENA region.

3.2.4 Inequality and Corruption in the Middle East and North Africa

MENA was one of the more equal regions in the world during the 1980s and 1990s. There are several reasons behind lower inequality rates including, international migration to the region

and government employment opportunities (Adams Jr and Page, 2003). With migration and remittances, many people moved out of poverty, and governments of the MENA region helped their citizens with government positions to lower unemployment and poverty. Progressive income distribution to the lower percentile of the population further helped decrease inequality (Page, 2007). The Islamic Zakat system, which requires giving 2.5% of the excessive wealth to the impoverished, also maintained inequality levels in the region at low and stable levels (UNDP, 2011). However, the region has been far behind than any other part of the world in terms of data and measurability of data to make cross-country comparisons, and while there have been some improvements in that regard, these are insufficient (Bibi and Nabli, 2009).

With increasing income inequality levels for the last couple of decades (Bibi and Nabli, 2009; Hassine, 2015) the MENA region has started to experience transformational changes since the launch of the Arab Spring uprisings. The Arab Spring signaled a movement for greater dignity, equality, and justice in the Arab societies. The citizens of Arab nations wanted to have a more egalitarian distribution of wealth since they knew, or at least the citizens of oil-exporting countries knew, that wealth was not distributed fairly and ended up mainly in the pockets of the political and business elite. Along with corruption, income inequality has negatively affected the economic development of the MENA countries. Countries with political changes like Egypt and Tunisia or civil war like Libya, Syria, and Yemen were affected more negatively by the Arab Spring than other nations (Looney, 2015).

Despite growing income disparities in the region, some authors find that inequality has decreased in the MENA between 1990-2010 (UNDP, 2011) and then increased between 2010 to 2016. During the period that income inequality has grown, between and within country income inequality levels also widened. There is a consensus now that the MENA is one of the most unequal regions globally.

Likewise, corruption is high in the region. Compared with other regions, the MENA is the fourth most corrupt region after Eastern Europe, Central Asia, and Sub-Saharan Africa. Considering that high corruption and inequality are the fundamental causes of the Arab Spring movements

in 2010, the relationship between the two, and the impact of the Arab Spring on the relationship, has not been adequately investigated.

To the best of my knowledge, Hlasny et al. (2020) is the only study that looks for the relationship between corruption and income inequality in the MENA. In this study, the author examines how wealth concentration affects the pervasiveness of corruption in societies. The author looks for this relationship from the viewpoint of different market systems (liberal, controlled) and finds a non-monotonic relationship between corruption and inequality, especially in the MENA region. The U-shape relationship between the two variables illustrates that corruption is higher at low levels of development and once higher levels of development are reached because economic development benefits certain groups, both inequality and corruption increase.

This study will contribute to the literature on inequality and corruption in two important ways. First, I investigate this relationship for the MENA region, which has not been well-represented in the literature due to data problems and transparency issues. Second, I examine this relationship by separating the MENA region into three groups where countries are classified according to the impacts of the Arab Spring. This categorization has not been made in any other empirical work before to the best of my knowledge. Thus, this study investigates the relationship between corruption and inequality and tests whether the relationship has changed after the Arab Spring.

3.3 Model, Data, and Econometric Specification

3.3.1 Model

I rely on panel data as many other studies (Gyimah-Brempong, 2002; Apergis et al., 2010; Andres and Ramlogan-Dobson, 2011; Samadi and Farahmandpour, 2013; Ullah and Ahmad, 2016; Policardo and Carrera, 2018; Saha et al., 2021).

I follow Dobson and Ramlogan-Dobson (2012) as my baseline for econometric specification. They accept the conventional wisdom according to which higher corruption leads to higher inequality; however, they test if this idea applies in the Latin American context where informal, shadow economies are pervasive. The point of departure of the present work is that shadow economies are

prevalent both in Latin America and the MENA, and therefore corruption might lower the inequality in these two regions with the large informal sectors. Latin America has similar economic and institutional characteristics with the MENA even though the data availability and measurement are more transparent in Latin America than the MENA. The model specification is as follows:

$$GiniCoef._{i,t} = \beta_1(Population)_{i,t} + \beta_2(Inflation)_{i,t} + \beta_3(OilRent)_{i,t}$$
$$+\beta_4(Unemployment)_{i,t} + \beta_5(Corruption)_{i,t} + \beta_6(ArabSpringDV)_{i,t}$$
$$+\delta(Corruption\#ArabSpringDV)_{i,t} + \theta_i + \epsilon_{i,t}$$

The Gini coefficient is the dependent variable for country i at time t. Population growth rate, inflation (consumer price index), oil rent, unemployment (ILO estimates), corruption score, and the interaction term between corruption and the Arab Spring year dummy are the explanatory (independent) variables. θ_i is country-specific fixed effects, and ϵ is the stochastic error term.

The interaction term measures how the Arab Spring affects the impact of corruption on income inequality (Gini coefficient). The Arab Spring dummy takes 1 for 2011 and onwards and 0 before 2011. Therefore, the interaction term measures the change in the impact of corruption on economic growth in MENA after the Arab Spring in 2011. The coefficient of interest in this model is δ. If δ is positive, there is a stronger positive relationship between corruption and income inequality after the Arab Spring. If it is negative, it would suggest that after the Arab Spring either higher corruption leads to less inequality or the relationship between the two is weaker. I will also be using several control variables, including, log value of GDP per capita, urbanization as a percentage of the total population who live in the urban areas, the informal sector as the size of the shadow economy in the GDP, corruption square to test for the political Kuznets curve.

3.3.2 Gini Index

MENA historically suffers from the absence of data in most macroeconomic variables. Although there has been some improvement recently, this cannot be said about the inequality data.

For instance, in Alvaredo et al. (2019), the data compilation, which consists of national accounts, income taxes, household surveys, and wealth data, suffers from limitations due to the small number of observations, making imputation necessary.

I use the World Inequality Database (WID). This database has the highest number of observations and does not miss any data point for any year between 1996-2019, the period of my investigation. Although there are many limitations, this database is transparent in its calculations. The other data sets, UNU-WIDER, SWIID (The Standardized World Income Inequality Database), UTIP (University of Texas Inequality Project), including its manufacturing dataset, World Bank, Global Consumption, and Income Project, do not have enough data points, and they mostly miss the MENA countries in their data sets. In addition to that, there are not enough data points for Atkinson and Theil Indexes for the region.

The methodology of WID data takes national accounts, survey data, fiscal data, and wealth rankings into account to overcome the limitations of other indexes. Their approach takes both income and wealth inequality into account and keeps track of both the top and the bottom of the distribution (Alvaredo et al., 2019).

However, there are no calculated Gini coefficients for the region. Therefore, I manually calculate the Gini coefficients. To do that, I use each decile of data for each country and calculate the coefficient with the Lorenz curve as follows:

$$G = 1 - 2\int_0^1 L(X)\,dx$$

In addition to Gini, the Palma index, which is the ratio of the top 10% income share to bottom 40% income share, has been used widely in the literature along with the ratios of top 10% to bottom 50% and top 10% bottom 10% (OECD, 2020). I use these three indexes as robustness checks. The correlation between alternative income inequality measures and Gini is around 90% for Palma and top 10% to bottom 10% ratios and 60% for the top 10% to bottom 10% ratio.

3.3.3 Corruption Data

Corruption, defined as the "misuse of the public office for a private gain," is the definition used by scholars including Rose-Ackerman (2008) and Treisman (2007) and institutions such as the World Governance Indicator (WGI) of the World Bank (WB) and Transparency International (TI). Although this definition seems to account only for public corruption, it is remains popular since some scholars claim that measuring or controlling public corruption will open the doors to controlling private corruption (Bardhan, 2005; Rothstein and Varraich, 2017). Although I use the most common and most-cited definition of corruption here, this measure is limited by problems arising from the hidden nature of the corruption.

Several studies focus on the relationship between inequality and corruption, concentrating on subjective data sets (Andres and Ramlogan-Dobson, 2011; Huang, 2012; Ullah and Ahmad, 2016; Saha et al., 2021). Although there are critiques of these subjective data sets, there are also critiques of objective data sets (e.g., Dincer and Gunalp, 2008; Apergis et al., 2010) and journalist reports. These kinds of data (for instance the rates of convictions) show the power of the judiciary power in the country and the freedom of the press rather than the level of corruption (You, 2015). The studies that look at the number of convictions cannot make cross-country comparisons and get a holistic picture of the nature of the corruption and how it affects other variables, including inequality. Admittedly, the number of objective studies has been increasing recently. However, this leads scholars to more micro-level studies and preventing them from providing more extensive policy recommendations at the macroeconomic level. Despite the disadvantages of the subjective data sets, these indexes still provide better macro-level pictures to understand corruption and its relationship with inequality. The World Governance Indicators (WGI) data set is also more helpful as the other data sets have very sticky corruption scores for most of the MENA countries (e.g., ICRG has the identical scores for some countries for ten consecutive years, and V-Dem has the same score for twelve to fifteen years). Transparency International (TI) 's Corruption Perception Index (CPI) changed its methodology in 2012, and their data is not comparable before 2011. An

argument can be made for Hollyer, Rosendorff, and Vreeland (HRV) objective data set, but this lacks data for the MENA countries.

Therefore, considering all the advantages and disadvantages of the subjective indexes, I decided to use the WGI in this study. It ranges between -2.5 and +2.5, where the lower values represent higher corruption. This data set has been standardized with zero mean and one standard deviation. Thus, 0 corruption scores represent the mean corruption level of a country. To make more reasonable interpretations, I rescale this data set and flipped the signs, which means now the higher values represent the higher corruption (Méon and Sekkat, 2005; Johnston, 2005).

After selecting the data set to work on, there are missing observations for the WGI data set. In this data, there are missing observations for 1997, 1999, and 2001 for each country. To achieve a higher number of observations to reach better results, I use the average imputation method to get values for these three years for each country. I take the averages of 1996 and 1998 corruption scores for the 1997 and followed the same methodology for 1999 and 2001.

3.3.4 Macroeconomic Data

I obtained the data for population growth rate and inflation (measured by the CPI annual %) from the World Bank (WB) 's World Development Indicator (WDI) and total unemployment from the ILO estimates. There were also missing observations for inflation, and I obtained data from the CIA factbook and Fred St. Louis. Oil rent represents the difference between the value of crude oil production at world prices and total costs of production. Other control variables include, urbanization (the percentage of the total population who live in urban areas), log of GDP per capita, and informal sector percentage of total GDP. Except for informal sector data, all data for control variables are from WDI. I use Medina and Schneider (2019) data for the informal sector, representing the informal sector as a percentage of GDP.

3.3.5 Estimation Strategy and Results

According to the Hausman test [4] fixed effect (FE) regressions are preferred over random effect (RE) regressions, so I utilize fixed effect regressions. Since there is not much variation on the dependent variable, FE regressions may be considered an inappropriate estimation strategy. However, after running the Hausman test, I decided to use the FE regressions. In the FE model, the time-invariant unobserved heterogeneity is controlled for. Also, it is assumed that the error term is correlated with the intercept.

Tables 3.1 and 3.2 below show summary descriptive statistics and the correlation matrix. In Table 3.1, the descriptive statistics are presented for the variables where the maximum number of observations is 432, and the lowest one is oil rent with 411 because Iran and Syria have missing data points for oil rent variable. Corruption scores represent the control of corruption, and the lower corruption scores demonstrate higher control.

[4]Hausman Test: $p<0.0073$.

Table 3.1: Summary Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Year	432			1996	2019
Gini	432	54.906	4.290	44.641	63.76
Population	432	2.826	2.608	-4.537	17.511
Oil rent	411	19.029	17.796	0	66.713
Inflation	432	5.869	8.800	-16.117	59.100
Unemployment	432	9.486	6.282	0.091	29.770
Log [GDPPC]	400	8.936	1.065	7.163	11.084
Corruption	432	0.294	0.708	-1.570	1.690
Arab Spring	432	0.375	0.485	0	1
Urbanization	432	72.285	17.857	24.249	100
Informal Sector	352	23.957	7.743	12.200	39.400
Corruption^2	432	0.587	0.695	0	2.856

Table 3.2: Correlation Matrix

Variables	Gini Coef.	Population	Oil Rent	Inflation	Unemployment	Log [GDPPC]	Corruption	Arab Spring	Urbanization	Informal Sector	Corruption2
Gini Coef.	1										
Population	0.290	1									
Oil Rent	0.171	0.14	1								
Inflation	-0.203	-0.025	0.07	1							
Unemployment	-0.568	-0.513	-0.139	0.200	1						
Log [GDPPC]	0.524	0.577	0.414	-0.267	-0.786	1					
Corruption	-0.388	-0.477	-0.047	0.340	0.669	-0.71	1				
Arab Spring	-0.065	-0.058	-0.084	0.079	-0.041	0.024	0.085	1			
Urbanization	0.331	0.393	0.189	-0.329	-0.524	0.773	-0.564	0.111	1		
Informal Sector	-0.290	-0.380	-0.336	-0.044	0.567	-0.580	0.489	-0.156	-0.502	1	
Corruption	0.012	0.083	0.202	0.187	0.165	0.003	0.263	0.188	-0.123	0.150	1

Table 3.3 below presents the results for the entire data set. The coefficient of interest δ is the coefficient of the interaction of corruption and the Arab spring dummy, is insignificant in most of the regressions except the last column. The coefficient of interest tells that when corruption increases by one point depending on the control variables, income inequality increases approximately -0.47 points in column 2; however, this coefficient is insignificant as preferred specification. It is preferred specification due to the fact independent variables, namely population, oil rent, inflation, and unemployment, explain the dependent variable, Gini coefficient, in a simple and straightforward way according to the literature.

The negative insignificant relationship on the coefficient of interest continues after adding the control variables one-by-one. The coefficient of corruption is positive and significant in the last two columns which show corruption increased income inequality before the Arab Spring. Nevertheless, the positive impact of corruption on inequality attenuated after the Arab unrests. For instance, looking at column 6 in Table 3.3, an increase in corruption by 1 point increases inequality by about 1.24-points before the Arab Spring. After the Arab Spring, the cumulative impact of corruption on income inequality is still positive which is about 0.32 points. The implication is the Arab Spring attenuated the impact of corruption on rising income inequality.

