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Governance and Economic Growth in the Arab World: Evidence from Panel Data Analysis

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GOVERNANCE AND ECONOMIC GROWTH IN THE ARAB WORLD:
EVIDENCE FROM PANEL DATA ANALYSIS

by

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DEDICATION

I dedicate this work to my children, Ammar, Shaddad, Layan, and Kenan. I wholeheartedly wish

that someday they take a lesson from their father's story in order to create their own future.

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GOVERNANCE AND ECONOMIC GROWTH IN THE ARAB WORLD:
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Western Michigan University, 2019

Economic growth has been volatile and slow in the Arab World during the last two decades. Arguing that good governance is a precondition to vibrant economic systems and growth, comparative researchers and development policy practitioners view such a slowdown in growth in the Arab World to be triggered by weak governance performance. This cross-national study examines the relationship between governance and economic growth in the Arab World, which includes 22 member-states of the League of Arab States, over the period 1996-2017. By using World Bank data, governance is operationalized through voice and accountability (VA), political stability and absence of violence (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CC). A set of appropriate control variables is also used to test the hypotheses revolving around the roles of governance in aggregate as well as its different components in determining economic growth.

A series of analytical techniques including descriptive analysis and panel data regressions suggests that there is no significant relationship between governance and economic growth in the Arab World. However, an in-depth decomposition analysis by the various economic, regional, and political classifications suggests that governance may be somewhat correlated with economic growth when it comes to certain groups of countries. While the direction of relationship varies and is difficult to explain in certain cases, some indicators of governance may be more important than others. For example, the roles of VA, PS, and GE are significant in low-

income economies whereas those of VA and CC are significant in the Greater Maghreb region, those of VA are significant in republics, and those of GE are significant in monarchies.

This study's findings are more nuanced than sweeping. While governance in and of itself does not predict the level of economic growth in a significant way, the contribution that good governance makes to boosting economic growth stands out at some sub-group levels. Specifically, the role of governance differs by the distribution of income, region, and regime type. Governments and policymakers in the Arab World have to strengthen the various dimensions of governance in order to restore and sustain economic growth.

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CHAPTER I

INTRODUCTION

Economic growth is considered one of the most important indicators of a healthy economy. Higher rates of sustainable growth contribute to increasing people's living standards and keeping poverty at minimal levels. Economic growth in the Arab world, however, has been volatile and low during the last two decades. Some comparative researchers and development practitioners argue that such a slackening growth is triggered by weak governance based on the belief that both governance and growth tend to go hand in hand.

The relationship between governance and economic growth has been debatable subject of many studies for several decades. In the 1980s, the term 'governance' was initially developed and widely emphasized in political science, public administration, and economics (Hewitt de Alcántara, 1998; Grindle, 2010). It emerged to reconfirm the vital role of the state in the development process. Since then the term has been used by development practitioners to assist in solving development-related issues (e.g. poverty, hunger, unsafe water supplies, corrupt government, poor education systems and sanitation, high mortality rates, etc.). But the scholarship literature does not offer a universally-agreed upon definition for the notion of governance; the term itself is ambiguous. The opacity in defining the notion of governance can be explained by the different ideologies in its use on all levels by many stakeholders, such as state, political leaders, politicians, development agencies, bilateral and multilateral donor countries and institutions. Even how governance is defined by development agencies is not unanimous due to the divergent mandates and goals of these agencies. Similarly, political leaders and researchers tend to conceptualize governance differently towards their political agendas. Grindle (2010), for instance, summarizes how governance is conceptualized based on

perspectives of scholars on the political right and political left. For political right, it is order, rule of law, and the institutional conditions for free markets to flourish. For political left, it refers to equity, protection for vulnerable people including women, and the state's role.

Certainly, governance has different types and uses. However, many studies are essentially concerned with the analysis of public governance. In this context, the salience of governance, regardless of whether it is good or bad, has been more emphasized by the World Bank since its emergence as a unique paradigm in 1990s. Since then, governance is recognized as the effective role of state in development.

It has been emphasized in literature that good governance is a crucial factor in boosting any country's economy and development process. It substantially contributes to effective implementation of sound policies and provision of public services. Governance is a "mighty beacon" for those citizens suffering from insecurity, poverty, corruption, law violations, and abuse of authority in developing countries (Grindle, 2010, p. 1). Its salient role is not only pertaining to sustaining and strengthening economic growth, but it is also evident in peace building and recovery from wars and conflicts in war-torn countries (Brinkerhoff, 2005). Recently, governance reforms have been stressed by development and assistance practitioners as a prerequisite for maintaining economy at macro and micro levels. It is used today as a slogan for many political agendas in the absence of the state role in entrenching stability. "Good" governance is considered by the United Nations as a kernel component of its Millennium Development Goals (MDG) because it sets up a framework for reducing poverty, inequality, and other shortcomings in any country (Mimicopoulos et al., 2007). Scholars agree that bad governance can have detrimental effects on economic growth and human well-being.

This study, therefore, contributes to the academic research by examining the governance-growth relationship in the Arab world at general as well as providing an in-depth analysis on those economically, culturally, and politically homogenous countries.

Problem Statement

By mid-twentieth century, most Arab countries tended to embrace an economic development model that was largely managed by the public sector and reliant on state planning of economic and social priorities for redistribution of assets and investment policies (Hassine, 2015; Bibi & Nabil, 2010). Until the 1980s, investments in public projects such as infrastructure, education, public health, employment, land reforms, and redistribution of assets achieved relatively good improvements in human and economic development indicators and proportional success in poverty reduction (Page, 2007). Since then, many Arab countries have been encouraged to launch economic reforms in accordance with the policies and programs of international financial institutions. These reforming initiatives were primarily concerned with privatization and economic openness to pave the way in front of more trading activities and attract foreign aid flows (Hassine, 2015).

Despite the previous series of economic reforms and high volumes of aid flows to governments of the Arab world during the past two decades, many Arab countries still have serious socioeconomic and developmental issues, such as unemployment, inequality in the distribution of gains, fast population growth, and decline in real earnings (Rivlin, 2001). More specifically, the slowdown and volatility in economic growth rate has been a key issue for Arab states with low income levels and for those characterized with rapid growth rates of population

and labor force. The per capita GDP growth in the Arab region over the past two decades has faltered compared with the other developing regions (Abed, 2003). According to the World Bank (2017), the annual growth rate of the low and middle-income countries in the Middle East and North Africa (MENA) region witnessed the largest decline compared to other developing countries after the international financial crisis in 2008. With a 3.3 percentage-point difference, the average annual growth of GDP per capita dropped from 3.1 percent over the period 2000-2009 to -0.2 percent over 2009-2015 (World Bank, 2017, p. 66).

Furthermore, Arab countries achieved low growth on the Human Development Index (HDI), which measures human well-being based on three basic dimensions: healthy life, knowledge, and a decent standard of living or educational attainment. From 1990-2017, the Arab states had an average annual HDI growth of 0.84, which is much lower than other developing regions, such as South Asia (1.39), East Asia and the Pacific (1.30), and the Sub-Saharan Africa (1.12). Unlike the rest of developing regions which enjoy lesser gap of income levels between its rich and poor countries, World Bank data indicate that the Arab region has a wide gap between the oil-economies and non-oil economies. For example, the differences in GDP per capita in the region are more than eighty-nine-fold, with Yemen having the lowest GDP per capita (US$660) and Qatar the highest (US$59,324) in 2016. Another example of the volatile growth can be seen in the total investment rate, which is around 23 percent of GDP. While the average investment rate during the period 1996-2017 is higher than in Sub-Saharan Africa (22 percent) and Latin America & Caribbean (19 percent) and is on par with Europe and Central Asia, it is still behind the 28 percent seen in South Asia and the 25 percent in East Asia & Pacific. Clearly, such a sluggish rate of growth is because of the oil revenues and volume of investment that were not

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used for generating a sustained economic growth (Nabli & Humphreys, 2003; Davoodi & Abed, 2003).

However, other scholars see that the low economic performance in the Arab region is thought to be associated with the "politically and economically captured system" in the region (Kaufmann, 2011, p. 29). Government tends to benefit specific elites based on patronage network, leaving youth and other vulnerable segments of the society out from being among those recipients of social goods and services. As Kaufmann remarks (2011, p. 29):

> Countries afflicted by a particularly insidious form of misgovernance, namely capture – the shaping of the rules of the game and institutions of the state for the benefit of the few – tend to exhibit much lower investment and growth rates by the private sector than countries with a more level playing field.

Governance in the Arab region is not only deteriorating but also seen as the primary cause of many economic and developmental issues. According to a recent survey of 100 leading intellectuals and experts from Arab countries, lack of good governance underlies many of the region's challenges and problems including, corruption, unemployment, outdated education systems, and rentier economies (Cammack & Muasher, 2016). The lack of good governance is also evident in many international indexes. The Worldwide Governance Indicators (WGI) data indicate that the percentile rank of governance in the MENA compared to other developing regions is subpar. For instance, the two indicators of voice and accountability and political stability were given 25 and 26 percentile rank in 2017 respectively, the lowest rank among the other regions. The indicators of government effectiveness, regulatory quality, rule of law, and corruption control have lagged behind East Asia & Pacific and Latin America & Caribbean regions as indicated in Figure 1. The percentile rank is an indication of the country's rank among

all countries covered by the governance indicators, with 0 corresponding to lowest rank, and 100 to highest rank.

Figure 1: Governance Indicators in Developing Regions (2017)
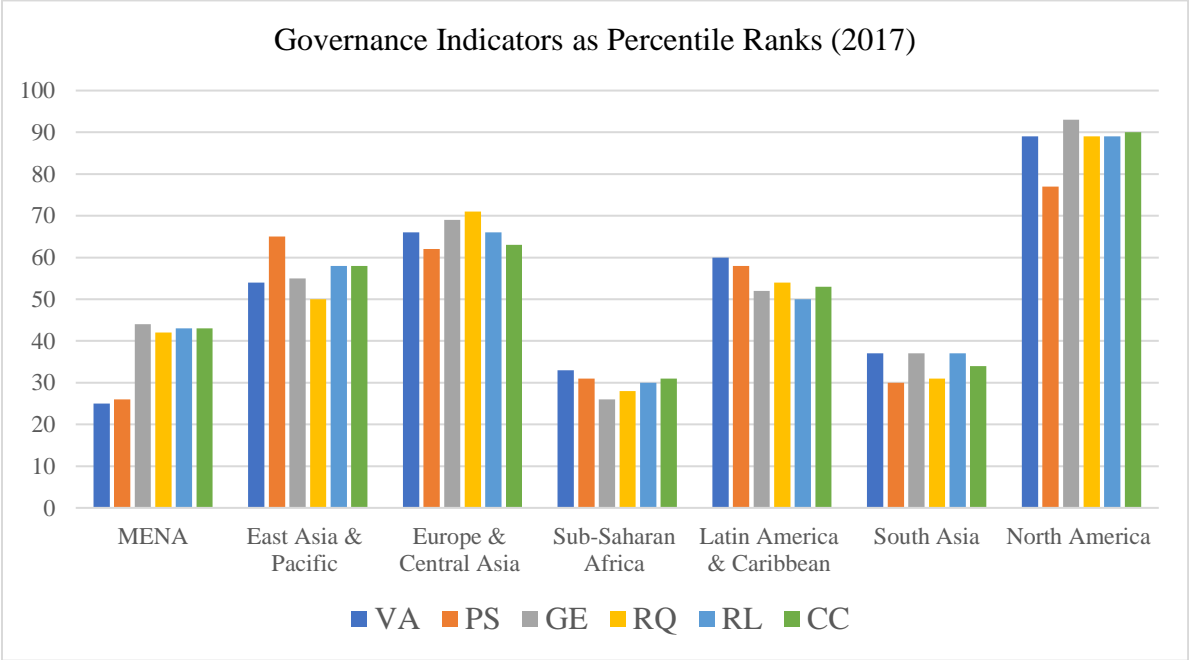
Unlike the wide body of literature on governance in developed and some developing regions, empirical studies in the Arab countries are scant. While there is a growing trend toward survey research in the Middle East ushered by some think tanks (e.g. Arab Barometer, Arab Center for Research and Policy Studies), an in-depth analysis of the effects of governance dimensions (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and corruption control) on economic growth is lacking. Part of it is attributed to the fact that mis-governance was ignored by the international community in the region for a long time (Kaufmann, 2011).

Another equally-important issue that is evident in literature is related to the contradictory findings on governance-growth nexus as discussed in the literature review and succinctly

summarized in appendix 1. On the one hand, some studies conclude that there is a positive relationship between the two variables. On the other hand, some researchers argue that governance has an adverse effect on economic growth. Other studies indicate neutral findings or no association at all. In view of these inconclusive results and considering the paucity of studies on Arab countries, an empirical analysis that will adequately provide quantitative effects of governance on economic growth is of paramount importance to inform policy makers and development actors.

Overview of the Study Context

The "Arab World" is a political term referring to the member-states of the League of Arab States (LAS), that was founded in 1945. It is also known as the Arab nation or region that consists of 22 Arabic-speaking countries, namely; Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates (UAE), and Yemen. These Arab countries occupy a large area stretching from Morocco across Northern Africa in the west to Arabian Sea in the east, and from the Mediterranean Sea across the north to the Horn of Africa in the southeast. The term "Arab World" has been interchangeably used with the Middle East and North Africa (MENA) – the most commonly used term by Western nations – but the latter excludes Comoros and Djibouti and includes other non-Arabic speaking states such as, Turkey and Iran. There is no a standard definition of the countries belonging to the MENA regions; the list may include more or less countries according to the political agenda of the respective organization. Overall, however, the MENA region includes most of the Arab states.

With its geostrategic and commercial location that straddles two continents and its access to key waterways – the Mediterranean Sea, the Atlantic Ocean, the Arabian Sea, the Arabian Gulf, the Red Sea, the Gulf of Aden, and the Indian Ocean – the Arab World has long been the focus of major foreign powers (Nabli & Humphreys, 2003). Its population forms about 6.13 percent of the world's population. According to the World Bank, the Arab World has had a total population of approximately 414 million inhabitants in 2017 living in 22 countries distributed on four main areas; North Africa, the levant, the Gulf area, and Horn Africa. Egypt is ranked as the most populous with 97 million people and Comoros with the least population size of 813,912 people.

The Arab World is rich with natural resources and oil-reserves. It is estimated that the region accounts for two thirds of the world's oil; and its value of GDP (PPP) accounts approximately 3 percent of the world's GDP. While the region is economically diverse in terms of income level and natural resources wealth, all the countries share common characteristics (e.g. culture, language, history).

The Arab states can be categorized into various typologies. However, for the purpose of this study, the political and economic aspects are being emphasized. Politically, Arab states are categorized into two broad groups based on the political regime or governance type; 8 monarchies and 14 republics as indicated in Table 1. Within the same type of regime, differences exist in terms of political participation and voice and accountability. For example, in those constitutional monarchies the political participation is to some extent higher than in absolute monarchies. The same case is noticed in the republics; for those republics that power is shared with executive branches of state, the degree of political participation is relatively higher than in presidential or semi-presidential republics. In general, it can be said that all the Arab states are characterized by authoritarianism, despotism, and internal divisions.

Table 1: Demographics of the Arab World

Country	Political System	Area (km²)	Population (2017)	GDP per capita (2017)
Algeria	Republic (semi-presidential	2,381,741	41,318,142	4,123.39
Bahrain	Constitutional monarchy	771	1,492,584	23,655.04
Comoros	Republic (presidential)	1,861	813,912	797.29
Djibouti	Republic (semi-presidential)	23,180	956,985	1,927.59
Egypt	Republic (semi-presidential)	995,450	97,553,151	2,412.73
Iraq	Republic (parliamentary)	434,320	38,274,618	5,165.71
Jordan	Constitutional monarchy	88,780	9,702,353	4,129.75
Kuwait	Constitutional monarchy	17,820	4,136,528	29,040.36
Lebanon	Republic (parliamentary)	10,230	6,082,357	8,523.75
Libya	Republic (parliamentary)	1,759,540	6,374,616	7,998.03
Mauritania	Republic (semi-presidential)	1,030,700	4,420,184	1,136.76
Morocco	Constitutional monarchy	446,300	35,739,580	3,007.24
Oman	Absolute monarchy	309,500	4,636,262	15,668.37
Palestine	Republic (presidential)	6,020	4,684,777	3,094.73
Qatar	Absolute monarchy	11,610	2,639,211	63,505.81
Saudi Arabia	Absolute monarchy	2,149,690	32,938,213	2,0760.91
Somalia	Republic (parliamentary)	627,340	14,742,523	499.82
Sudan	Republic (presidential)	2,376,000	40,533,330	2,898.55
Syria	Republic (semi-presidential)	183,630	18,269,868	
Tunisia	Republic (semi-presidential)	155,360	11,532,127	3,490.83
United Arab Emirates	Constitutional monarchy	83,600	9,400,145	40,698.85
Yemen	Republic (president and prime minister)	527,970	28,250,420	
Total		13,621,413	414,491,886	242,535.5

Source: Author's calculations based on the World Bank data.

Economically, the Arab states are categorized into four subtypes based on level of income and natural resources abundance including oil and natural gas (Bibi & Nabil, 2010). The first subgroup is called "emerging economies" which includes Jordan, Morocco, Tunisia, Palestine, and Egypt. The second subgroup is called "transition economies": Iraq, Syria, and Algeria; the third subgroup is the resource-rich economies, which includes all the Gulf Cooperation Council (GCC) states (e.g. Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) and Libya. As for the fourth subgroup, it is called low income economies which include Comoros, Djibouti, Mauritania, Somalia, Sudan, and Yemen (Bibi & Nabil, 2010, p. 7).

During the last several decades, the Arab World's growth has inconsistently faltered in spite of the natural resources' wealth. The region, as a whole, achieved the weakest economic performance of all developing regions in the world, after the Sub-Saharan Africa region (Abed, 2003; Looney, 2012). A key cause of such a volatile and lower growth rate is not exclusively economic per se, rather it is political. As Henry and Springborg (2001) assert that the primary barrier to economic growth and development in the MENA region is politics. Growth differences among countries are more likely linked to the degree of progress made in the quality of governance (Nabli & Humphreys, 2003; Kaufmann, 2011; Looney, 2012). In the WGI, for instance, the upper-middle income states have average governance score about twice those of lower-income states worldwide, implying the general relationship between good governance and economic growth and development. This also indicates that countries with higher level of incomes seemingly perform better than those that have lower incomes. But the case with the Arab states is against this assumption. The quality of governance in the Arab World is lower than it should be expected for their incomes (Nabli & Humphreys, 2003).

Purpose of Research

The primary purpose of this research is to empirically investigate the relationship between governance and economic growth in the Arab World countries over the period of 1996-2017 with the use of cross-sectional panel data adopted from the WGI and World Bank database. The research will contribute to the governance-growth literature through addressing additional specific objectives including, examining which of the governance dimensions has the greatest impact on economic growth, comparing the quality of governance in the Arab countries and other developing regions, analyzing the study results and interpreting its implications on governance and economic growth, and drawing conclusions and providing tangible recommendations for sustaining economic growth in the Arab world.

Notwithstanding the existing diversities witnessed in population size, geo-political structures, economic policies, and income level, the Arab world enjoys a wide range of homogenous characteristics and commonalities. More specifically, Arab countries share similarities in terms of culture, language, societal structures, natural resources, and shared production base of economic growth and development (Bibi & Nabil, 2010). Thus, such diversities and similarities will be taken into consideration in this research. In-depth analysis of governance dimensions will be carried out through the various economic, regional, and political classifications.

Research Questions

The research questions are stated as below:

1- What is the state of good governance in the Arab World countries? How do Arab countries compare among themselves and with other regions? Are they improving over time?

2- What is the impact of good governance on economic growth and development in the Arab World? How do these impacts compare across the different dimensions of good governance? what dimensions of good governance have the greatest impact?

Limitations

One prominent limitation of the current study is related to the time period. As it is previously stated, the study is intended to investigate the governance-growth nexus during the years 1996-2017. While the data on the growth indices can be easily accessed through the World Bank website for almost all the countries including the Arab states for decades prior the 1996, the data on the quality of governance are available only from the beginning of 1996 until 2017. The lack of data on governance indices for previous years led the researcher to limit the study according the available data. Also, data for some Arab countries are missing such as Iraq has no GDP per capita data from 1996-2003; the same case with Somalia (1996-2012), Syria (2008-2017), and Yemen (2017).

Another limitation is related to the geographical scope of this study. The evidence-based findings are limited to the Arab states since they have homogenous characteristics in respect to language, culture, and heritage. Accordingly, the findings may not be generalizable to other developing countries. Nevertheless, while the current study is only limited to the Arab world, the main issues underlying this research are apparently pertinent to most developing countries.

Significance of the Study

Without a shadow of doubt, improving the living standards of people worldwide requires sustainable growth and development in emerging and developing economies. While many factors

contribute to maintaining a sustained growth, governance has been identified as the dominant factor in developing countries. Gani (2011) asserts that improving the quality of governance as a precondition for economic growth is a big challenge for approximately 70 percent of the world's population who live in low and middle-income states. The quality of governance for this large segment of the world's population, particularly in Arab countries, can be significant for improving sustainable growth and development.

Although the governance-growth nexus has been extensively studied in other developed and developing regions, empirical research in the Arab world is scant due to a lack of data as well as a limited access to educational equipment in some countries that facilitate such kind of studies. This study tries to fill this gap through contributing to the empirical literature of governance and growth.

Unlike previously-written papers, which are often descriptive in nature, this study uses an empirical model to explain the link between governance and growth, taking into account the diverse economies in the Arab region by separately providing an in-depth analysis of the governance-growth nexus for each subgroup of the Arab states that share common characteristics. Also, the former studies encompass a large range of developing countries with a small sample from the Arab region or studies focusing on a limited number of Arab states, yet this study is fundamentally devoted to analyzing the governance-growth nexus in all the 22 countries of the Arab world without exclusion of any state or inclusion of further countries. Moreover, this study is at least one of the first, unless it is the first, to control for several variables adopted from classical, neoclassical, and new growth models including, FDI, government expenditure, life expectancy, population growth, urbanization, education, and technology in analyzing the effect of governance on economic growth in the Arab world.

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It can be said that the practical importance of this study is apparently latent in its findings. The study findings are expected to provide significant contribution to the existing governance-growth literature. Policy makers from the Arab world and other regions may utilize the study findings to assess their governance practices and be able therefore to make necessary changes and adjustments to better enhance economic growth. Researchers of various academic communities, especially those majoring in public-sector studies, may find something interesting in the findings since this study employs an empirical model to analyze the governance-growth nexus. Additionally, the findings may also help stimulate researchers to use different techniques to counter or strengthen the results of the current study.

Dissertation Outline

This research is organized as follows: the next chapter discusses the literature review related to the governance-growth nexus. It starts with reviewing the historical development of the paradigm shifts in public administration from old administration to the current governance paradigm. Also, a review of the difference between government and governance followed by a review of empirics on the governance-growth nexus. Chapter 3 is about the methodology along with the data that is used for processing the statistical analysis to investigate the effects of governance dimensions with deep analysis of each component in Arab countries. Chapter 4 is presents descriptive statistics of the study results. Chapter 5 presents a multivariate analysis based on empirical results. Chapter 6 provides a discussion of findings and summarizes important conclusions and possible implications of the research.

CHAPTER II

LITERATURE REVIEW

From the classical growth theory to the neoclassical models and up to the new growth theories, scholars and researchers have tried to study the causes of a country's economic growth. However, they were not able to come up with a typically-agreed upon group of variables that can be deemed as the main determinants of economic growth; rather, a wide range of different factors were suggested that might influence economic growth either positively or negatively. The factors affecting growth in a specific developed region may not be necessarily the same in a developing region. Thus, the following lines shed light on the key determinants of economic growth that have been highlighted in the empirical literature and which are believed to be important in the Arab World context.

One of the most significant determinants of economic growth is investment. This factor was identified by neoclassical models as well as endogenous growth theories. Many empirical studies show that investment rate has a positive impact on economic growth (Anderson, 1990; Barro, 1996; Podrecca & Carmeci, 2001; Fowowe, 2008). Another important factor that may affect economic growth is government expenditure or as sometimes called the ratio of government consumption to GDP. This factor can have either positive or negative effect on growth, depending on the government performance and policies towards the state economy. When government imposes high rates of taxes on businesses, uses revenues to support ineffective programs, and badly interferes in the economic activities, it might be seen as a burden, rather than a facilitator. Although many empirical studies conclude that there is a strong relationship between the government expenditure and economic growth (Al-Faris, 2002; Kolluri & Wahab,

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2007; Ono, 2014; Mazorodze, 2018), Barro (1996) views that economic growth is enhanced by lower government consumption, indicating inconclusive findings regarding this factor.

In addition, capital flows are believed to be a significant determinant of economic growth, particularly in developing economies. There has been a large body of literature on the key role of such factors in stimulating growth (Sadik & Bolbol, 2001; Driffield & Jones, 2013). Driffield and Jones (2013) analyze the combined impact of the overseas capital flows variables – foreign direct investment (FDI), official development assistance (ODA), and migrant remittances – on the economic growth. Their analysis indicates that both FDI and migrant remittances positively affect growth in developing countries. The findings further show that in countries with better institutional environment that maintains law and order, growth rate is expected to be higher. In contrast, the relationship between foreign aid and economic growth is not very clear. Theoretically, it can be hypothesized that foreign aid is positively associated with economic growth, but empirical studies show controversial results. Empirical findings indicate that there is a positive relationship between foreign aid and growth (Juselius et al., 2014; Museru et al., 2014; Hussain et al., 2018; Sothan, 2018), but other study findings do not support this view (Alvi et al., 2008; Mallik, 2008; Herzer & Morrissey, 2013).

Kharusi & Ada (2018) investigate the relationship between external debt and economic growth in Oman with the use of time series data for the years 1990-2015. The study findings reveal that there is a negative and significant impact of debt on economic growth. Also, Abdelhafidh (2014) finds that external debt has had a negative impact on growth over the 1970-2010 in Tunisia. On the contrary, other studies show that there is a positive debt-growth nexus (Kasidi & Said, 2013; Owusu-Nantwi & Erickson, 2016).

Human capital is also identified in the neoclassical and endogenous growth models as one of

major sources of growth. Human capital, as defined by Benos & Zotou (2014), is "the set of

knowledge, skills, competencies, and abilities embodied in individuals and acquired, for

example, through education, training, medical care, and migration" (p. 669). It is evident from

the empirical literature that researchers have used various proxies of education measures (e.g.

literacy rate, years of schooling, enrollment rates in primary or secondary school, public

expenditure on education). In general, the empirical literature indicates that there is a positive

linkage between the educated population and economic growth (Romer, 1989; Barro, 1991; Lee,

2010; Ada & Acaroglu, 2014). But other studies question the previous findings about the

education-growth nexus due to conceptual and methodological issues and selection bias

(Pritchett, 2001; Krueger & Lindahl, 2001; Benos & Zotou, 2014)

Among the additional factors influencing economic growth which have been highlighted in

literature are inflation (Abou-Ali & Kheir-El-Din, 2009), demographic change (Bloom &

Williamson, 1998), population growth (Huang & Xie, 2013), urbanization (Turok &

McGranahan, 2013), life expectancy (Barro and Sala-I-Martin, 1995; Kunze, 2014; He & Li,

2018), public infrastructure (Wang, 2002), technology (Sadik & Bolbol, 2001), geography and

ecology (Sachs & Warner, 1997), and oil endowment (Mohammadi & Jahangard, 2014).

Notwithstanding of the above factors, modern growth literature emphasizes that good

governance – which is characterized by accountability, openness, rule of law, and effective

institutions – is a critical part of economic growth and development. Some scholars, such as

Rosenberg and Birdzell (1985), Mokyr (1990), and North (1990) have found that differences in

governance and institutional factors are important for explaining why economic growth rate is

higher in Western nations rather than other countries. Even economists emphasize the

importance of governance in shaping a country's economic performance through creating

incentives and economic policies that encourage private investments (Oslon et al., 2000). Several

studies conducted in the MENA region (El-Badawi, 1999; Nabli & Humphreys, 2003) highlight

the role of institutions in boosting private investment and economic development.

Given that, it is very important to give the quality of governance a high priority in the analysis

of a country's economic growth. This does not necessarily mean that the other factors pointed in

the neoclassical and endogenous models are not significant, but they "lead to a different

emphasis in empirical inquiries" (Oslon et al., 2000, p. 343). Factors such as, foreign aid, foreign

direct investment, and grants may appear to be much less significant in boosting economic

growth and development when separately compared to the factor of governance; whereas they

are more likely significant and effective in achieving growth when combined with good

governance (Akramov, 2012). That's said, however, before navigating the empirical literature on

whether a relationship exists between governance and economic growth, it is imperative to have

a better understanding of what economic growth means and how it was historically

conceptualized by different schools of economic thought.

Defining Economic Growth

It is grounded in the economics literature that economic growth is fundamentally different

from the concept of economic development. Economic growth is simply defined as increased

total output or income, whereas economic development is broadly defined as sustainable increase

in the overall standard of living for individuals within a community (Greenwood & Holt, 2010,

p. 3). For Grinols (2004), economic development is "greater income and wealth, which lead to

greater utility for members of society" (p. 58). In conventional economics, economic growth is

synonymous with economic development based on the assumption that growth will bring

improvement in quality of life and the standard of living (Greenwood & Holt, 2010). However, economists have questioned such an assumption in different ways.

Economists contend that economic development is more ambiguous and far reaching than economic growth. As Nobel laureate Robert Lucas (1988) points out that "we think of economic growth and economic development as distinct fields, with growth theory defined as those aspects of economic growth we have some understanding of, and development defined as those we don't" (p. 13). Economic growth can be easily quantified through the increase in the aggregate output or GDP, but economic development can be quantified through a wide range of factors germane to education, health, infrastructure and so on (Barro, 1996). Having that said, however, the question is: does economic growth bring forth economic development?

Scholars agree on the importance of economic growth towards improving a nation's economy and human development. It has been historically used as a powerful indicator of a nation's economy. Economic growth of a country can be measured through two options; either as an increase in real GDP over time period, or as an increase in real GDP per capita over time (McConnell et al., 2009, p. 517). In the latter option the size of population is taken into consideration. As McConnell et al. (2009) clearly put it, "real GDP per capita (or per capita output) is found by dividing real GDP by the size of the population. The resulting number is then compared in percentage terms with that of the previous period" (p. 499). In addition, individuals with higher income are better off than lower income, because they can afford high quality of services and living expenses (Greenwood & Holt, 2010). Although economic development can be multi-dimensional, economic growth is one-dimensional. This means, economic development cannot be achieved without economic growth, but growth can be possible without development. An increase in GDP can be seen in a country within specific time period, nevertheless a genuine

improvement in the level of living standards can be unachieved at all or may be possible to a small segment of the society. Thus, "growth can either contribute to or subtract from economic development, depending on the way it occurs. Just as important is that economic growth may not always be the most important factor in improving perceptions of well-being" (Greenwood & Holt, 2010, p. 4). The following lines review the key driving forces of growth rate as proposed by economists of different schools of economic thought.

Review of Economic Growth Theories

The subject matter of economic growth and development has been at the center stage of economics literature throughout different times. This is evident in the vast majority of theoretical and empirical literature from the early work of Adam Smith, Solow, Romer, Lucas, and other continuous works of modern growth theories. Economists have tried to analyze the possible causes of economic growth and why some countries are rich while others are poor. The following lines provide a review of economic growth determinants through revisiting the different schools of economic thought.

Sharipov (2015) contends that early growth theories emanated from mercantilism, a dominant doctrine of economic thought in Europe throughout the 15th to the 18th century. Proponents of the "mercantile system" or the "system of commerce", as Smith (1776) called it, viewed that accumulating wealth is the source of growth and the purpose of increasing state sovereignty (McDermott, 1999). Mercantilists saw that a country's wealth is determined by the collected amount of coins and bullion. They preferred the policy of "favorable trade balance" where "a country must export more than it imports which would lead to a net inflow of bullion" (Magnusson, 2015, p. 217). As Wood (2002, p. 111) notes:

The basis of the mercantile system was the desire to develop the power and wealth of a

nation. The resources of the world were thought to be constant, and through trade they

were transferred from one nation to another. One nation's gain was another nation's loss,

so that the aim of each one was to maintain a balance in favour of itself. Some of the

means to this were protection of the home industry, the granting of monopolies to traders,

wage restraints, the restriction of exports of raw materials, coupled with an emphasis on

exporting finished products, and the control of the sea.