The coefficients of oil rent, the Arab Spring, urbanization, and informal sector are all insignificant, and the coefficient of population is positive in all regressions except the first column. The coefficient after adding informal sector is contrary to Dobson and Ramlogan-Dobson (2012). In their paper, Dobson and Ramlogan-Dobson (2012) find that corruption lower income inequality through informal sector but the results here are the opposite. The coefficient of inflation is significant in the second and third columns whereas the coefficient of unemployment is insignificant in all columns except the first one. Lastly, the coefficient of log GDP per capita is significant in the last two columns.

When I added corruption square to check the political Kuznets curve (Kuznets, 1955), the coefficient of interest becomes significant and negative in the last column. However, the coefficients are not significant for the political Kuznets curve, which supports studies including Gupta et al. (2002) and Andres and Ramlogan-Dobson (2011).

Overall, before and after the Arab Spring, the robust relationship between corruption and income inequality is absent. However, the regressions point to a possible attenuation of any negative relationship between the two after the Arab Spring. This suggest that it is necessary to explore whether the heterogeneity in the effect of the Arab Spring across the region has impacted the relation between the two. The negative relation observed in these regressions between corruption and Arab Spring is eroded with a rise in corruption. Higher levels of corruption attenuate the impact of the Arab Spring in lowering inequality.

Table 3.3: Entire Data Set Regressions

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.0252	0.0452*	0.0624**	0.0777**	0.0980**
		(0.0181)	(0.0240)	(0.0216)	(0.0281)	(0.0399)
Oil Rent		-0.00926	0.00807	0.00472	-0.0108	-0.00406
		(0.0118)	(0.0114)	(0.0103)	(0.0136)	(0.0133)
Inflation		-0.0134	-0.0266*	-0.0266*	-0.0279	-0.0271
		(0.0122)	(0.0127)	(0.0133)	(0.0192)	(0.0205)
Unemployment		0.118*	0.105	0.0834	0.0579	0.0315
		(0.0669)	(0.0634)	(0.0616)	(0.0854)	(0.0923)
Corruption	0.821	0.799	0.769	0.771	0.900**	1.231**
	(0.649)	(0.608)	(0.518)	(0.543)	(0.414)	(0.529)
Arab Spring	-0.470	-0.469	-0.276	0.0334	-0.288	-0.227
	(0.443)	(0.474)	(0.343)	(0.388)	(0.355)	(0.394)
Corruption*Arab Spring	-0.327	-0.463	-0.396	-0.456	-0.602	-0.919**
	(0.336)	(0.390)	(0.424)	(0.393)	(0.497)	(0.379)
Log [GDPPC]			-2.502	-2.362	-3.624**	-3.056*
			(1.441)	(1.486)	(1.393)	(1.446)
Urbanization				-0.0763	-0.116	-0.132
				(0.0545)	(0.100)	(0.110)
Informal Sector					-0.115	-0.0813
					(0.0921)	(0.0684)
Corruption^2						0.636
						(0.559)
Constant	54.89***	54.00***	76.17***	80.62***	98.52***	93.40***
	(0.192)	(0.708)	(13.05)	(13.33)	(14.07)	(12.18)
Observations	432	411	391	391	323	323
R-squared	0.062	0.134	0.213	0.227	0.300	0.316
Number of Country	18	18	17	17	15	15
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria, Iraq, and Palestine.

3.3.6 Sub-Sample Regressions

In Tables 3.4-3.6 below, I present the results for three groups where the countries are categorized according to the intensity of the Arab Spring incidents. The first group includes Egypt, Libya, Tunisia, Syria, and Yemen, severely affected by the Arab Spring. Second group has seven countries, Algeria, Iran, Iraq, Jordan, Lebanon, Morocco, and Palestine where the impacts of the Arab Spring were mediocre. The last group consists of the Gulf region, where the impacts of the Arab Spring were minimal. This group includes Bahrain (where the uprisings were suppressed quickly with the military support of the Kingdom of Saudi Arabia (Gelvin, 2015) along with Oman, Kuwait, Qatar, Saudi Arabia and United Arab Emirates. This categorization helps to understand the corruption-inequality nexus further since the impacts of corruption on income inequality may not be the same in each group.

In Table 3.4, the coefficient of interest is positive and significant in all regressions and adding control variables do not alter the results for severely affected countries. The coefficient of Arab Spring is negative and significant in all regressions except column 5. Also, the coefficient of corruption is negative in all regressions but not significant. Thus, an increase in corruption channel would attenuate the negative impact of the Arab Spring on inequality but after the Arab Spring clearly income inequality decreases in severely affected countries.

Population is significant in the first two regressions whereas oil rent is not significant at all. The coefficient of inflation is significant in the last four columns, and it illustrates that when inflation increases so does income inequality. However, the coefficient is negative in the first two columns. Although these coefficients are negative, there might be a non-linear relationship between inflation and income inequality as in Nantob et al. (2015) and Balcilar et al. (2018).

The coefficients of education, urbanization, informal sector, and corruption square are insignificant and the coefficient of log GDP per capita is negative and significant in all regressions which might be expected because when GDP per capita increases, inequality decreases. The results here illustrate how country categorization changes the interpretation of the relationship between corruption and income inequality which cannot explicitly be seen in the entire data set.

Table 3.4: Severely Affected Countries

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		1.071**	1.337*	0.821***	0.838**	0.775
		(0.379)	(0.433)	(0.102)	(0.184)	(0.389)
Oil Rent		-0.0134	0.00405	-0.00853	-0.00731	-0.00783
		(0.00952)	(0.0132)	(0.00866)	(0.00636)	(0.00747)
Inflation		-0.00896	-0.0103**	-0.0101	-0.00709	-0.00672
		(0.00924)	(0.00310)	(0.00686)	(0.00398)	(0.00581)
Unemployment		0.426	0.489	0.475	0.507	0.507
		(0.332)	(0.275)	(0.277)	(0.221)	(0.226)
Corruption	-1.558	-1.724	-1.783*	-1.465	-1.492	-1.298
	(0.946)	(0.902)	(0.676)	(0.801)	(0.774)	(1.170)
Arab Spring	-4.670***	-6.050***	-5.099**	-4.733**	-4.712**	-4.737**
	(0.400)	(0.944)	(1.048)	(1.300)	(1.259)	(1.294)
Corruption * Arab Spring	3.487***	4.293***	3.241**	3.133**	2.759	2.829
	(0.291)	(0.458)	(0.594)	(0.943)	(1.259)	(1.448)
Log [GDPPC]			-3.008	-2.628	-3.625	-3.603
			(1.813)	(1.740)	(2.534)	(2.574)
Urbanization				-0.159	-0.132	-0.128
				(0.104)	(0.0787)	(0.0914)
Informal Sector					-0.0327	-0.0299
					(0.0503)	(0.0627)
Corruption^2						-0.177
						(1.240)
Constant	53.91***	46.52***	68.99**	75.45**	82.68**	82.31*
	(0.639)	(5.518)	(14.40)	(20.73)	(25.66)	(26.42)
Observations	120	108	92	92	85	85
R-squared	0.570	0.694	0.773	0.790	0.789	0.789
Number of Country	5	5	4	4	4	4
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria is excluded.

Table 3.5 runs the regressions for moderately affected countries. Contrary to Table 3.4, the coefficient of interest is negative and significant in most of the regressions except the first two. Corruption lowers income inequality in this group. The coefficient of Arab Spring is positive and significant only in column five and the coefficient of corruption is significant in the last three columns. The coefficients of population, oil rent, and inflation are insignificant whereas the coefficient of unemployment is positive and significant except column 6. This implies that when unemployment increases, income inequality also increases which is intuitive. The coefficients of control variables are all significant in the fifth column. In fact, the coefficient of urbanization is also significant in the last column. The coefficient of corruption square is negative, and the coefficient of corruption is positive which implies that political Kuznets curve hypothesis is supported. That means, corruption increases income inequality until certain threshold and after that point, it lowers income inequality. According to corruption literature, we see this relationship between corruption and income inequality where the institutional quality extenuates, and people use corruption to overcome bureaucratic obstacles. This might be the case for moderately affected countries since their institutional quality is worse than the severely affected countries due to long-lasting institutional problems which were already affecting moderately affected countries before the Arab Spring incidents. The third chapter of dissertation further explains these heterogeneities.

Lastly, the regression results are demonstrated for lightly affected countries. Since these countries controlled the Arab unrests with their financial resources, it is expected that the corruption income inequality nexus may not be significant for them. In fact, the results clearly show that the relationship between corruption and income inequality is not significant for this group. Also, the coefficients of corruption and the Arab Spring never reaches to significance. The coefficients of population and oil rent are also insignificant while the coefficients of inflation and unemployment are positive and significant in most of the regressions. It is expected that both higher inflation and unemployment increase income inequality although there might be non-linearity between inflation and income inequality which do not observe here as in case of severely affected countries.

Table 3.5: Moderately Affected Countries

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.0854	0.0833	0.0741	0.149	0.165
		(0.0564)	(0.0595)	(0.0664)	(0.199)	(0.182)
Oil Rent		0.0322	0.0316	0.0288	-0.0356	-0.0193
		(0.0259)	(0.0264)	(0.0290)	(0.0726)	(0.0673)
Inflation		-0.00830	-0.00677	-0.0129	-0.0266	-0.0254
		(0.0140)	(0.0152)	(0.0187)	(0.0408)	(0.0429)
Unemployment		0.138*	0.141*	0.0615	0.0940*	0.0326
		(0.0611)	(0.0592)	(0.0487)	(0.0375)	(0.0416)
Corruption	3.084	2.725	2.674	3.442*	3.219***	1.323
	(2.261)	(2.008)	(2.011)	(1.705)	(0.485)	(1.686)
Arab Spring	-0.629	-0.548	-0.625	1.356	1.644*	1.937**
	(0.652)	(0.429)	(0.542)	(0.800)	(0.703)	(0.697)
Corruption * Arab Spring	0.0554	0.313	0.326	-1.258	-2.032	-2.593*
	(0.988)	(1.045)	(1.097)	(0.995)	(1.272)	(0.981)
Log [GDPPC]			0.408	2.808	-0.118	0.344
			(1.545)	(1.669)	(3.401)	(3.580)
Urbanization				-0.325*	-0.428*	-0.448*
				(0.140)	(0.175)	(0.174)
Informal Sector					-0.359	-0.281
					(0.248)	(0.202)
Corruption^2						2.650
						(1.343)
Constant	52.75***	50.69***	47.32***	51.27***	92.15**	88.28**
	(1.303)	(1.414)	(12.76)	(7.362)	(28.27)	(26.98)
Observations	168	159	159	159	110	110
R-squared	0.145	0.289	0.290	0.460	0.596	0.614
Number of Country	7	7	7	7	5	5
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Iraq and Palestine are excluded.

Regarding control variables, the education variable is significant in all regressions except the first one. The coefficient of log GDP per capita is negative and significant in all regressions expected with higher GDP per capita income inequality might decrease. The coefficients of urbanization and informal sector are significant only in the first columns that they are added to the regressions. Lastly, the coefficient of corruption square is insignificant which shows that political Kuznets curve argument is not supported for this group either.

To conclude, these regression results in Table 3.4 - 3.6 capture the differences between the three groups of the MENA region where the Arab uprisings have impacted with different magnitudes. For example, how the positive relationship between corruption and income inequality has been attenuated after the Arab Spring for severely affected countries, and how the same relationship turned out to be negative for moderately affected countries and how the relationship has always been insignificant for lightly affected GCC countries are shown after the country categorizations.

Table 3.6: Lightly Affected Countries

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.0222	0.0202*	0.0108	0.000290	-0.00138
		(0.0178)	(0.00821)	(0.00937)	(0.0104)	(0.00945)
Oil Rent		0.00288	-0.00118	-0.00106	-0.00659	-0.00604
		(0.00756)	(0.00270)	(0.00271)	(0.00467)	(0.00476)
Inflation		0.0150	0.0326**	0.0323**	0.0204*	0.0292**
		(0.0135)	(0.0110)	(0.0117)	(0.00813)	(0.00966)
Unemployment		0.326*	0.331***	0.395***	0.366**	0.376***
		(0.141)	(0.0820)	(0.0956)	(0.0914)	(0.0859)
Corruption	-0.215	-0.158	-0.118	-0.0677	-0.0497	0.225
	(0.463)	(0.378)	(0.157)	(0.153)	(0.143)	(0.168)
Arab Spring	0.396	0.364	0.264***	0.123*	0.0326	0.000421
	(0.309)	(0.253)	(0.0560)	(0.0480)	(0.0585)	(0.0897)
Corruption * Arab Spring	0.301	-0.138	0.0968	0.119	0.294*	0.220
	(0.468)	(0.530)	(0.224)	(0.168)	(0.130)	(0.144)
Log [GDPPC]			-3.004***	-2.840***	-2.868***	-2.745***
			(0.262)	(0.184)	(0.180)	(0.229)
Urbanization				0.0494	0.0443	0.0522
				(0.0258)	(0.0261)	(0.0283)
Informal Sector					-0.0486	-0.0360
					(0.0258)	(0.0232)
Corruption^2						0.267*
						(0.104)
Constant	57.83***	56.70***	87.70***	81.65***	83.62***	81.41***
	(0.283)	(0.665)	(2.719)	(3.428)	(3.711)	(3.833)
Observations	144	144	140	140	128	128
R-squared	0.106	0.310	0.823	0.845	0.854	0.863
Number of Country	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

3.4 Robustness Checks

3.4.1 Entire and Sub-Sample Data Set Regressions

In this section, I illustrate the regression results with alternative inequality measures: the ratios of top 10% to bottom 50% or Zucman ratio, top 10% to bottom 40% or Palma ratio, and top 10% to bottom 10%. These three measures are well-known in inequality literature.

Below in Table 3.7, I present the matrix of correlation between the income inequality measures. In fact, a higher correlation between them shows the accuracy of my manual Gini calculation. In Table 3.8, I present results with the ratio of top 10% to bottom 10%. The relationship between corruption and income inequality is the same in terms of sign and magnitude with Table 3.3. The results for Palma and Zucman ratios are shared in the appendix.

After the regression results for the entire data set, it is again informative to check these results with sub-sample regressions. In Tables 3.9 - 3.11, I present the results separately for three groups of countries with top 10% to bottom 10%. I present the results for Palma and top 10% to bottom 50% ratios in the appendix. As in the preliminary regressions, I get significant results for the countries severely affected by the Arab Spring. The results are insignificant for moderately and lightly affected countries. These results help to reemphasize that the magnitude of the Arab Spring matters, and that it is necessary to look at different country groups.

Table 3.7: Correlation Matrix of Income Inequality Measures

	Gini	Top 10 / Bottom 50	Palma	Top 10 / Bottom 10
Gini	1			
Top 10 / Bottom 10	0.592	1		
Palma	0.958	0.715	1	
Top 10 / Bottom 50	0.974	0.629	0.987	1

Table 3.8: Entire Data Set Regressions with Top 10-Bottom 10 Ratio

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.00976	0.0234	0.111	0.194	0.351
		(0.175)	(0.235)	(0.197)	(0.232)	(0.272)
Oil Rent		0.0762	0.111	0.0941	-0.0621	-0.0101
		(0.0986)	(0.0954)	(0.0862)	(0.133)	(0.111)
Inflation		-0.0515	-0.0641	-0.0644	-0.182	-0.176
		(0.0453)	(0.0469)	(0.0521)	(0.152)	(0.160)
Unemployment		0.00950	-0.00551	-0.114	-0.167	-0.371
		(0.402)	(0.395)	(0.437)	(0.549)	(0.676)
Corruption	4.678	5.016	5.201	5.214	4.490	7.057
	(2.986)	(3.466)	(4.015)	(4.221)	(2.945)	(4.777)
Arab Spring	-0.804	-0.475	-0.202	1.366	0.507	0.977
	(2.136)	(2.301)	(1.944)	(2.916)	(2.443)	(2.982)
Corruption * Arab Spring	1.717	2.632	2.901	2.599	3.445	0.988
	(2.216)	(3.346)	(3.578)	(3.360)	(4.539)	(3.139)
Log [GDPPC]			-1.819	-1.107	-4.886	-0.483
			(7.171)	(7.791)	(6.911)	(9.486)
Urbanization				-0.386	-0.935	-1.056
				(0.409)	(0.906)	(1.025)
Informal Sector					-1.010	-0.747
					(0.971)	(0.678)
Corruption^2						4.924
						(5.770)
Constant	31.44***	30.61***	46.59	69.09	173.1*	133.4**
	(1.586)	(3.177)	(64.14)	(53.52)	(82.06)	(52.79)
Observations	432	411	391	391	323	323
R-squared	0.040	0.052	0.055	0.063	0.107	0.127
Number of Country	18	18	17	17	15	15
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria, Iraq, and Palestine are excluded.

Table 3.9: Severely Affected Countries

Dep. Var.: Top10/Bottom10	(1)	(2)	(3)	(4)	(5)	(6)
Population		3.628*	4.917*	2.762***	2.959***	2.699*
		(1.353)	(1.896)	(0.139)	(0.411)	(0.999)
Oil Rent		0.000873	0.0347	-0.0179	-0.0268	-0.0290
		(0.0191)	(0.0409)	(0.0317)	(0.0261)	(0.0281)
Inflation		-0.000751	0.00397	0.00456	0.00300	0.00454
		(0.0130)	(0.0144)	(0.00870)	(0.0124)	(0.0145)
Unemployment		1.553	1.780*	1.720*	1.766*	1.768*
		(0.843)	(0.743)	(0.717)	(0.597)	(0.613)
Corruption	-3.167	-3.681	-3.838**	-2.511	-2.807	-1.998
	(2.001)	(1.912)	(1.197)	(1.708)	(1.396)	(2.101)
Arab Spring	-12.37**	-17.56***	-16.81***	-15.28***	-14.72***	-14.82**
	(2.816)	(3.584)	(2.223)	(2.582)	(2.463)	(2.633)
Corruption * Arab Spring	9.089***	12.58***	11.71***	11.26***	9.929**	10.22**
	(1.253)	(2.009)	(0.628)	(1.532)	(2.097)	(2.735)
Log [GDPPC]			-4.343	-2.755	-6.748	-6.653
			(3.509)	(2.537)	(3.460)	(3.665)
Urbanization				-0.664	-0.691*	-0.676*
				(0.312)	(0.230)	(0.261)
Informal Sector					-0.214	-0.203
					(0.134)	(0.155)
Corruption^2						-0.742
						(2.529)
Constant	30.96***	4.479	34.01	61.03	100.9	99.33
	(1.098)	(13.86)	(18.22)	(37.32)	(44.63)	(47.95)
Observations	120	108	92	92	85	85
R-squared	0.590	0.782	0.836	0.880	0.885	0.886
Number of Country	5	5	4	4	4	4
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria is excluded.

Table 3.10: Moderately Affected Countries

Dep. Var.: Top10/Bottom10	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.360	0.354	0.309	-0.270	-0.0208
		(0.255)	(0.287)	(0.536)	(2.090)	(1.867)
Oil Rent		0.306	0.305	0.290	-0.695	-0.434
		(0.212)	(0.203)	(0.187)	(0.769)	(0.643)
Inflation		0.0231	0.0274	-0.00258	-0.300	-0.281
		(0.102)	(0.128)	(0.140)	(0.329)	(0.369)
Unemployment		-0.0365	-0.0274	-0.419	0.363	-0.621
		(0.446)	(0.401)	(0.604)	(0.406)	(0.430)
Corruption	25.61	27.68	27.54	31.31	16.57*	-13.85
	(21.18)	(22.52)	(21.53)	(22.37)	(6.183)	(22.48)
Arab Spring	-1.027	-1.892	-2.110	7.631	8.340	13.03
	(2.706)	(3.337)	(4.047)	(6.878)	(9.012)	(7.924)
Corruption * Arab Spring	6.863	10.25	10.29	2.495	5.191	-3.806
	(7.356)	(9.202)	(9.608)	(8.057)	(12.12)	(5.905)
Log [GDPPC]			1.146	12.95	-10.72	-3.309
			(10.37)	(17.61)	(27.74)	(29.10)
Urbanization				-1.598	-2.893	-3.223
				(1.361)	(2.007)	(1.918)
Informal Sector					-4.642	-3.389
					(2.760)	(2.182)
Corruption^2						42.51
						(22.60)
Constant	23.22	20.17	10.71	30.11	453.4*	391.5*
	(12.62)	(11.50)	(95.00)	(72.42)	(203.8)	(172.0)
Observations	168	159	159	159	110	110
R-squared	0.195	0.233	0.233	0.287	0.489	0.543
Number of Country	7	7	7	7	5	5
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Iraq and Palestine are excluded.

Table 3.11: Lightly Affected Countries

Dep. Var.: Top10/Bottom10	(1)	(2)	(3)	(4)	(5)	(6)
Population		-0.0163	0.0168	-0.0478	-0.0440	-0.0405
		(0.0649)	(0.0933)	(0.104)	(0.104)	(0.114)
Oil Rent		0.0243	0.0136	0.0145	0.0435	0.0424
		(0.0421)	(0.0377)	(0.0396)	(0.0513)	(0.0504)
Inflation		0.109	0.156*	0.154	0.226*	0.207
		(0.0961)	(0.0755)	(0.0790)	(0.0895)	(0.119)
Unemployment		1.216	1.098	1.540*	1.393**	1.372**
		(0.764)	(0.584)	(0.638)	(0.507)	(0.503)
Corruption	0.561	0.417	0.387	0.734	0.637**	0.0554
	(1.117)	(0.846)	(0.327)	(0.571)	(0.242)	(1.833)
Arab Spring	0.148	0.193	-0.0756	-1.042	-0.313	-0.245
	(0.741)	(0.804)	(0.585)	(1.084)	(0.735)	(0.775)
Corruption * Arab Spring	3.091	1.998	2.723	2.879	2.607	2.764
	(3.213)	(3.112)	(2.193)	(2.008)	(1.923)	(2.299)
Log [GDPPC]			-10.89**	-9.763**	-9.506**	-9.765**
			(3.707)	(2.685)	(2.514)	(2.915)
Urbanization				0.339	0.346	0.329
				(0.218)	(0.235)	(0.244)
Informal Sector					0.266	0.239
					(0.185)	(0.189)
Corruption^2						-0.566
						(1.668)
Constant	32.08***	27.69***	139.8**	98.23***	89.19**	93.87**
	(1.121)	(2.962)	(36.94)	(22.80)	(26.23)	(36.34)
Observations	144	144	140	140	128	128
R-squared	0.190	0.330	0.550	0.593	0.615	0.617
Number of Country	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

3.5 Limitations of the Research

Like any other study, this piece is not limitation-free. There are several limitations in this study also. First, the data for the response variable, which is the Gini coefficient for the MENA countries, should be evaluated cautiously. It is a fact that the MENA region suffers from inadequate data. This is the consequence of opaque government policies, the absence of data collection, and partially the result of corrupt behaviors in the public sector. Although there exist data sets that calculate the inequality levels in the MENA region with the help of imputations, there are still interpolation issues in their measurements due to the absence of sufficient and transparent data sets.

The second limitation is the perceived level of corruption. After some debates in the corruption data section, I decided to use subjective (perception) corruption indexes for this study. Although there are critiques for World Governance Indicators (WGI) corruption data that it may not be used for panel data estimates, according to Kaufmann et al. (2011) WGI can be used for cross-country comparisons. This does not directly mean that the results are biased. Again, as in all other corruption perception indexes, there are issues in WGI data. However, compared with ICRG, V-Dem, CPI and HRV, WGI seems to be ideal for the panel study. Finally, although neither subjective nor objective data sets are limitation-free, subjective data sets still provide holistic pictures of the country's corruption levels.

The third limitation is related to the region that this study concentrates on. In most of the other studies, MENA is not represented much. This decision, such as governments are not transparent, data is limited, and other fiscal and financial records are not sufficient to measure macro-economic variables, and inequality is understandable. It is a fact that MENA is not as transparent as other regions, and it is not easy to get data. If WID had not worked on the income inequality data, it would have been almost impossible to complete this study on the MENA region.

Under all these limitations, it is not straightforward to achieve empirically supported results. The point is that the MENA region has disadvantages from the beginning of the studies due to my elaborated reasons. Considering all these limitations, the results and especially sub-sample

regression results are promising to provide country-specific policy recommendations in the future to tackle the impact of corruption on income inequality.

3.6 Conclusion

The literature on the relationship between corruption and inequality has three main findings: a) the positive relationship between corruption and income inequality, also known as conventional wisdom, since higher corruption leads to higher inequality. The overwhelming majority belong to this group; b) negative relationship between corruption and income inequality which means that higher corruption lowers the income inequality. These results are found in regions of the world where the size of the informal sector is large, and that reduces the gap between rich and the poor, and c) the last group which finds a non-monotonic relationship between corruption and inequality.

After separating the countries into three groups, I first run the regressions for the entire data set and then run the regressions for the sub-sample categories. Sub-sample results show that the concentration of the MENA region requires group-specific regressions. In countries severely affected by the Arab Spring, the Arab Spring would lead to a reduction in inequality despite the attenuation of the negative relation between corruption and income inequality after the Arab Spring. For moderately affected countries the positive relationship between corruption and inequality would be attenuated after the Arab Spring, but the impact of the Arab Spring is insignificant for lightly affected GCC countries. In addition, results are robust with alternative income inequality measures.

In the regressions of the entire data set, the results show that a positive relationship between corruption and income inequality is attenuated after the Arab Spring. This relationship might be weak because of the number of observations after the Arab Spring for the entire data set. The promising part of this study is to show that the impact of corruption on income inequality after the Arab Spring is not the same in all countries in the data set. After closely reviewing the literature, I separated MENA countries into three groups: severely, moderately, and lightly affected countries. Comparing all three groups, the findings might confirm the conventional wisdom hypothesis for severely affected countries but not for moderately or lightly affected countries. To the best of my

knowledge, no other study categorizes the countries into three groups and investigates the impact of corruption on income inequality.

To conclude, this study shows the impact of corruption on income inequality in the MENA after the Arab Spring and how differentiating into country groups helps to understand the fundamental relationship between the two in the short, medium, and long run to work on the channels that corruption impacts inequality. Also, this categorization might be helpful and open new doors for future research to provide country-specific policy recommendations.

Chapter 4

Post-Arab Spring Political Economy of Corruption in the Middle East and North Africa

4.1 Introduction

Corruption and its impacts on macroeconomic indicators, including economic growth and income inequality, have been widely researched for the last decades. The studies find positive, negative, and non-linear relationships between corruption, economic growth, and income inequality. Most research shows that corruption lowers economic growth and increases income inequality. Thus, it can be said that there is a consensus on the adverse outcomes of corruption on macroeconomic variables. However, the conclusions of other studies that find positive and non-linear results should not be ignored. For example, corruption might overcome bureaucratic obstacles and help economic growth or lower income inequality on the one hand (i.e., greases the wheels hypothesis), and corruption might benefit economies until a certain threshold and then start harming the overall economy on the other hand (i.e., the non-monotonicity argument). Various consequences of the corruption phenomenon come from its complex, hidden, and secret nature that it sometimes lower economic growth and increase income inequality. In contrast, sometimes, it causes quite the opposite results (i.e., it may lower economic growth and income inequality), for which the Middle East and North Africa (MENA) region is a good example.

In the empirical findings of the previous chapters, the impacts of corruption on economic growth and income inequality are heterogeneous in the MENA. Corruption lowers economic growth in the entire data set. Nevertheless, the results vary when countries are categorized into three groups according to the magnitude of the Arab uprisings (severe, moderate, and light) [5]. Although the conclusions for country groupings are not clear cut concerning economic growth; Arab Spring

[5]Severe: Egypt, Libya, Syria, Tunisia, and Yemen; Moderate: Algeria, Iran, Iraq, Jordan, Lebanon, Morocco, and Palestine; Light: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates.

increases inequality in severely affected countries and this impact is attenuated by an increase in corruption. There is no clear-cut impact of the Arab Spring in moderately and lightly affected countries and any relation between corruption and inequality is absent in these countries even after the Arab Spring. The heterogeneity among the groups indicates that other determinants may play a role in mediating the impact of corruption on growth and inequality.