Many scholars, such as Adam Smith (1776), castigated the mercantilists as they confuse

"wealth with money" (Wood, 2002, p. 111) and such a selfish national policy might lead to wars

between nations and motivate colonization (Peukert, 2012). According to mercantilists, "trade

was a zero-sum game, a necessarily vicious competition between nation-states for a strictly finite

set of economic resources generated from the land" (Pincus, 2012, p. 14). Although the

mercantile system perished in the eighteenth century when the physiocracy started, some

scholars opine that it is still alive nowadays in the form of interventionism or as so-called "neo-

mercantilism" (Peukert, 2012).

In the second half of the 18th century, another economic theory called Physiocracy was

developed by a group of enlightened French economists which was opposite to mercantilism.

Physiocrats believed that the source of wealth is agriculture or production. They saw that

economic development is foremost driven by land development rather than the commercial and

industrial models. According to Physiocrats, "agriculture was almost the only activity which

yielded an output that was in excess of its input. This excess they termed the *produit net*, the net

product" (Gudeman, 1980, p. 245). Unlike mercantilism which was serving rulers' wealth,

physiocracy emerged to serve a new class of landowners (Ware, 1931).

In a nutshell, the main economic concepts of the Physiocratic theory can be b summarized into three points: (1) agriculture is the only source of wealth; (2) all non-agricultural activities are barren; (3) labor is an expense (Gudeman, 1980). But generally, the economic thoughts of mercantilists and Physiocrats became under sharp criticisms by classical growth theorists and opened up the economy for further debate.

The classical school of economic growth was established by a number of outstanding economists such as, Adam Smith, David Ricardo, Thomas Malthus, Karl Marx, John Stuart Mill, Jean-Baptiste Say, and others, who developed the classical growth theory or development. However, there seems to be variances in respect of the emphasis portrayed by each scholar. Adam Smith (1776), for example, saw that the wealth of nations is not necessarily based on the accumulation of bullion as held by mercantilists, rather on free trade. The increase of growth, according to Smith (1776), is driven by the increased size of markets free from external restrictions. Markets regulate themselves through what he called "invisible hand". Such an increase in the size of markets due to the division of labor and improvement in technology would stimulate development. In the same vein, David Ricardo's (1817) theory analyzed the impacts of distribution change in variables such as wage, population, profit, and rent on economic growth. The Ricardian model emphasized on the economic system of agricultural development and industry which inspired Marx's model (Zhang, 2018). Both David Ricardo (1951) and Karl Marx (1967) emphasized the role of investment in industry and capital accumulation as major driving forces of growth, whereas John Stuart Mill (1900) saw education as the engine of growth (Greiner et al., 2005). In contrast, Schumpeter (1934) emphasized on the vital role of entrepreneurs and innovation as determinants of economic development. According to Pietak (2014), the Schumpeterian model is based on the conviction that economic growth is

"unbalanced" and relies on "innovations", while the models of Lewis and Rostow "predict balanced growth in long run, even if it's unbalanced in short run" (pp. 56-7). An additional difference between the Schumpeterian theory and Lewis theory is that the former is addressed to the democratic and developed countries, but the latter deals with poor countries (Pietak, 2014).

The classical economists realized that fostering the economic growth would be likely associated with "divergence in income between sectors and groups", which would make some groups lose and others grasp the chance to create more fortunes. In such a case, classical economists "conceived growth as a process that converges in the long run toward a stationary state of per capita income" (Greiner et al., 2005, p. 2).

The Keynesian model emphasized on the expansion of aggregate demand and investment as key factors of increasing economic growth (Sharipov, 2015). To boost growth demand, Keynesians saw that government should meddle through implementing macroeconomic policies and spending on infrastructure and education. Harrod (1939) and Domar (1946) attempted to analyze economic growth based on Keynesian framework. They suggested that the economy's rate of growth is determined by two important factors; savings and the productivity of capital investment, which is also known as the capital-output ration. This means that increasing the rate of economic growth requires increasing the level of national savings.

For neoclassical economists, such as Robert Solow (1956) and Trevor Swan (1956), a steady rate of economic growth can be attained through three key driving forces; capital, workforce, and technological progress (Gylfason, 1999; Acemoglu, 2008). The Solow-Swan model is characterized by "diminishing returns" to capital and labor in which technological progress is exogenously determined. According to Kong (2007, p. 2):

The central hypothesis is that diminishing returns to investment cause the growth rate of a country to decline as it approaches, from below, its steady state level of capital per unit of effective labor. This implies that, out of steady state, *ceteris paribus*, rich economies will grow more slowly than poor economies, where capital deepening is still under way. While the savings rate and population growth have level effects – the higher the rate of savings or the lower the rate of population growth, the richer the country in the steady state – the speed of technological progress determines the steady state growth rate.

Another neoclassical model of economic growth is primarily based on the work of Frank Ramsey (1928), which was later developed by David Cass (1965) and Tjalling Koopmans (1965) and therefore known as the Ramsey – Cass – Koopmans model. The model endogenizes the saving rate on the option of consumption, which may not be constant on the long run as in the Solow-Swan model. In general, neoclassical models assume that growth equilibrium can be achieved in the long run and emphasize on the possibility of convergence, faster growth in poor countries compared to the rich countries. According to the convergence hypothesis, countries have the same steady state, but they differ in the capital ratio. For this reason, "the economy with a lower level of income per capita will obtain a higher rate of growth" (Pietak, 2014, p. 53).

Given the dissatisfaction with the Solow-Swan model's assumption of exogenous technological advancement, new growth models have been suggested to endogenize economic growth in the 1980s. The endogenous growth theory developed by Romer (1986) and Lucas (1988) linked economic growth to human capital - the set of skills and knowledge – based on mathematical explanation. Hunt (2012) provides the rationale behind the emergence of new growth theory:

Four economic facts have stimulated the development of endogenous growth models: (1) economic output has outpaced population growth since the industrial revolution, (2) the growth paths of different countries are not converging to a common level of per capita income, as would be expected if the capital/labor ratio were the key endogenous variable explaining growth, (3) technological progress has been found to be the main driver of economic growth, and (4) the innovative ideas that collectively constitute technological progress have most often involved, either at their conception or commercial exploitation (or both), the profit-driven actions of firms (p. 5).

Unlike the Solow-Swan model which assumes that technological progress is exogenously determined, Romer (1986) and Lucas (1988) see that technological progress is endogenous as it is associated with the production of knowledge (Dang & Sui Pheng, 2015). Technological advancement is not the only possible driver of economic growth in the long run, other factors determine economic growth. These factors as defined in the endogenous growth theories are human capital, protection of intellectual property rights, state support for science and innovation, and public policies promoting investment and new technologies (Sharipov, 2015; Dan & Sui Pheng, 2015).

Many empirical studies have been generated to examine the factors affecting economic growth, using either neoclassical models or endogenous models. For instance, Chirwa & Odhiambo (2016) analyze the key macroeconomic determinants of economic growth in developing economies based on 14 previously conducted empirical growth studies that used different models and methodologies. They find that several factors are significantly linked to economic growth based on "the order of their importance" including, foreign aid and foreign

direct investment, fiscal policy, trade, physical capital, human capital, demographics, monetary policy, natural resources and geographic, regional, political and financial factors (p. 41).

The role of government in augmenting economic growth was not seen as of great importance until recently because it was thought to "lie outside the boundary of economics" (Kong, 2007, p. 7). Both neoclassical and endogenous growth theories have had different views about the role of government in the economic process. In contrast to neoclassical models, new growth models encourage state's intervention in creating an environment conductive for investment. Many studies emphasize the importance of institutions for economic growth as they shape the necessary incentives to attract foreign investment (Acemoglu et al., 2004; North, 1990).

Historically, government was seen as the same as governance, particularly before the 1970s. However, with the emergence of a new governance paradigm there was a change in its meaning. So, the following lines shed light on the conceptualization of governance and how it came be to be revived and widely used by many organizations and practitioners.

The Concept of Governance

The term governance gained popularity in the 1980s in certain fields, such as political science, public administration, and economics (Hewitt de Alcántara, 1998; Grindle 2010). Such prominent attention towards governance-related issues has been rapidly increasing among donor agencies, academics, practitioners, philanthropists, and civil society organizations. Several factors contributed to this popularity in governance including, the end of the cold war. International donor agencies such as the World Bank and Western countries tended to push developing countries as well as countries of the former Union of Soviet Socialist Republics to

undertake political and administrative reforms towards good governance. In addition, the increased flows of foreign direct investment and awareness of politics role along with institutions in economic growth and development (Albassam, 2012; Akramov, 2012).

Despite the increasing popularity of governance, there is still no consensus amongst scholars and researchers on the concept of governance. It was traditionally seen and lexically defined as a synonym for government, but with the growth of literature it has been redirected in terms of its use (Stoker, 1998). Jessop (1998) describes governance as a 'buzzword' and 'eclectic' concept; and lacks a clear definition (Batche, 2003). As for Rhodes (1996), the term, governance, is 'imprecise' and has at least six discrete uses: as the minimal state, as corporate governance, as the new public management, as 'good governance', as a socio-cybernetic system, and as self-organizing networks. Hewitt de Alcántara (1998) claims that it is a synonym for "the efficient management of a broad range of organizations and activities" (p. 105) and Merrien (1998) considers it as another name for the minimal state, which is in accord with Rhodes's (1996) first use of the six suggested uses of governance. However, Batche (2003) views governance as a synonym for government in the sense that the government's role is pertaining to "coordination and steering rather than command" (p. 301). Others use governance as a proxy for public administration or public management (Kettl, 2006; Salamon, 2001; Garvey, 1997; Peters & Pierre, 1998).

Governance is broadly defined as "regimes of laws, rules, judicial decisions, and administrative practices that constrain, prescribe, and enable the provision of publicly supported goods and services" (Lynn, Heinrich, & Hill., 2001, p. 7). For Fukuyama (2013), governance is the "Government's ability to make and enforce rules, and to deliver services, regardless of whether that government is democratic or not" (p. 350). Yet, Rotberg (2014) argues that

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performance and results are deemed as key aspects of governance, not bureaucratic capabilities

as Fukuyama (2013) emphasizes. Adapted from Grindle (2007: 556-7), table 1 summarizes a

sample of governance definitions from scholarly works and internationally-known organizations.

Table 1: Definitions of governance

Source	What is governance?
World Bank (n.d.)	"The process and institutions through which decisions are made and authority in a country is exercised" (p.3)
UNDP (1997)	"The exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences" (p. 12)
IMF (2005)	For IMF purposes, 'limited to economic aspects of governance … in two spheres: improving the management of public resources …; supporting the development and maintenance of a transparent and stable economic and regulatory environment conducive to efficient private sector activities …' (p. 4)
DFID (2001)	'how the institutions, rules, and systems of the state – the executive, legislature, judiciary and military – operate at central and local level and how the state relates to individual citizens, civil society and the private sector' (p. 11, note a)
USAID (2005)	"The ability of government to develop an efficient, effective, and accountable public management process that is open to citizen participation and that strengthens rather than weakens a democratic system of government" (p. 1)
Hyden et al. (2004)	"The formation and stewardship of the formal and informal rules that regulate the public realm, the arena in which state as well as economic and societal actors interact to make decisions" (p. 16)
Kaufmann (2003)	"The exercise of authority through formal and informal traditions and institutions for the common good, thus encompassing: (1) the process of selecting, monitoring, and replacing governments; (2) the capacity

to formulate and implement sound policies and deliver public services, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them" (p. 5)

Hewitt de Alcántara (1998)	"The exercise of authority within a given sphere … efficient management of a broad range of organisations and activities … involves building consensus, or obtaining the consent or acquiescence necessary to carry out a programme, in an arena where many different interests are at play" (p. 105)

Source: (Grindle, 2007, pp. 556-7).

Other scholars such as De Ferranti et al. (2009) see that "Governance describes the overall manner in which public officials and institutions acquire and exercise their authority to shape public policy and provide public goods and services" (p. 8). Also, Frederickson et al. (2015) claim that "Governance refers to the lateral and inter-institutional relations in administration in the context of the decline of sovereignty, the decreasing importance of jurisdictional borders and a general institutional fragmentation" (p. 235). These definitions clearly reflect how scholars focus on the process of governance much more than on the duties and responsibilities that characterize governance from other concepts. Also, the review of governance-literature shows that some conceptualizations of governance are either narrow or too general and others lack an operationalization which can be used for measuring the quality of governance.

However, it can be noticed that some definitions are more operational than others. For example, Kaufmann, Kraay, and Mastruzzi (2011) define governance in a way that is more operationalized. Their definition describes the political, economic, and institutional dimensions that surround the concept. The proposed definition takes into consideration the excessively broad

and narrow definitions navigated in governance-related literature. Kaufmann et al. (2011) suggest this definition as part of the World Bank's research project that captures the Worldwide Governance Indicators (WGI) in more than 200 countries starting from 1996 to present. The definition is well-organized into three major components or areas of governance, and each area includes two indicators as indicated in Table 2.

Table 2: Governance Components and Dimensions

Major Components	Dimensions	Definitions
(a) the process by which governments are selected, monitored and replaced	Voice and Accountability	Capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
	Political Stability and Absence of Violence	Capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
(b) the capacity of the government to effectively formulate and implement sound policies	Government Effectiveness	Capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
	Regulatory Quality	Capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
(c) the respect of citizens and the state for the institutions that govern economic and social	Rule of Law	Capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

| interactions among them | | Capturing perceptions of the extent to which public power is exercised for private gain, |
| | Control of Corruption | including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interest. |

Source: (Recreated using the language from Kaufmann et al., 2011, p. 222)

In light of the afore-mentioned various definitions of governance, it is not clear why such a dormant concept with a limited usage came to be resurrected and vastly used by organizations and scholars of different domains. Theoretically, this can be linked to the paradigmatic shifts that occurred during the twentieth century in social sciences (Jessop, 1998). Many reforms took place including, the movement from autocratic systems to democratic governance systems, particularly in Western countries, and the expansion of the state responsibility to the private sector. These waves of change influenced not only the notion of governance, but also governance practices which have been extended to include society and non-governmental organizations. The following lines shed light on the paradigmatic shifts in public administration and how the theme of governance came to be seen as a distinct paradigm.

Paradigm Shifts from Old Administration to New Governance

There is an agreement amongst scholars that significant paradigm shifts occurred in the historical development of public administration up to the emergence of the new governance paradigm in 1990s, which is based on the use of networks, stakeholders and partnerships (Peters, 2002; Henry, 1975; Fry & Raadschelders, 2014). However, scholars have different interpretations of such paradigmatic shifts. Peters (2002), for example, classifies three major

paradigm shifts; traditional paradigms, New Public Management, and governance paradigm. As for Henry (1975), six paradigms are clear in the field and each paradigm includes "focus" and "locus" as delineated below:

Paradigm 1: The politics-administration dichotomy, 1900-1926

The first paradigm was based on the idea of separating politics from administration as a technique to promote government efficiency and effectiveness. This paradigm started with Wilson's seminal essay (1887) entitled "The Study of Administration", which established the required cornerstones for effective administration functions of government. In the discourse about the logic behind separating the two spheres of government, Wilson viewed that "Public administration is detailed and systematic execution of public law", whereas politics is seen as a higher-level of responsibility demarcated as "outside of and above administration" (p. 212). He explicitly described the field of public administration as a "field of business ... removed from the hurry and strife of politics" (p. 209). The statesman is elected to perform the function of politics, while the selected technical official is entitled to be on the position of administration, that's how Wilson explained the distinction between the two concepts. Obviously, Wilson through his essay called for a necessity to create a competent administration that has the technical expertise in executing and carrying out the formulated policies, far away from the partisan politics that was dominating at that time. Forming an effective administration would not be achieved without considering it as a science that has its principles, and implementation of public policies would not be realistically-tangible without the aid of administration. Thus, "Wilson intended to install a scientific, professional, meritocratic, clear-cut, rule-based, and therefore trustworthy bureaucracy" (Sager & Rosser, 2009; p. 1138). As Basheka (2012) points out, Woodrow Wilson

emphasized on four requirements for achieving effective public administration. According to Basheka (2012, p. 35):

> Wilson proposed four issues for study and discussion in his article namely: (1) separation of politics and administration, (2) comparative analysis of political and private organizations, (3) improving efficiency with business-like practices and attitudes toward daily operations, and (4) improving the effectiveness of public service through management and training of civil servants, as well as encouraging merit-based assessment.

Likewise, Goodnow (1900) contended that government has two functions described in his book title, *Politics and Administration*. Politics "has to do with policies or expressions of the state will" (p. 10), whereas administration "has to do with the execution of these policies" (p. 11).

Numerous writings supported Wilson's notion of creating an effective administration and partially disagreed with Wilson in some practical sides. According to Sager and Rosser (2009), Weber and Wilson had portrayed similar picture about the principles of "effective public administration", of which they both "pictured a formalized, professionalized, hierarchically organized, and meritocratic public administration" (p. 1138). However, both Weber and Wilson had different views about the dichotomy between politics and administration. While Wilson referred to the necessity of making a distinction between the two spheres of government to keep administration away from the partisan interests, Weber emphasized on a strict separation between the two levels and considering those who work on the upper level as "political leaders" and those who work on the administration level as "public servants". In such a point, both scholars differ in terms of the principles that should be adopted for public administration. The "harmonious" relationships, as Sager and Rosser (2009) called it, is still seen nowadays as a

clear paradigm in the American administration which contributed to building a solid nation based on the merit system.

Generally, it can be said that pubic administration scholars who were influenced by the Progressive movement made great efforts to create a new path for effective public administration at that time. As Henry (1975) summarizes the overarching result of this paradigm,

> The net result of Paradigm 1 was to strengthen the notion of a distinct politics/administration dichotomy by relating it to a corresponding value/fact dichotomy. Thus, everything that public administrationists scrutinized in the executive branch was imbued with the colorings and legitimacy of being somehow "factual" and "scientific", while the study of public policy-making and related matters was left to the political scientist (p. 379).

Paradigm 2: The principles of administration, 1927-1937

The second paradigm was primarily concentrated on the "focus" of the field – the necessary knowledge or expertise in public administration. Scholars believed that there should be "scientific principles" of administration that administrators are supposed to adopt and apply them in the field so that government effectiveness could be increased. These principles might work anywhere regardless of its "locus". Henry (1975) remarks that "In 1927, F. W. Willoughby's book, Principles of Public Administration, was published as the second fully fledged text in the field" (p. 379). Many administration scholars contributed to creating certain principles of administration (Follett, 1924; Fayol, 1949; Mooney & Reiley, 1931; Taylor, 1911). In 1937, Luther Gulick and Lyndall Urwick's *Papers on the Science of Administration* highlighted important sections including the principles of administration represented in the POSDCORB

formula. POSDCORB, according to Gulick and Urwick (1937), stands for the initials of planning, organizing, staffing, directing, coordinating, reporting, and budgeting. Their papers were essentially based on the work of their precedent fellow scholars.

The above-mentioned two paradigms have been known as the conventional models of public administration/service. The traditional model was essentially led by government with little society participation and domination of hierarchical bureaucracy. Walsh & Stewart (1992) assumed that the traditional model of public administration is characterized by "self-sufficiency … direct control … uniformity … accountability upwards … standardized establishment procedures" (p. 509). These assumed propositions imply how government was self-efficient and controlled by the hieratical authority within units of the public sector. According to Walsh & Stewart (1992):

> There was a faith in hierarchy and bureaucratic rationality. The emphasis was upon the collective. Equity, justice and impartiality, rather than liberty, were the leading values. The management of the public sector was little conditioned by the private sector. The values of the public domain were seen as totally separate from those of the private. There was essentially statist, paternalist approach to the provision of public service (p. 509).

Also, Hood (1998) describes the conventional model of public administration as "outmoded" and "is often portrayed as fairly homogenous … fairly uniform … typically characterized as rule-bound and process-driven" (p. 5).

Paradigm 3: Public administration as political science, 1950-1970

The third paradigm witnessed a resistance from political scientists toward the increased calls for the independence of public administration. Management theorists attempted to define away

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the field from politics (Henry, 1975). However, the politics-administration dichotomy was declined. Simon (1947) criticized the older public administration, particularly its principles. He saw that those principles are actually "unscientific" in the way they are stated. In the 1950s, public administration was regarded as a "synonym" of political science. Martin Landau (1962) puts his view clearly about the field in this area: "public administration is neither a subfield of political science, nor does it comprehend it; it simply becomes a synonym" (p. 9). As Henry (1975) describes this paradigm, its phase was "an exercise in reestablishing the linkages between public administration and political science" (p. 381).

Paradigm 4: Public administration as management, 1956-1970

The fourth paradigm is sometimes called "administrative science" or "generic management" (Henry, 1975). This paradigm coincided with the third paradigm with the purpose of creating an intellectual identity for public administration. In 1956, the establishment of Administrative Science Quarterly was a great attempt for promoting public interest and affairs, and the development of this paradigm continued, especially with the rise of organization theory in the 1960s (Henry, 1975).

According to Basheka (2012), government was considered the main provider of necessary public services before the 1960s. By the 1970s, however, government was seen as ineffective and inefficient in doing its central duties. Government was accused of many social and administrative problems such as, nepotism, mismanagement, patronage, corruption, and rigid bureaucracy (Turner & Hulme, 1997). There were calls by the citizens for better delivery of services from government. In response to those calls, it was suggested that public administration should be autonomous from politics spectrum (Basheka, 2012). This paved the way in front of

the emergence of the fifth paradigm, public administration as public administration (1970-present).

Paradigm 5: Public administration as public administration, 1970-present

The fifth paradigm is characterized with a shift from the conventional paradigms of public administration to the New Public Management (NPM) model. As Basheka (2012, p. 53) remarks,

> The ideas of the NPM were grouped into two strands, namely, those ideas that derived from managerialism (which emphasized management in government) and those ideas emanating from new institutional economics, which emphasized markets and competition as a way of giving choice and voice. NPM became a collective name for a bundle of particular management approaches and techniques, many of which were borrowed from the private sector.

The NPM adopted a new approach aimed to reinforce productivity, efficiency, better delivery of public service and accountability (Hughes, 2003). The new approach was mainly concentrated on results much more than on the process, which was evident in the traditional public administration. During this paradigm time, there was a shift from the traditional bureaucratic state to the private and non-governmental sectors as alternative options for public service delivery (Basheka, 2012). The new approach tended to use private sector-style models and organizational values to improve the effectiveness of public sector. For instance, citizens were regarded as customers or clients, rather than citizens who have the power. However, this business-like view towards citizens was criticized. In public administration, citizens are supposed to be seen as democratic participants who own the governments (Basheka, 2012).

Peters (2002) views that the paradigm shift from the traditional public administration to the NPM paradigm with the use of private sector opened the way for a new paradigm called "governance", the sixth paradigm in Henry's (1975) chronology. Some scholars consider the governance paradigm as part of the NPM movement or model, yet others consider it as a distinctive orientation in public administration theory and practice. Peters (2002) asserts that,

> Although much of the change in public administration can be characterized as NPM, some changes also have arisen from a rather different set of practices and ideas. At the same time that some practitioners were moving public sector management in the direction of that found in the private sector, with an implicit business model of administration in mind, other practitioners were moving toward a very different conception of relationships with the private sector. (p. 155).

Paradigm 6: Governance, 1990-present

In 1990s, there was a wide variety of events that hindered the capacity of government to tackle societal problems from the center. Providing public services from a centralized position without the participation of society was under criticism. Trends like distribution of power upwards and downwards, globalization, the increased social partnerships, collaborations and networks, access to information, and social complexities facilitated the movement toward the governance paradigm (1990-present), or as it is sometimes called a shift 'from government to governance'. As Henry (2010) describes this movement:

> We are moving away from government, or the control over citizens and the delivery of public benefits by institutions of the state, and we are moving towards governance, or

configuration of laws, policies or organizations, institutions, cooperative arrangements, and agreements that control citizens and deliver public benefits (p. 38).

In the governance paradigm, the focus is turned onto new avenues of arrangements and actions. These practices include decentralization of authority and sharing of power amongst different layers of government, privatization of public services delivery, and building networks and partnerships with actors beyond governmental sector (Rhodes, 1997); and this is one of the differences between government and governance that Henry (2010, p. 38) points "Government is institutional; and yet governance is institutional and networked". The shift from 'government to governance' gives government an important role to intervene in more complicated exchange networks with relevant stakeholders in diverse environments. Self-organization or self-regulation with different agencies, whether inside or/and outside government, is deemed one of the key elements of the governance paradigm in which collaborative and coordinated efforts stand out (Bekkers et al., 2007).

Dahl & Soss (2014) argue that the role of state under the neoliberal governance is extended multiple networks, including the private sector through the use of markets-based models. The governance approach came in response to the gaps of NPM, which was deemed the administrative stream of neoliberalism. Peters (2002) distinguishes between the two paradigms as follows:

> In the NPM world the use of non-governmental actors is to reduce costs, increase efficiency, and limit the power of the state. In the governance approach there are some elements of efficiency but the principal justifications are to involve the civil society, enhance participation, and recognise the capacity of networks in civil society to provide at least a certain degree of self-management in relevant policy areas (p. 177).

In this context, therefore, it can be said that the term of governance was used to describe the processes and values of modern government that is distinguished from the traditional government. The two paradigms of NPM and governance share the same function of government in steering, but not necessarily in rowing (Osborne & Gaebler, 1992). However, the governance paradigm is distinct from the former in the fact that it provides new dimension of participation of non-governmental actors and networks in the provision of public services and goods. Such networks include stakeholders from different tiers of the government or/and non-governmental partners (e.g. the private sector) depending on the purpose. Stoker (1998) has suggested five key propositions which have been cited throughout much of the governance literature and largely become principles or aspects of the governance paradigm:

1. Governance refers to a set of institutions and actors that are drawn from but also beyond government.

2. Governance identifies the blurring of boundaries and responsibilities for tackling social and economic issues.

3. Governance identifies the power dependence involved in the relationships between institutions involved in collective action.

4. Governance is about autonomous self-governing networks of actors.

5. Governance recognizes the capacity to get things done which does not rest on the power of government to command or use its authority. It sees government as able to use new tools and techniques to steer and guide (Stoker, 1998, p. 18).

Government and Governance: Comparative Perspectives

The shift from 'government' to 'governance' is one of the interesting developments that brought forth much literature in the recent social sciences. It signifies a transition from

bureaucratic hierarchy to new modes of governance based on networks and partnerships between private and public sectors. The shift has occurred in many developed and developing countries, caused by a wide range of social reasons, such as sophisticated societal problems, increased calls for expertise, more specialized public administration, globalization, decentralization, improved communication technologies, and open access to information (Pollit, 2003; Jessop, 1998). These societal changes drove governments on the national level to be "hollowed out" (Rhodes, 1997). Government functions and power are transferred upwards to international policy levels, downward to local actors, outward to agencies and private actors (Rhodes, 1997; Hysting, 2009).

The change to the current governance, according to Hysing (2009), "is a grand story line about the changing role of the state, which has had a great impact upon researchers and practitioners" (p. 647). That's why we see a wide variety of governance definitions suggested by researchers in social science. However, scholars' perspectives about the notion of governance and its relationship with government can be looked at from two different orientations. On one hand, there are those who argue that governance is synonymous with government (Finer, 1970; Hewitt de Alcántara, 1998; Merrien, 1998; Batche, 2003). Lexically, government and governance have been used interchangeably, connoting the process of governing or indicating the exercise of authority in an institution or state. Finer (1970), for example, defined government as "the activity or process of governing or governance, a condition or ordered rule, those people charged with the duty of governing or governors, and the manner method or system by which a particular society is governed" (pp. 3-4). From this definition, it can be understood that governance simply refers to what the government does, and it is quite impossible for a state to have governance without the governing body of government.

On the other hand, there are scholars who see governance different from government in many ways, such as authority, process, and growing actors beyond government (Fry & Raadschelders, 2014; Kettl, 2002; Rhodes, 1996; Peters & Pierre, 1998). According to Rhodes (1996), "governance signifies a change in the meaning of government, referring to a *new* process of governing; or a *changed* condition of ordered rule; or the *new* method by which society is governed" (pp. 652-3). Governance has become an important concept in the social sciences because it conveys "images and meanings of change" which, of course, occurs at times of "turbulence" (Levi-Faur, 2012, p. 7). This image of change replaces the stagnating bureaucracies and centralized hierarchies with more players beyond government.

Although scholars differentiate between government and governance in various ways, Frahm & Martin (2009) provide a clear-cut understanding of governance through comparing it with the government paradigm. Government and governance paradigms differ in several dimensions as indicated in Table 3.

Table 3: Differences between government and governance

Dimension	Government	Governance
The role of government	Major actor	One of many actors
Authority & decision making	Centralized command & control	Decentralized negation & persuasion
System structure	Closed & vertical	Open & horizontal
Focus	Program	Tool
Democratic process	Representative	Participatory
Accountability	Process output quality	Community level

	Outcome	Outcomes
Policies	Centralized/uniform	Decentralized/place sensitive

Source: Frahm & Martin (2009, p. 410).

First, the difference between government and governance is essentially evident in the role played by government. Government is the primary and major actor entitled to define the social needs of its society and how to respond to those needs through public policies as well as direct provision of social services when needed (Salamon, 2002; Daly, 2003). In the governance paradigm, however, government is only one actor of other actors involved in addressing a specific social issue. Implementation of public policies is shifted from the state to multiple actors including governments, nonprofits, for-profits, humanitarian agencies, and other organizations (Daly, 2003; Farhm & Martin, 2009). The role of government in the governance paradigm is like a facilitator – coordinating the efforts and contributions of all the appropriate sectors and actors – to ensure an effective and efficient delivery of goods and services. Its facilitative role prevents any duplications or gaps in the service provision.

Second, the locus of authority and how policies are made show another dimensionality between government and governance. The government paradigm is fundamentally based on "command and control", whereas governance is based on "negotiation and persuasion" (Salamon, 2002; Farhm & Martin, 2009). In both paradigms, authority is required for promulgating policies. But unlike government, this authority does not necessarily have to be from government or the State in the governance paradigm. For government, the power or authority to make policies to address any social problem is centralized in the State, while the authority of governance can come either from a public institution, a private organization, or even a cooperation between governmental and non-governmental agencies. Governance is based on

cooperation amongst a variety of sectors and actors which can be mandatory, as in the government paradigm, or voluntary. It is characterized by "the move away from supervision to contracting out; from centralization to decentralization; from the state that redistributes to the state that regulates; from public management to management following market principles; and from state 'guidance' to cooperation between the state and the private sector" (Merrien, 1998, p. 59). Thus, in the government paradigm the flow of authority is top-down. Government utilizes bureaucratic approaches to "command and control" public policies implementation (Salamon, 2002). In the governance paradigm, however, the flow of power is multi-directional; it is bottom-up, top-down, and from the middle. Public affairs are managed through cooperation based on common interest, negotiation, partnership, networks, and compromise.

Third, government and governance paradigms seem different in terms of their system structures. The former is more likely approaching a closed system, whereas the latter is more likely approaching an open system (Farhm & Martin, 2009). This means, the government paradigm is based on a vertical hierarchical structure that is often adopted in public institutions (Daly, 2003). The organizational chart is an example of the government paradigm's closed system structure in which a variety of government levels and organizational units are assigned specific roles and responsibilities to be carried out through laws, regulations, and ordinances (Salamon, 2002; Farhm & Martin, 2009). Unlike the government paradigm, yet the governance paradigm is distinguished by horizontal networks of actors and sectors inside and outside government (Peters, 2002; Kettl, 2002) and is based upon relationships and partnerships, rather than laws and organizational charts (Salamon, 2002; Farhm & Martin, 2009). These networks are self-regulated and driven by shared interest and expertise, rather than hierarchical authority.

"Because these networks are self-organizing, trust between the members becomes the grease that lubricates the system and promotes social action" (Farhm & Martin, 2009, pp. 413-4).

Fourth, the approach to the democratic process is another difference between the two paradigms. The government paradigm is based on representative democracy, while the governance paradigm is predicated on participatory democracy (Frahm & Martin, 2009). In the former, citizens tend to elect their own representatives to act on their behalf; this kind of citizen involvement is restricted to voting only (Salamon, 2002; Frahm & Martin, 2009). But, in the governance paradigm citizens directly participate in the decision-making process. They play an active role in the agenda setting, implementation, and evaluation of public policies through genuine participation. Citizens are not any longer seen as customers or clients, rather they are stakeholder in the political process.