This chapter sheds light on the heterogeneity of the results in the previous two chapters. First, it will be delineating the distinct political-institutional characteristics of each sub-group of countries within the region and explain how the prevalence of crony capitalism, democratization of corruption and rentier state models align with the groupings of the countries as severely, moderately, and lightly affected. The different institutional forms of corruption might help explain the different experience of the Arab Spring across these country groupings. The paper attempts to present a framework to explain the heterogeneity across the region in terms of these differences in the specific institutional forms of corruption. This institutional framework will then be used to explain why a significant and robust relation between corruption and inequality is observed after the Arab Spring in severely affected countries, Since the results of moderately and lightly affected groups are insignificant, they paper does not further examine the impact in these countries following the Arab uprisings.

Talking about a phenomenon like Arab Spring requires further research from political, social, and economic perspectives because these are intertwined in any explanation of the ultimate causes of the uprisings. Put another way, this paper neither claims to comprehensively explain the only reason behind a complex series of events that led to the Arab Spring nor is it sufficient to be certain on all the causes. It instead suggests that the phenomena of crony capitalism, the democratization of corruption, and rentier state models in the country groupings, are the channels that may explain the heterogeneous results in the previous chapters.

The paper is organized as follows: the next section reviews the literature, sections 4.3 and 4.4, and 4.5 elaborate the political and institutional heterogeneity in the institutional forms of corruption in severely, moderately, and lightly affected countries. Section 4.6 focuses explaining

why corruption plays a role in attenuating the impact of the Arab Spring in reducing inequality. Then, section 4.7 shares the limitations, and finally, 4.8 concludes the chapter.

4.2 Literature Review

The MENA region was characterized by lower levels of inequality and was considered more sophisticated and culturally advanced than the West from medieval time until the mid-19th century (Springborg, 2020). Intellectual and cultural development improved other areas, such as judicial and legal systems; however, since the early 19th-century, colonialism and imperialism shifted the dominance from the MENA (Springborg, 2020). Before that, Egypt, Morocco, Syria, Lebanon, and many other Arab countries were known for their accomplishments through commercial activities using the shore or railways. As a result, they had higher GDP than Japan and East Asian countries during the 1950s and 60s (Springborg, 2020).

Today, when observing the MENA countries, one sees evidence of long-lasting political instabilities, cruel dictatorships, social contract breakdown between the governments and citizens, and economic problems, including high youth unemployment, inflation, and public debt (Springborg, 2020). However, these are accumulated consequences of the deteriorating relations between state and citizens after the 1980s and neoliberal policies of the International Financial Institutions (IFIs) (Salih, 2013).

Public provision and subsidies rose steeply in the MENA in the 1970s before being cut back in the 1980s and stabilized at low levels during the 1990s. The role of globalization and financial integration with the world played a significant role in eroding the role of government in the provision of goods and services. However, the problems became bigger when these cutbacks on public spending combined with growing population, higher unemployment, and inflation (ESCWA, 2018). Table 4.1 below shows the transformation of public expenditures in the MENA region.

Due to deregulation and privatization, crony capitalism has become more embedded along with lower government expenditures. Although crony capitalism plays a role in almost all countries in the MENA, it has a more significant role in Egypt, Libya, Tunisia, Syria, and Yemen due to

regime change after the Arab Spring (except Syria). The disrupted systems changed the structure of crony capitalism due to the lack of the rule of law in severely affected countries, and new crony relationships have been built around people who are close to the new regimes or the army.

Crony capitalism combined with political and bureaucratic corruption led to Arab Spring at the end of 2010. Douglas North refers to crony capitalism as a "limited access order" where political elites appropriate the economic resources and create privileges by preventing outsiders from doing so (Springborg, 2020). Countries in MENA have been underperforming with limited access order and authoritarianism (Springborg, 2020) since small elites concentrate the wealth on their circle, which prevents the desired entrepreneurial developments and the provision of public goods and services (Wahab, 2019). Further, the absence of inclusive institutions (Robinson and Acemoglu, 2012; Emara and Jhonsa, 2014; Wahab, 2019) and social mobility limits sustainable economic growth because wasta (network) and hamula (clientelism) are more important to getting jobs and completing the bureaucratic works rather than merits (Wahab, 2019).

Together with economic complications, the MENA region suffers from political and social turmoil. The Arab region constitutes 5% of world's population (UNDP, 2016), but it has eleven times more refugees than the average of the world, ten times more internally displaced people and terrorist attacks, and fourteen times more deaths due to violence even if it spends on military three times more than the global average (Springborg, 2020). In addition, the MENA countries produce one-third of their GDP from the informal sector, employing 65% of the labor force (Springborg, 2020), which lowers the institutional quality. The slow growth of the private sector and government dominance worsens institutional quality, reducing the incentive for investment and private activity (Kandil, 2009).

According to World Governance Indicators (WGI), which measures institutional quality with six indicators, the MENA received lower scores on five out of six indicators between 1996-2017. Only regulatory quality remained unchanged (Springborg, 2020). The lower performance of the MENA is also verified in (Emara and Jhonsa, 2014). The findings demonstrate that the empirical

Table 4.1: Peak, low, and recent peak of total expenditures, as a % share of GDP

	Available Data	Peak Exp.	Date of Peak	Lowest Exp.	Date of Lowest	Peak-Lowest
Algeria	1971-2011	38.1	1983	25.7	1990	12.4
Bahrain	1974-2011	53.1	1986	25.1	2000	28.0
Egypt	1960-2011	61.5	1982	25.1	1998	36.4
Jordan	1960-2011	52.5	1980	29.9	1992	22.6
Kuwait	1972-2011	57.2	1986	35.7	2007	21.5
Lebanon	1990-2011	55.7	1994	29.6	2011	26.0
Libya	1990-2011	n/a	n/a	26.7	1992	n/a
Morocco	1960-2011	51.0	1981	26.2	1996	24.8
Oman	1967-2011	56.7	1986	30.3	1997	26.4
Qatar	1990-2011	51.4	1993	29.4	2003	22.0
Saudi Arabia	1990-2011	57.6	1987	32.6	1995	25.0
Syria	1962-2010	48.2	1980	21.8	1990	26.4
Tunisia	1960-2011	45.1	1984	28.8	1998	16.2
UAE	1991-2011	42.3	1996	30.2	2006	12.1

Source: Social Development Report 2 - Inequality, Autonomy and Change in the Arab Region (p.13)

findings of the previous two chapters become more meaningful considering the deteriorating scores of institutional quality indexes which includes corruption control.

Another evidence for economic worsening is the globalization of the world. Most MENA countries, including Egypt, Algeria, Morocco, Yemen, Iraq, and Syria, came at the bottom of the world globalization index in 2018. The lack of integration with the rest of the world has adverse effects on the economic performance of the MENA countries. The globalization ranking of GCC countries is relatively better than the rest of the region; however, their integration is also limited. On the other hand, the Arab region is the largest financial aid recipient on a per capita basis (Springborg, 2020). This changes regional politics and helps the current dictatorships to permeate their authoritarian policies.

Overall, the MENA region has suffered from crony capitalism, rampant corruption, and lower institutional quality over four decades. However, the impacts of these problems are not homogenous across the region. The historical background of the MENA region is of relevance to understanding how and why severely, moderately, and lightly affected countries display differences in the impact of corruption on economic growth and income inequality. The paper evaluates the repercussions on each country group in the following sections.

4.3 Severely Affected Countries and Crony Capitalism

Chapter two finds that corruption lowers the economic growth in the MENA region for the entire data set. These results are not clear-cut for country categorizations because multivariate regressions may not reach significance with a lower number of observations. More robust evidence in the third chapter suggests that corruption increased income inequality after the Arab Spring in severely affected countries: Egypt, Libya, Tunisia, Syria, and Yemen. However, higher levels of corruption counteract this effect. The potential determinants of these results will be discussed in section 4.6 as this part of the study tries to give a holistic picture of crony capitalism in severely affected countries.

When public good provision decreased due to liberalization and privatization after the 1980s, crony capitalism grew faster in those countries. Diwan (2012) argues that crony capitalism increased inequality and diminished the middle class's share. Also, sufficient job opportunities were not created due to inefficiencies occurring because of crony capitalism. Table 4.2 displays how the severely affected group's GDP per capita growth and unemployment rate averages changed pre- and post-Arab Spring. The GDP per capita growth rates are much lower on average than the pre-Arab Spring period. Unemployment rates are also either stable or higher after the unrest.

Table 4.2: Pre- and Post-Arab Spring Indicators (Severely Affected Countries)

	GDP Per Capita Growth (%)		Unemployment Rate (%)	
	Pre-Arab Spring	Post-Arab Spring	Pre-Arab Spring	Post-Arab Spring
Egypt	3.2	1.5	9.32	12.25
Libya	2.1	1.5	18.91	18.82
Syria	1.3	-5.0	8.99	8.50
Tunisia	3.7	-0.3	14.12	16.06
Yemen	1.6	-7.4	11.68	13.22

4.3.1 Egypt

Public expenditure decreased from 62% to 25% from the 1970s to 1998 in Egypt. In addition, government services have declined since the 1970s, and neo-liberal policies accelerated during the 1980s and 1990s, eventually leading to higher inequality and unemployment.

Egypt has the highest population in the MENA region, and the military's impact on its economy is enormous. According to M. Beck and Hüser (2012) and Chekir and Diwan (2014), the military's dominance is close to 30% of the economy. However, since its operations stay secret, the exact dominance is unknown. Nonetheless, it is known that the military controls gas stations, bus operations, bakeries, factories, and other sectors though.

Besides the army's economic dominance, crony capitalism is rampant in Egypt. Recent evidence shows that closely connected firms had higher access to credit and other resources, operationalizing under high non-tariff barriers. For example, Diwan et al. (2013) show that 71% of firms connected, meaning these firms are affiliated with the government, were protected with more than one non-tariff measure. In contrast, only 3% of all other firms were protected.

Affiliated firms operate mainly in the energy sector since corruption is easier in the electricity, utilities, and construction sectors. They get 60% of net profits and 92% of total bank credits, but they employ only 11% of the labor force (Diwan et al., 2013). This has led to the growth of the informal sector. Assaad (2014) finds that the informal sector employed 40% of the total labor force in 2005, which was 5% in the 1970s, and the share of the private sector has declined in that employment rate. In another indication of the concentration of control, Diwan et al. (2019) find that 30 businessmen on the board of 104 firms control 385 companies directly or indirectly.

Most connected firms were the family members of Hosni Mubarak or his wife, Suzanne Mubarak. The president's sons, Gamal, and Alaa have obtained discounted land from the Ministry of Housing for investments, but they were not held accountable for why and how they received these shares. During his 30 years tenure, Mubarak was reported to have earnings of 40 to 70 billion dollars, putting him in the same rank as Bill Gates (Choudhry and Stacey, 2015). The crony capitalism of Egypt is like Tunisia, where a few families control the mass of public wealth and suppress

opponents and rivals. Another symptom of crony capitalism is the extraction by the Egyptian government of around 23 billion US dollars from Saudi Arabia, the United Arab Emirates, and Kuwait in the name of oil shipments, cash grants, and deposits within 18 months after Mohamed Morsi left the power.

Thus, crony capitalism is deeply embedded into the political economy of Egypt. It is a leading factor in the growth of youth unemployment, low living standards, and increasing income inequality (Sika, 2012).

4.3.2 Tunisia

Tunisia shares similar characteristics with Egypt in terms of public expenditure. In Tunisia, the government expenditure decreased from 45% to 29% from the 1970s to the 1990s lowering state effectiveness and the quality of public goods and services (Diwan et al., 2015). As a result of this decline, certain families closer to the ruling families created and strengthened the inner circle within crony capitalism. Even if a revolution happened, the negative impacts of crony capitalism were maintained in Tunisia because it was so embedded into the country's political economy.

Two families dominate the Tunisian economy and control a significant share of wealth in Tunisia. The Ben Ali family controlled 220 firms, and many of them collected benefits from non-tariff barriers and operated where government approval was needed (Malik, 2015; Rijkers et al., 2017). The Trabelsi family, the family of Leila Trabelsi, the wife of former President Zine El Abidine Ben Ali, controlled billions in big sectors such as telecommunication, banking, tourism, manufacturing, real estate, and construction. The economic dominance of these two families started when Ben Ali came to power in 1987 and dominated all opponents . According to the French head of Transparency International, Daniel Lebegue, the Ben Ali and Trabelsi families controlled between 30-40% of the Tunisian economy (Lewis, 2011).

Moreover, Choudhry and Stacey (2015) reports that Ben Ali and Trabelsi families, known as "the Mafia" controlled more than half of all enterprises in the country. Rijkers et al. (2017) mention that although they control approximately half of the nation's wealth, these companies produce 3%

of total output and employ only 1% of the labor force. Alvi (2019) raises the point that the brothers of Leila Trabelsi found an office to take care of the legal problems of Tunisians for a fee. The office bribed judges to win the cases. This is openly known and is a symptom of deep-rooted corruption. Further, clientelism and petty corruption, where bureaucrats demand bribes even for birth certificates and simple documents, exacerbated hardships for ordinary people in Tunisia.

Tunisia signed its first IMF stand-by agreements in 1986-87 (Malik, 2015). Because of the fading away from the middle class and IMF neo-liberal policies, unemployment increased from 3.8% in 1994 to 29.2% in 2011. The unemployment rate was approximately 20% in Tunisia in 2020, and youth unemployment was around 36% in 2019.

In contrast, Tunisia made relatively better progress on poverty alleviation, social inclusion, and equitable growth compared to the other four countries in this group and is also ahead on government effectiveness, the rule of law, control of corruption, and other government indexes (UNDP, 2011). However, it seems that these are not sufficient to solve crony capitalism (Malik, 2015). Tunisia was also the country where the first signs of Arab Spring protests were seen. Since the crony capitalism has changed its form due to the lack of the rule of law after the regime change, it is still active in different formats where large conglomerates and firms dominate the political economy of Tunisia since political parties also need financing to stay in power after the Arab Spring (Diwan, 2019).

Since the Arab Spring, Tunisia also has struggled with lower GDP per capita. Matta, Appleton, and Bleaney (2019) found that Tunisia had lower GDP per capita after the Arab Spring. By using the synthetic control method, Tunisia had 600$, 574$, and 735$ less GDP per capita in 2011, 2012, and 2013. Although Arab Spring started in 2011, GDP per capita shrank more in 2013 than in 2011, implying that Arab Spring was not a one-year shock but a long-run phenomenon for the MENA region. Thus, like Egypt, Tunisia had lower government expenditure, privatization, and liberalization of the markets which increased crony capitalism that led to the Arab uprisings in Tunisia as the first country to observe the protests.

4.3.3 Libya, Syria and Yemen

Libya is another country that struggles with corruption and crony capitalism. The middle class complained in Libya that they are not getting any share of the economy since the ruling elites block them. Muammar Gaddafi ruled Libya for almost four decades until his death in 2011, and his close associates controlled the economy. It has been reported that "the [Gaddafi] family and its close political allies own outright or have a considerable stake in most things worth owning, buying or selling in Libya" (Choudhry and Stacey, 2015). Gaddafi's regime embezzled public resources, hired only loyalists to higher bureaucracy, and misappropriated funds through them. The Gaddafi family has also had billions of dollars of houses and other investments in the UK, which have not yet been transferred to the current administration due to procedural issues (Peachey, 2022).

With sufficient oil resources for a population of six million (approx. 3% of the world total), crony capitalism has distanced Libya's economy. Khan (2014) finds that Libya had negative economic growth in 2010 because of the decline in oil production due to the civil war and the UN sanctions on Libyan foreign assets. According to the World Bank data, low growth (falling 62% in 2011 compared with the previous year) and high levels of public resource misappropriation with impunity (Warf, 2015) have exacerbated income inequality after the Arab Spring. Because of civil war and increased political instability, Libya struggled with crony capitalism more than a decade after the unrest.

Yemen and Syria have had a similar experience with Libya. In Yemen, the central government controlled the country's oil wealth. It was responsible for distributing it among tribes, and military establishment since their support was necessary for political power and stability (Choudhry and Stacey, 2015). The country's president, Ali Abdullah Saleh, created a circle of nepotism and clientelism, distributing wealth among his family and allies, which continues among other groups. Nevertheless, Saleh is not in power anymore after the Arab Spring protests (Choudhry and Stacey, 2015).

In Syria, President Bashar Al Assad entrenched his regime through structures of crony capitalism. In fact, before Bashar Al Assad, his father, Hafiz Al Assad, ruled the country in the

same manner for three decades until his death in 2000. According to Syrian officials, the Assad family and their political associates get the 85% of the country's oil revenue from their bank accounts. Clientelism is rampant in Syria, where successful firms are either required to share their profits with the regime or shut down. Bribery is at all levels of society in Syria (Choudhry and Stacey, 2015). It is said that Rami Makhlouf, cousin of the president, controls 60% of the Syrian economy through complex company structures in telecommunication, energy, financial sector, and transportation (Owen, 2014). Many outsiders think it is almost impossible to conduct business in Syria without contacting Rami Makhlouf. Assad and Makhlouf families have monopoly power over the Syrian economy (Borshchevskaya, 2010). Considering the significant negative impacts of crony capitalism in Libya, Syria, and Yemen and their current civil war or political instability, (Springborg, 2020) calls these three countries "failed states".

Overall, corruption leads to a drain of resources since the extracted rents are not spent or invested domestically in the MENA but in Europe and Asia. Citizens and the domestic economy do not benefit from the earnings of crony capitalists, so the income and wealth gap between families that have close connections with the governments and ordinary citizens has widened. Consequently, youth unemployment has increased due to a lack of sufficient investment at home, even if people are more educated.

On average, Egypt and Tunisia have lost annually about 5 and 1 billion dollars due to capital flight from the early 2000s until the Arab unrest (Diwan, 2012). Billions of dollars are also flown out from Yemen, Syria, and Libya (Warf et al., 2019). Macroeconomic problems have been accumulating over the past four to five decades (Malik, 2015) which caused a big social tension starting in December 2010.

This account suggests that crony capitalism is the main channel by which the impact of corruption on economic growth and, more particularly, income inequality is mediated in Egypt, Libya, Tunisia, Syria, and Yemen. Crony capitalism and elite capture dominate the economies in these severely affected countries. Therefore, crony capitalism can be considered as the key mechanism

underlying the political economy of corruption in of severely affected countries. The crony relations might also help explain the severity of the uprisings in these countries.

4.4 Moderately Affected Countries and The Democratization of Corruption

Algeria, Iran, Iraq, Jordan, Lebanon, Palestine [6], and Morocco have been moderately affected by the Arab uprisings. The analysis in Chapter 3 indicates that an increase in corruption lowered income inequality in these countries after the Arab Spring. The difference between these countries and the severely affected group could be explained by what can be called the democratization of corruption (Chawki, 2017). The term democratization of corruption is used in contexts where corruption is embedded and widespread among several groups or sects rather than being concentrated in the hands one of one or two families. It could be due to either a confessional political system where the power is balanced among different religious sects by the constitution as in Lebanon (Shia, Sunni Muslims, and Christians) or in Iran (Shia clergy) and Iraq (Kurdish, Sunni, and Shia), where the system is informally dominated by (not formally declared by the constitution) certain sects. Similarly, corruption might be democratized by providing short-term political, constitutional, and economic reforms to people but maintaining the strong establishments at the core of the system and legitimizing corruption simultaneously as in Algeria, Jordan, and Morocco. Thus, in the case of moderately affected countries, while corruption is widespread, unlike the severely affected countries, access is not restricted to a few elite families.

This section argues that corruption was democratized in moderately affected countries, and citizens' demands changed the attitude of several governments in the direction of protection of civil rights and slight constitutional changes. Consequently, corruption was instrumental in providing access to resources and helped reduce income inequality in these countries. Table 4.3 illustrates

[6]Due to Israeli apartheid and complete administrative failure of the state, Palestinian case is unique; therefore, it has been excluded from the political economy argument of moderately affected countries.

Table 4.3: Pre- and Post-Arab Spring Indicators (Moderately Affected Countries)

	GDP Per Capita Growth (%)		Unemployment Rate (%)	
	Pre-Arab Spring	Post-Arab Spring	Pre-Arab Spring	Post-Arab Spring
Algeria	2.2	-0.2	20.42	10.88
Iran	2.7	-0.9	11.19	11.68
Iraq	6.3	0.7	8.88	10.69
Jordan	2.1	-1.4	13.84	13.64
Lebanon	2.7	-4.9	8.05	6.33
Morocco	3.4	1.0	11.58	9.21
Palestine	2.3	0.1	18.02	22.47

how GDP per capita growth and unemployment rate averages have changed before and after the Arab unrests.

4.4.1 Algeria

In Algeria, oil occupied the preponderant share of GDP and helped boost capital accumulation in the 1970s (Zouache and Belarbi, 2015). Hydrocarbon helped the country to have a 6.8% average growth rate annually for a decade during the 1970s (Mahajan S, 2003). After adopting neoliberal policies in the 1980s via IFIs, the government's weight has decreased, and the social contract between state and citizens was broken in Algeria like in other MENA countries. Along with broken social contracts, Arab economies dealt with structural fragilities (Cobham et al., 2015), and along with economic and financial fragilities, structural weaknesses affected Arab countries, including Algeria.

For example, compared with Syria, Algeria has not experienced a change in regime, civil war, or political deadlock during the uprisings, although it had an authoritarian government. While fossil fuels account for 98% of Algerian exports and about 40% of GDP, Algeria has struggled to diversify its economy (Bernaté, 2011). Lacking economic diversification through the impact of oil dependence has become more emphasized with the political mistakes of the Algerian ruling elites (Achy, 2009). Oil dependence creates higher burdens on the job market, especially for youth,

forcing them to look for alternatives in the other sectors because the highly capital-intensive oil market creates fewer jobs (Belakhdar, 2011).

The difference between Syria, Libya, and Algeria is that the Algerian regime's resources have been sufficient to maintain authoritarian rule. Up until the end of the Bouteflika regime in 2019, Algeria responded to Arab uprisings with a "carrot and stick" approach (Belakhdar, 2011) by providing wage hikes, reducing in prices of food items, ending the state of emergency circumstances that had existed since 1992, and making some political reforms such as being more democratized in the political processes, the regime to continue to maintain the authoritarian rule. The government kept its repression without being overruled by providing economic, social, and political reforms.

It was not structural reforms, but temporary solutions allowed Algeria to ameliorate the macroeconomic environment after 2011, which lowered income inequality from 0.46 to 0.44 from 2010 to 2019. In fact, Algeria had reduced income inequality even before the Arab Spring. Its Gini coefficient has declined from 0.50 in 1996 to 0.46 in 2010. Nonetheless, big protests started in 2019 because the resources have diminished due to having historically low oil prices. Thus, reduced resources made it hard to pursue reforms and suppress unrest simultaneously. As the government reserves dwindled, subsidies were reduced, and cutbacks were implemented in civil service employment (Springborg, 2020). The 2019 protests, Arab Spring 2.0, suggest that income inequality may have increased with the shrunken government budget and created political instability with growing people's demands and street protests.

In the sense of political and constitutional reforms, the Algerian case is like that of Jordan and Morocco, with only one difference Jordan and Morocco did not have the financial resources also to distribute among citizens. By using its financial resources to curb social unrest until 2019, the Algerian state maintained the establishment's dominance with so-called democratic reforms and further legitimized political and bureaucratic corruption.

The government continued to control the entire economy using the "carrot and stick approach" to silence the citizens until the financial resources diminished. After resources were exhausted, it was difficult to use financial resources to keep society silent. In other words, the democratization

of corruption helped to ameliorate Algerians' political and economic grievances. Similar processes of the democratization of corruption are also seen in Iran, Iraq, and Lebanon under sectarianism.

4.4.2 Iran, Iraq, and Lebanon

Iran was one of the MENA region countries which was not directly affected by the Arab unrests because its economic and political structure and ruling elites are distinct from the Arab world. Still, Iran has been dealing with corruption problems historically, and US-led sanctions have exacerbated the situation (Noack et al., 2020). Further, the power and dominance of the Iranian Islamic Revolutionary Guard Corps (IRGC) are crucial to understanding the Iranian political economy. IRGC collects billions of dollars every year by selling subsidized fuel at higher prices. Oil is supposed to support the country's future but has become a mechanism that transfers money from the Iranian Central Bank to military services (Wahab, 2019).

Since the 1980s, corruption has reached massive levels and has become an essential part of the Iranian economy. Transparency International ranks Iran as one of the most corrupt countries globally. The impact of the military, intelligence agency, and IRGC illustrated that corruption has become widespread and a norm in Iran, especially in the security services. Given a large number of members of the military of Iran (all military personnel plus IRGC) at more than a million according to the International Institute for Strategic Studies (IISS), their dominance in Iranian politics and economy is significant (on Foreign Relations, 2019).

IRGC itself has 750 thousand members and 20 thousand naval members. It controls the oil market, consisting of a big part of the Iranian economy. Considering their size and the economic impact, Iranian security services might have served as the channel for lowering income inequality by distributing financial resources among its members and family networks. The clergy's power and impact create another rent-seeking mechanism in Iran (Kuran, 2018). Although the size of the clergy may not be as big as IRGC, their networks have also been mobilized by hundreds of thousands of people.

In Iraq, the rent-seeking dynamic impact the overall economy, specifically the oil market. According to Springborg (2020), Iraq is as fragile as Lebanon. After the sanctions were imposed in 1994 per capita GDP level dropped to approximately the same level with 1940s Iraq. The conditions improved with the oil-for-food program (Le Billon, 2005). The US-led invasion in 2003, and even before that, the liabilities have reached almost 400 billion dollars with devastating economic and political services (Le Billon, 2005).

Shi'a and Sunni Arab Muslims and Kurds created a system where certain sects and groups were privileged through them. Before the 1990s, state property and property of the Ba'ath party were the same with Saddam Hussain's political hegemony as the leader Ba'ath regime. Starting with the invasion of Kuwait in 1991, followed by the sanctions and embargo on the Iraqi economy, the economy was devastated, poverty increased, and salaries dropped. Both petty and grand corruption have increased and become a part of everyday life in Iraq after the Gulf war in 1991. This is evident in public employment. Civil service expenses have proliferated by 940% between 2004-2016, constituting 18% of GDP by raising the government budget from 7% to 44% (Springborg, 2020). The reason behind that is the networking and clientelism among Kurds, Shi'as, and Sunnis. This can be understood in terms of democratization corruption through clientelism and the networks of these sects. According to Olson (1982), ethnic diversity erodes government quality since small groups foster rent-seeking and suppress efficient policies. Ethnic fractionalization also leads to political instability (Horowitz, 2000) and dysfunctional governments (Adsera et al., 2003) for which Lebanon can be given as an ideal example.

Lebanon has had a confessional political arrangements as a way of negotiating its religious and ethnic heterogeneity since 1943 (Schoeberlein, 2019). Within this confessional system, power is balanced and distributed along with religious and ethnic divisions (i.e., the president is supposed to be a Maronite Christian, the parliament speaker is Shi'a Muslim, and the prime minister is Sunni Muslim). Lebanon was regarded as the Switzerland of the Middle East during the 1950s due to the expansion of its financial system, especially in the banking sector. This system started to collapse during the 1960s and was reinvigorated with the petro-dollars in the early 1970s. However,

Lebanon could not maintain its position as a financial hub as the financial sector developed in the region in the mid-1970s. The prolonged civil war from 1975 till 1990 was also a factor in Lebanon's slide. Since 2019, Lebanon has faced one of the world's severest economic crises since the mid-19th century. The power struggles between Maronite Christians, Sunni and Shi'a Muslims, and Hezbollah has encouraged corruption among these groups, promoting state capture, clientelism and crony capitalism (Makdisi and Marktanner, 2009; Salamey, 2009; Wickberg, 2013). As a result, the country's public debt GDP ratio has risen to over 150% (Springborg, 2020).

The deliberate inaction of the sects to solve the issue creates a corrupt system where inefficient bureaucracy is overcome by bribery to speed up the business process. In other words, corruption is used to grease the wheels of the system in Lebanon. Sectarian politics and clientelist networks combined with widespread corruption might have lowered the income inequality in Lebanon rents were redistributed within the sect.

Iran, Iraq, and Lebanon share close political and economic characteristics and have experienced similar democratization processes of corruption within the clientelist network of sects, groups, and parties, which further fed sectarian politics. Within these sects and groups, overall income inequality might be lower since they occupy big parts of their societies; however, the excluded groups without any clientelist connection are left out of these circles and income inequalities may increase between sects.