The fifth difference between government and governance is related to the focus. In the government paradigm, the focus is on programs, whereas tools are more emphasized in the governance paradigm (Frahm & Martin, 2009). When a social or public policy issue is recognized, government tends to design a specific program to tackle the issue. Yet the governance paradigm is focused on the tools that can be used to implement public programs or policies. Such tools can come in various forms, such as direct service delivery by the government, public-private partnerships, community service, the use of volunteers and so on (Salamon, 2002; Frahm & Martin, 2009). Unlike the programs, the tools approach can allow further adjustments, if needed, by the network members to meet the pre-established goals and achieve efficiency. In addition, government is held solely accountable for the implementation of public policies and community outcomes, while under the governance model accountability is

shifted to all sectors and actors involved, and accountability is conceptualized in terms of community-level outcomes (Hansen, 2001; Frahm & Martin, 2009).

Finally, another important difference between the two paradigms is latent in the resulting policies. In the government paradigm, policies tend to be centralized and uniform as they address social problems, whereas policies tend to be decentralized and diverse as they address issues related to community (Daly, 2003; Hansen, 2001; Frahm & Martin, 2009). Because of the formalization and standardization in the former paradigm, any changes or adjustments necessary to the policies happen incrementally and slowly. Yet in the latter paradigm, policies are amenable to frequent changes due to the networks of actors and sectors (Hansen, 2001).

Having all that said, it is very clear that governance is semantically different from government in many aspects as mentioned beforehand. Nonetheless, Rhodes (1996) raises an issue regarding "hollowing out the state" (p. 652), which signifies the magnitude of goods and services provided by the state compared to the governance model. Fewer social services are delivered to the public under the governance model rather than it is under the classical government model. Under the governance model, several problems arise, of which "three problems are of immediate concern: fragmentation, steering and accountability" (p. 661). Rhodes (1996) remarks that "fragmentation leads to reduced control over implementation" and "steering complex sets of organizations is difficult", brining specific examples pertinent to British government service delivery. He goes further and argues that accountability is eroded when the state is hollowed out because "institutional complexity obscures who is accountable to whom for what" (p. 662). From a different point of view, Box (1998) argues that 21st century governance represents a return to the values of old administration because it involves citizen participation and other actors at the local level to participate in the decision-making process. Between these two extremely defined

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perspectives, other scholars see that government, under the governance paradigm and with its legitimate authority, play an important role in managing and coordinating functions amongst the different sectors and actors who genuinely influence the decision-making process (Newman, 2001; Lovan et. al., 2004).

On the contrary, it is important to distinguish between "good" or "bad" governance. While governance is "the process of decision-making and the process by which decisions are implemented" (UNESCAP, 2009, P. 1), determining whether it is good or bad governance is dependent on the ways these decisions are implemented (UNESCAP, 2009; Lovan et. al., 2004; De Ferranti et. al., 2009). There is a growing body of literature that is grounded on the role of good governance on economic growth, however it seems that there is no consensus among aid organizations and international development agencies on the specific criteria for "good" or "bad" governance, indicating a lack of neutrality and objectivity. Thus, before going forward in examining the relationship between governance and economic development, the following section reviews relevant literature on the conceptualization of good governance.

Good Governance

It might be hard to historically trace back the exact date when the concept of good governance was first introduced in development literature. However, researchers have dated the first use of "good governance" to the World Bank's 1989 report, *Sub-Saharan Africa: From Crisis to Sustainable Growth*, which portrays the crisis in the region at that time as a lack of good governance and links its ineffective use of aid with weak governance (Singh, 2003; Nada, 2006). Since then, the concept has been widely overused in the agendas of many multilateral development agencies and fields including, public administration, political science, international relations, and development management (Grindle, 2010). Through the late 1980s and early

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1990s, international donors and organizations tended to make aid donations contingent upon specific reforms focused on economic side in the recipient country, which was found ineffective in achieving genuine policy changes (Nada, 2006). More recently, it has been determined by international donors, such as the International Monetary Fund, the World Bank, and the United States, that good governance is a prerequisite for providing aid (Nada, 2006; Singh, 2003; Akramov, 2012). A recipient country is granted financial aids based on "selectivity", a technique calling for a commitment to economic and social reforms (Nada, 2006). Donors have come to realize that good governance is necessary to understanding the rationale behind the effectiveness of aid, and why assistance is therefore essential to addressing weak governance issues (Riddell, 2007). However, donors disagree about how to define governance, and such disagreement is reflected in the wide variety of governance definitions. Not only that, but they disagree also about which areas of governance should be given high priority in aid-recipient states. Even what constitutes good governance is still controversial among donors themselves. For instance, democracy is regarded an essential component of good governance for some donors, yet it is not for others (Riddell, 2007).

Definitions and interpretations of good governance vary enormously among aid organizations and international community. Perhaps, one reason of such disagreements on the concept of good governance is attributed to the various mandates and goals of bilateral and multilateral development agencies. For instance, Barber Conable describes good governance, in the World Bank report (1994), as a "public service that is efficient, a judicial system that is reliable, and an administration that is accountable to its public" (p. xii). In the same report, good governance is "epitomized by predictable, open, and enlightened policy making, a bureaucracy imbued with a professional ethos acting in furtherance of public good, the rule of law, transparent process, and a

strong civil society participating in public affairs" (p. vii). From the point of UNDP's view, good

governance is conceptualized as "the exercise of economic, political and administrative authority

to manage a country's affairs at all levels". This conceptualization encompasses "the

mechanisms, processes and institutions through which citizens and groups articulate their

interests, exercise their legal rights, meet their obligations and mediate their differences."

(UNDP, 1997, p. 2). For Joseph (2008), good governance is "pro poor and gender-conscious, is

legitimized by participatory processes, undertakes anti-corruption efforts, is bureaucratically

accountable, is efficient and effective in the use of resources, and promotes the active

involvement of the private sector and the civil society to counteract vested interests" (p. 12).

From these diverse conceptualizations and understandings of 'good governance', it seems that

good governance encompasses many elements and themes. As summarized in Agere's (2000)

terms, good governance is, therefore, a broad subject area that ranges from:

> Economic liberalism which constitutes private ownership, more investment and greater
>
> equality; political pluralism, which refers to participation of people in the development
>
> process, decentralization of authority from the center and democracy; social development
>
> which includes human rights rule of law, independent and free press; administrative
>
> accountability which refers to transparency, less corruption, economy, efficiency and
>
> effectiveness; and public sector reforms (p. 13).

In the good governance discourse, an important question raised about whether good

governance is regarded as an instrument or as an end? Simply answered, good governance is

used as a means and as an end per se (Chowdhury & Sundaram, 2012; Agere, 2000). It is

regarded as an end in itself if all its major elements are satisfactorily addressed. This implies that

the society's satisfaction with the processes of solving problems, that a democratic structure of

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governance is properly formed, that citizens democratically participate in the decision-making process, that goods and services are provided to the society in an effective manner, that human rights are protected and respected, and that the government is accountable, transparent and productive (Agere, 2000). Yet good governance can be regarded as an instrument for achieving human development, social justice and economic growth (Chowdhury & Sundaram, 2012; Agere, 2000).

Determining whether governance is "good" or "bad" is virtually associated with the extent to which degree its elements or characteristics are implemented. There has been extensive literature by international agencies and political leaders about the characteristics of good governance. Nevertheless, the characteristics proposed by the UNDP (1997) stand out as a framework for those working in the development domain. The following characteristics work also as essential elements of good governance as formulated by UNDP (1997):

- *Participation* - All men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions that represent their interests. Such broad participation is built on freedom of association and speech, as well as capacities to participate constructively.
- *Rule of law* - Legal frameworks should be fair and enforced impartially, particularly the laws on human rights.
- *Transparency* - Transparency is built on the free flow of information. Processes, institutions and information are directly accessible to those concerned with them, and enough information is provided to understand and monitor them.
- *Responsiveness* - Institutions and processes try to serve all stakeholders.

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- *Consensus orientation* - Good governance mediates differing interests to reach a broad consensus on what is in the best interests of the group and, where possible, on policies and procedures.

- *Equity* - All men and women have opportunities to improve or maintain their well-being.

- *Effectiveness and efficiency* - Processes and institutions produce results that meet needs while making the best use of resources.

- *Accountability* - Decision-makers in government, the private sector and civil society organisations are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organisation and whether the decision is internal or external to an organisation.

- *Strategic vision* - Leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the historical, cultural and social complexities in which that perspective is grounded (UNDP, 1997, p. 3).

Good governance, according to Weiss (2000), does not solely refer to applying democratic values and economic liberalism, but also includes further characteristics, such as transparency, human development, and accountability. He argues that such characteristics need to be applied altogether as one package, and not partially. Lack of these characteristics signifies bad governance. As Bøås (1998) has remarked that in the light of the African crisis of governance, "the World Bank operationalized 'bad' governance as personalization of power, lack of human rights, endemic corruption and un-elected and unaccountable governments". Accordingly, good governance must be operationally characterized as "the natural opposite" (Bøås, 1998, p. 119).

In the same vein, Abdellatif (2003) elaborates on the characteristics of good governance and introduces a similar definition:

> Good governance is, among other things, participatory, transparent and accountable, effective and equitable, and it promotes the rule of law. It ensures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources (p. 4).

The absence of good governance leads to disabling or damaging the intervention role of government for reforming necessary programs and sometimes leads to undesirable results. Abdellatif (2003) goes further to describe these results by contrasting it to bad governance, "when governance is bad and undemocratic or only superficially democratic, the pathologies of development inevitably have regional and global consequences" (p. 13). In other words, it can be briefly summarized that bad governance equals state intervention, whereas good governance equals democracy and economic liberalism (Abrahamsen, 2000, p. 51).

Measures of Governance

While there is an ambiguity about the concept of governance, there seems also to be little agreement on the precise measures that can be used for evaluating national governance. Since 1990s, the metrics of governance have increased exponentially in number as there is a variety of metrics suggested by international organizations and development agencies. Malito (2015) contends that such a "proliferation of indicators can only be understood against the conceptual hybridity and indeterminacy in which the notions of governance have entangled" (p. 3). The production of governance indicators can be divided into two categories; mono-dimensional

measures, which describe a single dimension of governance, and multi-dimensional measures, which combine different indicators in the same measure (Malito, 2015). Appendix 2 indicates a sample of the most important measures of governance proposed by international organizations. For instance, the Corruption Perception Index produced by Transparency International is one of the mono-dimensional measures of corruption which has been used as a proxy for measuring governance. Also, the World Bank's Worldwide Governance Indicators are of those widely used multi-dimensional measures of governance.

In fact, the measures of governance provided by the international organizations are different in the way they are formulated and calculated (Mimicopoulos et al., 2007; Thomas, 2009). Although there is no existence of a perfect governance indicator, some indicators weight more credibility and reliability than others (Arndt & Oman, 2006). Many factors contribute to making such indicators more credible and transparent, such as the underlying sources of data used to structure those measures, the extent to which those indictors can be generalized, and the accuracy of results (Arndt & Oman, 2006). Unlike other indicators, the WGIs include two indicators for each aspect of the governing process (e.g. political, economic, and institutional), providing a better understanding of the relationship between governance and growth as well as its coverage of almost all the member states of the United Nations (Kaufmann et al., 2009; Arndt & Oman, 2006). Additionally, the WGIs "have become important because they are now influencing specific policy decisions by governments, particularly with respect to aid donations" (Williams & Siddique, 2008, p. 145).

Worldwide Governance Indicators

The WGIs are one of the governance measures that have been widely used by researchers to assess the quality of national governance (de Ferranti et al., 2009; Arndt & Oman, 2006; Kurtz &

Schrank, 2007). As mentioned before in Table (2), the WGIs highlight three areas of governance and each area is measured through two indicators.

The data for the WGIs are composite indices based on surveys of firms and experts, as well as the assessments of NGOs and multilateral development agencies. The data cover more than 200-member countries of the UN from 1996 to present. They include 340 variables provided by 31 sources measuring the WGI. Each of those sources has its unique methodology and scale for measuring governance. The authors integrate all those measures and assign a governance score between -2.5 (the lowest) and +2.5 (the highest) and percentile rank from 0-100 for each country compared to all the covered states (Kaufmann et al., 2009).

Critiques of the WGIs

The World Bank's WGIs have come under sharp criticisms from scholars on the methodology through which data have been gained. According to Apaza (2009), researchers addressed a variety of issues related to methodological and theoretical grounds, but these issues mainly address three major areas. The first area is focused on the aggregation methodology. Arndt & Oman (2006) and Knack (2007) contend that the aggregation methodology for obtaining the WGI data is not valid for making comparisons of governance across countries or over time since the estimates for governance are based on different data sources. In response to this specific criticism, Kaufmann et al. (2007) argue that the aggregation methodology provides a complex way of organizing the collected scores from these different organizations into common units and makes it reliable for comparison between specific countries even if a common data source is not available. In addition, the WGIs have been criticized for being lacking the "construct validity" (Thomas, 2009; Langbein & Knack, 2010). In response to this specific argument, Kaufmann et

al. (2010) respond that "construct validity is not a useful tool to assess the merits of the WGIs" (p. 55).

The second area is related to independence of the data sources and access to the data (Apaza, 2009). Arndt & Oman (2006, p. 72) claim that the WGIs are featured with "lack of transparency" for four reasons as stated below:

> First, the large number and diversity of indicators produced by others that are incorporated into the KKZ indicators makes it very difficult to understand why a country gets a particular score on a given composite indicator … Second, there is no list of criteria that each source uses to determine its country rankings, so of course there is no such list for the composite KKZ indicators … Third, some of the data from the sources are not accessible and other are difficult or expensive to access … Fourth, the fact that some sources comprise existing indicators that refer either directly or indirectly to economic and business growth or competitiveness creates the risk, noted earlier, of circular reasoning.

Similarly, Thomas (2007) raises the issue of access to the underlying data so that they can be used for replication and peer review. Yet, Kaufmann et al. (2007) argue, in response, that such data are available for the public through the WGI database. Apaza (2009) points out that the database includes data about the error margin for each margin and gives an idea to researchers about how far is the score is from the mean.

The third area, as Apaza (2009) summarizes it, is focused on the bias in the individual indicators. Scholars' critiques (Arndt & Oman, 2006; Kurtz & Schrank, 2007) argue that the WGIs are influenced by the level of development of a country and biased towards the

perceptions of business elites. In response to this claim, Kaufmann et al. (2007) respond that the indicators are not only based on the business people but also on a variety of experts and organizations, including surveys of firms, commercial risk rating agencies, surveys of experts, ratings provided by government and multilateral development agencies, and data sources produced by NGOs.

Alternatively, there are scholars who consider the aggregation methodology used in the WGIs to measure governance as more credible and vastly applied in academic research. Mimicopoulos et al. (2007), for example, see that the availability of the WGIs made it easier for researchers to measure the quality of governance. Mimicopoulos et al. (2007, p. 3) remarks that:

> Governance indicators assess and compare the institutional quality of countries and can assist in research and policymaking. Initially these indicators were used by academics in analyzing economic growth and evaluating the performance of the public sector. More recently however governance indicators are being used to evaluate decisions about conditional development assistance. Measuring governance quality is thus of great significance.

Governance-Growth Nexus

The question of whether governance contributes to economic growth or vice versa is debatable among scholars. On one hand, it is believed that governance enormously matters for development and is recognized as a direct cause of growth (Owens, 1987; Knack & Keefer, 1995; Kaufmann et al., 1999a and 1999b; Acemoglu & Robinson, 2008; Campos & Nugent, 1999). The study of Morrissey & Udomkerdmongkol (2012) uses aggregate data for a sample of 46 low and middle-income countries to investigate the relationship between five governance

indicators, excluding the government effectiveness indicator, and investment. The results show those states with good governance have greater investment. Although good governance has a positive impact on economic growth, Fayissa and Nsiah (2013) conclude that its role is more important for the lower and upper income sub-Saharan African countries than for middle-income states. The empirical results of Williams' (2017) study indicate that political instability significantly contributes to the decrease of growth and FDI inflows in Sub-Saharan Africa. Although a large set of literature scrutinize the effect of governance on economic development on a cross-country level, few studies are conducted on provincial levels. For example, the study of Kuzmina et al. (2014) indicates that weak quality of governance contributes to the downsize of investment.

On the other hand, there are scholars and researchers who view economic growth as a prediction for good governance. Lipset (1960) posits that economic growth is a direct cause of democracy and political institutions. This hypothesis has been empirically tested by quantitative and qualitative data by Marks and Diamond (1992), and supported by other works (Barro, 1999; Alvarez et al., 2000). With more concentration on governance-growth debate, Grindle (2010) proclaims that researchers and development agencies overstated the concept of governance and inflated its direct link to growth. She argues that economic development is not necessarily contingent upon governance quality. Such an argument is built on the high economic growth witnessed in some countries such as China, Vietnam, Bangladesh, Tanzania, India, Algeria, etc., while they score low on governance scale. This argument is partially consistent with Kurtz and Schrank's (2007) perspective that countries with higher economic growth are more likely to have better quality of governance. Malaysia, Indonesia, and Singapore stand as clear examples of

nations with good governance after they have fostered economic development (Kurtz & Schrank, 2007).

Acemoglu and Robinson (2008) contend that economic growth can contribute to changes in the resources allocation and therefore affect the political institutions. Similarly, Wilson's analysis (2016) indicates a similar relationship between governance and economic growth. Findings demonstrate that improvements in governance are not compelling cause of China's growth, rather it is the economic growth that contributes to the improvements in formal governance on provincial levels. In a similar fashion, Aziz and Sundarasen (2015) find that corruption and armed conflict, as extrinsic variables, have a statistically significant and negative relationship with economic growth in ASEAN countries, whereas the polity appears to be insignificant.

Notwithstanding the two perspectives on the direction of causality between governance and growth, few studies conclude that causality can be seen in both directions (Chong & Calderon, 2000; Emara & Jhonsa, 2014). For example, Emara and Jhonsa (2014) estimate the impact of quality of governance on per capita income and vice versa, using a two-stage least square regression for 197 countries for the year 2009. The results suggest that there is a positive and statistically significant causation for both directions, quality of governance and per capita income.

With the increased attention from the international community towards improving the quality of governance, there has been an increase in the use of quantitative indicators for governance. During the past three decades, the MENA region witnessed numerous initiatives supported by the World Bank, UNDP, IMF, USAID, etc. to better improve development level with more focus on governance practices. Despite such initiatives, the Arab World countries still encounter

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economic, political and social problems exacerbated by what is called the 'Arab Spring'. MENA countries' governance percentile compared to other countries is, according to the WGIs dataset, ranked the lowest after the Sub-Saharan region; and, based on the Fragile States Index, at least one-third of MENA countries are classified either fragile or failed states.

Literature on the relationship between governance and growth in the MENA region is very scant in comparison to other regions. Here, the empirical studies can be organized into two categories: studies that use the six composite indicators of governance and those studies that use one indicator as a proxy for governance. Using worldwide governance indicators as measurement of governance, the longitudinal study of Mehanna et al. (2010) examines the relationship between governance and economic development in 23 countries of the MENA region from 1996-2005, considering the effect of oil presence as a moderating variable. The results of the Generalized Method of Moments (GMM) show that economic development has a weaker impact on governance, particularly in oil-rich countries; and that "among the six governance indicators, voice and accountability, government effectiveness and control of corruption exhibit the highest economic impact on economic development" (p. 145). The authors see that reforming the quality of governance is the biggest challenge in the MENA region, especially in those countries rich with oil as it "acts as a resource curse" (p. 118). They further suggest prioritizing institutional reforms to enhance governance in the democratic path of civil and political rights.

The cross-country study of Han, Khan, and Zhuang (2014) on the role of governance indicators in explaining the development performance generally shows that government effectiveness, political stability, control of corruption and regulatory quality all have more significant positive impact on growth performance than voice and accountability and rule of law.

As their specific findings pertaining to MENA countries, they conclude that there is "a surplus in political stability, governance effectiveness, and control of corruption grew 1.5-2.5 percentage points faster annually" (p. 18). This explains the significance of institutional governance on economic growth, represented by the GDP. The findings partially resonate with Abdelbaky's (2012) results which show that out of the six dimensions of governance, government effectiveness and rule of law matter more for per capita GPD growth. However, the main difference in both studies' findings is oriented on the rule of law.

The econometric study of Emara & I-Ming (2016) assesses the effect of governance on economic growth in 21 MENA states. The study uses a cross-sectional data set adopted from the World Bank's World Development Indicators with a focus on two years, 2009 and 2013, as a comparison of the governance dynamics before and after the Arab Spring. The findings show a positive link between governance and economic growth; and further presume an increase in the per capita GDP by approximately 2 percent if there is an increase in the composite governance index by one unit.

The second group of studies on MENA region use only one of the six dimensions for governance in relation with economic growth. For example, the recently-published study of Abdelbary & Benhin (2018) examine the factors that increase economic growth in the Arab World countries in comparison to other countries from different regions with a focus on regulatory quality, as a proxy variable for governance. Their findings show that governance in the Arab countries has a limited effect on economic growth, whereas other factors (e.g. human capital and investment) have positive impacts. The researchers note that governance positively determines economic growth in the entire sample, but it is negative in the Arab World countries. Likewise, Hakimi and Hamdi (2017) analyze the effects of corruption on investment and growth

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in 15 MENA countries during the period 1985-2013, using a panel cointegration analysis and Granger causality procedure. The findings show that corruption is a serious barrier to economic growth in the MENA region as it affects the inflows of foreign direct investment and general investment activities. Also, the econometric study of Musibah (2017) finds that the political stability plays a greater role in attracting foreign direct investment in republican-system countries, whilst its significance is lesser in monarchy-system countries.

CHAPTER III

METHODOLOGY AND DATA

This chapter is focused on the systematic research design and approach utilized to collect data necessary to answer the research questions and eventually contribute to addressing the research problem stated in the first chapter. The research is aimed to examine the relationship between governance and economic growth in the Arab World over the period of 1996-2017. Two primary questions have been delineated that this research is designed to address. The first research question concentrates on the quality of governance among the Arab states and how it stands in comparison with other developing regions. The second question goes in depth to statistically examines the effect of each aspect of governance dimension on economic growth with the use of an econometric model to find which indicators have the greatest impact. An in-depth analysis will be conducted in four sub-group categories of the Arab countries. Based on the empirical results as well as the theoretical literature, tangible recommendations will be provided.

Research Hypotheses

Seven null hypotheses along with an alternative hypothesis are developed to address the research questions. The first null hypothesis and the alternative hypothesis focused on addressing the first question, whereas the remaining null hypotheses are concentrated on addressing the second question. The first question is oriented on exploring the relationship between governance and economic growth, while the second question looks at the magnitude of influence of each indicator. As for the third question, its answer will be drawn from theoretical literature as well as the empirical results of this study. The formulated hypotheses are stated as follow:

Hypothesis 1: There is no statistically significant relationship between governance and economic growth in the Arab World countries.

Hypothesis 2: Voice and accountability has no impact on economic growth in the Arab World countries.

Hypothesis 3: Political stability has no impact on economic growth in the Arab World countries.

Hypothesis 4: Government effectiveness has no impact on economic growth in the Arab World countries.

Hypothesis 5: Regulatory quality has no impact on economic growth in the Arab World countries.

Hypothesis 6: Rule of Law has no impact on economic growth in the Arab World countries.

Hypothesis 7: Corruption control has no impact on economic growth in the Arab World countries.

Hypothesis 8: There is a statistically significant relationship between governance dimensions and economic growth.

Research Design

One of the key steps in academic research is that a relevant research design is appropriately selected and in accordance with the research purpose. A research design is a systematic blueprint to guide the researcher from the starting point of defining the problem to the outcomes. According to Cresswell (2008), "research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis"

(p. 5). Cresswell (2008) observes that research designs can be either of three types: quantitative, qualitative, and mixed methods. A quantitative research can be experimental, quasi-experimental, or correlational.

In the context of this research, it is designed to use a quantitative statistical methodology, an econometric model based on the examination of the use of cross-sectional panel data set over the period 1996-2017 for 22 Arab states, which are defined as the research population, to examine the correlation between governance and economic growth. According to Leavy (2017), "quantitative research values breadth, statistical descriptions, and generalizability. Quantitative approaches to research center on achieving objectivity, control, and precise measurement" (p. 87). Stata software will be employed for managing and statistically analyzing the data that will be collected from the World Bank's WGI dataset. The OLS will be used to estimate the coefficients of the independent and dependent variables as well as estimating the effect of controlling variables. The robust standard errors model will be used also to solve the problems with the standard error and solve for heteroskedasticity.

Variables Measurement

In this research, the researcher intends to investigate the relationship between governance and economic growth. In doing so, the researcher considers GDP growth (annual %), GDP per capita Purchasing Power Parity (PPP) (current international $), and GDP per capita growth (PPP %) as indicators of economic growth, which represent the dependent variables. The six indicators of governance proposed by Kaufmann et al. (2011) are deemed as independent variables. Also, seven indicators (FDI, government expenditure, population growth, life expectancy, urbanization, technology, and education) have been adopted from classical, neoclassical, and endogenous growth models and employed as controlling variables. Further interpretation and

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expected relationship of the explanatory variables to growth in the Arab region is provided below.

Dependent Variable

Economic growth is measured by the real gross domestic product per capita (GDP). GDP per capita has been utilized in a wide variety of empirical studies and international organizations including, International Monetary Fund and World Bank, to measure economic growth (Islam, 1998; Kaufmann & Kraay, 2002; Arndt & Oman, 2006; Mehanna et al., 2010). However, GDP has been criticized for not being an accurate measure of economic performance when compared with other countries. GDP is locally calculated in the country's own currency. Comparing this currency across countries requires converting the local currency into a currency comparable to other countries. Thus, the PPP approach is used to control for the price differences of products among the Arab states and allow a cross-sectional comparison of the GDPs and economic performance. In this study, three indicators are used as measures of economic growth including, GDP growth (annual %), GDP per capita growth (annual %), and GDP per capita PPP growth. Table 4 provides description of how each indicator is calculated.

Table 4: Dependent Variables and Descriptions

Indicator	Description
GDP growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated

	without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
GDP per capita growth (annual %)	This refers to the annual percentage growth rate of GDP per capita based on the constant domestic currency. In other words, it is the gross domestic production divided by the population of the country. It adjusts for population differences within countries.
GDP per capita PPP growth (annual %)	This indicator is calculated based on the data of GDP per capita, PPP (constant 2011 international $) and applying the following formula: = 100*(current year – first year)/current year

Source: Definitions of the first and second indicators are quoted from the World Bank website.

Independent Variables

While there are many indicators used in literature to measure the quality of governance, this study adopts the six indices of governance from the WGI. The WGI collect and summarize data from 32 data sources that reflect the perceptions and experiences of a wide range of experts, entrepreneurs, and citizens in the public and private sectors as well as non-governmental organizations on the quality of governance. Appendix 3 lists the data sources used in the WGI. Each indicator of the six aggregate WGI measures is constructed by averaging data from the existing data sources that correspond to each dimension of governance. According to Kaufmann et al. (2011):

> In the WGI we draw together data on perceptions of governance from a wide variety of sources, and organize them into six clusters corresponding to the six broad dimensions of governance listed above. For each of these clusters we then use a statistical methodology known as an Unobserved Components Model to (i) standardize the data from these very

diverse sources into comparable units; (ii) construct an aggregate indicator of governance as a weighted average of the underlying source variables; and (iii) construct margins of error that reflect the unavoidable imprecision in measuring governance (p. 221).

The WGI data are very well-organized and summarized in a way that can be useful for many purposes including the examination of governance quality in particular countries as the case with this research.

The six broad governance indicators are as follow:

(a) Voice and Accountability (VA): As explained by Kaufmann et al. (2011), this indicator measures citizens' capacity to politically participate in the selection of their government, express and exercise their opinions freely and effectively as well as includes a free media. In other words, this variable represents the political dimension of governance which broadly measures the dynamic relationship between people and government. Theoretically, the variable of voice and accountability tends to potentially influence government programs and priorities not only in responding to population needs and demands, but also in enhancing investment and sustaining growth as supported by empirical literature. Thus, it can be said that this variable is expected to have a positive impact on economic growth in the Arab world.

(b) Political Stability and Absence of Violence (PS): This variable capture "perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism" (Kaufmann et al., 2011, p. 222). As traced in the empirical literature, the more politically stable the country is the higher growth it has (Alesina et al., 1996; Kaufmann et al., 2011). Political

stability is expected to positively affect economic growth as it contributes to reducing transaction costs in uncertain investment situations (Przeworski et al., 2000).

(c) Government Effectiveness (GE): This is oriented on the social services provision according to citizens' preferences and needs. It measures the quality of goods and services as well as the capacity of government to create and effectively implement policies accordingly (Kaufmann et al., 2011). This variable reflects the economic dimension of governance and ensures effective delivery of services through coordination and collaboration with relevant units within the state. Thus, government effectiveness index is likely to have a positive impact on economic growth.

(d) Regulatory Quality (RQ): This measures the capacity of government to formulate necessary policies and regulations that can help create an environment conductive for investment and support private sector. While it is empirically confirmed that economic freedom is statistically significant in elevating the growth rate (Dawson, 2003; Cole, 2003; Cebula, 2011), it can be also argued that regularity quality can lead to higher growth rate (Henisz, 2000; El-Badawi, 1999; Cebula & Foley, 2011). Given that, it can be expected that regulatory quality has a significant relationship with economic growth.

(e) Rule of Law (RL): This measures the quality of complying with rules, contract enforcement, rights protection, and courts, as well as the likelihood of crime and violence (Kaufmann et al., 2011). This reflects the institutional dimension of governance that is critical for individual rights protection. As highlighted in literature, absence of rule of law is a constraint of investment and economic growth. Thus, it is expected that this variable is highly associated with economic growth.

(f) Control of Corruption (CC): This measures the possibility of abusing public power for private interests. Corruption can be in different forms such as, petty and grand corruption by public officials and elites of interest groups (Kaufmann et al., 2011). Corruption can drain the state resources and negatively affect economic growth and development. Mo (2001) examined the effect of corruption on economic growth in 46 countries, using the least squares estimation method. Mo found that an increase in corruption contributes to a decrease in the annual economic growth, and those countries with higher level of political stability tend to have lower corruption rate. Also, Méon and Sekkat (2005) conclude that there is a negative impact of corruption on both growth and investment in a study conducted on a sample of 71 countries. Therefore, it is likely that this variable has a positive impact on economic growth.

Control Variables

While it is acknowledged that a wide variety of variables can affect economic growth, this research employs seven control variables only.

(a) Foreign Direct Investment (FDI): The role of FDI as a source of capital is essential to many emerging economies as recognized in the empirical literature (Driffield & Jones, 2013; Juselius et al., 2014; Museru et al., 2014; Hussain et al., 2018). The neoclassical growth theory indicates that FDI is a key factor to attract investment and a source of capital with less volatility, which is eventually important for boosting economic growth. Similarly, the endogenous growth theory assumes that long-run growth is endogenously determined by several key factors including, technology, human capital, and FDI. Romer (1986) argues that the spillover effect of FDI and human knowledge can interact in a

manner to increase productivity and growth. Thus, it can be presumed that a positive

relationship exists between FDI and economic growth.

(b) Government Expenditure: This variable, according to the World Bank, includes all

government expenditures for goods and services, and national defense and security but

excludes government military expenditures. Keynesian macroeconomic theory holds that

increased government spending contributes to high aggregate demand and rapid

economic growth. However, others see that increased government spending leads to

lower economic growth (Landau, 1983; Barro, 1990).

(c) Life Expectancy: According to the World Bank, life expectancy at birth indicates the

average number of years a person would live if mortality at each age stays constant in the

future. This variable has been used in literature as statistical measure of quality of life,

however its relationship with growth is mixed. For example, Barro and Sala-I-Martin

(1995) and Lorentzen et al. (2008) find that longevity is linked with higher growth rates,

whereas Acemoglu and Johnson (2007) and Kunze (2014) find no clear-cut evidence of

its impact on economic growth.

(d) Population Growth: The impact of this variable on economic growth is controversial. In

the neoclassical growth model, population growth is seen as negatively affecting

economic growth as it puts more pressure on natural resources and other services (Solow,

1956). Other studies conclude that population growth has a positive impact on economic

growth if endogenous technological progress is taken into consideration (Romer, 1990;

Kremer, 1993). Simon (1989), in contrast, observes that no significant relationship exists

between the rate of population growth and economic growth.

(e) Urbanization: This variable refers to the percentage of people living in urban areas comparted to those dwelling in rural areas. There is an increasing trend in the level of urbanization worldwide. According to the World Bank data, urbanization increase from 30 percent in 1950 to 50 percent in 2010. Studies show that the level of urbanization is strongly correlated with economic growth (Henderson, 2003; Turok & McGranahan, 2013). In cities, people enjoy the access to many opportunities including, educational services, health facilities, transport, employment, and so on. Urbanization also reduces transaction and production and transaction costs and allows economies to flourish (Kumar & Kober, 2012). Therefore, urbanization is more likely to have a positive relationship with economic growth.

(f) Education: This variable is measured by the gross enrollment ratio in the primary schooling regardless of age. Education has been identified by both neoclassical and endogenous growth models as an important source of economic growth. As highlighted in the literature review, different indicators are used to measure education effect on growth. However, some studies focused on school enrollment rates in specific levels (Wobst & Seebens, 2005; Gumus & Kayhan, 2012). Thus, it can be predicted that education has a positive relationship with economic growth.

(g) Technology: This variable is measured through the proxy of high-technology exports as percent of manufactured exports. According to the World Bank, technological exports refer to the products with high R&D such as in computers, aerospace, scientific instruments, pharmaceuticals, and electrical machinery. Using the high-technology exports as a proxy for technological progress has been used in literature (Frolov &

Lebedev, 2007) and indicated positive results. Thus, it is likely that technology would

have a positive relationship with economic growth.

Figure 2 shows the concept mapping of all the study variables including independent, dependent,

and control variables.

Figure 2: Concept Mapping of Study Variables
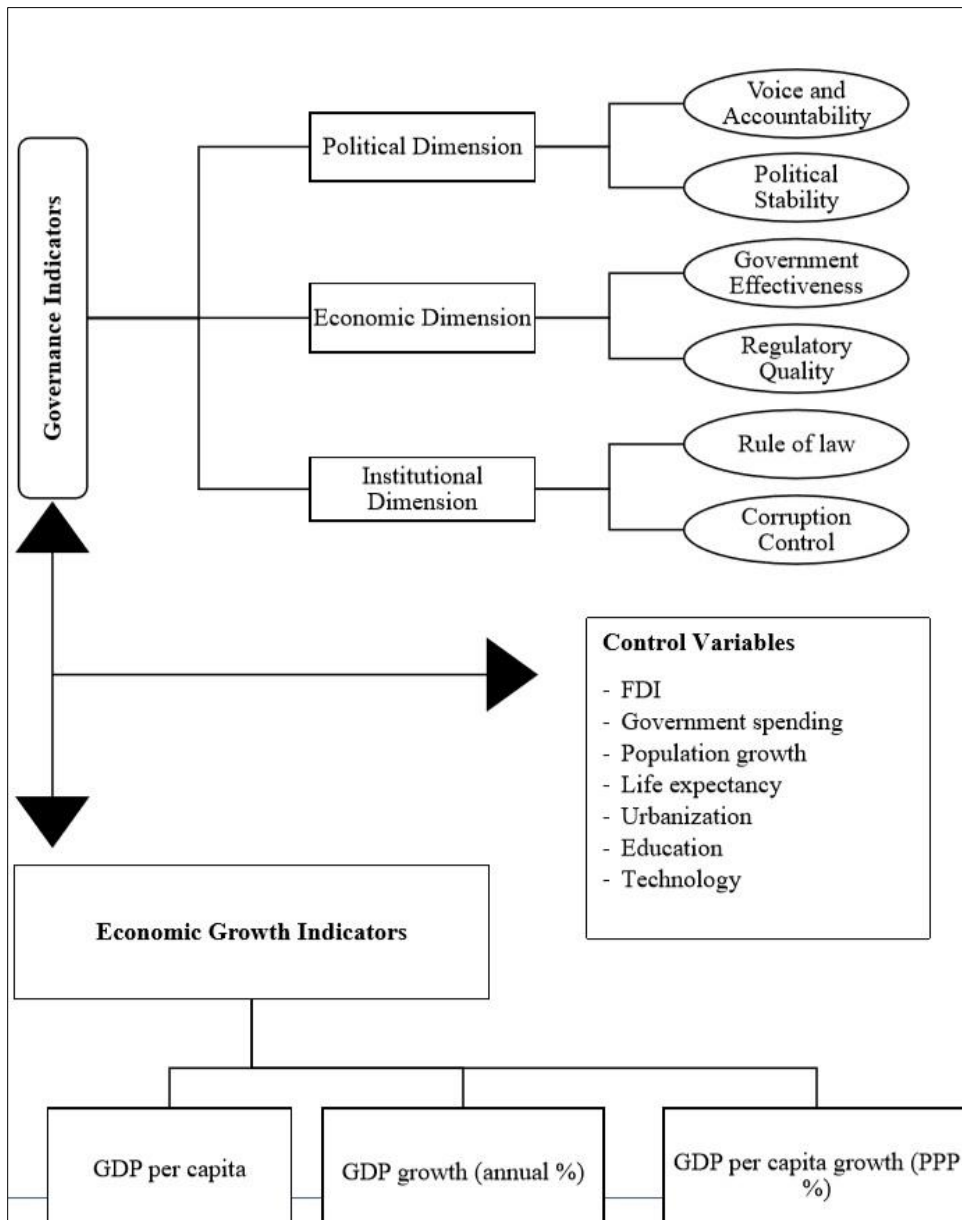
Model Specification

Following the work of (Barro, 1991; Mankiw et al., 1992; Sala-I-Martin, 1997; Temple, 1999; Gani, 2011), equation (1) provides a specification of the empirical model;

$$Y_{it} = \beta_0 + \beta_1 VA_{it} + \beta_2 PS_{it} + \beta_3 GE_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 CC_{it} + \beta_7 FDI_{it} + \beta_8 GEXP_{it} + \beta_9 LIFE_{it} + \beta_{10} PGR_{it} + \beta_{11} URB_{it} + \beta_{12} EDU_{it} + \beta_{13} TECH_{it} + \varepsilon \quad (1)$$

Where Y represents GDP growth (annual %); VA is voice and accountability; PS is political stability; GE is government effectiveness; RG is regulatory quality; RL is rule of law; CC is control of corruption; FDI is the control variable of foreign direct investment; GEXP is government expenditure; LIFE refers to life expectancy; PGR is population growth; URB is urbanization percent; TECH is the high-technology exports percent; i represents the country being studied; t is the time period effect; β is the coefficients being estimated; and ε is the random error term.

The same model will be applied with the other two dependent variables, GDP per capita PPP (current international $) and GDP per capita growth (PPP %).

Data Sources

The data on governance indicators, which represent the explanatory variables, will be collected from the Worldwide Governance Indicators (WGIs) database supported by the World Bank. The WGIs have more credibility and reliability than other indices because they integrate individual indicators, based on a wide variety of business and non-corporate organizations as well as experts, into composite index that can be used to compare governance quality across countries and even specific regional countries over time. They have been also widely used in

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academic researches and development studies. In addition, the WGIs contain indicators that cover all the aspects or dimensions of the governing process (e.g. political, economic, and institutional), which is of high significance for the purpose of this study. The database provides six different measures capturing different dimensions of governance quality. These indicators are voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and corruption control. Each indicator score ranges from a low value (-2.5) to a high value (+2.5). The six indicators were initially suggested and used by Kaufmann et al. (1999) and have been further used by international organizations and academic researchers to evaluate government performance and study the governance-growth relationship (Arndt & Oman, 2006; Huynh & Jacho-Chávez, 2009; Emara & I-Ming, 2016; Zhu, 2013).

Regarding the dependent variables, data on the GDP growth (annual %) and GDP per capita PPP (current international $) will be adopted form the World Bank database as measures of economic growth. Since the data on GDP per capita growth (PPP %) is not directly available, data will be gained though using a formula based on the data of GDP per capita, PPP (constant 2011 international $). Data on the control variables will be directly accessed through the World Bank database.

Method

To examine the relationship between governance and economic development, a panel data set of 22 Arab countries over the period 1996-2017 will be employed. The approach of Panel data analysis has been increasingly a popular form of longitudinal data analysis in social and behavioral sciences (Yaffee, 2003), such as political science, economics, education, and so on. Zhu (2013) says that panel data analysis has become a popular approach particularly in public policy and public administration. Researchers of public policy and public administration benefit

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from panel data analysis through combining data from both time-series and cross-sectional dimensions to strengthen the quality and quantity of empirical information. Researchers tend to use repeated observations of the same entities or units over a defined timeframe, these units could be government agencies, public managers or organizations, etc. For example, Boyne, James, John, and Petrovsky (2010) use a panel data set of 148 English local governments over 4 years to test the effect of public service performance on the turnover of chief executives and other members of senior management teams. Cornwell and Kellough (1994) use a distinctive analysis of panel data, a pooled cross-section/time series, to examine what accounts for differences among 30 federal service agencies in the percentage of jobs held by women and minorities of African Americans and Hispanic for the year 1988 as well as the growth rates in their employment shares from 1982-1988. Soss, Fording, and Schram (2011) explore the effects of performance management in the Florida Welfare Transition program on decisions to sanction clients with the use panel data design.

According to Stritch (2017), there is a wide variety of methodological and design approaches that public management researchers can adopt when designing and analyzing longitudinal data sets. However, adopting a specific approach depends on "the nature of the research question and the data analyzed" (Stritch, 2017, p. 223). The use of panel data has been given consideration in recent public administration research (Marvel & Pitts, 2014; Xu et al., 2007; Zhu, 2013). Stritch (2017) demonstrates that public management researchers have tended to use pooled ordinary least squares (OLS), random effects, or fixed-effect estimation to analyze relationships in panel data. The characteristics of data including, variations in the studied variables across units and times, determine the type of analytical tool and method that is being used as well as the researcher's interest (Stritch, 2017; Marvel & Pitts; Ployhart & Vandenberg, 2010; Zhu, 2013).

There is no consensus among scholars of social sciences on the number of time periods that are needed for longitudinal research (Stritch, 2017). Some scholars suggest that using two-waves of panels are sufficient for measuring variables (Menards, 2002; Johnson, 2005); other scholars argue that two-wave panels are not sufficient to study changes as longitudinal studies require at least three repeated measures (Singer & Willett, 2003; Chan, 1998). The relationship between the variables across both time periods will be linear which does not reflect the trajectory of change. Also, the measurement error in variables is more likely to be suppressed in the first wave, but later appears in the second wave when measured, which might lead to an incorrect conclusion that a change occurred between variables (Singer & Willett, 2003). Having more waves of panel datasets provides more accurate information about the structure of change process and enable researchers to test hypotheses that are difficult to test with two-wave panels (Allison, 1994; Ployhart & Vandenberg, 2010; Cole et al., 2003). Thus, the availability of more panel datasets has been welcomed by social scientists (Pellizzari, 2012).

Obviously, there are diverse types of data that can be used for empirical research and analysis including cross-section, time series, and panel data. In cross-sectional data, researchers tend to collect data about one or more variables for several units at a specific period (e.g., per capita GDP of several countries for a certain year). In time-series data, a set of data collected about one unit on a single topic over multiple years (e.g., per capita GDP of a state for several years) (Wooldgridge, 2002). In panel data, the features and methods of both cross-sectional and time-series data are combined (Pellizzari, 2012: Zhu, 2013; Hsiao, 2003).

Panel data, known as longitudinal or cross-sectional time-series data, describe datasets in which the same entities or units are observed over a particular time span (Wooldgridge, 2002). Panel data analysis, according to Yaffee (2003), indorses regression analysis with both a spatial

and temporal dimension. The spatial dimension is related to a set of cross-sectional observations of units, denoted as 'N'. These units could be counties, states, countries, firms, or individuals. The temporal dimension pertains to observations of a set of variables characterizing the cross-sectional entities over one or more time period, denoted as 'T' (Hsiao, 2003; Yaffee, 2003). Simply, panel data approach has the effect of increasing the number of observations. For example, this research is intended to have 22 years of data across 22 Arab countries, ending up with 484 total observations.

Panel data are basically classified into two types; macro panels and micro panels. Macro panels are "T" dominant in which a few units observed over a long period of time, whereas micro-panels are "N" dominant in which many units observed over a short period of time. Pellizzari (2012) views that the treatment of macro-panels has become now common for panel data because they are easier than micro-panels. Also, panel data may be balanced in which the number of units observed within the same number of times; or unbalanced in which some units are observed more or fewer times than others (Hsiao, 2003; Pellizzari, 2012).

Baltagi (2005) explains the advantages of panel data over cross sectional or time-series data, which are summarized as follow:

- Panel data control for heterogeneity. They give more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency.
- Panel data are better for studying the dynamics of adjustment.
- Panel data are better for identifying and measuring effects that are simply not detectable in pure cross-sections or pure time-series data
- Panel data models allow us to construct and test more complicated behavioral models than purely cross-section or time-series data (pp. 150-153).

To answer the previously stated research questions, panel data methods will be used to analyze the empirical data as explained before through the use of the statistical software of STATA. The nature of this panel, whether balanced or unbalanced, cannot be determined at this point as it depends on the availability of data for all sample Arab countries for the 22 years. Such panel data incorporate both time series from 1996-2017 as well as cross sectional variations. Before doing the statistical analysis, the researcher will carefully describe the observed data to get an idea about the analysis strategies. Very important steps will be conducted to ensure a clear understanding of the panel data modeling. These steps include:

- Examining the data and rearranging them in a consistent manner.
- Determining whether the data is going to be balanced or unbalanced. If there are missing data for some countries and over time periods, the researcher will either find a way, that was employed by former scholars, to solve those missing data and consider it as a balanced data or continue with unbalanced panel but making sure that the unbalanced panel would not be at the expense of the computational methodology.
- Examining the characteristics of the panel data including the number of sample countries observed and the number of time periods, nature of panel, and finding the appropriate model for analysis based on those properties.
- Using different statistical models starting with simple ones and moving to more complicated econometric models to adequately test hypotheses and support findings.

Since the primary interest of this paper is to examine the relationship between governance with economic growth in the Arab World, running the data analysis will be done through three key phases. First, pooled Ordinary Least Square (OLS) model will be run to analyze the

generated parameters estimates. But there are basic assumptions that must be met to ensure the OLS estimator is unbiased and efficient. All the assumptions show how the observed data are produced and some assumptions are about the disturbance term or error. These key assumptions as explained by Kennedy (2008) are:

1- The model is linear in parameters and correctly specified

2- The expected value of the disturbance term is zero

3- The disturbance term is spherical or independent and identically distributed. This includes the variance of the disturbance term is constant across observations, meaning homoscedastic; and there is no correlation between two disturbance terms (no autocorrelation or serial correlation).

4- The independent variables are uncorrelated with the disturbance term, they should be fixed.

5- The number of observations exceed the number of variables and there is no exact linear correlation between two regressors, meaning no collinearity.

The results of the OLS model enable the researcher to obtain an estimate of the error term associated with each observation and diagnose violations of OLS assumptions.

Second, the Fixed Effects (FE) model will be used to deal with the unmeasured heterogeneity through entity-specific intercepts. FE will be used to explore the relationship between the dependent and explanatory variables within a country. Each country of the sample countries observed has its own unique characteristics that may or may not influence the dependent variable. For example, the political governance system of a particular country, whether monarchy-system or republic, could have some effects on GDP growth; these effects could be negative or positive. It is assumed when using FE model that some factors within a country may

impact or make the outcome variables biased, which necessitate to control for this process to avoid any potential bias. FE model does not remove only the country specific effects, but also the effects of time-invariant characteristics (Kennedy, 2008). Time-invariant characteristics are unique to each country in the study sample. Such characteristics are not supposed to be correlated with other country's specific characteristics. If the error term and the constant are correlated with other countries' error terms, this suggests that the FE is not going to be appropriate tool for analysis as results could be relatively incorrect.

Estimating a fixed effect model could be done through two approaches. The first approach is using the Least Squares Dummy Variable (LSDV) model. The LSDV uses dummy variables to capture individual heterogeneity. However, this approach turns to be problematic when there are many units observed in the panel data. When the number of units increases, the number of parameters increases and leads into losing the degree of freedom, and therefore less efficient estimators (Baltagi, 2005). Thus, instead of using LSDV model, the second approach could be the "within" estimation.

Unlike the LSDV model, the "within" countries estimation does not use dummy variables, but deviations from the sample countries and time periods. This model deals with the incidental parameters issue and reports the sum of squared errors (Kennedy, 2008). But there are disadvantages associated with this model. The "within" estimation wipes out all time-invariant variables that are not different within a country, generates wrong statistics, and the R^2 may be incorrect (Kennedy, 2008). Since the "within" estimation does not use dummy variables, the estimation has the likelihood of having larger degrees of freedom for errors, which reports distorted statistics including small mean of squared errors, square root of mean squared errors, and standard errors of the estimates (Greene, 2008). The "between" group estimation could be

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instead used in such circumstance, which calculates the units means of the dependent and explanatory variables.

Third, the Random Effects (RE) model will be alternatively used to estimate the panel data. Unlike the FE model, it is assumed that in the RE model the variations across countries are random and uncorrelated with the independent variables. Greene (2008) suggests that "the crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model" (p. 183). The rationale behind using the RE model is that variations across countries may have some influence on the GDP growth, the dependent variable, which may affect the relationship between governance and economic growth. Time-invariant variables can be included in this model, whereas they are absorbed by the intercept in the FE model. In the RE model, it is assumed that the country' error term is not necessarily correlated with the independent variables which allows for the inclusion of time-invariant variables. Another advantage of this model is that the inferences could be generalized beyond the sample studied. Yet, the unavailability of individual characteristics for entities may results in omitted variable bias in the model (Greene, 2008).

The last step of estimating the panel data models is making a choice between FE or RE model. Both models generate different results depending on the number of units and time periods. In some cases, FE is preferable, while in other cases the RE is better to use. So, the Hausman-Wu test will be used to check consistency and eventually decide which model is appropriate for statistical analysis as scholars suggest (Baltagi, 2005; Greene, 2008; Kennedy, 2008).

CHAPTER IV

RESULTS

Descriptive Statistics

This chapter is concentrated on providing descriptive statistics about the adapted data in this study. The data include a lot of variations across countries, regions, variables, and over time periods. Understanding these variations help in addressing the research questions as well as in comparing the descriptive statistics with the empirical results of panel data models. Thus, the following section will provide an in-depth description of the dependent variables, followed by the independent variables.

Dependent Variables

In this study, three dependent variables are used as proxies for economic growth; GDP growth (annual%), GDP per capita growth (annual %), and GDP Growth PPP per capita. Each variable has different patterns across countries as well as across times. The descriptive statistics of each variable are presented below.

GDP Growth (annual %)

As previously explained, this variable refers to the annual percentage growth rate of overall GDP. Descriptive statistics of the dependent variable of GDP growth (annual %) are indicated in Table 4.1. The summary statistics indicate the mean, standard deviation, minimum, and maximum values for the variable through the 22 years (1996-2017) as a whole and through four time periods; two five-year terms and two six-year terms. The logic behind this categorization is

related to demonstrating the GDP growth through specific terms, specifically the period following the Arab Spring events (2012-2017).

Table 4.1: Summary Statistics of GDP Growth (annual %) over Time

Variable	Term	Obs.	Mean	Std. Dev.	Min	Max
	1996-2017	425	4.409	8.901	-62.076	123.14
	1996-2000	91	4.712	5.444	-8.556	34.857
GDP Growth	2001-2005	100	4.744	7.698	-33.101	54.158
(annual %)	2006-2011	116	4.594	8.031	-62.076	26.17
	2012-2017	118	3.709	12.252	-24	123.14

As indicated in Table 4.1, the total number of available observations is 425 out of 484, indicating missing data of 59 observations. The missing data are noted for some countries; namely, Djibouti (18), Libya (4), Qatar (5), Somalia (22), and Syria (10). If such data had been available for the missing year, values of the mean and standard deviation might have been driven up or down. The average percentage of GDP growth in the Arab World for the 22 years is 4.409. The value of standard deviation (8.901) indicates that there is a huge variation in the GDP growth. This means, some Arab states might be driving the GDP growth percentage up, whereas other states squeezing down the mean percentage. The huge gap can be also evident in the minimum (-62.076) and maximum (123.14) values.

Table 4.1 indicates also how the average percentage of GDP growth changes over time from 4.712 in the term 1996-2000 to 3.709 in the term following Arab Spring 2012-2017. This clearly demonstrates that GDP growth in the Arab World has generally decreased in the period 1996-2017. Figure 4.1 indicates the mean decrease in GDP growth over time from 1996-2017.

Figure 4.1: GDP Growth (annual %) in the Arab World over Time (1996-2017)
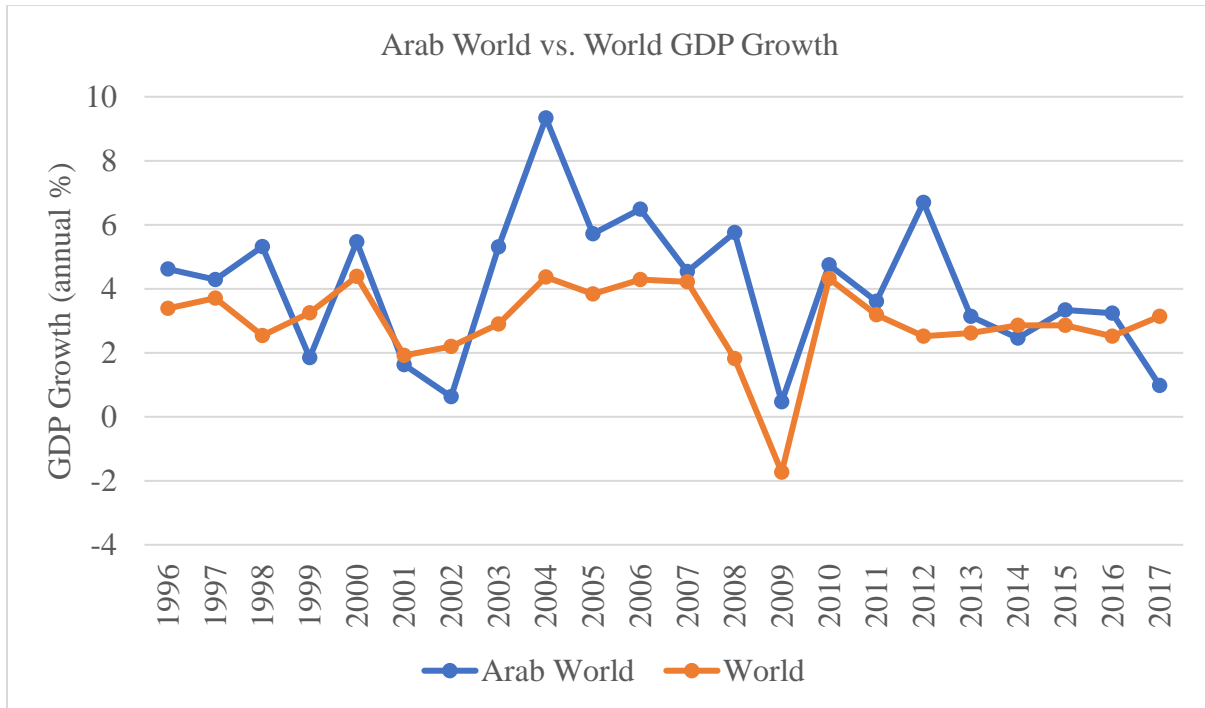
The graph shows how the overall GDP growth rate has been volatile over time with a sharp

increase in 2004 (9.33%) and a sharp decrease in 2009 (0.46 %). For the years of 1999, 2001,

2002, 2014, and 2017, Arab World achieved GDP growth below the world's average growth

rate. While this study is focused on the period 1996-2017, a reference to GDP growth rate over

the previous four decades indicates that GDP growth is characterized with volatility. In 1976, for

example, the GDP growth was 15.82 %, which is considered the sharpest increase for the Arab

World throughout history. The sharpest mean decrease was in 1982 with (-9.07 %), but it

recovered fast during the 1980s and reached a high rate again in 1990 with 13.11 %. Based on

such historical data, two facts can be initially reached about GDP growth in the Arab World:

1- GDP growth has been volatile over time and such a volatility might be as a result of

many factors including, the political events that took place on the global sphere or within

the region itself. More details about reasons can be further explained in the discussion section.

2- GDP growth has reached about 15 % decrease during the last four decades, and about 4 % during the last two decades.

Such clear variations in the GDP growth over time requires further scrutiny about the mean changes at the country-level data over time.

Table 4.2 indicates the mean percentage of GDP growth for each Arab country. The table summarizes the total mean of GDP growth over 22 years, two five-year terms, and two six-year terms to clearly reflect a clear picture about the variations across each country and over time. In the total column, which indicates the average for the 22 years (1996-2017), the mean percentage of GDP growth in the Arab World ranges from the lowest 1.21 % in Yemen to the highest 9.92 percent in Qatar. It seems that Qatar, Djibouti, Iraq, and Sudan are the only countries with a total mean percentage over 5 % in the period 1996-2017, whereas Comoros and Yemen have the lowest average percentage less than 3 % in the same period. It is worth to note that such values are affected by the data availability which could drive the mean percentage up or down. For instance, Iraq has 8.16 % total average which puts it in the second top country with high GDP growth for the whole period. Djibouti ranks the third with a 7.85%, however, such data are just available for the last four years (2014-2017) and there are no data available for the previous 18 years. The same case with Qatar.

From Figure 4.1 and Table 4.2, when comparing the GDP growth at the beginning of the period (1996) and the end (2017), almost all countries' GDP growth has decreased. However, two countries witnessed an increase in the mean percentage; Comoros from (-1.29%) to 2.70%

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and Palestine from 1.21% to 3.14%. While Libya has no data available for the year 1996, it made

a big leap in the GDP growth from 3.67% in 2000 to 26.67% in 2017. Figure 4.2 shows the total

average percentage of GDP growth along with summarized data about each country for the four

terms.

Table 4.2: Average Percentage of GDP Growth for each Arab State

Country	Total	1996-2000	2001-2005	2006-2011	2012-2017
Algeria	3.5236	3.4639	5.2058	2.5959	3.0991
Bahrain	4.4817	4.3186	5.1758	4.9773	3.9102
Comoros	2.8479	3.3586	2.3037	3.0911	2.6326
Djibouti	7.8542				9.1088
Egypt	4.5028	5.696	3.5365	5.4455	3.3712
Iraq	8.1693	17.2209	4.1725	6.1820	5.9441
Jordan	4.3995	3.2087	6.3856	5.6460	2.4902
Kuwait	3.5118	1.9292	8.3774	2.6961	1.5916
Lebanon	3.9359	3.3645	3.9064	6.5501	1.8224
Libya	4.9188	3.6792	5.3253	-7.0540	16.7597
Mauritania	4.1259	2.3668	4.6737	5.2004	4.0608
Morocco	4.3561	4.2089	4.8982	5.0557	3.3274
Oman	3.4378	3.3996	0.8991	4.6388	4.3844
Palestine	4.5836	5.9881	2.6715	6.3240	3.2662
Qatar	9.9235		8.3023	17.7906	3.4075
Saudi Arabia	3.1721	1.6993	4.1488	3.977	2.7806
Somalia					
Sudan	5.3589	6.0488	6.407	5.6886	3.5808
Syria	3.9356	2.3452	4.9601	5.3500	
Tunisia	3.7531	5.627	3.9087	3.4714	2.3436
UAE	4.4261	5.6071	5.4109	3.2506	3.7967

| Yemen | 1.2125 | 5.1660 | 4.2101 | 1.5017 | -4.8690 |

Figure 4.2: GDP Growth for Arab Countries over Terms.
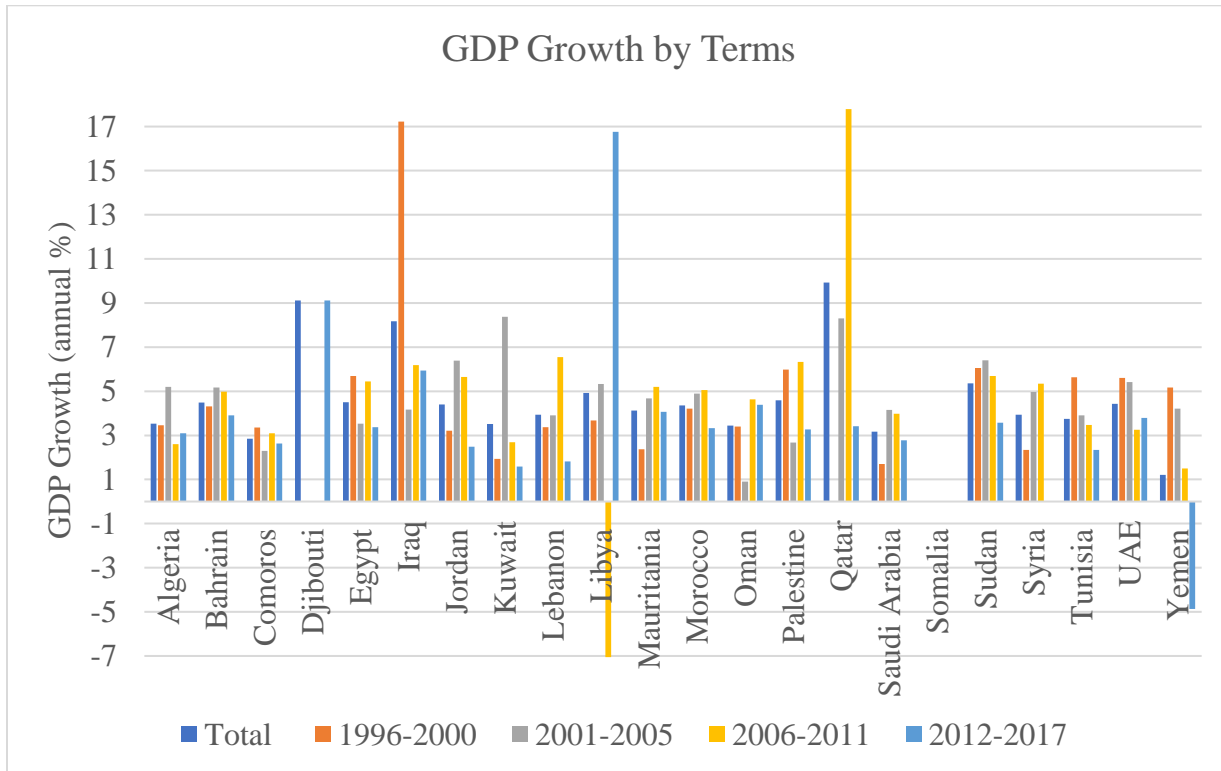
Understanding the mean changes of GDP growth across countries does not require only looking at the total mean percentages for the whole period that this study is focused on. Rather, further in-depth look at the data over terms is important to better see the variations. Thus, the following will shed light on examining those mean changes over time intervals.

The second column of Table 4.2 indicates the mean changes for each Arab state over five years (1996-2000). The total average percentage of GDP growth for all the Arab countries is 4.712. The highest mean percentage is 17.22 in Iraq and the lowest percentage is 1.69 in Saudi

Arabia. Within this term, the GDP growth of almost all the countries decreased from the beginning to the end of the term except for six countries including, Comoros, Egypt, Saudi Arabia, Sudan, UAE, and Yemen. Out of these six countries, two countries attained sharp increases in GDP growth; Comoros (-1.29% in 1996 to 10.84% in 2000) and UAE (from 5.79% to 10.85). Some countries had sharp decreases as in Morocco (from 12.37% to 1.91%), Lebanon (from 11.28% to 1.34%) and Iraq (from 11.02% to 1.40%).

As indicated in Table 4.2, the third column summarizes the mean changes for each country over five years (2001-2005). The total average of GDP growth for all the studied countries is 4.744 with the highest average percentage (8.37%) for Kuwait and the lowest (0.89%) for Oman. Unlike the previous term, almost all the countries witnessed regular increases in the GDP growth rate from 2001 to 2005 except for four countries that had slight decreases such as, Lebanon, Morocco, Oman, and Tunisia. Out of the 18 countries that had increases in GDP growth, three countries had abrupt increases; Palestine (from -9.34% in 2001 to 10.79% in 2005), Libya (from -1.79% to 11.87) and Kuwait (from 0.72% to 10.07%).

The fourth column of Table 4.2 indicates the average percentage for each country over six years (2006-2011). The total mean of GDP growth is 4.594 with the highest average percentage (17.79%) in Qatar and the lowest (-7.05%) in Libya. This term is the same as the first term in the mean decrease for all countries except for five countries; namely, Algeria, Comoros, Kuwait, Palestine, and Saudi Arabia. Palestine is the only country that had a sharp increase in GDP growth rate from (-3.90%) in 2006 to 12.41. Libya had a sharp decrease in GDP growth from (6.50%) in 2006 to (-62.07%) in 2011 as well as Yemen (from 3.17% to -12.71).