4.4.3 Jordan and Morocco

The approach of Jordanian and Moroccan kings to Arab uprisings was different from republics (Egypt, Tunisia, Syria, and Yemen). The citizens did not want to overthrow the regimes but instead pushed demands for improvement in their social and economic conditions. The administration introduced some reforms which, while being far from being adequate to ameliorate the socio-economic conditions, was satisfactory enough to forestall a popular uprising. This was pretty much aligned with the approach of the Algerian government, which implemented similar reformist policies during the 1990s.

In Jordan, the reform package was introduced after the Arab uprising was the fourth package explained by King Abdullah in the last decade. "First", "National Agenda", and "We Are All Jordan" were announced in 2002, 2005, and 2006 (Hamid and Freer, 2011). When the Arab Spring started, the prime minister of Jordan announced a 230 million US$ economic package to lower the costs of bread and fuel and boost job creation which was found unsatisfactory by the Jordanians. Then, another package worth 550 million US$ was introduced to subsidize fuel further also rice and sugar.

After the economic programs, the King dissolved the parliament and reshaped the cabinet. However, the new hirings were considered advocates of the status quo thus, the political changes were perceived as just make-ups. Other reforms in the electoral system and elections did not include any actions to check the power of the King, who is vested with the authority to appoint the prime minister, ministers, and deputies of the senate. Therefore, the King could still easily dissolve the parliament in Jordan (Hamid and Freer, 2011). However, the introduction of economic reform packages helped silence any potential unrest. It allowed the government to maintain control, although it was challenging to maintain due to the discontent of Jordanian society, which were aware of enduring regional and tribal corruption. Thus, the so-called economic reforms regime maintained its status quo and corruption with regional and tribal politics.

Likewise, Morocco implemented reforms after the Arab Spring and was able to stall the eruption of protests (Schoeberlein, 2019). The reforms that aimed to give citizens more rights were insufficient compared with international standards. Also, the reforms did not provide freedom to institutions to make their decisions (Berraou, 2019). After the protests began in 2011, King Mohammed VI promised constitutional reforms to strengthen institutions M. Beck and Hüser (2012) and also called for a referendum for a new constitution. However, the new constitution left the authority and power of the King untouched (Benchemsi, 2012). Anti-corruption initiations were initiated after the Arab unrest but did not have a long-term strategic vision to eliminate corruption (Berraou, 2019).

While the political reforms have not accomplished a tangible gain for Morocco, economic reforms helped the government gain some time. In 2012, after negotiating with the IMF, Morocco received a $6.21 billion Precautionary and Liquidity Line (PLL) credit for two years (Khan and Mezran, 2015). The credit helped Morocco to float the economic system successfully, which increased FDI by $1 billion in 2013 compared with 2012. However, IMF credit was aimed at lowering the budget deficit, inflation, and securing macroeconomic stability, which did not create sufficient economic growth (Khan and Mezran, 2015). While the elites benefited from IMF credits which increased FDI and kept the status quo, they may not promote additional policy implementations in economic and political areas.

Economic, political, and social reforms are stalled due to King's power, elites' preference, or social exclusion of Moroccan people (i.e., lack of inclusive institutions). Therefore, the short-term strategies which kept the authoritarian regimes in power did not improve the living conditions of Jordanians and Moroccans. They helped the governments gain time with short-term policies and constitutional reforms.

To conclude, while moderately affected countries display different political and economic characteristics, the democratization of corruption is a feature that is common across these countries. The democratization of corruption works either through networks of the military, ethnic and religious sects or through the adoption of short-term political, constitutional, and economic reforms. In either case the corruption serves to reduce income inequality. Even though corruption is as rampant in moderately affected group as in severely affected group, it functions through the clientelist networks or reform measures that broaden access instead of being concentrated in the hand of certain elites, which distinguishes moderately affected groups from crony capitalism of severely affected countries.

4.5 Lightly Affected Countries and Rentier State Models

The GCC countries, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates, are alike in implementing rentier state models. According to Beblawi (2015), a rentier econ-

omy is where the wealth is collected around small group of society, and the rest of the society only plays a role in this wealth in the distribution and utilization of it. This definition describes the economic models of GCC members where wealth is centered among ruling families and the rest of the societies are just engaged in the utilization process of oil wealth. With the definition of rentier state, GCC countries are different from severely and moderately affected countries, although some have natural resources mainly oil (e.g., Algeria, Iraq, Iran, Libya). Thus, rentier state models differentiate GCC countries from the rest of the MENA as one family controls the state's rents.

As shown in Chapters 2 and 3, corruption did not have a statistically significant impact on income inequality and the economic growth of these countries. With considerable oil reserves, relatively small populations, and the iron-hand absolute monarchies, it was easier to control and oppress the Arab protests in these countries. Not surprisingly, the GCC countries were the least affected by the Arab Spring.

The nature of corruption and findings about its relation to growth and inequality can be explained mainly in the rentier state model that prevails across the GCC group. Their financial resources mostly come from hydrocarbon (i.e., oil), and the elites are able to control the relatively smaller populations by their control of the distribution of these resources (Luciani, 2007) and the provision of public employment, which is 80% for nationals in Kuwait, Qatar, and the UAE, close to 60% in Saudi Arabia, over 40% in Oman; and over 30% in Bahrain ("Gulf states are trying to increase private employment", 2021). Table 4.4 below shows that although their GDP per capita growth has been affected after the Arab Spring, unemployment rates are much lower compared with severely and moderately affected countries.

When the international financial crisis hit the oil-exporting countries, the clientelist networks of the rentier state allowed the regimes to control different tribes and social groups. The elites, namely merchants, entrepreneurs, and business-people, depend heavily on the states' favor to increase their wealth and dominance. Their relationship with the state comes with their kinships or tribal relationships, such as marriages or commercial companionships. The difference between moderately and lightly affected countries is that although their relationship matter in the rent-seeking process

Table 4.4: Pre- and Post-Arab Spring Indicators (Lightly Affected Countries)

	GDP Per Capita Growth (%)		Unemployment Rate (%)	
	Pre-Arab Spring	Post-Arab Spring	Pre-Arab Spring	Post-Arab Spring
Bahrain	-0.4	-0.8	1.17	1.02
Kuwait	-0.3	-1.8	1.21	2.29
Oman	1	-2.3	5.22	3.79
Qatar	3.4	-1.1	1.39	0.26
Saudi Arabia	0.3	0.1	5.34	5.72
UAE	-3.9	2.3	2.44	2.29

of lightly affected countries, tribes or kins are not ruling the countries in the Gulf. On the other hand, sects are rulers, or they heavily dominate the decision-making process in moderately affected countries.

In other words, tribes just utilize and distribute the wealth in the Gulf, whereas they are the authority in most moderately affected countries. Although Algeria can be considered a rentier state, it distinguishes itself from other rentier states with its relatively democratized political system. In this regard, it is noteworthy that there is almost no taxation in the Gulf states. For example, taxation constitutes less than 1% of Kuwait's GDP. The negligible taxes also reflect the limited role of citizens who cannot involve in the political decision-making process since taxation and, consequently, people's representation is restricted (Luciani, 2007). This leads to a lack of political accountability as people avoid and are denied the political space to criticize the regimes since the same authorities provide them subsidies for oil and gas consumption and government employment. Thus, the political equilibrium between the state and citizens is usually stable.

Rentier economic system does not mean that GCC countries are free from corruption. Nevertheless, given the institutions of the rentier state, corruption has not led to protests, and the Arab Spring did not impact the GCC countries except Bahrain. While Bahrain is ruled by a Sunni minority group backed by Saudi Arabia; the Shi'a population constitutes 70% of the Bahraini people. The mostly Shi'a population went to the streets during the Arab unrest due to high corruption and discriminatory treatment by the government. Saudi troops helped the Bahraini government quickly

suppress the protests. In addition, Saudi Arabia offered military and economic aid to UAE, Jordan, and Oman (Yom and Gause III, 2012). Protests also affected Oman but did not lead any political change (Worrall, 2012).

In the biggest country of the council, Saudi Arabia, the regime continued to spread financial resources to the citizens during the Arab unrest. Basic necessities are not expensive in Saudi Arabia, where the government subsidizes the fuel which consists most of the budget spending. Total energy subsidies were 117 billion US$ in 2015 in Arab countries which was 5.5 of their GDP and more than 25% of global energy subsidies (Wahab, 2019).

Since energy is heavily subsidized and oil revenues are high, GCC countries have been subject to the natural resource curse. Recent efforts to diversify the economy include new projects in education, transportation, logistics, tourism, and health. Moreover, the vision of 2030 for Bahrain, Qatar, Saudi Arabia, and the UAE, vision 2035 for Kuwait, and vision 2040 for Oman are signs of economic diversification. However, those projects are likely to fail due to mismanagement and not creating sufficient employment (Springborg, 2020). Mismanagement is the result of clientelism because authorities in charge of the projects have been appointed as part of because of the rentier model rather than meritocracy. Along with a significant amount of financial resources and satisfaction with citizens' demands due to low population and public employment with high salaries; the idea of diversification started before the Arab Spring may explain the Arab Spring may not have affected the GCC countries (Gurrib, 2016).

Overall, although GCC countries have been rentier states through oil revenues and they try diversifying their economies by investing in social development projects (e.g., education, health, transportation) and their visions to improve the standard of living of their citizens. The repressive rentier state prevented corruption to impact income inequality significantly; however, rentier state models create prevalent political corruption where the resources may be distributed unfairly, which is covered by higher salaries in the public areas so that citizens do not complain. This system might explain the insignificant impact of corruption on inequality observed in these countries.

4.6 Severely Affected Countries After the Arab Uprisings

The results of chapter three reveal that corruption counteracts the impact of the Arab Spring in reducing inequality. in severely affected economies after the Arab uprisings. This section of the paper particularly focuses on explaining the relationship between corruption and income inequality after the Arab Spring in severely affected countries in terms of prevalence of crony capitalism. In cronyism, a few families affiliated with the administrations get prominent government procurements and privileges in their investments in transportation, energy, health, tourism, and telecommunication investments.

The Arab Spring tends to reduce income inequality after the Arab Spring. The economic collapse faced by these five countries after the Arab Spring is key to understanding this impact. Table 1 clearly illustrates that the economic growth of each country decreased after the Arab Spring, but Libya, Syria, and Yemen suffered from more severe negative growth rates. The collapse of growth might explain why the proximate impact of the Arab Spring was a fall in income inequality. That is, negative economic growth shrank the size of the pie overall which might have lowered income inequality for these countries right after the protests. This is also because of the political instability which exacerbates all economic indicators.

However, a higher level of corruption counteracts this proximate impact of the Arab Spring in lowering inequality. This suggests a scramble within the crony capitalist institutional framework as each group or family attempted to acquire a larger share of the pie right in the wake of the political crisis triggered by the Arab Spring. The immediate destruction in the economic, social, and most importantly political lives of these affiliated families pushed them to do whatever it takes to get the biggest share of the pie. Along with the families, other groups that are also affiliated with the government behave in the same way and try to hoard the economic material under total administrative failure. In other words, the competition between groups that are affiliated with the government from the first, second, and perhaps tertiary degrees led them to get as much as possible from the economic pie. The case-by-case evaluation below explains how competition or a new form of relationships might have increased income inequality through corruption.

In the case of Egypt, the army which controlled approximately 30% of the economy before the Arab risings (M. Beck and Hüser, 2012; Chekir and Diwan, 2014) became relatively weaker right immediately after the unrests. After Mursi became the president, he wanted to change the constitution and tried to rule the country freely with his party which was not very possible before due to the dominance of the army in the politics indirectly through economy. After the protest grew in Egypt against Morsi, a military coup led by Abdelfattah Sisi started to rule the country and control the economy. The role of the army has been revitalized and it is much stronger than before as the Sisi government gets a big portion of military aid from the US, the second highest after Israel in the MENA region (Cornwell and Wolf, 2011), and social aid from other Gulf countries more particularly Saudi Arabia, The United Arab Emirates, and Kuwait. According to the figures, three Gulf countries have helped over 23$ billion in Egypt the eighteen months after the military coup (Staff, 2015). Being helped by the West and neighbors to solidify the dominance of the army in Egypt, helped the army to control the country and economy again. Thus, in Egypt the adverse impacts of crony capitalism metamorphosed into a new circle of relationships because of the lack of the rule of law and high political instability. We see that this political instability during the tenure of Mohamed Morsi which pushed the army to regain control of the country and economy. Since the military coup, the Egyptian army still controls a big portion of the Egyptian economy in numerous sectors including telecommunication, health, transportation, and energy. Corruption in the form of crony capitalism then acted to counteract the impact of the Arab Spring in reducing inequality.

In Tunisia, which has similar crony relations and limited government, the democratization of politics has been relatively faster and healthier than in the Egyptian case. Before the Arab Spring, Zine El Abidine Ben Ali and his wife controlled 30-40% Tunisian economy (Lewis, 2011), and after Abidine left the power country entered a new phase of democratization. The Islamists of the country led by Ghannouchi entered a coalition with secularists to have a healthier and more stable country. However, they were unable to solve the critical politico-economic problems and the total administrative failure and uncertainties about the future as after Abidine affected the Tunisian

economy. While the current government is dealing with post-revolution ground-level corruption, other types of corruption has grown up in bureaucracy (e.g., bribing the judges, doctors, using networking for jobs) which like in Egypt transformed into a new form of cronyism (Yerkes and Muasher, 2017). Now, maybe the economy is not controlled by 30-40% by a certain family or their relatives but petty corruption is much higher than before the revolution. This is why current polls show that Tunisians believe there is more corruption after the Arab Spring than under Ben Ali regime (Yerkes and Muasher, 2017).

According to many sources, the president, Kais Saied, faced a constitutional coup in July 2021 (Analytica, 2021) that exacerbated the political and economic problems of Tunisia. With that so-called "coup" the cards are being reshuffled in Tunisia where the first signs of Arab Spring protests were seen. Crony capitalism has changed its form due to the lack of the rule of law after the regime change, but it is still active in different forms where large conglomerates and firms dominate the political economy of Tunisia since political parties also need financing to stay in power after the Arab Spring (Diwan, 2019). However, their operations are under scrutiny as the government concentrates on post-Arab Spring concentration of wealth. In other words, during Ben Ali regimes, nobody was able to talk about corruption in the government Yerkes and Muasher. and now everybody can talk crony corruption which continues in a quieter format.