The fifth column of Table 4.2 summarizes the average percentage for each country over six years (2012-2017) known as the post Arab Spring period. The total average percentage of GDP

growth is 3.709 with the highest 16.75% in Libya and the lowest mean percentage (-4.86%) in Yemen. During this time period, all countries had a decreased GDP growth except for four countries; Bahrain, Egypt, Morocco, and Sudan. Although Bahrain is among those countries with increased rate of GDP growth, the increase percentage does not exceed 0.11% from 2012 to 2017. Sudan is the only country that had a slightly sharp increase from 0.52% in 2012 to 4.28% in 2017. Libya had the sharpest decrease in GDP growth not only during this time period but also throughout the 22 years with a 123.13% in 2012 to 26.67% in 2017. Yemen had also a GDP growth decrease from 2.39% to (-5.94%).

Overall, the economic growth rate in the Arab World has bounced up and down during the period 1996-2017. GDP growth over the 22 years has tended to be anywhere between 9.34 and 0.47 percent with an average total rate of 4.409 percent and a standard deviation moving up towards 8.901 percentage points.

To better understand the GDP growth rate in the Arab World, analysis was broken down into time periods. Breaking down the analysis into time periods gives the reader a clear overview about when the Arab World has made a good rate of GDP growth. The over-periods analysis shows that economic growth rate was fluctuating in all terms. Most of Arab countries had a decreased economic growth rate over all the terms except for the period 2001-2005. In this time period, all the countries as a whole made the highest average percentage of GDP growth with 4.744%. The economic growth rate of all countries – except four countries – has increased steadily. Such higher growth rates during this time period might be attributed to the economic initiatives that were undertaken in some countries. For example, Yemen experienced the highest economic growth rate during this period, 2001-2005, with 5.16%. During this period, Yemen's commercial capita, Aden, founded a local economic development unit in 2002, following the

2001 Local Authority Law that was approved by the parliament. This unit was established with efforts by governmental and non-governmental efforts from the private sector to revitalize investments in the city.

During the period 2012-2017, the Arab World made the lowest economic growth rate with a 3.709 percent and standard deviation around 12.25 percentage points. Such a high standard deviation is driven up by the maximum value of Libya 123.14% which seems as an outlier. A possible interpretation of Libya's abrupt GDP growth rate in this area might be related to the catch-up effect.

Another way of looking at the GDP growth rate in the Arab World, in addition to the time periods, is through income, regions, and political regime. Appendix 5 lists the countries included in each classification sub-group. To some extent there may be similar patterns in growth rates, particularly amongst states with similar income level, which are geographically and culturally close, and which share political similarities.

Table 4.3 displays the summary statistics for GDP growth across three group classifications over the period 1996-2017. Following the World Bank classification, the first group includes four sub-groups; low-income economies, lower-middle-income economies, upper-middle-income economies, and high-income economies. Over the 22 years, the upper-middle-income economies achieved the highest economic growth with a mean percentage of 5.377%. Iraq performed the best within this sub-group with an average of 8.16% growth rate and Algeria made the lowest growth rate with an average of 3.52%. Meanwhile, the low-income economies experienced the slowest economic growth rate with a 2.439%.

Table 4.3: Summary Statistics of GDP Growth by Income, Regions, and Regime (1996-2017)

Classification	Obs.	Mean	Std. Dev.	Min	Max
Low-income economies	56	2.439	4.794	-16.678	10.848
Lower-middle-income economies	136	4.547	4.127	-12.489	18.869
Upper-middle-income economies	84	5.377	17.921	-62.076	123.14
High-income economies	127	4.642	4.884	-7.076	26.17
Greater Maghreb	84	4.259	16.024	-62.076	123.14
Fertile Crescent	122	5.002	7.867	-33.101	54.158
Arabian Peninsula	149	4.136	5.34	-16.678	26.17
Horn of Africa	48	4.416	3.107	-1.968	11.522
Republics	232	4.371	11.441	-62.076	123.14
Monarchies	171	4.574	4.398	4.398	26.17

The second group of Table 4.3 includes four sub-groups based on cultural similarities. These sub-groups include, the Greater Maghreb, the Fertile Crescent, Arabian Peninsula, and Horn of Africa. Amongst these sub-groups, it seems that the Fertile Crescent performed the highest economic growth rate with a 5.002%, whereas Arabian Peninsula countries experienced a slightly slow growth rate with a 4.136%.

The third group of Table 4.3 includes two main sub-groups classified based on the political regime. These two sub-groups are republics and monarchies. Clearly, the monarchies achieved a slight increase in growth rate with a 4.574% in comparison to the republics, which made a 4.371% growth rate. Such numbers indicate that republics lagged behind the monarchies. One possible interpretation might be due to higher level of political stability in monarchies rather than in republics, which facilitate the attraction of FDI.

Taking a deeper look at the data over time periods for each classification group shows that much variance was going on underneath the overall period. Table 4.4 presents average percentage of GDP growth for each group and sub-group over time periods. As indicated in the table, there is a lot of variations across groups and sub-groups and over time periods.

Table 4.4: Over-Period Average GDP Growth % by Classifications

Classification	1996-2000	2001-2005	2006-2011	2012-2017
Low-income economies	3.623	3.825	2.733	-1.118
Lower-middle-income economies	4.989	4.349	5.198	3.778
Upper-middle-income economies	7.666	4.947	2.831	6.754
High-income economies	3.391	5.386	6.222	3.312
Greater Maghreb	4.043	4.702	1.668	6.623
Fertile Crescent	6.304	4.272	5.987	3.379
Arabian Peninsula	3.687	5.218	5.547	2.143
Horn of Africa	4.704	4.355	4.39	4.294
Republics	5.678	4.189	3.695	4.139
Monarchies	3.482	5.45	6.004	3.211

Figure 4.3 clearly shows the trend-line of GDP growth for each economic sub-group over the four time periods. It reveals that the upper-middle-income economies experienced the highest growth rate with 7.666 percent in the period 1996-2000, and the low-income economies made the lowest with a (-1.118) percent in the last period, the post-Arab Spring. Although the upper-middle-income economies experienced the highest growth rate in the first time period, the two

consecutive periods witnessed downswings in economic growth rate. But it is notable that again it made a turnaround in the last period with 6.754 percent.

It is also notable from Figure 4.3 that all sub-groups have witnessed a tightening in economic growth, as the GDP growth rates for the period 2001-2005 bunched tightly together, compared with the wide variance in growth rates in the period 2012-2017. All the sub-groups experienced a downturn in the last period following Arab Spring events except for the upper-middle-income economies. The striking observation is that Libya – which has been going through Arab Spring movement – is amongst the upper-middle-income economies. High-income economies made a consistent growth rate during the first three periods, whereas a downswing is notable in the last period.

Figure 4.3: Over-Period Average GDP Growth % by Income
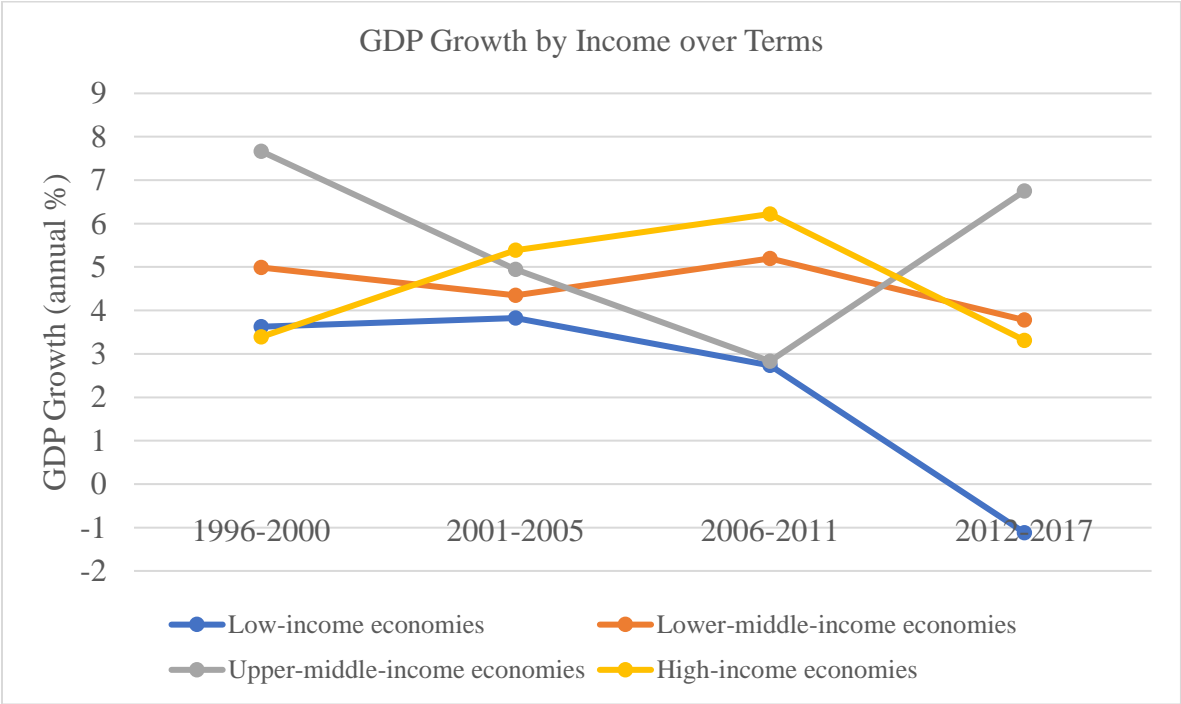
Figure 4.4 presents the regional trends for GDP growth rate over time periods. It shows that the Greater Maghreb performed the highest economic growth rate with a 6.623 percent in the period 2012-2017 and the lowest rate with a 1.668 percent in the period 2006-2011 compared the other regions. Much volatility is notable throughout all the regions and over the different periods. However, it seems that the growth rate of Horn of Africa is often flat with lower level of fluctuations. The growth rate of all regions bunched tightly together in the period 2001-2005, but the variance widened out during the next two periods.

Figure 4.4: Over-Period Average GDP Growth % by Regions
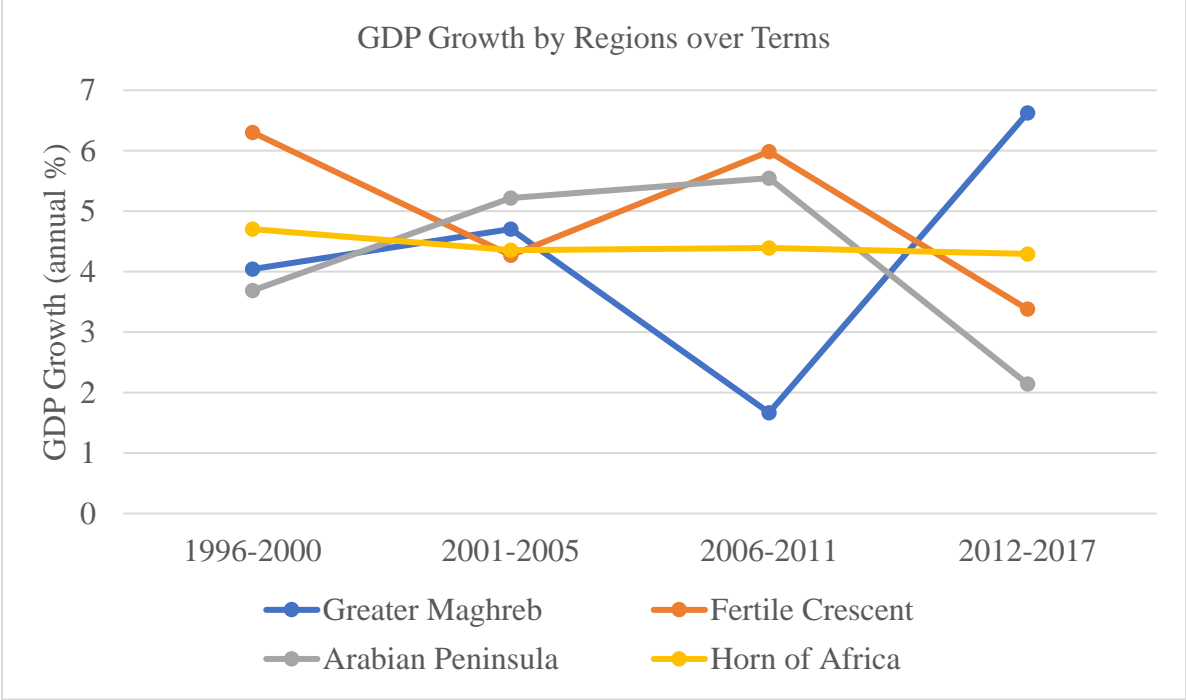
Figure 4.5 shows the trend-line of GDP growth rate over time periods across political regimes. The highest growth rate (6.004 %) was made in the period of 2006-2011 and the lowest (3.211 %) in 2012-2017. All the countries collectively under the republic system made a growth

rate higher than those countries under the monarchy regime during the first period. However, republics experienced downswings in the following two periods and a slight turnaround in the last period. In the monarchies, the growth rate kept increasing but declined in the period 2012-2017. Both sub-groups witnessed a wide variance in their growth rates in 2006-201.

Figure 4.5: Over-Period Average GDP Growth % by Political Regime
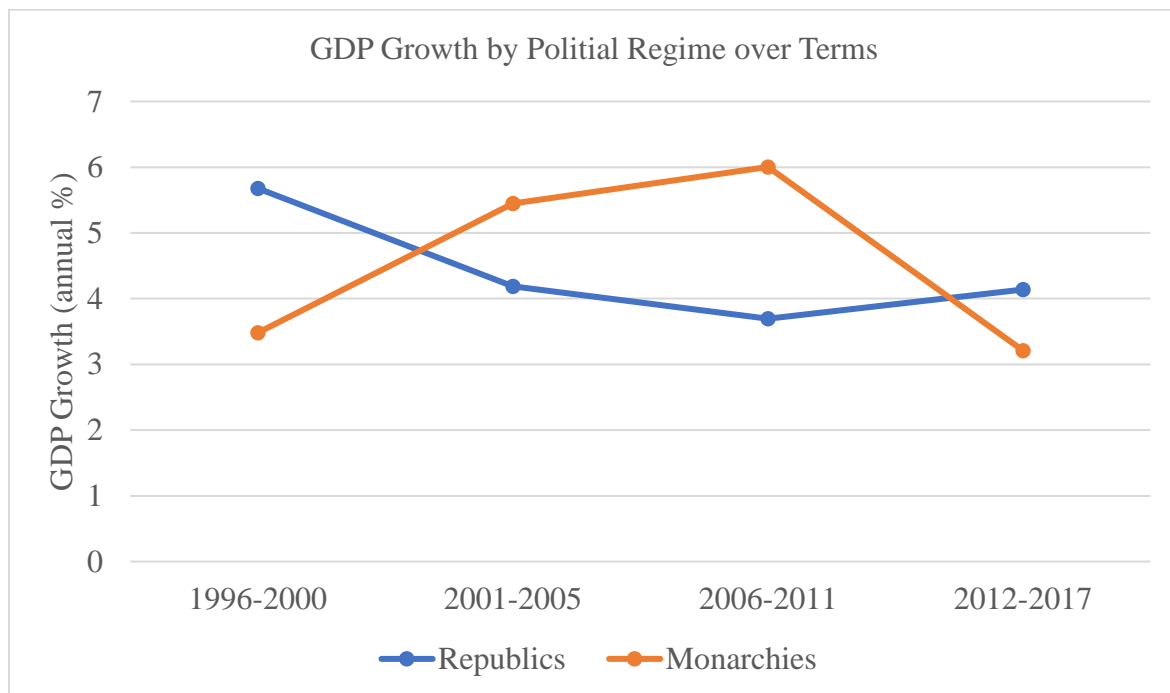
GDP per capita Growth (annual %)

As pointed beforehand, this variable refers to the annual percentage growth rate of GDP per capita based on the constant local currency. GDP per capita growth is the second dependent variable used in this research to measure economic growth. Descriptive statistics for this variable are shown in Table 4.5. The summary statistics show the mean, standard deviation, minimum,

and maximum percentages for the GDP per capita growth variable over the overall period 1996-2017 and over four selective time periods; two five-year terms and two six-year terms.

Table 4.5 indicates the total number of observations during the overall period. There are missing data for some countries including, Djibouti (22), Libya (4), Qatar (5), Somalia (22), and Syria (22). Such data, if available, could have changed the mean percentages for the Arab World.

Table 4.5: Summary Statistics of GDP per capita Growth (Annual %) over Time

Variable	Term	Obs.	Mean	Std. Dev.	Min	Max
	1996-2017	413	1.374	9.087	-62.225	122.968
GDP per	1996-2000	86	2.632	6.101	-12.207	30.719
capita Growth	2001-2005	95	1.716	7.485	-34.898	50.122
(annual %)	2006-2011	114	.538	7.771	-62.225	15.695
	2012-2017	118	.989	12.584	-24.1	122.968

The Arab World made 1.374 average GDP per capita growth percentage points during the overall period with a 9.087 standard deviation, which indicates a huge gap in in the growth rates amongst countries. Such a gap is clearly evident in the minimum and maximum values.

Table 4.5 shows also how the GDP per capita growth changes over time periods from 2.632 in the period 1996-2000 to 0.989 in the post-Arab Spring period 2012-2017. This means that the growth rate of GDP per capita has decreased from the beginning to the end of the overall period. This can be clearly seen through Figure 4.6. Compared to the trend-line of the world's GDP per capita growth, Arab World made relatively higher growth rates in most of the years, however, its

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growth rate was below the world's growth rate in some years, especially during the last time period. Such a low growth in the last years is thought to be triggered by the political instability that dominated the region as a result of the Arab Spring movement.

The graph indicates that GDP per capita growth rate ranges between 6.95 and (-1.93) average percentage points. The sharpest increase was made in 2004 and the sharpest decrease was in 2009. The trend-line of this variable is the same as in the previous dependent variable, GDP growth, with variations in average percentages. In the GDP growth, all the average percentages were positive, whereas in some mean percentages in the GDP per capita growth turned down to be negative.

Figure 4.6: GDP per capita Growth (annual %) in the Arab World (1996-2017)
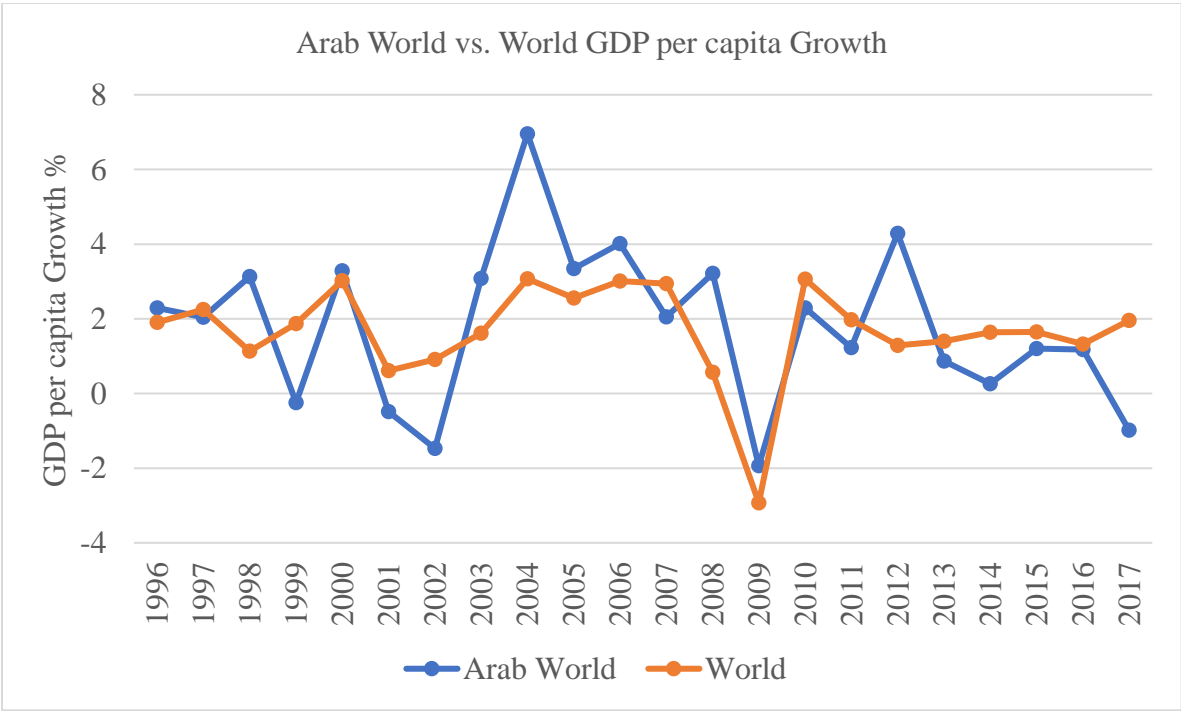
Looking at the historical data of this variable prior to 1996 indicates that GDP per capita growth has been volatile over time even before the studied period. In 1976, for example, the

growth rate of GDP per capita was 12.24 %, which is the sharpest increase since then. The sharpest decrease was in 1982 with a growth rate of (-11.87), but a fast recovery is noticed during the 1980s and a turnaround was recorded in 1990 with a high growth rate of 9.11 percent. Like the GDP growth, the growth rate of GDP per capita has witnessed volatility and variations over time. However, further in-depth analysis of such data across countries is important to see where GDP per capita growth has been good and bad.

Table 4.6 presents the average percentage of GDP per capita growth for each country in the Arab World. It summarizes the total mean of GDP per capita growth over the overall period, two five-year terms, and two six-year periods. The purpose of breaking down the time periods is to examine variations across each country and see which country made a good growth rate and during which period.

Table 4.6: Average Percentage of GDP per capita Growth for each Arab State

Country	Total	1996-2000	2001-2005	2006-2011	2012-2017
Algeria	1.8576	1.9055	3.8405	0.8861	1.1369
Bahrain	0.0554	0.9373	-0.7812	-1.2006	1.2736
Comoros	0.2285	0.6725	-0.1262	0.6413	-0.2585
Djibouti					
Egypt	2.5006	3.7537	1.6130	3.4938	1.2031
Iraq	5.0694	13.6678	1.3787	3.3695	2.6798
Jordan	0.9012	0.9731	4.0010	0.8095	-1.6501
Kuwait	-0.7857	-2.8639	6.1591	-2.9042	-2.7230
Lebanon	0.7425	2.0465	-0.3437	4.1405	-2.8368
Libya	3.8275	2.0998	3.6866	-8.1647	16.2251
Mauritania	1.1339	-0.7001	1.6919	2.2306	1.1006
Morocco	3.0252	2.8626	3.6526	3.7631	1.8998

Oman	0.0111	2.8101	-1.1315	0.333	-1.6909
Palestine	2.5973	9.3269	1.6215	-0.2061	0.6058
Qatar	0.5244		0.3816	2.8331	-1.6650
Saudi Arabia	0.5542	-0.3718	1.2499	1.1287	0.1718
Somalia					
Sudan	3.8603	3.1536	3.4861	5.0317	3.5897
Syria					
Tunisia	2.6492	4.3194	3.0657	2.3889	1.1705
UAE	-1.6865	0.3863	-2.1616	-7.1194	2.4146
Yemen	-1.5716	1.9736	1.3111	-1.2367	-7.2634

In the total column, the mean percentage of GDP per capita growth in the Arab World during
the overall period ranges from the lowest (-1.68 %) in UAE to the highest 5.06 percent in Iraq.
The top countries with growth rate above 3 percent are Iraq, Sudan, Libya, and Morocco,
whereas UAE, Yemen, and Kuwait are at the bottom with negative growth rates.

A general comparison of the GDP per capita growth rate at the first period and the last period
indicates that 12 countries have experienced a decrease in growth rate, while 8 countries made a
slight increase and 2 countries have no available data as indicated in Figure 4.7.

Figure 4.7: GDP per capita Growth for Arab Countries over Time Periods
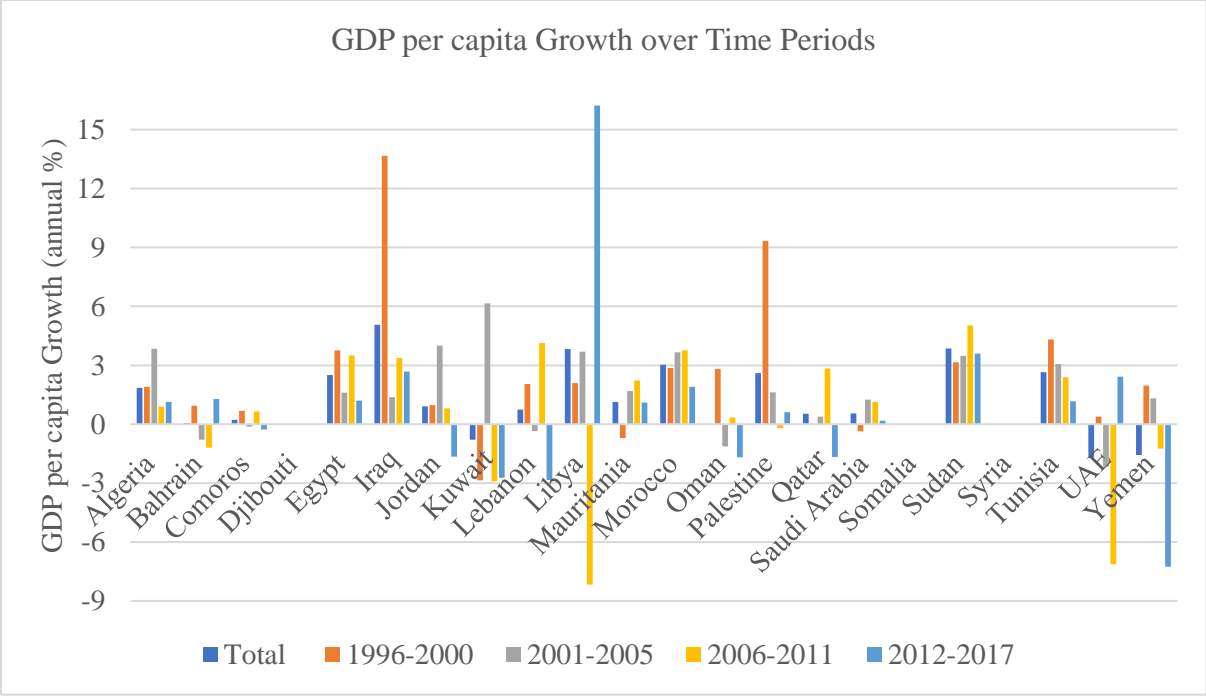
The above chart shows how some countries act as outliers when their growth rate is abruptly increasing or decreasing to the negative value as in some countries. Variations are evident across countries and over time periods; the growth rate has been bouncing up and down. Such fluctuations can be clearly seen when looking at time periods analysis.

The second column of Table 4.6 indicates the average changes for each Arab country over the period 1996-2000. The total average percentage of GDP per capita growth for all countries is 2.632. It ranges from the highest 13.66 percent in Iraq to the lowest (-0.86) in Kuwait. During this period, almost half the countries witnessed an increase in their GDP per capita growth rate when comparing the beginning year and the end of this period. Comoros is the only country that made a sharp increase from (-3 %) to 8.08 %; the other countries made a slight increase rate. Amongst those that experience a decreased growth rate is Lebanon, which made the sharpest decrease from 9.92 percent to (-1.12) percent, followed by Morocco (from 10.77 % to 0.68 %). From the data, it is notable that variations existed during each period. For instance, Iraq

experienced a successful growth increase from 1996 to 1998 with a rate of 7.62 percent to 30.71 percent respectively, but an abrupt downswing was recorded in the following years. Another example is noticed in Kuwait in which it experienced a regular decrease in its growth rate during the first four years, but a slight increase was made in the last year of this period.

The third column of Table 4.6 presents the mean changes for each country over the period 2001-2005. The total average percentage of GDP per capita growth for all the countries is 1.716 with the highest 6.15 percent in Kuwait and the lowest (-2.16) percent in UAE. During this period, almost all countries experienced increased growth rate from 2001-2005 except for five countries; Morocco, Oman, Qatar, Tunisia, and UAE. An abrupt increase in growth rate was made in Palestine with a (-8 %) to 8 %. Although Tunisia among those with a decrease growth rate, the difference was very slight.

During the period 2006-2011, Arab countries made a 0.538 average percent of GDP per capita growth rate with the highest 5.03 % in Sudan and the lowest (-8.16) in Libya. Half of the countries experienced increase in growth rate, while the other half had a decreased level of GDP per capita. Libya witnessed the sharpest decrease with a 4.89 in 2006 to (-62 %) in 2011, followed by Yemen (from 0.35 to -15 %).

During the period 2012-2017, the total average of growth rate is 0.989 percent with the highest 16.22 percent in Libya and the lowest (-7.26) percent in Yemen. Almost all the countries experienced downswings in their growth rates except for Egypt, Jordan, Lebanon, Libya, Morocco, and Qatar. Huge differences are noticed among countries over years of this period. Libya, for example, performed well in 2011 with an average percentage of 122, but it abruptly fell to negative values in the next years and then grew up again to 25 in 2017.

Against this backdrop, it can be said that the growth rate of GDP per capita for the Arab World has fluctuated across countries and over time periods. The best period, according to the data, in which Arab World performed well is the period 1996-2000 with an average of 2.632 percentage points compared to the other periods. However, it is assumed that the growth rate was affected by the high growth rate of some outliers such as Iraq (13.66 %) and Palestine (9.32 %). This can be seen through the number of countries that have experienced a decreased and increased level of growth, which is almost half the total number of countries. While the second period 2001-2005 had an average growth rate less than the first period, the number of countries with increased growth rate is much more than in the first period.

Such variations in growth rates of GDP per capita can be better understood through a further analysis of descriptive statistics for countries based on income, regions, and political regime (see Appendix 5). Table 4.7 shows the summary for GDP per capita growth across three categorizations or group classifications over the overall period 1996-2017. The first group is called the economic classification, which is based on income. This group is further divided into four sub-groups; low-income economies, lower-middle-income economies, upper-middle-income economies, and high-income economies.

The summary statistics show that the lower-middle-income economies experienced the highest growth rate with a mean percentage of 2.73. Within this sub-group, Sudan performed the highest GDP per capita growth rate with an average of 3.86 percentage points and Mauritania made the lowest growth rate with an average of 1.13 percent. Meanwhile, the sub-group of low-income economies experienced the slowest growth rate with an average of (-0.672) percent.

Table 4.7: Summary Statistics of GDP per capita Growth by Income, Regions, and Regime (1996-2017)

Classification	Obs.	Mean	Std. Dev.	Min	Max
Low-income economies	44	-.672	4.958	-18.752	8.087
Lower-middle-income economies	136	2.73	4.849	-12.207	22.781
Upper-middle-income economies	84	2.578	17.89	-62.225	122.968
High-income economies	127	-.251	4.254	-14.786	15.952
Greater Maghreb	84	2.603	16.018	-62.225	122.968
Fertile Crescent	110	2.362	8.629	-34.898	50.122
Arabian Peninsula	149	-.446	4.666	-18.752	15.952
Horn of Africa	48	2.383	3.435	-3.965	12.815
Republics	220	2.145	11.867	-62.225	122.968
Monarchies	171	.319	4.062	-14.786	15.952

The second group, as in Table 4.7, is divided into four regions based on cultural homogeneity. These regions are the Greater Maghreb, the Fertile Crescent, Arabian Peninsula, and Horn of Africa. Across these regions, the statistics show that Greater Maghreb achieved the highest growth rate with an average of 2.603 percent, whereas Arabian Peninsula made the slowest growth rate of GDP per capita with a (-0.446 %). Within the region of Greater Maghreb, Libya made the highest growth rate with an average of 3.82 % and Mauritania had the lowest rate.

The third group is divided into two sub-groups based on political regime; republics and monarchies. As indicated in Table 4.7, it seems that republics experienced the growth rate much higher than monarchies with an average of 2.145 percent. Within the republics, Iraq made the

highest growth rate with an average of 5.06 percent, whereas Yemen experienced the slowest

rate with an average of (-1.57 %).

Although the data across categorizations over the overall period reflect the comprehensive

growth rate, much variance has been recorded within specific periods. Table 4.8 indicates

average percentages of GDP per capita growth for each classified group and its sub-groups over

four time periods.

Table 4.8: Over-Period Average GDP per capita Growth % by Classifications

Classification	1996-2000	2001-2005	2006-2011	2012-2017
Low-income economies	1.323	.592	-.298	-3.761
Lower-middle-income economies	3.786	2.522	2.784	2.047
Upper-middle-income economies	5.346	2.181	.039	3.604
High-income economies	.18	.619	-1.155	-.37
Greater Maghreb	2.157	3.024	.054	5.099
Fertile Crescent	5.954	1.654	2.321	0
Arabian Peninsula	.479	.718	-1.167	-1.167
Horn of Africa	1.913	1.68	2.837	2.777
Republics	4.199	1.7396	1.169	1.902
Monarchies	.676	1.421	-.295	-.246

Figure 4.8 indicates the trend-line of GDP per capita growth for each economic sub-group in

over the four time periods. Generally, the growth rate ranges between the highest 5.43 percent of

the upper-income economies in the first period and the lowest (-3.76) percent of the low-income

economies in the last period. The figure reveals that a wide variance has happened during the

period 2012-2017 and the period 1996-2000; the other two periods witnessed less variance as

some sub-groups bunched tightly together. A comparison of the growth rate in the first period

and the last period shows that the GDP per capita growth rate has decreased in all sub-groups,

however, the growth rate bounced up and down from period to another. The only sub-group that

experienced a regular decrease in its growth rate is the low-income economies. The post-Arab

Spring period (2012-2017) shows that low-income and lower-income economies have witnessed

a decreased growth rate, while the upper-income and high-income economies have made

increases.

Figure 4.8: Over-Period Average GDP per capita Growth % by Income
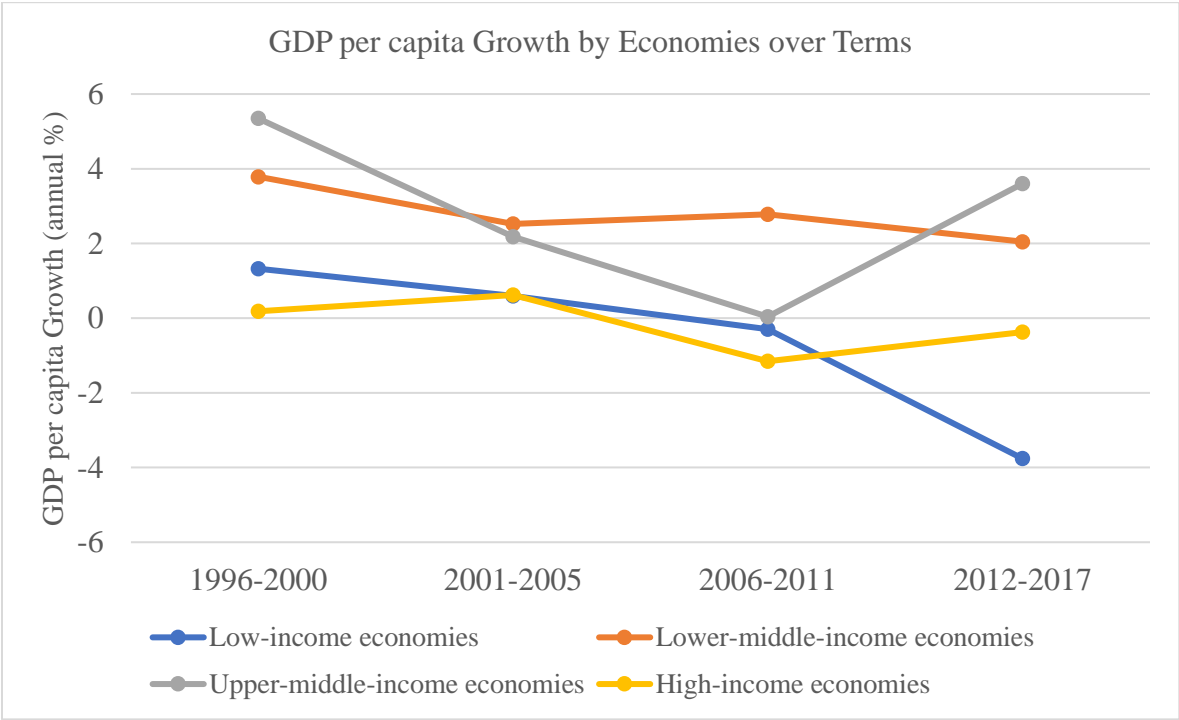
Figure 4.9 shows the regional trends of GDP per capita growth over time periods. The average GDP per capita growth rate ranges from the lowest (-1.67 %) of Arabian Peninsula in 2006-2011 to the highest 5.95 percent of the Fertile Crescent in 1996-2000. A comparison of the first period and last period shows that Fertile Crescent and Arabian Peninsula have experienced a decreased growth rate, while Greater Maghreb achieved a sharp increase along with Horn of Africa, which made a slight increase. Much variance can be seen in all periods, especially in the first and last periods.

Figure 4.9: Over-Period Average GDP per capita Growth % by Regions
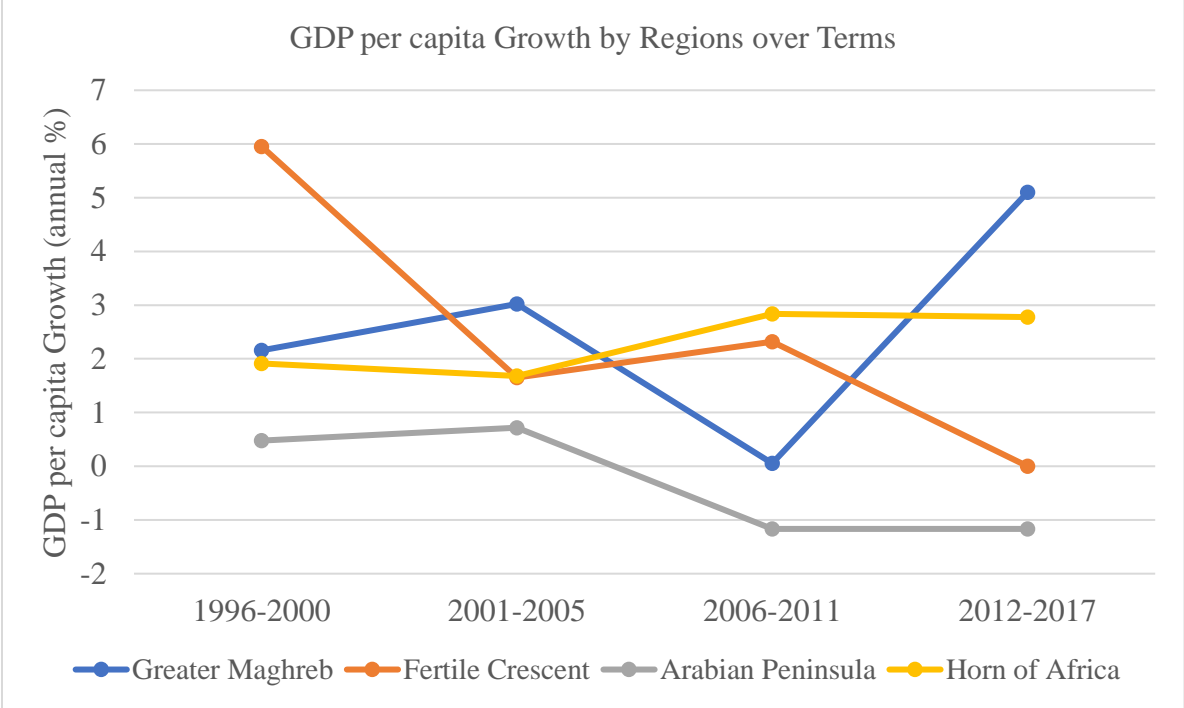
Figure 4.10 shows the trend-line of GDP per capita growth rate over the four time periods and across political regimes. The growth rate ranges between the lowest (-0.29 %) of monarchies during 2006-2011 and the highest 4.19 percent of republics in the period 1996-2000. Republics

experienced downswings from the first period through 2006-2011, but a slight recovery has been made in the last period. As for monarchies, growth rate has bounced up and down. A wide variance has happened during the first period and last period with less variance. During the period 2001-2005, both regimes' growth rate came to bunch together compared to other periods.

Figure 4.10: Over-Period Average GDP per capita Growth % by Political Regime

GDP per capita Grwoth by Politial Regime over Terms
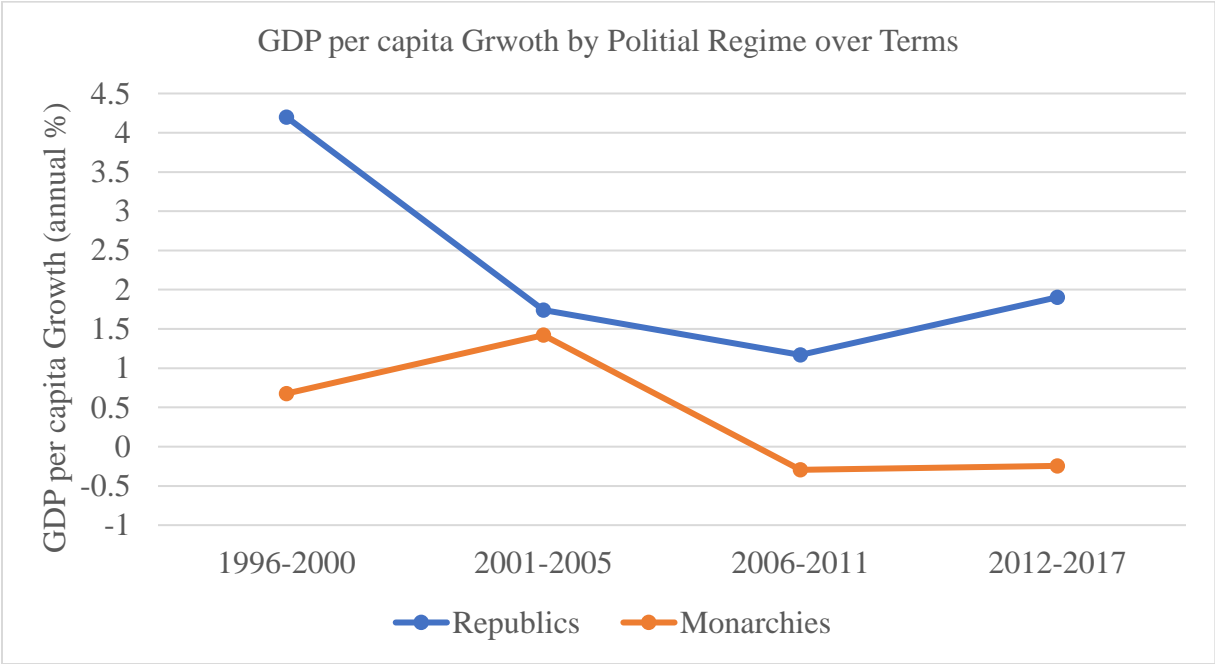
GDP per capita PPP Growth

This variable refers to the annual percentage of GDP per capita growth with the consideration of purchasing parity power (PPP). Unlike the former variable, this allows for comparison of GDP per capita growth among countries. Descriptive statistics of the dependent variable, GDP Growth PPP per capita, are indicated in Table 4.9. The summary statistics show the mean, standard deviation, minimum, and maximum percentage points for the variable throughout the overall period and through time periods.

Table 4.9: Summary Statistics of GDP Growth PPP per capita over Time

Variable	Term	Obs.	Mean	Std. Dev.	Min	Max
	1996-2017	409	3.25	9.358	-61.445	127.075
	1996-2000	86	4.366	6.15	-10.209	32.137
GDP Growth	2001-2005	95	4.12	7.808	-33.599	54.25
PPP per capita	2006-2011	114	2.511	8.043	-61.445	19.1
	2012-2017	114	2.422	13.021	-22.738	127.075

The above-table shows the total number of observations (409) for this variable. A total number of 75 observations are missing. The total average percentage of GDP growth PPP per capita for the Arab World is (3.25) with a standard deviation of around 9 points, which indicates a huge variation in the growth rate of this variable amongst countries. This can be also noted through the minimum and maximum values.

From the table, it is evident how the mean percentage for the Arab World changes over time periods with the lowest (2.422) in the period 2012-2017 and the highest (4.366) in the period 1996-2000. Comparing the first period with the last period gives an overview about the overall trend of GDP growth PPP per capita in the Arab World; clearly, there is a sharp decrease. However, such an decrease was gradually made in the consecutive periods. Figure 4.11 shows the trend-line of this variable for the Arab World over years.

Figure 4.11: GDP Growth PPP per capita in the Arab World over Years (1996-2017)
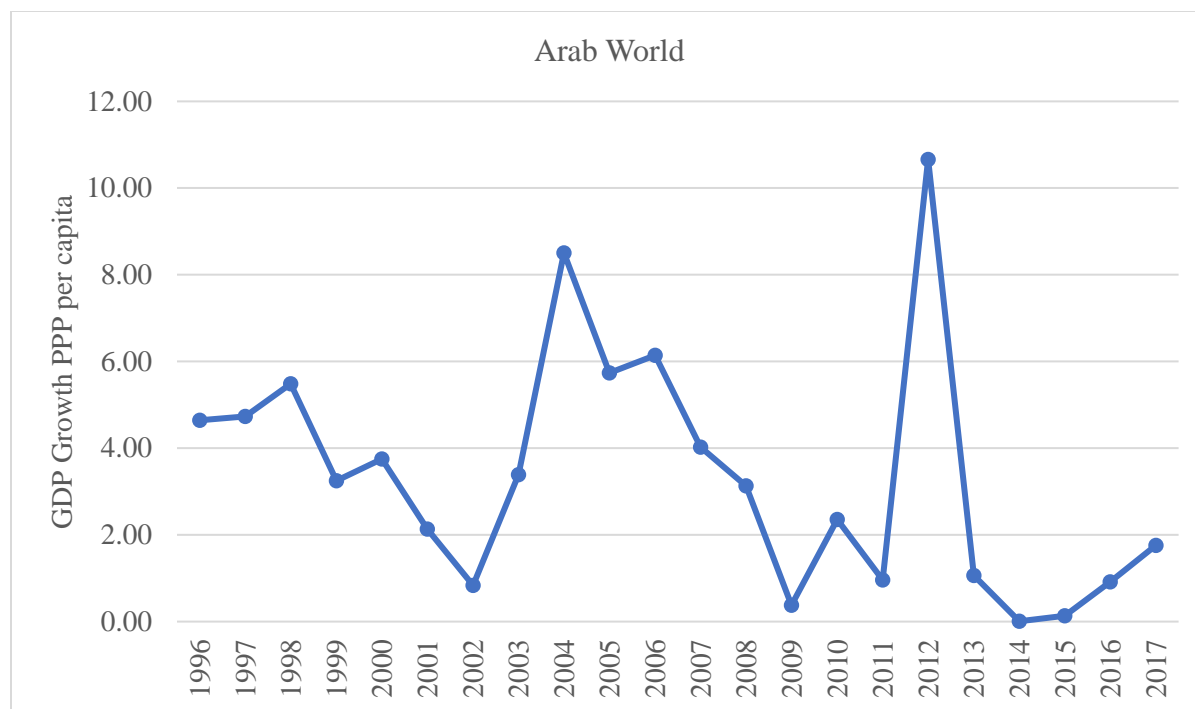
The rate of GDP growth PPP per capita ranges between (0.01) and 10.66 percent. Volatility is obvious over years the same as in the other dependent variables. During the first period, the growth rate has bounced up and down, followed by a regular increase in the years of 2002, 2003, and 2004. Then the grow rate abruptly decreases again in the following years and goes up in 2010, 2011, and 2012. A sharp decrease in 2013 and 2014, followed by slightly regular increases in the last years.

Table 4.11 shows the mean percentage of GDP Growth PPP per capita for each country over time. The table provides a summary of the total average growth over the overall period as well as time periods. In the total column, Iraq, Libya, Sudan, and Morocco stand amongst the top countries with slightly higher GDP growth PPP per capita, whereas UAE, Yemen, Kuwait, and Oman are in the bottom with slower growth rate. When comparing the average growth rates of all countries over time periods, we see variations in the growth rate and across countries. During the period 1996-2000, for example, Iraq and Palestine experienced the highest growth rate of

PPP per capita, while Kuwait and Mauritania had the slowest rates. As for the period 2001-2005,

Kuwait and Jordan had slightly higher growth rate and UAE and Oman performed the slowest.

During 2006-2011, Sudan and Lebanon experienced the highest growth rate with positive points,

while Libya and Kuwait had the slowest rate. During 2012-2017, Libya, UAE, and Iraq had the

highest growth rate, whereas Yemen had the worst growth rate followed by Kuwait and

Lebanon. Figure 4.12 indicates all these variations over time periods.

Table 4.11: Average Percentages of GDP Growth PPP per capita for each Country

Country	Total	1996-2000	2001-2005	2006-2011	2012-2017
Algeria	3.7742	3.6219	6.2845	2.8609	2.7224
Bahrain	1.9361	2.6381	1.5582	0.7380	2.8643
Comoros	2.2529	2.3799	2.2267	2.6064	1.8154
Djibouti					
Egypt	4.4295	5.5032	4.0104	5.5250	2.7887
Iraq	7.0499	15.5437	3.8497	5.4000	4.2884
Jordan	2.8084	2.6761	6.4548	2.7962	-0.1079
Kuwait	1.1024	-1.2207	8.6645	-0.9623	-1.1986
Lebanon	2.6356	3.7651	2.0075	6.1660	-1.3127
Libya	5.8685	4.4231	6.1449	-6.3655	18.1130
Mauritania	3.0495	0.9692	4.1009	4.2656	2.6907
Morocco	4.9645	4.5932	6.0927	5.7998	3.4982
Oman	1.8927	4.5465	1.2031	2.2988	-0.1504
Palestine	4.5026	11.1250	4.0363	1.6982	2.1770
Qatar	2.4765		2.7404	4.8570	-0.1239
Saudi Arabia	2.4516	1.3121	3.6465	3.1146	1.7424
Somalia					
Sudan	5.8209	4.8959	5.9224	7.1096	5.2183
Syria					

Tunisia	4.5835	6.0782	5.4977	4.3997	2.7599
UAE	0.1608	2.0909	0.1356	-5.2848	4.0192
Yemen	0.2883	3.6929	3.7001	0.6864	-5.7902

Figure 4.12: GDP Growth PPP per capita for Arab Countries over Time Periods
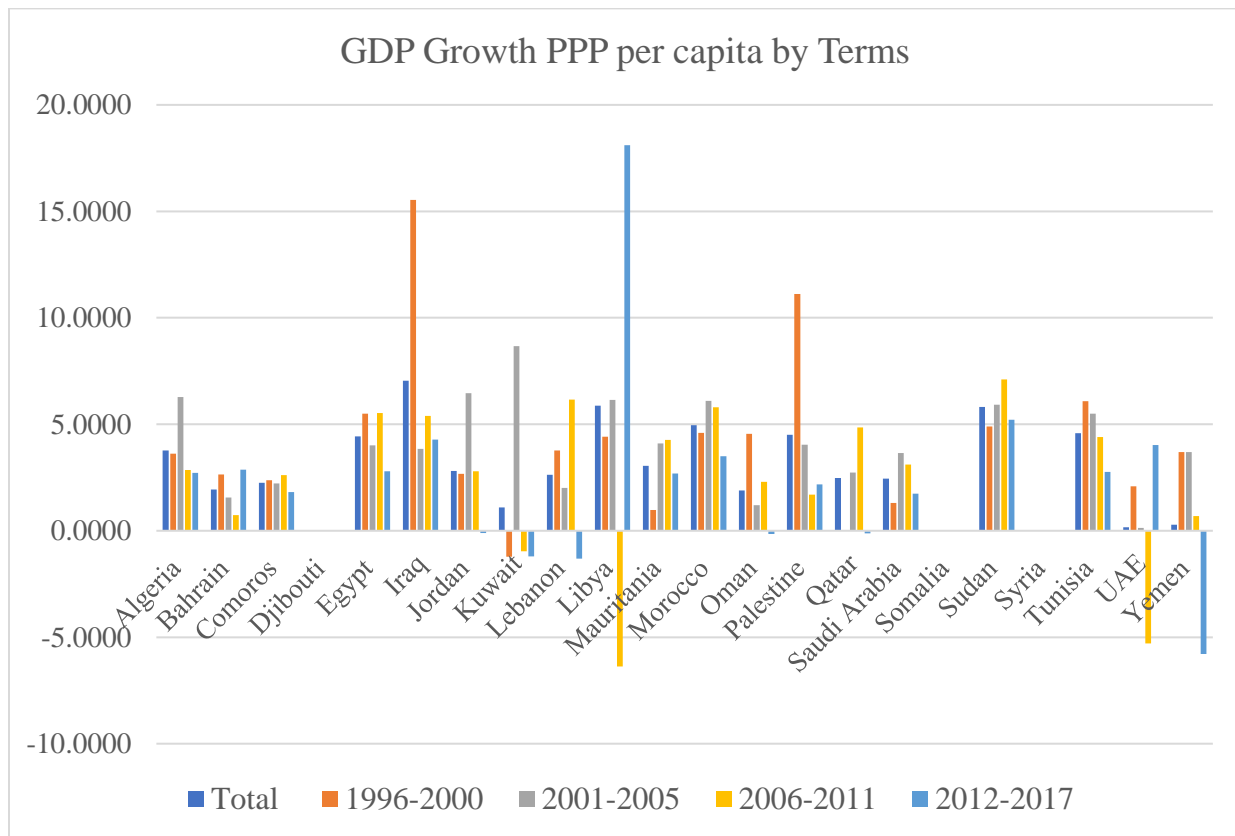
From the graph, it can be seen that countries that had growth decrease below zero are very limited. Sharp increases and decreases have rarely happened within certain countries and time periods. However, most of the values fall above zero.

Table 4.12 indicates the growth rate of GDP PPP per capita for the Arab World based on economic, regional, and political categorizations as previously pointed. For the first group – that is based on income – the lower-middle-income economies performed the highest growth rate with a (4.55) percent, while the low-income economies made the slowest rate with a (1.27)

percent during the overall period. Within the regional category, Greater Maghreb achieved the highest growth rate with a (4.55) percent and Arabian Peninsula had the slowest rate with a (1.43) percent. As for the political group, it is interesting to see that monarchies achieved much higher growth rate than republics with a (4.01) percent.

Table 4.12: Summary Statistics of GDP Growth PPP per capita by Income, Regions, and Regime (1996-2017)

Classification	Obs.	Mean	Std. Dev.	Min	Max
Low-income economies	44	1.271	5.169	-17.871	10.564
Lower-middle-income economies	132	4.558	5.034	-10.209	24.11
Upper-middle-income economies	84	4.53	18.283	-61.445	127.075
High-income economies	127	1.638	4.519	-14.139	18.265
Greater Maghreb	84	4.557	16.386	-61.445	127.075
Fertile Crescent	110	4.285	8.811	-33.599	54.25
Arabian Peninsula	149	1.439	4.93	-17.871	18.265
Horn of Africa	44	4.037	3.52	-2.212	14.89
Republics	216	4.014	12.228	-61.445	127.075
Monarchies	171	2.217	4.335	-14.139	18.265

However, the growth rate of GDP per capita (PPP) seems variant over periods and across classifications. Table 4.13. explains how these variations are time periods and groups. From the first group, we can see how the mean percentages change over time periods. The sub-group with the highest growth rate, for example, changes from a period to another. In the first period, it is the upper-middle-income economies that achieved the highest growth rate, lower-middle-income

economies in the second and third periods, and upper-middle-income economies again in the last period.

Table 4.13: Over-Period Average GDP Growth PPP per capita by Classifications

Classification	1996-2000	2001-2005	2006-2011	2012-2017
Low-income economies	3.036	2.963	1.646	-1.987
Lower-middle-income economies	5.527	4.943	4.799	3.188
Upper-middle-income economies	7.146	4.614	1.999	5.245
High-income economies	1.873	2.991	.793	1.192
Greater Maghreb	3.914	5.459	2.024	6.765
Fertile Crescent	7.722	4.071	4.317	1.566
Arabian Peninsula	2.176	3.092	.778	.194
Horn of Africa	3.637	4.074	4.857	3.516
Republics	5.960	4.149	3.149	3.274
Monarchies	2.376	3.811	1.669	1.317

Figure 4.13 indicates the trend-line of the economic category that includes four sub-groups. Volatility is clearly seen in all economies through time periods. Also, a wide variance has dominated two periods largely, the first and last periods. A close gathering of growth rates happened during 2001-2005. The interesting observation from this graph is that all the economies experienced a regularly-slight decrease over time periods. A general comparison between the first period and last period leads to the fact that the growth rate of GDP per capita (PPP) has comprehensively and slightly decreased.

Figure 4.13: Over-Period Average GDP Growth PPP per capita % by Economy
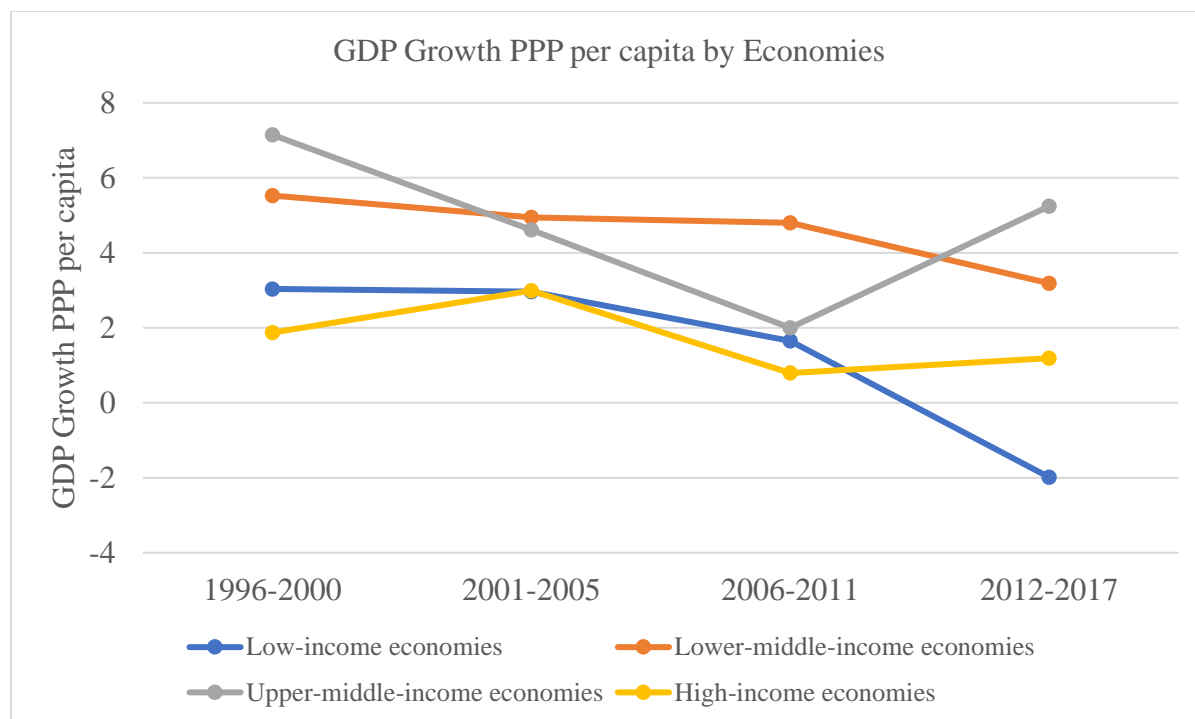
Figure 4.14 shows the trend-line of the regional category. In this graph, a wide variance is notable in almost all periods, but largely dispersed in the last and first periods. From the first period to the last period, the journey of GDP growth PPP per capita has witnessed volatile rate across regions and periods. However, it is noted that Greater Maghreb and Horn of Africa experienced slight increases unlike the other two regions, and this is clear from comparing the beginning and the end of the trend-line.

Figure 4.14: Over-Period Average of GDP Growth PPP per capita % by Regions
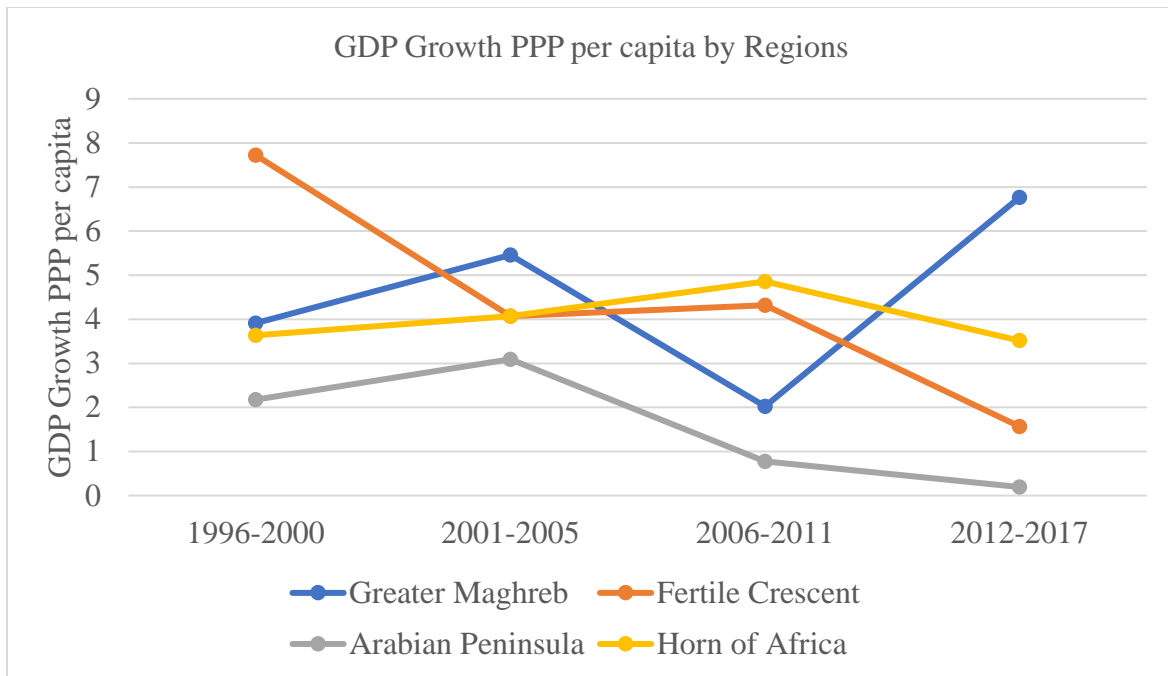
Figure 4.15: Over-Period Average of GDP Growth PPP per capita % by Regime
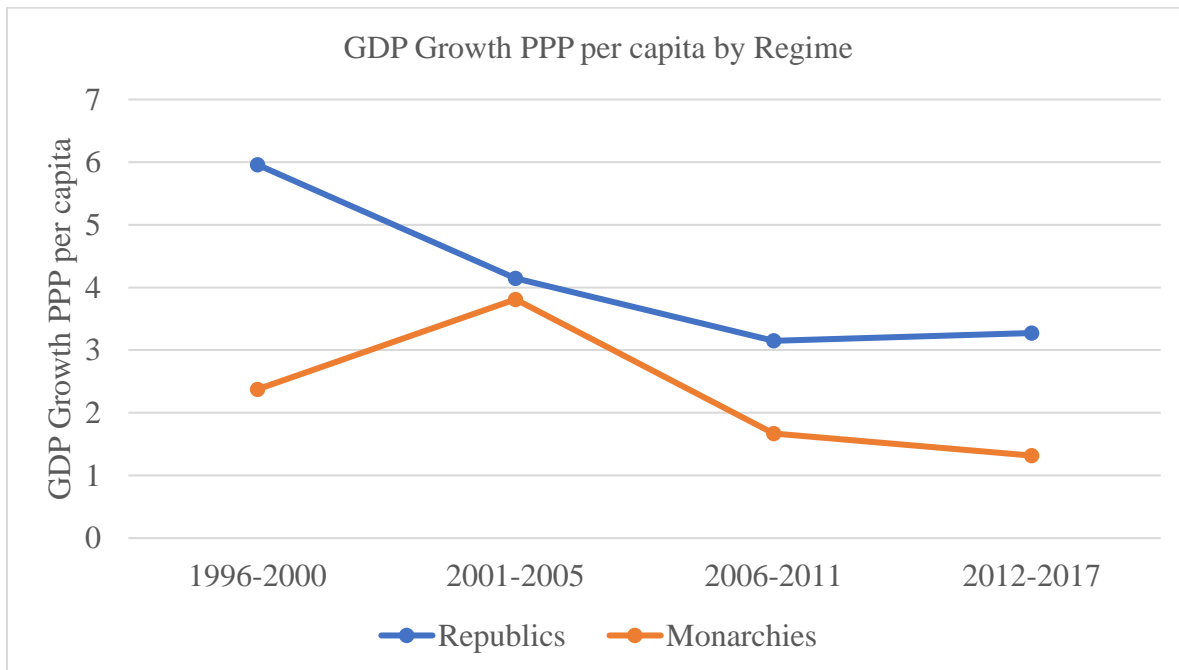
Figure 4.15 shows the trend-line of the political category. The graph shows that during the period 1996-2000 a wide variance has been the largest compared to the other periods. A close tightening happened in the period 2001-2005 in which the growth rate of both republics and

monarchies bundled together. Republics experienced decreases in all the periods except for the

last period in which a slight decrease happened than in the previous period. However, comparing

the beginning and the end of the trend-line shows that there has been decreases in both sub-

groups.