In Libya, Yemen, and Syria, the same relationship can be witnessed. In Libya, after Qaddafi's death, there has been a civil war between rivals to rule the country and an economic collapse. Since Libya has 3% of the world's oil reserves, its money is now being claimed by the new cronies – with intensifying rivalries in the east and west of the country- as the country struggles with economic growth and has unprecedented levels of unemployment. Inequality fell with the Arab Spring, as Qaddafi regime cronies' access to the oil bounty was cut off and new crony relations have emerged in the country (Marzari, 2020). During his more than four decades of de-facto leadership, Qaddafi had embezzled 200$ billion (Durgy, 2011) and created opportunities for people who were close to him.

After his death, the country entered a political crisis and war broke out and continued up until recently. Rivalry and contest between two groups one based in Tripoli and the other in Benghazi, over control over oil reserves and revenues created a new cycle of cronyism right after the Arab risings with each group claiming rights over oil (Marzari, 2020). The conflicts are continuing between various groups now, not in the form of war but as a political confrontation that accelerated the income inequality in Libya.

Yemen, the poorest country in the region pre- and post-Arab Spring according to the World Bank, has been dealing with a war that going on between the Saudi-led coalition and Houthis, a Shia group that claimed to be supported by Iran. Yemen was already suffering from poverty and famine under Ali Abdullah Saleh's tenure for more than two decades. Before the uprisings, Ali Abdullah Saleh was also supporting certain tribes and kins which were the strongest in population and power. After he fled to Saudi Arabia when the protests started in Yemen, the political crisis erupted. Since 2014, the Saudi-led coalition has sought to protect the region from Shi'a dissemination. That war has been continuing for almost a decade now. The war has worsened the lives of Yemenis and now they are dealing with inequality more than ever whereas the ones who are with the Saudi-led coalition have been gaining financially. Thus, the new relations in Yemen are not necessarily under new cronyism but are the leading factor in the war or not.

Lastly, in Syria, the cronyism around the Assad family and his cousin Rami Makhlouf has been solidified. The Assad regime is ruling Syria with even more repressive power than before the Arab Spring with the support of other countries in the region. Thus, it can be said that any reduction in the impact of the Arab Spring on income inequality was completely counteracted due to high levels of corruption in Syria. Assad family controls overwhelming majority of the Syrian economy one way or another and without Makhlouf, the cousin of Assad, it is impossible to run a business in the country. Although it can be argued that new cronyism has been created in Syria, the relations around Assad and his family have increased their grip on power in the economy. By getting the military help of Russia, and China, it is relatively easier to digest the crowd in Syria and continue to control a significant portion of the economy. There is almost no store or shop run without paying

a type of bribe or fee for the regime in the Syrian economy. And now, after the war, it is much harder for the Syrians to protest and rebel against the regime as they have no power. Thus, as in Yemen, Syria struggles with income inequality after the Arab rising not only because of war but because of the regime's extreme dominance on the masses.

The investigation of severely affected countries and their battle with cronyism right after the Arab Spring is more complex than it seems. However, a transformation of cronyism can be observed in Egypt and Tunisia. When it comes to Libya, Syria, and Yemen, these countries had or are still experiencing civil wars with two possible outcomes: either the consolidation or the transformation of the crony regime. As new reports from prominent institutions such as Oxfam International and the World Bank show, the famine and poverty level of Yemen has reached unbearable levels. The condition of Syrian people is not very different than Yemen. Although Libya's case is relatively better than Syria and Yemen, they also struggle with political instability.

4.6.1 Tunisia and Yemen: Crony Capitalism Comparison

In this section of the paper, I compare two countries of the severely affected countries: Tunisia and Yemen. Tunisia is the country that has accomplished a lot after the Arab Spring in terms of democratic transition and economic rebuilding although it has been quite small scale. On other hand, Yemen has been struggling with civil war right after President Ali Abdullah Saleh left the country and according to Looney (2015) and Springborg (2020), it is now considered a failed state due to complete administrative and economic failure. This comparison might help to illustrate the different paths consequent to the Arab Spring. Where corruption and cronyism were mitigated the impact of the Arab spring was to reduce inequality, but where corruption and cronyism intensified inequality might persist or even increase.

Post-Arab Spring Tunisia

As it is seen in the first two chapters, the corruption scores of Tunisia have been stable according to the World Governance Indicators (WGI) data set. Considering that WGI data shows both political and bureaucratic corruption, it is an achievement for Tunisia to keep it at stable levels

since 2011 although the Tunisian society fundamentally disagrees with that (Yerkes and Muasher, 2017). Tunisia's corruption scores fell to 0.06 in 2011 from 0.26 in 2010 and it has been around the same level since then. It clearly shows the democratization process of Tunisia where the Islamists made coalition with secularists (Boubekeur, 2018) although it was a short-lived government as country entered into a new phase of crisis (Gall, 2013). Since then, Tunisia's politics is under crisis including the so-called constitutional coup of Kais Saied. Despite the political crises in the country, Tunisia still managed to get lowest corruption scores in severely affected countries.

Another point is the income inequality levels of Tunisia after the Arab Spring as income inequality is considered one of the triggering determinants of the protests. According to the Gini calculations of the previous chapter, income inequality average of Tunisia was 0.54 before the Arab Spring (average of 1996-2010). However, after the uprisings, Tunisia managed to lower income inequality to 0.50 (average of 2011-2019). Thus, the idea of having an egalitarian society seems to be working in Tunisia on average even though again the society does not believe that much as lower income inequality might be the result of lower economic growth on average. Nevertheless, it may be still a sign that lower corruption might have triggered to have lower income inequality in Tunisia following the self-immolation of Bouazizi.

Hence, crony capitalism, which has transformed to be a petty corruption and smuggling after the Arab Spring as Tunisian administrations started cases against Ben Ali and Trabelsi families and new potential cronies who obnoxiously try to hoard the corruption pie after the revolution, has affected Tunisia and Tunisian society; however, its impact has not been that much considering lower corruption scores and decreasing income inequality levels. This is at least seeming to be the case for Tunisia because other countries especially Libya, Syria, and Yemen have either failed or heading to be failure states. Below, Yemeni case is evaluated after the Arab Spring as Yemen has the highest corruption scores among the severely affected countries.

Post-Arab Spring Yemen

In chapters one and two, the corruption scores of Yemen are the lowest in severely affected countries after the Arab Spring. While the pre-Arab Spring corruption score average was 0.95 be-

tween 1996 to 2010, it is 1.47 from 2011 until 2020 which is a sharp increase considering the WGI corruption scores vary between -2.5 and +2.5. The decrease signals the political and bureaucratic corruption environment of Yemen after the revolution, and it is reasonable since Yemen is one of the countries in the entire MENA that was destructed by the Arab Spring. The political, social, and most importantly economic repercussions of the unrest in Yemen is being felt as poverty and famine now (Coppi, 2018). There is no functioning administration and bureaucracy left in the country which have been exacerbated by the Saudi-led invasion to fight against Houthi guerillas. The war has been ongoing since 2015 although Houthi invasion started in 2014 (Jonathan, 2020). Thus, the cronies that were around President Ali Abdullah Saleh before the revolution are not around anymore as the devastating impacts of the war have been felt more.

When it comes to the income inequality levels of Yemen, the Gini coefficient is around 0.55 after the Arab Spring which is 5 points higher than Tunisia in 100 points scale. Due to missing data of World Inequality Database, it is not possible to make pre-Arab Spring comparisons; however, it is plausible to think that Gini coefficient has likely increased after the Arab unrest. What is more important here is Yemen was already the poorest nation of the MENA region, and now with the Arab Spring and war, circumstances are likely to get worse.

Having 1.47 average of corruption score after the Arab Spring and 0.55 Gini coefficient, Yemen is politically and economically struggling. With its political institutional character, it was difficult to implement democracy in a tribal society in Yemen in contrast to Tunisia. After the revolution, people did not know how to rule the political live and economy as they were under the same regime for more than two decades and earlier than that the country was split into two as South and North. Therefore, Yemen has been dealing with political issues for a long time. Ironically, it was during Saleh's tenure that the country was relatively stable under crony capitalism through especially tribes.

To conclude, Yemen and Tunisia both suffered from crony capitalism before the Arab uprisings. However, right after the unrest, Tunisia managed to enter a new political phase although it is very fragile one, but Yemen could not manage that, and war made it impossible. The crony relations

before the Arab protests have clearly transformed to be a new corruption types in Tunisia as petty corruption and smuggling and less clearly in Yemen due to war which occupies more space in political and economic lives of the Yemeni people. However, it is likely that new cronies are now around Saudi-led coalition and Houthis who control the oil and they do not have that much of poverty as the rest of Yemeni society. These two examples of severely affected countries, show that in Tunisia cronyism was not restored fully after the Arab Spring and there was greater scope for a reduction of inequality whereas in Yemen, strong crony institutions, relations or war swamped any impact of the Arab spring in reducing inequality.

4.7 Limitations of the Research

This chapter provides political and economic framework to explain the findings of Chapter 2 and 3. A few limitations of the analysis need to be highlighted. First and foremost, corruption, income inequality, and economic growth are endogenous variables, and they might get affected by other variables quickly, and they may affect the overall conclusions. Therefore, to explain the variation between corruption and growth or corruption and income inequality, one needs to be careful to pay attention to the endogeneity problem.

The second limitation is the nature of Arab Spring. There are numerous theories around the fundamental causes of the unrest, and it is challenging to know the exact reason for each country experience requires more profound and case-by-case research and skepticism about making certain conclusions fast.

Interpretations of this paper are just suggestive and tentative rather than conclusive. That severely affected countries experience higher income inequality with the impact of corruption because crony capitalism plays a big role there does not mean that other phenomena are not playing any roles. Analogously, the same argument can be made for moderately or lightly affected countries although the results are not statistically significant. To make better conclusions, both qualitative and quantitative studies are needed since it is also challenging to know the precise triggers for

the Arab spring and the specific channels by which corruption's impact on inequality and growth played out.

The third limitation is specific to the MENA region. Although it is known as a corrupt region, reported mainly by Western institutions and human rights organizations, finding detailed country-by-country analysis is challenging (Peleg and Mendilow, 2014). Therefore, examining them in group was crucial to make suggestions and policy recommendations.

It is likely that there are heterogeneities even in the country categorizations. For example, Algeria, which is categorized as a moderately affected country, has rentier state components in its political economy; however, due to its idiosyncrasies in democracy, political system, and magnitude of protests during the Arab Spring, it has been categorized in the moderately affected group. When the number of detailed research increases in the MENA region and each country particularly, more studies will be referred to, and this limitation may not be a problem in future research.

4.8 Conclusion

This paper explains the relationships between corruption and economic growth and corruption and income inequality. It described the heterogeneity between the three country groups; severely, moderately, and lightly affected by the Arab Spring. Crony capitalism was the main channel to explain and understand why corruption increased income inequality in the severely affected country, and democratization of corruption is the main dynamic to explain the results in moderately affected countries. Lastly, the rentier state model elaborates how Gulf countries were able to suppress protests and how the strategic use of oil revenues explains why corruption has not impacted income inequality in the Gulf region. The difference in the specific institutional form of corruption in the three groups explains the heterogeneity of the results in the previous chapters.

After a decade since the Arab unrest started, it will be impossible to solve the political predicament without simultaneously finding remedies for social and economic issues (Sika, 2012). Without addressing crony capitalism, the clientelist networks, and rentier states, all of which imply rampant corruption with different names, it will be challenging to tackle economic and political

problems in the MENA region. Problems cannot be solved by having a laissez-faire economic system per se while preventing social inclusion and egalitarian distribution and creating injustice (Sika, 2012).

Population growth, high youth unemployment, social exclusion, declining middle class, and widespread corruption caused protests in Egypt, Libya, Syria, Yemen, Tunisia, Lebanon, Jordan, Morocco, Bahrain, and others. When looking at the groups who protested during Arab Spring, they were not just Islamists, seculars, Kurds, or Arabs. All groups protested inequality and corruption in the MENA. Therefore, without addressing the corruption issue in each country, the MENA region will be within a vicious cycle. And to eliminate corruption, the MENA region needs structural reforms in political, social, and economic spheres.

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Appendix A

Entire Data Set Regressions with Alternative Income Inequality Measures

Table A.1: Palma Ratio Regressions

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.00263	0.00874	0.0128	0.0170	0.0243
		(0.00822)	(0.0106)	(0.00984)	(0.0119)	(0.0149)
Oil Rent		0.00189	0.00557	0.00477	-0.00135	0.00107
		(0.00465)	(0.00468)	(0.00443)	(0.00586)	(0.00543)
Inflation		-0.00270	-0.00524	-0.00526	-0.00726	-0.00698
		(0.00264)	(0.00307)	(0.00319)	(0.00646)	(0.00695)
Unemployment		0.0183	0.0158	0.0107	-0.00135	-0.0109
		(0.0171)	(0.0172)	(0.0200)	(0.0257)	(0.0303)
Corruption	0.167	0.166	0.151	0.152	0.168	0.288
	(0.168)	(0.186)	(0.187)	(0.199)	(0.151)	(0.197)
Arab Spring	-0.128	-0.116	-0.0695	0.00443	-0.0690	-0.0470
	(0.135)	(0.142)	(0.114)	(0.137)	(0.121)	(0.143)
Corruption * Arab Spring	0.0208	0.0307	0.0423	0.0281	0.0148	-0.0998
	(0.107)	(0.146)	(0.157)	(0.149)	(0.193)	(0.156)
Log [GDPPC]			-0.473	-0.439	-0.796*	-0.591
			(0.433)	(0.449)	(0.405)	(0.453)
Urbanization				-0.0182	-0.0393	-0.0449
				(0.0197)	(0.0390)	(0.0438)
Informal Sector					-0.0421	-0.0299
					(0.0387)	(0.0283)
Corruption^2						0.230
						(0.238)
Constant	4.894***	4.706***	8.886**	9.946**	16.03***	14.18***
	(0.0654)	(0.171)	(3.913)	(3.918)	(4.470)	(3.431)
Observations	432	411	391	391	323	323
R-squared	0.031	0.049	0.076	0.084	0.139	0.159
Number of Country	18	18	17	17	15	15
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria, Iraq, and Palestine are excluded.