Independent Variables

As previously mentioned, six governance indicators are used in this research as independent

variables. These variables are voice and accountability (VA), political stability and absence of

violence (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and

corruption control (CC).

Descriptive statistics of the independent variables are indicated in Table 5.1. The summary

statistics show the number of observations, mean, standard deviation, minimum, and maximum

values for each variable through the overall period as well as selective time periods, which are

two five-year terms, and two six-year terms. From the table, it is evident that there are no

missing observations throughout the overall period; data are systematic for all chosen countries.

Starting with the general picture about governance indicators in the Arab World, it seems that

all the variables have negative mean percentages. Here, it is very important to be reminded that

governance score, according to the World Bank, ranges from the lowest (-2.5) to the highest

(+2.5) for each country. This means, any country has a score below zero is considered under the

50-percentile rank when compared to other countries worldwide.

Comparing the total averages for each variable over the overall period, it seems that the Arab

World experienced low scores of governance indicators correspondent to below the 50-percentile

rank for all indicators. However, variations existed amongst variables and within each over time periods as well. Over the period 1996-2017, Arab World achieved the following mean averages, in order from high to low, for each variable; corruption control (-0.42), rule of law (-0.46), government effectiveness (-0.49), regulatory quality (-0.50), political stability (-0.67), and voice and accountability (-1.03). With corruption control average score being the highest amongst the other variables, it does not mean Arab World achieved a high rank when internationally compared. Rather, Arab World performed slightly better in corruption control comparted to other governance indicators.

Table 5.1: Summary Statistics of Governance Indicators over Time

Variable	Term	Obs.	Mean	Std. Dev.	Min	Max
Voice and Accountability	1996-2017	484	-1.037	.503	-2.2	.3
	1996-2000	110	-.959	.527	-2.01	-.24
	2001-2005	110	-.984	.466	-2.05	-.28
	2006-2011	132	-1.102	.479	-2.04	.29
	2012-2017	132	-1.082	.529	-2.2	.3
Political Stability and Absence of Violence	1996-2017	484	-.679	1.107	-3.31	1.22
	1996-2000	110	-.415	0.978	-2.51	1.16
	2001-2005	110	-.444	1.019	-3.18	1.19
	2006-2011	132	-1.025	3.614	-40	1.22
	2012-2017	132	-1.049	1.114	-2.97	1.22
Government Effectiveness	1996-2017	484	-.497	.822	-2.45	1.51
	1996-2000	110	-.475	.821	-2.2	.79
	2001-2005	110	-.442	.748	-2.13	.85
	2006-2011	132	-.473	.809	-2.4	1.06
	2012-2017	132	-.584	.894	-2.45	1.51

	1996-2017	484	-.502	.84	-2.65	1.12
	1996-2000	110	-.571	.845	-2.45	.81
Regulatory Quality	2001-2005	110	-.45	.822	-2.31	1.12
	2006-2011	132	-.442	.811	-2.65	.77
	2012-2017	132	-.549	.881	-2.29	1.11
	1996-2017	484	-.469	.81	-2.61	.96
	1996-2000	110	-.444	.809	-2.28	.75
Rule of Law	2001-2005	110	-.411	.782	-2.27	.73
	2006-2011	132	-.465	.797	-2.61	.91
	2012-2017	132	-.543	.848	-2.42	.96
	1996-2017	484	-.427	.723	-1.87	1.57
	1996-2000	110	-.437	.617	-1.6	.8
Corruption Control	2001-2005	110	-.327	.722	-1.79	1.15
	2006-2011	132	-.422	.732	-1.87	1.57
	2012-2017	132	-.508	.789	-1.72	1.28

Although most of the variables had negative scores, these scores seem variant through time periods. This means that the aggregate governance performance is not high, but there are slight differences when it comes to the country-specific performance. Arab World made better scores during some periods than others. In the variable of VA, for example, Arab World achieved a (-0.95) score in the period of 1996-2000, slightly more than the least score of (-1.10) in the period 2006-2011. As for PS, a better score (-0.44) was made in the period 2001-2005 than the worst score (-1.54) in the first period. This variable shows little variations in the scores and this is evident also through the standard deviation. As per GE, variations are not wide as in the PS; all the mean scores during time periods show close percentage points. Similarly, RQ, RL, and CC had very close mean scores. The mean scores variations of governance indicators can be better indicated through Figure 5.1. These variations indicate that some countries had better governance

performance than others; also, some periods witnessed better governance scores for the Arab world than other periods.

Figure 5.1: Total Average Scores of Governance Indicators for the Arab World (1996-2017)
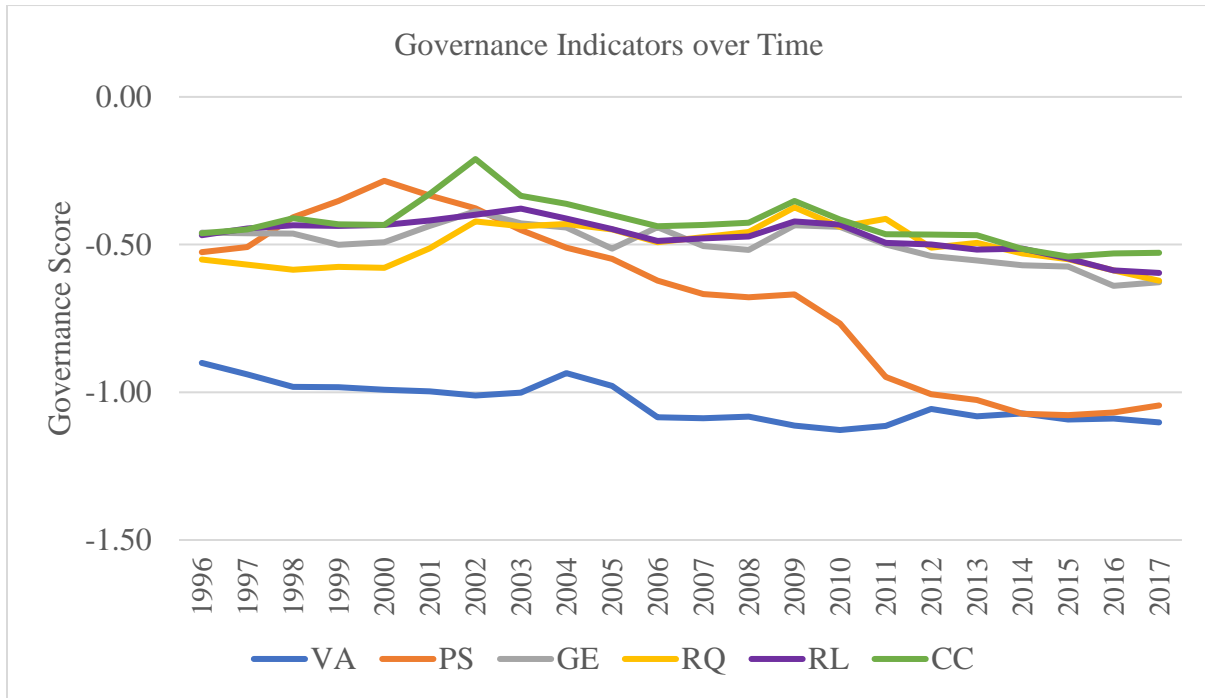
From Figure 5.1, it can be seen that there are declines in all variables during the overall period, particularly the last six years. However, PS has a sharp decline compared to the other indicators. These negative trends indicate that the performance of all countries is very low. VA strands on one level of negative scores during all years. The other variables, except for PS, have been bundled together between (-0.21) and (-0.60) with slight trend in the last three years (see Appendix 6).

However, the question is whether governance indicators have changed across countries during the overall period or not. Table 5.2 shows the mean scores of governance indicators for each Arab country over the overall period. It is obvious that slight variations existed amongst countries and within variables. The top countries that performed better in all the governance

indicators collectively are UAE, Qatar, Oman, Kuwait, and Bahrain; while the countries that its

rank was in the bottom are Somalia, Iraq, Sudan, Libya, and Yemen. Although some countries

made slight positive scores in some variables, all countries achieved negative scores in VA.

Figure 5.2 shows the average score of governance indicators across countries over the overall

period. More data detailed over time periods for each variable can be bee seen in appendices 7.1

through 7.6.

Table 5.2: Average Score of Governance Indicators for Arab Countries (1996-2017)

Country	VA	PS	GE	RQ	RL	CC
Algeria	-0.99	-1.36	-0.65	-0.83	-0.86	-0.66
Bahrain	-0.99	-0.37	0.51	0.73	0.42	0.29
Comoros	-0.42	-0.24	-1.53	-1.28	-1.01	-0.83
Djibouti	-1.13	-0.32	-0.91	-0.70	-0.85	-0.64
Egypt	-1.05	-0.79	-0.47	-0.44	-0.22	-0.59
Iraq	-1.43	-2.16	-1.55	-1.55	-1.57	-1.39
Jordan	-0.62	-0.31	0.09	0.20	0.32	0.15
Kuwait	-0.47	0.28	0.03	0.13	0.46	0.33
Lebanon	-0.42	-1.21	-0.29	-0.22	-0.53	-0.75
Libya	-1.62	-0.63	-1.21	-1.65	-1.17	-1.14
Mauritania	-0.83	-0.29	-0.56	-0.48	-0.70	-0.58
Morocco	-0.59	-0.36	-0.11	-0.21	-0.08	-0.22
Oman	-0.94	0.83	0.34	0.44	0.47	0.47
Palestine	-0.82	-1.73	-0.91	-0.53	-0.30	-0.20
Qatar	-0.87	1.00	0.65	0.38	0.59	0.75
Saudi Arabia	-1.70	-0.26	-0.20	-0.01	0.07	-0.06
Somalia	-1.87	-2.62	-2.13	-2.33	-2.29	-1.58
Sudan	-1.74	-2.23	-1.27	-1.38	-1.42	-1.25
Syria	-1.70	-1.01	-1.01	-1.18	-0.86	-1.07
Tunisia	-0.67	-0.15	0.29	-0.11	-0.07	-0.15

UAE		-0.81	0.86	0.97	0.73	0.58	0.81
Yemen		-1.15	-1.87	-1.04	-0.78	-1.29	-1.10

Figure 5.2: Average Score of Governance Indicators for Countries (1996-2017)
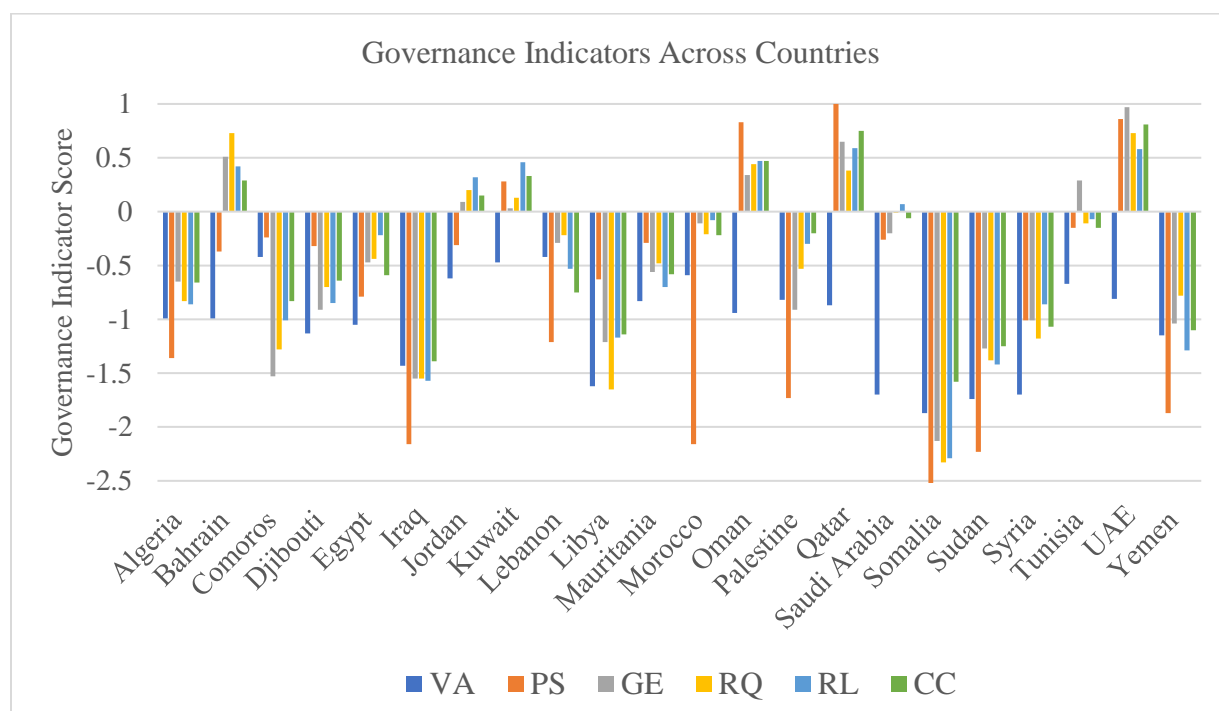
Given that slight variations have been noted in the governance indicators across countries and over time periods, it is important to look at the state of governance in the Arab World through economic, regional, and political categories. Table 5.3 indicates the total average of governance indicators scores by classifications.

Table 5.3: Total Average Scores of Governance Indicators by Classifications (1996-2017)

Classification	VA	PS	GE	RQ	RL	CC

Low-income economies	-1.28	-1.43	-1.42	-1.39	-1.36	-1.14
Lower-middle-income economies	-.97	-.83	-.56	-.54	-.52	-.51
Upper-middle-income economies	-1.02	-1.07	-.73	-.80	-.73	-.78
High-income economies	-.96	.38	.38	.39	.43	.43
Greater Maghreb	-.92	-.35	-.39	-.61	-.50	-.52
Fertile Crescent	-1.006	-1.20	-.68	-.61	-.52	-.64
Arabian Peninsula	-.98	.06	.18	.23	.18	.21
Horn of Africa	-1.28	-1.35	-1.45	-1.41	-1.39	-1.07
Republics	-1.14	-1.17	-.96	-.97	-.94	-.86
Monarchies	-.87	.20	.28	.29	.35	.31

Figure 5.3 indicates each governance indicator with average scores across sub-groups based on income. High-income economies are the only sub-group that achieved positive scores in almost all indicators except for VA. The remaining economies have fluctuated between (-0.1.4) and (-0.5) scores, however, low-income economies achieved the lowest scores with slight variations amongst variables.

Figure 5.3: Governance Indicators by Economies
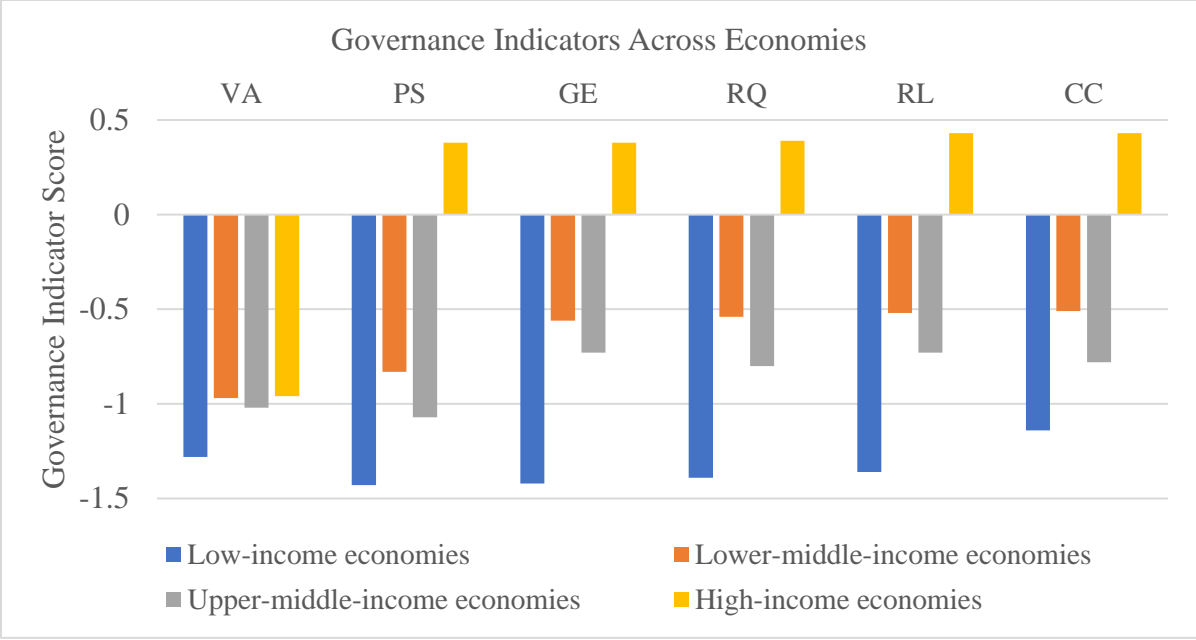
Figure 5.4 indicates governance indicators across regions. All the regions made negative scores except for Arabian Peninsula. The Figure shows that Arabian Peninsula has achieved slightly higher score than other regions in all indicators except VA, which fell in the negative arena. Horn of Africa experienced the lowest scores in all indicators; GE was the lowest indicator and CC was the highest within this sub-group.

Figure 5.4: Governance Indicators Across Regions
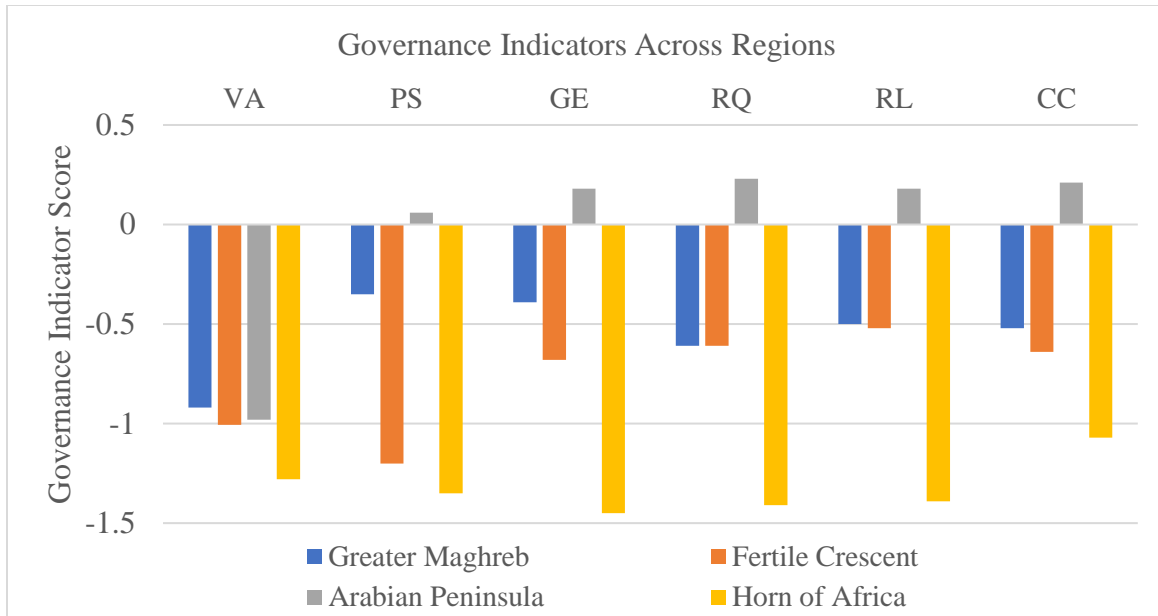
Figure 5.5 indicates governance indicators across political regimes. Monarchies have achieved slightly higher scores than republics in all indicators. VA was the only variable in which monarchies achieved negative score.

Figure 5.5: Governance Indicators Across Political Regimes
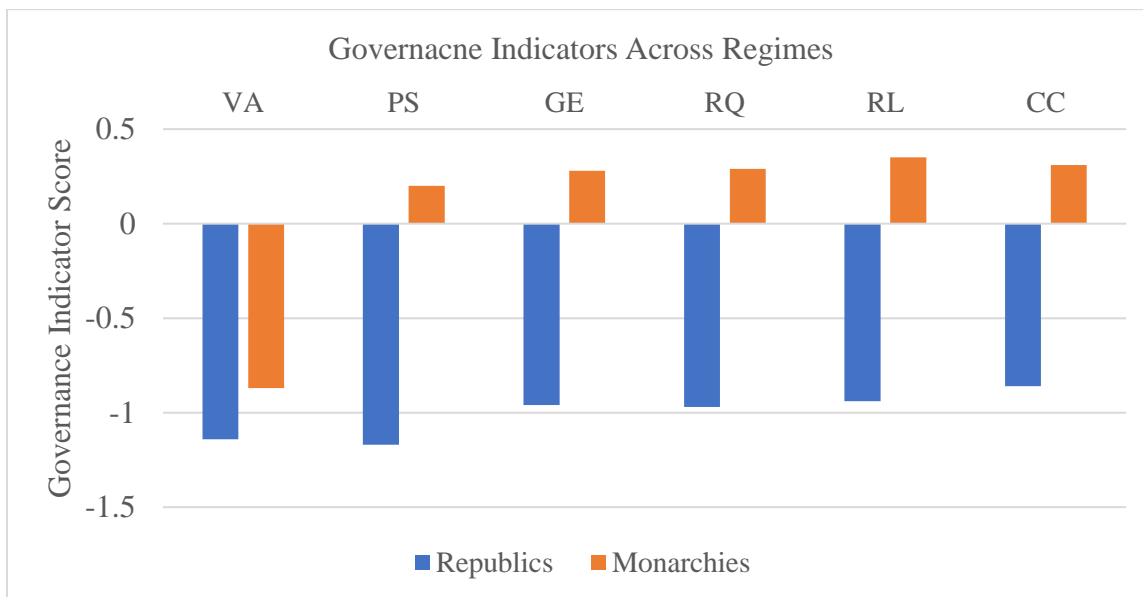
Overall Quality of Governance

This section provides a general overview about the overall quality of governance across countries and over time. This variable has been constructed using the average of governance indicators scores for each country and over the 22 years. Figure 5.6 indicates the trend-line of governance quality for each country. Overall, governance quality ranges between 0.52, which is the highest score achieved in UAE, and -2.14, the lowest score for Somalia. Ten countries have governance scores below the average (-0.62), whereas the other countries fall slightly higher than the average. It is noted that most of the monarchies have positive scores, while all those republics have negative scores. This means, republics are the laggards in governance performance.

Figure 5.6: Overall Quality of Governance Across Countries
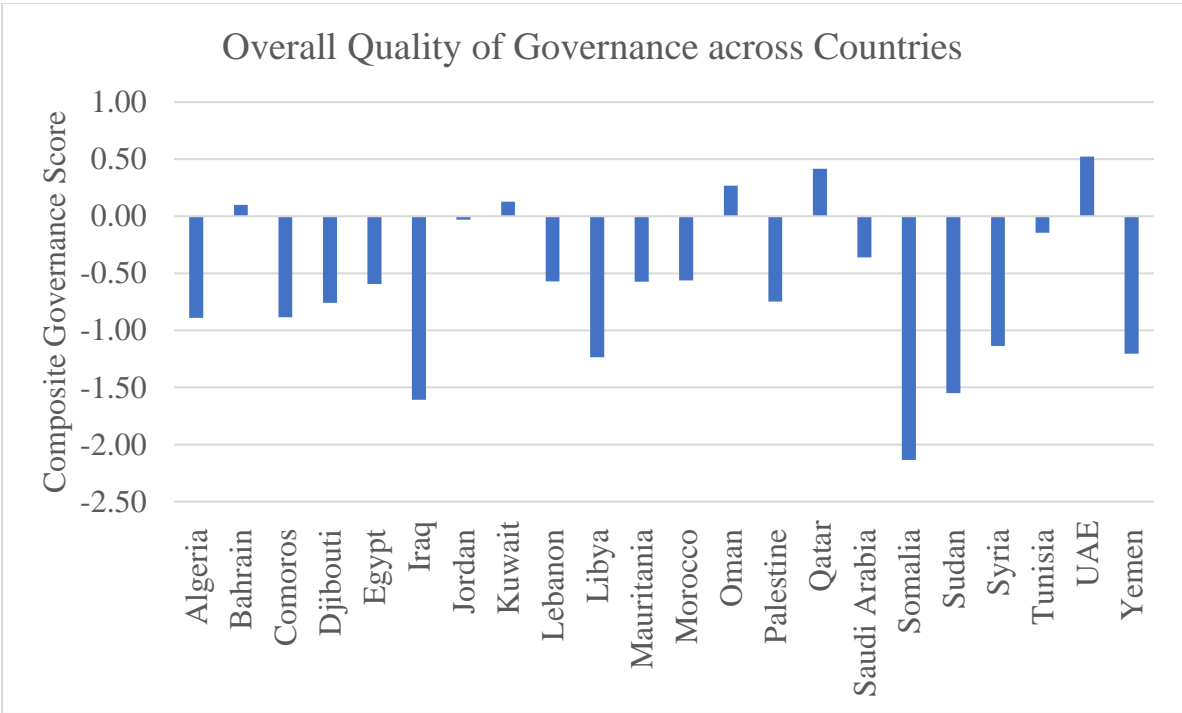
Figure 5.7 shows the trend-line of governance quality for the Arab world over time. Governance ranges between -047 in 2002 and -0.75 in 2017. During the first period, governance witnessed a slightly regular increase along with the two years from the second period. Continuous decline is seen over the following years.

Figure 5.7: Overall Quality of Governance for the Arab World over Time
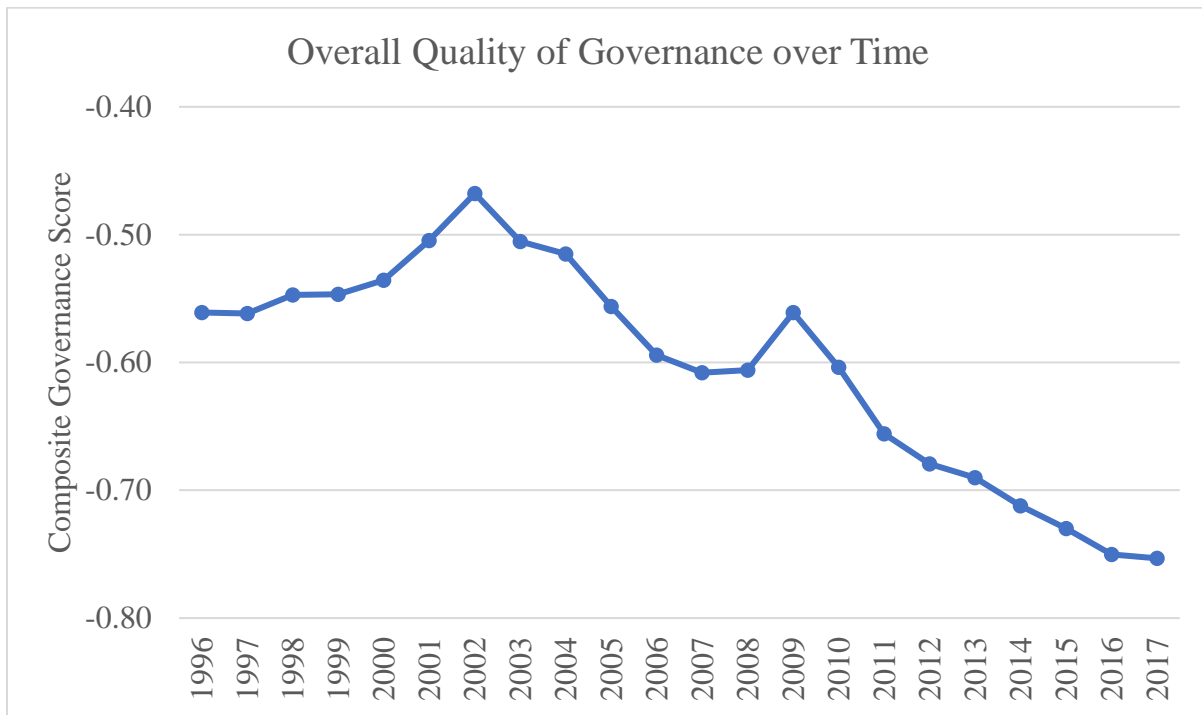
CHAPTER V

MULTIVARIATE ANALYSIS

This chapter presents the empirical results of a multivariate analysis among the research variables in an attempt to better understand the relationship between governance and economic growth. The analysis is conducted through five main stages; 1) analysis of correlation among variables, 2) statistical testing of all variables including dummy variables, 3) statistical testing of the aggregate governance indicators, 4) testing governance indicators individually, and 5) decomposition analysis of the variables of interests. Each stage is being explained further below.

Analysis of Correlations

A Pearson correlation analysis has been conducted among all the variables along with the control variables to examine the bivariate relationship between the dependent and independent variables and its significance. Table 6.1 presents the statistics for the correlations among variables. The table shows the correlations of three dependent variables; GDP growth (GDP1), GDP per capita growth (GDP3), and GDP growth PPP per capita (GDP4), and the independent variables (VA, PS, GE, RQ, RL, CC) along with the control variables; FDI, GOV, LIFE, POP, URBAN, EDU, and TECH.

The purpose of conducting the correlation analysis is to determine the strength as well as the direction of relationship between the dependent and independent variables under the control variables. The first dependent variable of GDP1 has no significant relationship with any of the independent variables. Two control variables that have a very weak positive relationship with GDP1; FDI and POP with correlation coefficients ($r = 0.10$ and $r = 0.11$), meaning that the higher FDI or POP, the higher GDP1 is being attained.

Table 6.1: Correlation Matrix of Research Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) GDP1	1.00																
(2) GDP3	0.94*	1.00															
(3) GDP4	0.94*	0.99*	1.00														
(4) VA	-0.01	-0.05	-0.04	1.00													
(5) PS	0.03	-0.08	-0.08	0.40*	1.00												
(6) GE	0.02	-0.09	-0.09	0.45*	0.74*	1.00											
(7) RQ	0.01	-0.10*	-0.10*	0.49*	0.69*	0.92*	1.00										
(8) RL	0.01	-0.09	-0.08	0.50*	0.78*	0.90*	0.90*	1.00									
(9) CC	0.02	-0.09*	-0.10	0.47*	0.77*	0.88*	0.86*	0.92*	1.00								
(10) FDI	0.10*	0.08	0.08*	0.01	0.01	0.07	0.13*	0.02	0.03	1.00							
(11) GOV	-0.05	0.02	-0.01	0.22*	0.14*	0.13*	0.22*	0.26*	0.26*	0.06	1.00						
(12) LIFE	0.02	-0.06	-0.06	0.30*	0.44*	0.69*	0.65*	0.72*	0.60*	-0.03	0.16*	1.00					
(13) POP	0.11*	-0.15*	-0.14*	0.16*	0.34*	0.34*	0.36*	0.35*	0.43*	0.08	-0.16*	0.23*	1.00				
(14) URBA	0.06	-0.05	-0.05	0.23*	0.46*	0.61*	0.59*	0.65*	0.62*	0.10*	0.34*	0.73*	0.34*	1.00			
(15) EDU	-0.04	-0.08	-0.06	0.14*	0.18*	0.33*	0.23*	0.34*	0.23*	-0.13*	-0.05	0.71*	0.06	0.19*	1.00		
(16) TECH	-0.10	0.09	0.08	0.27*	0.06	0.08	-0.01	0.02	0.00	0.03	0.00	-0.03	-0.27*	-0.13*	0.12	1.00	
(17) GOVERN	0.02	-0.09	-0.09	0.49*	0.88*	0.87*	0.86*	0.90*	0.90*	0.03	0.19*	0.62*	0.37*	0.59*	0.30*	-0.01	1.00

* shows significance at the .05 level

As for the second dependent variable (GDP3), it has a very weak negative relationship with two independent variables; RQ and CC with correlation coefficients ($r = -0.10$ and $r = -0.9$), which means that an increase in RQ or CC results in a decrease in GDP3. As for the third dependent variable (GDP4), the analysis of correlation shows that it has a very weak positive relationship with one independent variable, which is RQ with a correlation coefficient ($r = 0.10$). The control variable (POP) has a very weak negative relationship with GDP3 and a very weak positive relationship with GDP4. The relationship between all the dependent variables seem significantly strong with a change in the direction of the relationship. For example, the relationship between GDP3 and GDP1 is positively significant, meaning that an increase in GDP3 leads to an increase in GDP1 and vice versa. However, the relationship is negative between GDP1 and GDP4 as well as between GDP3 and GDP4, which specifically means that a decrease in the former results in an increase in the latter.