Table A.2: Zucman Ratio Regressions

Dep. Var.: Gini Coef.	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.00218	0.00613	0.00865	0.0115	0.0166*
		(0.00462)	(0.00649)	(0.00580)	(0.00702)	(0.00938)
Oil Rent		0.00120	0.00382	0.00333	-0.000757	0.000943
		(0.00289)	(0.00293)	(0.00278)	(0.00362)	(0.00343)
Inflation		-0.00162	-0.00346*	-0.00347	-0.00461	-0.00442
		(0.00176)	(0.00193)	(0.00200)	(0.00404)	(0.00441)
Unemployment		0.0117	0.00982	0.00666	-0.000876	-0.00755
		(0.0110)	(0.0110)	(0.0127)	(0.0163)	(0.0188)
Corruption	0.0954	0.0943	0.0848	0.0851	0.0937	0.178
	(0.120)	(0.131)	(0.128)	(0.134)	(0.101)	(0.127)
Arab Spring	-0.0591	-0.0510	-0.0191	0.0263	-0.0266	-0.0112
	(0.0860)	(0.0921)	(0.0743)	(0.0852)	(0.0739)	(0.0873)
Corruption * Arab Spring	-0.00721	-0.00289	0.00619	-0.00255	-0.0127	-0.0931
	(0.0655)	(0.0902)	(0.0980)	(0.0915)	(0.119)	(0.0926)
Log [GDPPC]			-0.347	-0.327	-0.571*	-0.427
			(0.285)	(0.297)	(0.270)	(0.293)
Urbanization				-0.0112	-0.0244	-0.0283
				(0.0121)	(0.0240)	(0.0268)
Informal Sector					-0.0285	-0.0199
					(0.0246)	(0.0181)
Corruption^2						0.161
						(0.148)
Constant	3.409***	3.286***	6.360**	7.011**	11.07***	9.768***
	(0.0419)	(0.109)	(2.570)	(2.536)	(2.873)	(2.217)
Observations	432	411	391	391	323	323
R-squared	0.019	0.036	0.075	0.083	0.144	0.170
Number of Country	18	18	17	17	15	15
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria, Iraq, and Palestine are excluded.

Appendix B

Sub-Sample Regressions - Palma Ratio

Table B.1: Severely Affected Countries

Dep. Var.: Palma Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.330*	0.435*	0.234***	0.242***	0.220*
		(0.127)	(0.174)	(0.0130)	(0.0405)	(0.0781)
Oil Rent		-0.00101	0.00306	-0.00184	-0.00167	-0.00186
		(0.00199)	(0.00384)	(0.00279)	(0.00277)	(0.00279)
Inflation		-0.000467	-0.000359	-0.000304	1.20e-05	0.000142
		(0.00138)	(0.00111)	(0.00102)	(0.00118)	(0.00150)
Unemployment		0.137	0.157	0.151	0.158*	0.159*
		(0.0851)	(0.0709)	(0.0698)	(0.0578)	(0.0593)
Corruption	-0.327	-0.375	-0.385*	-0.261	-0.272	-0.204
	(0.202)	(0.191)	(0.126)	(0.176)	(0.174)	(0.241)
Arab Spring	-1.083***	-1.539***	-1.378***	-1.236**	-1.235**	-1.243**
	(0.213)	(0.318)	(0.220)	(0.287)	(0.281)	(0.298)
Corruption * Arab Spring	0.805***	1.106***	0.928***	0.886**	0.807**	0.832*
	(0.0876)	(0.172)	(0.0703)	(0.193)	(0.252)	(0.318)
Log [GDPPC]			-0.608	-0.460	-0.707	-0.699
			(0.400)	(0.335)	(0.433)	(0.450)
Urbanization				-0.0618	-0.0582*	-0.0569
				(0.0302)	(0.0231)	(0.0268)
Informal Sector					-0.00961	-0.00862
					(0.0179)	(0.0203)
Corruption^2						-0.0625
						(0.278)
Constant	4.462***	2.038	6.357*	8.871	10.87	10.74
	(0.118)	(1.400)	(2.471)	(4.420)	(5.169)	(5.483)
Observations	120	108	92	92	85	85
R-squared	0.529	0.710	0.784	0.829	0.830	0.830
Number of Country	5	5	4	4	4	4
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria is excluded.

Table B.2: Moderately Affected Countries

Dep. Var.: Palma Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.0353	0.0339	0.0314	0.0513	0.0595
		(0.0189)	(0.0187)	(0.0311)	(0.0968)	(0.0889)
Oil Rent		0.0147	0.0143	0.0135	-0.0195	-0.0108
		(0.00973)	(0.00979)	(0.00992)	(0.0294)	(0.0257)
Inflation		-0.00261	-0.00157	-0.00325	-0.0114	-0.0108
		(0.00545)	(0.00600)	(0.00708)	(0.0152)	(0.0165)
Unemployment		0.0182	0.0204	-0.00149	0.00804	-0.0246
		(0.0159)	(0.0157)	(0.0240)	(0.0180)	(0.0197)
Corruption	1.046	1.097	1.063	1.274	0.998***	-0.0121
	(0.842)	(0.840)	(0.834)	(0.791)	(0.151)	(0.847)
Arab Spring	-0.145	-0.162	-0.214	0.332	0.381	0.537
	(0.156)	(0.147)	(0.167)	(0.311)	(0.352)	(0.338)
Corruption * Arab Spring	0.173	0.293	0.302	-0.135	-0.247	-0.545
	(0.312)	(0.398)	(0.432)	(0.395)	(0.551)	(0.367)
Log [GDPPC]			0.277	0.939	-0.216	0.0300
			(0.473)	(0.582)	(1.180)	(1.251)
Urbanization				-0.0896	-0.136	-0.147
				(0.0590)	(0.0805)	(0.0793)
Informal Sector					-0.155	-0.114
					(0.109)	(0.0883)
Corruption^2						1.411
						(0.766)
Constant	4.172***	3.726***	1.440	2.527	19.72	17.66
	(0.516)	(0.469)	(4.117)	(2.514)	(9.563)	(8.571)
Observations	168	159	159	159	110	110
R-squared	0.138	0.195	0.199	0.303	0.460	0.499
Number of Country	7	7	7	7	5	5
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Iraq and Palestine are excluded.

Table B.3: Lightly Affected Countries

Dep. Var.: Palma Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		-0.00389	-0.000474	-0.00498	-0.00565	-0.00494
		(0.00417)	(0.00516)	(0.00636)	(0.00614)	(0.00740)
Oil Rent		0.00416	0.00334	0.00340	0.00522	0.00499
		(0.00355)	(0.00307)	(0.00316)	(0.00440)	(0.00418)
Inflation		0.0132*	0.0165***	0.0164**	0.0212**	0.0174**
		(0.00615)	(0.00392)	(0.00416)	(0.00550)	(0.00597)
Unemployment		0.0768	0.0649	0.0958*	0.0878*	0.0836*
		(0.0578)	(0.0403)	(0.0475)	(0.0374)	(0.0335)
Corruption	-0.105	-0.131	-0.139***	-0.115**	-0.117***	-0.233**
	(0.132)	(0.0811)	(0.0274)	(0.0389)	(0.0227)	(0.0723)
Arab Spring	0.00445	0.0190	0.000402	-0.0670	-0.0300	-0.0163
	(0.0608)	(0.0517)	(0.0511)	(0.0840)	(0.0730)	(0.0647)
Corruption * Arab Spring	0.0994	0.0316	0.0892	0.100	0.0840	0.115
	(0.180)	(0.188)	(0.116)	(0.109)	(0.0792)	(0.0931)
Log [GDPPC]			-0.863**	-0.785***	-0.773***	-0.825***
			(0.239)	(0.156)	(0.147)	(0.123)
Urbanization				0.0236	0.0274	0.0241
				(0.0136)	(0.0138)	(0.0131)
Informal Sector					0.0173	0.0120
					(0.0130)	(0.0120)
Corruption^2						-0.113
						(0.0764)
Constant	5.758***	5.395***	14.30***	11.40***	10.58***	11.52***
	(0.103)	(0.253)	(2.343)	(1.043)	(1.185)	(1.226)
Observations	144	144	140	140	128	128
R-squared	0.041	0.246	0.566	0.604	0.632	0.644
Number of Country	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix C

Sub-Sample Regressions - Zucman Ratio

Table C.1: Severely Affected Countries

Dep. Var.: Zucman Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.211*	0.275*	0.148***	0.151**	0.138*
		(0.0802)	(0.110)	(0.00806)	(0.0277)	(0.0515)
Oil Rent		-0.000662	0.00203	-0.00106	-0.000850	-0.000960
		(0.00134)	(0.00245)	(0.00170)	(0.00178)	(0.00175)
Inflation		-0.000406	-0.000381	-0.000347	-4.37e-05	3.33e-05
		(0.000935)	(0.000674)	(0.000657)	(0.000662)	(0.000903)
Unemployment		0.0848	0.0968	0.0932	0.0984*	0.0985*
		(0.0547)	(0.0450)	(0.0446)	(0.0366)	(0.0375)
Corruption	-0.221	-0.252	-0.259*	-0.181	-0.186	-0.146
	(0.135)	(0.129)	(0.0894)	(0.119)	(0.121)	(0.169)
Arab Spring	-0.689***	-0.972***	-0.856***	-0.766**	-0.771**	-0.776**
	(0.127)	(0.197)	(0.144)	(0.190)	(0.187)	(0.198)
Corruption * Arab Spring	0.514***	0.704***	0.576***	0.550**	0.503*	0.517*
	(0.0510)	(0.105)	(0.0497)	(0.130)	(0.170)	(0.212)
Log [GDPPC]			-0.417	-0.323	-0.469	-0.464
			(0.265)	(0.230)	(0.305)	(0.315)
Urbanization				-0.0390	-0.0359*	-0.0351
				(0.0191)	(0.0148)	(0.0173)
Informal Sector					-0.00498	-0.00439
					(0.0118)	(0.0135)
Corruption^2						-0.0370
						(0.187)
Constant	3.093***	1.579	4.579*	6.167	7.261	7.183
	(0.0806)	(0.902)	(1.704)	(2.955)	(3.527)	(3.723)
Observations	120	108	92	92	85	85
R-squared	0.521	0.694	0.772	0.815	0.816	0.817
Number of Country	5	5	4	4	4	4
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Syria is excluded.

Table C.2: Moderately Affected Countries

Dep. Var.: Zucman Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		0.0230	0.0220	0.0204	0.0335	0.0383
		(0.0124)	(0.0118)	(0.0197)	(0.0600)	(0.0555)
Oil Rent		0.00966	0.00936	0.00887	-0.0114	-0.00637
		(0.00603)	(0.00611)	(0.00620)	(0.0179)	(0.0158)
Inflation		-0.00168	-0.000897	-0.00194	-0.00683	-0.00646
		(0.00337)	(0.00368)	(0.00432)	(0.00938)	(0.0101)
Unemployment		0.0113	0.0130	-0.000704	0.00496	-0.0139
		(0.00984)	(0.00980)	(0.0148)	(0.0106)	(0.0121)
Corruption	0.674	0.708	0.682	0.814	0.649***	0.0662
	(0.520)	(0.518)	(0.517)	(0.486)	(0.100)	(0.526)
Arab Spring	-0.0949	-0.106	-0.146	0.194	0.219	0.308
	(0.0946)	(0.0883)	(0.100)	(0.193)	(0.215)	(0.208)
Corruption * Arab Spring	0.112	0.190	0.197	-0.0747	-0.135	-0.307
	(0.192)	(0.244)	(0.268)	(0.244)	(0.334)	(0.225)
Log [GDPPC]			0.207	0.619	-0.1000	0.0422
			(0.300)	(0.356)	(0.725)	(0.773)
Urbanization				-0.0558	-0.0832	-0.0895
				(0.0363)	(0.0497)	(0.0492)
Informal Sector					-0.0946	-0.0705
					(0.0671)	(0.0547)
Corruption^2						0.815
						(0.471)
Constant	2.906***	2.615***	0.903	1.580	12.12	10.93
	(0.319)	(0.289)	(2.599)	(1.594)	(5.873)	(5.317)
Observations	168	159	159	159	110	110
R-squared	0.146	0.205	0.210	0.313	0.465	0.499
Number of Country	7	7	7	7	5	5
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Iraq and Palestine are excluded.

Table C.3: Lightly Affected Countries

Dep. Var.: Zucman Ratio	(1)	(2)	(3)	(4)	(5)	(6)
Population		8.92e-05	0.00153	-0.00119	-0.00203	-0.00191
		(0.00312)	(0.00231)	(0.00357)	(0.00341)	(0.00380)
Oil Rent		0.00265	0.00191	0.00194	0.00238	0.00234
		(0.00214)	(0.00164)	(0.00167)	(0.00248)	(0.00246)
Inflation		0.00824*	0.0113***	0.0112***	0.0128***	0.0121**
		(0.00380)	(0.00183)	(0.00210)	(0.00299)	(0.00360)
Unemployment		0.0621	0.0568**	0.0754**	0.0716**	0.0708**
		(0.0347)	(0.0192)	(0.0227)	(0.0191)	(0.0187)
Corruption	-0.0935	-0.101	-0.102***	-0.0877***	-0.0884***	-0.110**
	(0.110)	(0.0757)	(0.0188)	(0.0176)	(0.0195)	(0.0285)
Arab Spring	0.0387	0.0442	0.0268	-0.0138	-0.00502	-0.00254
	(0.0504)	(0.0412)	(0.0181)	(0.0349)	(0.0368)	(0.0343)
Corruption * Arab Spring	0.0462	-0.0243	0.0236	0.0301	0.0313	0.0370
	(0.101)	(0.119)	(0.0566)	(0.0527)	(0.0275)	(0.0282)
Log [GDPPC]			-0.668***	-0.621***	-0.612***	-0.622***
			(0.126)	(0.0857)	(0.0857)	(0.0836)
Urbanization				0.0142	0.0164	0.0158
				(0.00782)	(0.00844)	(0.00868)
Informal Sector					0.00504	0.00407
					(0.00947)	(0.00998)
Corruption^2						-0.0206
						(0.0353)
Constant	4.026***	3.749***	10.64***	8.900***	8.527***	8.698***
	(0.0750)	(0.177)	(1.248)	(0.852)	(1.057)	(1.158)
Observations	144	144	140	140	128	128
R-squared	0.052	0.276	0.685	0.713	0.724	0.725
Number of Country	6	6	6	6	6	6
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1