From the above table, it is evident that only two control variables having the possibility of exerting influence on the dependent variables; FDI and POP. This is an indication that including all those control variables that have no statistically significant correlation may lead to flawed results. To avoid any erroneous results, a correlation analysis of the control variables along with dependent variables has been conducted to check which variables to be included or excluded from the model. The correlation table among control variables shows that there is one high correlation above 0.8 between LIFE and URBAN (see Appendix 7). However, the focus is on checking the correlation between control variables and dependent variables. With GDP1, POP has a positive moderate correlation ($r = 0.36$), but FDI, GOV, LIFE, and URBAN have weak correlation falling below 0.2 with a negative direction in GOV. Two variables are not correlated with GDP1; EDU and TECH. With GDP3, four variables have correlations; POP, URBAN, FDI,

and TECH. As with GDP4, POP, URBAN, GOV, FDI, and TECH seem correlated. From this correlation analysis, it seems that EDU and TECH should be removed from the model as they have no correlation with GDP1. Not only that, but inclusion of these two variables would exert no influence and may cause erroneous results because of the large number of missing observations.

In addition to the correlation analysis, a regression analysis has been conducted to see which control variables may influence the outcome. Table 6.2 summarizes regression results of control variables with dependent variables. Clearly, only three variables have influence on dependent variables and show significant role in the model; FDI, GOV, and POP. This justifies including only the significant variables and excluding those impotent and irrelevant variables from the model (see Appendix 8).

Table 6.2: Regression Results of Control Variables

Variable	GDP1		GDP3		GDP4	
	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
FDI	0.218	0.093**	0.218	0.093**	0.254	0.097***
GOV	-0.271	0.117**	-0.226	0.118*	-0.301	0.122**
LIFE	-0.401	0.359	-0.363	0.361	-0.435	0.374
POP	0.273	0.161*	-0.750	0.162***	-0.760	0.168***
URBAN	0.295	0.273	0.239	0.275	0.231	0.285
EDU	-0.038	0.050	-0.024	0.051	-0.020	0.053
TECH	-0.075	0.116	-0.068	0.117	-0.085	0.122
Constant	20.249	13.516	19.035	13.499	-27.591	14.004*
R-square		0.097		0.129		0.141
Obs.		229		221		221

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Statistical Testing of All Variables

As pointed earlier, a panel data analysis is used to analyze the relationship between the dependent and explanatory variables across the period 1996-2017 in the Arab World. Three dependent variables are used as proxies for the economic growth. In this stage, each dependent variable is being tested separately with all the variables including dummy variables. Six dummy categorical variables have been created as dummy variables (low, upper, high, mag, cres, horn, and mon), leaving out those sub-categories with the highest number of observations.

A statistical test of the relationship between the dependent variables and independent variables has been conducted through two models, the fixed effects and random effects. A Hausman specification test has been used to determine which model is more consistent and appropriate for analysis. The results of Hausman test indicates that random-effects model is more consistent than fixed-effects model (see Appendix 9). The basic model used in this analysis is presented below in equation (1):

$$Y_{it} = \beta_0 + \beta_1 VA_{it} + \beta_2 PS_{it} + \beta_3 GE_{it} + \beta_4 RQ_{it} + \beta_5 RL_{it} + \beta_6 CC_{it} + \beta_7 FDI_{it} + \beta_8 GOV_{it} + \beta_9 POP_{it} + \beta_{10} DUM_{it} + \varepsilon \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where Y represents the dependent variable; VA is voice and accountability; PS is political stability; GE is government effectiveness; RG is regulatory quality; RL is rule of law; CC is control of corruption; FDI is the control variable of foreign direct investment; GOV is government expenditure; POP is population growth; DUM stands for dummy variables; **i** represents the country being studied; **t** is the time period effect; β is the coefficients being estimated; and ε is the random error term.

Multicollinearity was tested to see the strength of interrelationships among the independent variables. The variance inflation factor (VIF) for all the variables have no serious multicollinearity problem as their values are below the upper bound 10 as indicated in Table 6.3. However, given that the variables of GE, RQ, RL, and CC have values above the moderate bound, a single analysis for each variable is being considered in stage 4 to better examine such a relationship.

Table 6.3: Variance Inflation Factor

Variable	GDP1		GDP3		GDP4	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
GE	8.594	.116	9.239	.108	9.199	.109
RL	8.251	.121	8.709	.115	8.814	.113
CC	8.237	.121	8.382	.119	8.372	.119
RQ	7.78	.129	8.187	.122	8.209	.122
PS	2.617	.382	2.724	.367	2.784	.359
POP	1.425	.702	1.44	.694	1.434	.697
GOV	1.385	.722	1.379	.725	1.378	.726
VA	1.139	.878	1.126	.888	1.134	.882
FDI	1.104	.906	1.097	.911	1.098	.911
Mean VIF	4.504	.	4.698	.	4.714	.

Heteroscedasticity was also considered through the Breusch-Pagan test to test whether the variance of errors is caused by the independent variables. The model results indicate that heteroscedasticity is present when fitted for the first dependent variable, GDP1, but there is no issue of heteroscedasticity when fitted for GDP3 and GDP4 (see Appendix 9). However, the robust-standard errors will be used along with the model to correct for issues pertaining to

heteroscedasticity and correlation. This approach corrects for heteroscedasticity without changing the values of coefficients and avoid skewed results.

Table 6.4 presents summary results of the random-effects model with robust standard errors for the variables including categorial variables. More specifically, the table indicates the coefficient and standard error of each variable along with significance. Running all the variables in this stage, as pointed earlier, is aimed to generally observe the relationship between the independent and dependent variables. As can be noted, there is no significant relationship between the explanatory variables and any of the dependent variables except for RL. The variable of RL has a negative significant relationship with GDP1 at the 0.10% significance level (see Appendix 10). This means, a decrease in RL is predicted to be an increase in GDP1.

Table 6.4: Random-Effects Model with Robust Standard Errors for all Variables

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	-0.990	0.744	-1.111	0.802	-1.061	1.077
PS	0.856	0.674	0.442	0.626	0.908	0.771
GE	-0.669	1.364	-1.490	1.992	-2.245	2.015
RQ	0.801	1.181	0.448	1.461	0.742	1.526
RL	-3.338	1.726*	-1.523	2.239	-1.540	2.328
CC	1.956	1.336	1.991	1.319	2.044	1.483
FDI	0.158	0.048***	0.162	0.057***	0.234	0.064***
GOV	-0.047	0.081	-0.065	0.081	-0.125	0.094
POP	0.381	0.364	-0.625	0.323*	-0.701	0.332**
low	-2.494	0.666***	-2.852	0.922***	-2.966	1.133***
upper	-0.530	1.074	-0.230	1.130	-0.245	1.356
high	-0.260	1.980	-0.477	2.225	-0.633	2.532
mag	0.506	1.423	0.402	1.534	-0.023	1.898
cres	2.162	1.174*	1.421	1.710	1.415	1.964
horn	0.967	0.577*	1.002	0.603*	0.311	0.694
mon	0.667	1.089	0.120	1.219	0.065	1.466
Constant	2.111	3.510	2.762	3.797	6.180	4.547
R-square within		0.064		0.089		0.103

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R-square between	0.474	0.581	0.407
Overall R-square	0.112	0.143	0.131
Obs.	389	377	373

*** p<0.01, ** p<0.05, * p<0.1*

Statistical Testing of the Composite Governance Index

As previously explained, the WGI comprise six aggregate indicators, each is based on several individual indicators. These governance indicators are composited based on 31 underlying data sources including governmental and non-governmental organizations. In this stage, all the six governance indicators are lumped together into a single composite governance score (with the purpose of examining whether a significant relationship exists among the composite governance and economic growth. The main model used in this analysis is indicated in equation (2) as follows:

$$Y_{it} = \beta_0 + \beta_1 GOVERN_{it} + \beta_2 FDI_{it} + \beta_3 GOV_{it} + \beta_4 POP_{it} + \beta_5 DUM_{it} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Table 6.5 provides summary results of the model in which there is no statistically significant relationship exists between the aggregate governance and any of the dependent variables. This approach provides a comprehensive overview of significance and parameters changes (see Appendix 11).

Table 6.5: Random-Effects Model with Robust Standard Errors for Composite Governance Index

Variable	GDP1		GDP3		GDP4	
	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
GOVERN	0.639	1.528	0.097	1.355	-0.091	1.385

FDI	0.179	0.049***	0.142	0.056**	0.153	0.059***
GOV	-0.032	0.065	-0.023	0.050	-0.044	0.054
POP	0.389	0.350	-0.577	0.324*	-0.565	0.340*
low	-1.933	0.663***	-2.863	0.546***	-2.523	0.513***
upper	0.417	1.578	0.164	1.421	0.215	1.508
high	-0.025	2.782	-0.134	2.518	0.271	2.513
mag	0.111	1.421	0.088	1.441	0.499	1.489
cres	0.686	1.073	0.564	1.123	0.836	1.139
horn	1.549	0.449***	1.806	0.349***	1.711	0.210***
mon	-0.876	1.336	-0.642	1.093	-0.613	1.094
Constant	3.439	2.141	3.331	1.871*	5.227	1.889***
R-square within		0.058		0.084		0.085
R-square between		0.298		0.526		0.431
Overall R-square		0.085		0.128		0.118
Obs.		389		377		373

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Solo-Testing of Governance Indicators

Unlike the previous section where governance indicators are combined all together, this section is aimed to test each individual governance indicator separately. Given the fact that an interrelation exists among the independent variables, a solo-testing of each independent variable is necessary to provide an accurate estimate of any possible significant relationship with growth. Looking back at the correlation matrix, Table 6.1, a significant correlation exists among variables ranging from strong positive between RQ and GE with an $r = 0.92$ as well as CC and RL with an r = 0.92 to a moderate positive correlation between PS and VA with an $r = 0.40$. Here below, is the model used in the solo-analysis as in equation (3):

$Y_{it} = \beta_0 + \beta_1 SOLO_{it} + \beta_2 FDI_{it} + \beta_3 GOV_{it} + \beta_4 POP_{it} + \beta_5 DUM_{it} + \varepsilon$ …………………………… (3)

Where SOLO represents each independent variable (VA, PS, GE, RQ, RL, CC); other symbols stay constant in the model as in equation (1).

Tables 6.6A through Table 6.6F present the results for each independent along with the control and dummy variables. The tables show the coefficient, standard error, and significance for each independent variable (horizontal) and dependent variable (vertical).

Table 6.6A: Random-Effects Model with Robust Standard Errors for VA

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	-0.927	1.111	-0.988	1.064	-0.934	1.151
FDI	0.168	0.049***	0.146	0.057**	0.174	0.058***
GOV	-0.020	0.078	-0.018	0.063	-0.044	0.076
POP	0.431	0.364	-0.550	0.328*	-0.560	0.340
low	-1.672	0.472***	-2.276	0.648***	-1.998	0.693***
upper	0.304	1.356	-0.044	1.308	0.068	1.443
high	0.345	1.309	-0.100	1.218	0.161	1.294
mag	0.729	0.621	0.537	0.668	0.755	0.731
cres	1.108	0.424***	1.133	0.753	1.254	0.833
horn	1.494	0.544***	1.746	0.282***	1.621	0.355***
mon	-0.295	1.227	-0.279	1.150	-0.355	1.236
Constant	1.654	2.523	1.800	2.385	4.020	2.627
R-square within		0.049		0.082		0.087
R-square between		0.418		0.573		0.457
Overall R-square		0.094		0.134		0.122
Obs.		389		377		373

*** p<0.01, ** p<0.05, * p<0.1*

Table 6.6B: Random-Effects Model with Robust Standard Errors for PS

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
PS	0.384	0.890	0.004	0.764	-0.021	0.791
FDI	0.189	0.051***	0.152	0.059**	0.158	0.063**
GOV	-0.039	0.072	-0.028	0.058	-0.046	0.059
POP	0.368	0.355	-0.588	0.325*	-0.572	0.339*
low	-2.065	0.847**	-2.811	0.503***	-2.529	0.504***
upper	0.391	1.609	0.167	1.541	0.235	1.639

	0.084	2.531	0.031	2.130	0.225	2.203
high						
mag	-0.057	1.682	0.149	1.451	0.452	1.537
cres	0.772	0.863	0.629	0.774	0.791	0.829
horn	1.403	0.603**	1.796	0.536***	1.704	0.417***
mon	-0.858	1.388	-0.627	1.135	-0.640	1.151
Constant	3.850	2.818	3.349	2.287	5.294	2.243**
R-square within		0.056		0.084		0.087
R-square between		0.314		0.520		0.421
Overall R-square		0.085		0.128		0.118
Obs.		389		377		373

*** p<0.01, ** p<0.05, * p<0.1*

Table 6.6C: Random-Effects Model with Robust Standard Errors for GE

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
GE	0.201	1.284	-0.634	1.159	-1.054	1.201
FDI	0.185	0.047***	0.168	0.058***	0.188	0.058***
GOV	-0.036	0.067	-0.046	0.056	-0.084	0.060
POP	0.382	0.357	-0.600	0.328*	-0.593	0.345*
low	-1.685	0.625***	-2.989	0.572***	-2.728	0.452***
upper	0.436	1.501	0.009	1.394	-0.022	1.454
high	0.690	1.555	0.382	1.393	0.834	1.353
mag	0.563	0.699	0.324	0.746	0.781	0.797
cres	1.008	0.513**	0.741	0.675	1.042	0.759
horn	1.707	0.902*	1.418	0.663**	0.938	0.760
mon	-0.802	1.489	-0.242	1.206	-0.009	1.178
Constant	3.150	1.638*	3.196	1.337**	5.175	1.352***
R-square within		0.054		0.082		0.085
R-square between		0.320		0.536		0.471
Overall R-square		0.085		0.131		0.124
Obs.		389		377		373

*** p<0.01, ** p<0.05, * p<0.1*

Table 6.6D: Random-Effects Model with Robust Standard Errors for RQ

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
RQ	0.251	1.283	-0.435	1.286	-0.960	1.377
FDI	0.178	0.043***	0.171	0.053***	0.197	0.054***
GOV	-0.036	0.068	-0.036	0.054	-0.070	0.055
POP	0.387	0.357	-0.599	0.325*	-0.592	0.338*
low	-1.694	0.582***	-2.778	0.404***	-2.352	0.262***
upper	0.462	1.453	0.000	1.340	-0.134	1.407

	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
high	0.666	1.531	0.321	1.525	0.875	1.505
mag	0.616	0.694	0.225	0.686	0.666	0.729
cres	0.984	0.560*	0.828	0.841	1.298	0.939
horn	1.717	0.849**	1.560	0.670**	1.038	0.739
mon	-0.840	1.375	-0.355	1.174	-0.045	1.155
Constant	3.183	2.017	3.121	1.863*	4.876	1.890**
R-square within		0.054		0.081		0.080
R-square between		0.316		0.533		0.478
Overall R-square		0.085		0.130		0.123
Obs.		389		377		373

*** p<0.01, ** p<0.05, * p<0.1

Table 6.6E: Random-Effects Model with Robust Standard Errors for RL

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
RL	-1.164	1.390	-0.844	1.501	-1.086	1.500
FDI	0.179	0.051***	0.143	0.053***	0.153	0.055***
GOV	-0.040	0.065	-0.027	0.049	-0.051	0.053
POP	0.396	0.367	-0.566	0.333*	-0.554	0.348
low	-1.931	0.519***	-2.861	0.380***	-2.572	0.354***
upper	-0.233	1.052	-0.316	1.024	-0.376	1.097
high	1.440	1.652	0.520	1.715	0.869	1.736
mag	1.149	0.973	0.594	1.018	0.990	1.093
cres	1.806	1.128	1.276	1.218	1.646	1.259
horn	1.425	0.635**	1.677	0.279***	1.496	0.252***
mon	0.296	1.039	0.077	1.125	0.246	1.115
Constant	1.899	2.468	2.413	2.231	4.239	2.214*
R-square within		0.049		0.077		0.079
R-square between		0.401		0.574		0.499
Overall R-square		0.095		0.132		0.122
Obs.		389		377		373

*** p<0.01, ** p<0.05, * p<0.1

Table 6.6F: Random-Effects Model with Robust Standard Errors for CC

	GDP1		GDP3		GDP4	
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
CC	0.421	1.236	0.106	1.120	-0.059	1.161
FDI	0.173	0.046***	0.136	0.055**	0.146	0.058**
GOV	-0.037	0.075	-0.022	0.059	-0.040	0.063
POP	0.390	0.352	-0.571	0.324*	-0.557	0.341
low	-1.685	0.537***	-2.829	0.426***	-2.585	0.348***
upper	0.543	1.382	0.191	1.260	0.188	1.348
high	0.495	1.670	-0.106	1.593	0.155	1.580

mag	0.542	0.686	0.148	0.750	0.441	0.780
cres	0.908	0.623	0.583	0.737	0.793	0.730
horn	1.643	0.495***	1.833	0.274***	1.718	0.162***
mon	-0.936	1.380	-0.671	1.147	-0.595	1.153
Constant	3.342	2.083	3.318	1.863*	5.194	1.920***
R-square within		0.054		0.083		0.085
R-square between		0.328		0.533		0.435
Overall R-square		0.087		0.128		0.118
Obs.		389		377		373

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

From the above tables, it can be said that there is no significant relationship noted among any of the individual independent variables and dependent variables.

Decomposition Analysis

In the previous stages, the comprehensive as well as the individual analysis of variables generally indicated no significant relationship existing among the independent and dependent variables. However, given the logic that cross-national differences are noted in economic growth rates and governance performance scores, it is necessary to examine any correlational variations or changes in the estimated coefficients and significance across the formerly established categories; economic, regional, and political.

A statistical analysis of each dependent variable along with the explanatory variables and control variables has been conducted by category, using the basic model specification presented below in equation (4):

$$Y_{it} = \beta_0 + \beta_1 CATEG_{it} + \beta_2 FDI_{it} + \beta_3 GOV_{it} + \beta_4 POP_{it} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where CATEG represents the category, whether it is economic, regional, or political.

Economic Category

To begin with, an analysis has been conducted on each dependent variable through the economic category which includes low-income economies, lower-middle-income economies, upper-middle-income economies, and high-income economies. Table 7.1 presents summary results of the first dependent variable (GDP1) along with the selected variables. In the low-income economies, the results show that three independent variables are significantly associated with GDP1; PS has a positive relationship at 0.01% and GE and RQ have also a positive relationship at 0.10% level. In the lower-middle-income economies, the variables of VA, PS, and RQ are significantly correlated with GDP1, however, the direction of relationship is negative in VA. In the upper-middle-income economies, RQ is the only variable that has a significant relationship at 0.10%. In the high-income economies, VA and GE are significantly associated with GDP1. As for the control variables, FDI seems to have a significant relationship with GDP1 in all sub-categories, but GOV has a significant relationship in the high-income economies.

Table 7.1: Random-Effects Model with Robust Standard Errors by Economic Category (GDP1)

GDP1	Low-income economies		Lower-middle-income econ.		Upper-middle-income econ.		High-income economies	
	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	3.45	2.72	-1.91	0.77**	-11.24	9.96	-2.12	0.81***
PS	1.63	0.43***	0.62	0.27**	-3.78	2.49	0.68	0.75
GE	3.43	1.90*	-2.22	1.51	1.06	7.99	-6.03	2.61**
RQ	4.36	2.40*	2.05	0.78***	2.12	1.20*	0.98	3.58
RL	0.32	3.88	-0.21	1.10	7.14	5.54	5.27	5.11
CC	3.28	2.22	0.45	1.67	-9.32	9.91	2.62	2.59
FDI	0.40	0.14***	0.12	0.05**	0.51	0.20**	0.26	0.14*

	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
GOV	-0.42	0.44	-0.02	0.07	0.69	0.47	-0.20	0.08**
POP	0.33	1.55	-0.28	0.68	-0.48	0.49	0.40	0.39
Constant	24.15	14.70	3.84	1.14***	-21.92	18.17	1.67	3.26
R-square within		0.447		0.063		0.239		0.171
R-square between		0.980		0.782		0.973		0.855
Overall R-square		0.467		0.074		0.299		0.297
Obs.		52		135		63		117

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7.2 shows the summary results of the variables of interest with GDP3. The table presents the coefficient, standard error, significance, R-square, and number of observations for each sub-category. Results show that VA, PS, and CC are significantly and positively associated with GDP3 in the low-income economies. VA is also significant in lower-middle-income and high-income economies along with GE.

Table 7.2: Random-Effects Model with Robust Standard Errors by Economic Category (GDP3)

	Low-income economies		Lower-middle-income econ.		Upper-middle-income econ.		High-income economies	
GDP3	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	5.26	2.29**	-3.02	1.41**	-10.98	9.72	-1.87	0.72**
PS	1.90	0.56***	0.44	0.48	-3.70	2.42	0.63	0.68
GE	1.29	3.06	-3.44	2.17	1.05	7.80	-5.71	2.48**
RQ	9.55	11.39	1.24	1.13	2.09	1.17*	0.99	3.40
RL	-3.74	2.60	2.28	1.54	7.04	5.41	4.71	4.59
CC	2.55	0.92***	1.50	2.36	-9.16	9.69	2.50	2.46
FDI	0.53	0.27**	0.19	0.13	0.50	0.19**	0.24	0.12**
GOV	-0.73	0.26***	-0.08	0.15	0.67	0.46	-0.20	0.07***
POP	-5.39	7.10	-0.90	0.77	-1.47	0.48***	-0.64	0.34*
Constant	40.01	36.53	3.49	2.04*	-21.19	17.75	2.28	2.95
R-square within		0.492		0.082		0.297		0.220
R-square between		1.000		0.630		0.984		0.080
Overall R-square		0.503		0.090		0.364		0.203
Obs.		40		135		63		117

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7.3 presents summary results of the selected variables along with GDP4. With GDP4, it seems that VA, PS, RL, and CC are significantly correlated in the low-income economies; VA in the lower-middle-income economies; VA and GE in the high-income economies.

Table 7.3: Random-Effects Model with Robust Standard Errors by Economic Category (GDP4)

GDP4	Low-income economies		Lower-middle-income econ.		Upper-middle-income econ.		High-income economies	
	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	5.28	2.02***	-2.88	1.15**	-10.79	9.94	-1.69	0.78**
PS	2.23	0.62***	0.34	0.60	-3.92	2.66	1.05	0.69
GE	0.93	2.33	-2.95	2.07	-0.33	7.15	-7.43	2.76***
RQ	10.26	9.53	0.82	1.08	0.92	1.30	1.66	3.73
RL	-3.55	1.43**	2.74	1.83	8.79	5.84	3.98	4.77
CC	3.11	1.04***	1.06	2.28	-9.24	9.19	2.95	2.71
FDI	0.58	0.21***	0.22	0.14*	0.59	0.19***	0.28	0.13**
GOV	-0.95	0.25***	-0.08	0.18	0.66	0.44	-0.28	0.08***
POP	-5.85	6.04	-0.81	1.17	-1.52	0.56***	-0.68	0.36*
Constant	47.79	31.20	5.19	2.47**	-19.71	17.46	6.21	3.15**
R-square within	0.538		0.096		0.310		0.222	
R-square between	1.000		0.088		0.986		0.029	
Overall R-square	0.550		0.090		0.374		0.197	
Obs.	40		131		63		117	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Regional Category

In this category, the Arab World is organized into four regions based on the cultural homogeneity; Greater Maghreb, Fertile Crescent, Arabian Peninsula, and Horn of Africa. Each dependent variable has been tested along with the predictor variables under the control variables on each region to explore any possible cross-national variations and observe changes in the coefficients as well as significance level in fixed effects model with robust standard errors.

Using the same model in equation (4), the results show that with GDP1 there are three independent variables indicating significant relationships; VA, PS, and CC in the region of Greater Maghreb as in Table 7.4. In Horn of Africa, RL is the only variable that is significantly associated with GDP1.

Table 7.4: Random-Effects Model with Robust Standard Errors by Regional Category (GDP1)

	Greater Maghreb		Fertile Crescent		Arabian Peninsula		Horn of Africa	
GDP1	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	1.24	0.58**	-5.83	3.98	-0.08	1.31	0.17	0.38
PS	2.55	1.23**	-0.88	1.76	1.66	1.19	-0.22	0.14
GE	-1.89	2.04	0.11	3.09	-3.63	3.84	3.44	4.57
RQ	1.61	1.73	0.26	1.77	3.18	4.06	-2.73	5.28
RL	1.79	1.25	-0.78	2.98	-1.38	3.61	-6.18	3.34*
CC	-4.53	0.93***	-1.18	3.66	1.71	2.71	-0.80	1.36
FDI	0.18	0.01***	0.51	0.21**	0.18	0.10*	-0.03	0.23
GOV	-0.01	0.19	0.25	0.25	-0.10	0.12	0.26	0.19
POP	-1.16	1.12	-0.51	0.28*	0.44	0.43	-1.87	2.12
Constant	6.31	1.55***	-7.07	9.40	3.14	2.77	-1.81	7.88
R-square within	0.161		0.122		0.156		0.239	
R-square between	0.836		0.670		0.655		0.994	
Overall R-square	0.167		0.160		0.259		0.421	
Obs.	74		110		138		45	

*** p<0.01, ** p<0.05, * p<0.1*

With GDP3, Table 7.5 shows that VA, PS, and CC are significantly correlated in Greater Maghreb; VA in Fertile Crescent at 0.10% level; VA and CC in Horn of Africa at 0.05 % level, and RQ at 0.10 %.

Table 7.5: Random-Effects Model with Robust Standard Errors by Regional Category (GDP3)

	Greater Maghreb		Fertile Crescent		Arabian Peninsula		Horn of Africa	
GDP3	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	1.19	0.56**	-8.72	5.25*	0.01	1.25	-1.43	0.54***

	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
PS	2.48	1.20**	0.79	1.68	1.60	1.14	-0.59	0.38
GE	-1.81	1.99	-5.51	5.27	-3.39	3.68	3.46	2.99
RQ	1.58	1.69	0.84	3.18	3.11	3.86	-5.73	3.35*
RL	1.72	1.22	3.71	3.68	-1.35	3.42	-1.11	4.63
CC	-4.44	0.90***	-4.86	3.59	1.57	2.56	-1.77	0.46***
FDI	0.17	0.01***	0.69	0.30**	0.17	0.10*	0.04	0.21
GOV	-0.01	0.19	0.30	0.27	-0.10	0.12	0.31	0.16*
POP	-2.14	1.09*	-1.03	0.46**	-0.61	0.38	-1.58	2.71
Constant	6.23	1.54***	-12.97	10.65	3.34	2.49	-6.39	6.91
R-square within		0.164		0.187		0.202		0.145
R-square between		0.947		0.901		0.000		0.995
Overall R-square		0.212		0.231		0.147		0.439
Obs.		74		98		138		45

*** p<0.01, ** p<0.05, * p<0.1

As for GDP4, three variables have a significant relationship in Greater Maghreb (VA, PS, CC); CC in Fertile Crescent; PS in Arabian Peninsula; CC in Horn of Africa.

Table 7.6: Random-Effects Model with Robust Standard Errors by Regional Category (GDP4)

	Greater Maghreb		Fertile Crescent		Arabian Peninsula		Horn of Africa	
GDP4	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	1.53	0.65**	-8.88	5.42	0.04	1.30	-1.16	0.87
PS	3.38	1.39**	0.78	1.83	2.19	1.25*	-0.60	0.57
GE	-2.25	2.35	-5.37	5.00	-4.96	4.00	3.15	4.24
RQ	1.60	2.01	0.05	3.13	3.74	4.09	-7.63	7.74
RL	1.66	1.05	4.65	3.56	-1.42	3.53	-2.83	4.75
CC	-4.98	0.91***	-5.87	3.32*	1.83	2.74	-2.39	0.96**
FDI	0.22	0.01***	0.77	0.29***	0.23	0.11**	-0.06	0.08
GOV	0.02	0.18	0.34	0.26	-0.16	0.12	0.40	0.32
POP	-2.67	1.12**	-1.11	0.46**	-0.65	0.39*	-1.76	5.86
Constant	8.42	1.41***	-12.4	10.64	6.50	2.54**	-10.3	19.74
R-square within		0.210		0.209		0.204		0.180
R-square between		0.955		0.903		0.002		1.000
Overall R-square		0.256		0.251		0.151		0.369
Obs.		74		98		138		41

*** p<0.01, ** p<0.05, * p<0.1

Political Category

This category is based on the political regime of Arab countries. There are two sub-categories; republics and monarchies. Each dependent variable is tested along with the predictor variables under the control variables to observe any possible differences in significance and coefficients in fixed-effects model with robust standard errors. Table. 7.7 presents the summary results of all variables on both sub-groups.

Generally viewed, only three independent variables show significant relationships; VA, PS, and GE. However, this relationship is variant through dependent variables and regime type. With GDP1, for example, VA shows a significant negative relationship in republics, whereas GE has a positive relationship in monarchies. The same case in GDP3 and GDP4, but PS seems positively significantly correlated with GDP4 in monarchies.

Table 7.7: Random-Effects Model with Robust Standard Errors by Political Category

| | GDP1 | | | | GDP3 | | | | GDP4 | | | |
| | Republics | | Monarchies | | Republics | | Monarchies | | Republics | | Monarchies | |
Variable	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.	Coef.	St. Err.
VA	-1.38	0.53**	-0.37	0.66	-1.88	0.81**	-0.30	0.59	-1.89	0.86**	-0.26	0.59
PS	-0.17	0.59	0.81	0.59	-0.53	0.63	0.76	0.54	-0.42	0.61	1.25	0.59**
GE	1.47	2.08	-4.97	1.96**	1.00	2.89	-4.75	1.88**	1.14	2.80	-6.53	2.09***
RQ	-0.87	2.06	0.06	2.70	-1.76	2.48	0.14	2.55	-2.19	2.37	0.77	2.75
RL	-1.85	1.38	1.39	4.30	0.09	1.86	1.20	3.89	0.18	2.04	0.77	4.00
CC	0.60	2.82	2.03	2.77	0.68	3.25	1.95	2.61	0.50	3.50	2.41	2.81
FDI	0.18	0.09*	0.23	0.08***	0.21	0.11*	0.22	0.07***	0.25	0.11**	0.28	0.08***
GOV	0.12	0.17	-0.27	0.06***	0.10	0.19	-0.26	0.06***	0.11	0.22	-0.34	0.06***
POP	-0.24	0.34	0.29	0.41	-0.98	0.49**	-0.75	0.36**	-1.05	0.52**	-0.79	0.38**
Constant	-1.38	0.54	7.45	2.76***	-0.23	4.50	7.47	2.51***	1.42	5.05	11.01	2.52***
R-square within	0.039		0.172		0.037		0.240		0.048		0.250	
R-square between	0.454		0.579		0.589		0.233		0.461		0.219	
Overall R-square	0.065		0.243		0.087		0.231		0.088		0.238	
Obs.	206		161		194		161		190		161	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Conclusion

In this chapter, a multivariate analysis of the relationship between governance and economic growth has been explored through different stages. First, a correlation analysis of the study variables was considered and a correlation analysis among the control variables to determine which variables are most relevant to the multivariate analysis. Based on the correlation analysis as well as the preliminary regression analysis, it was found that FDI, GOV, and POP are the most relevant control variables that can exert an influence on the variables of interest.

Second, a statistical analysis of all governance variables has been conducted along with the CVs and dummy variables. Third, an analysis focused on the composite governance index, which was created through combining all the six governance indicators into a single governance score. Fourth, an analysis of each governance indicator has been conducted individually.

The analyses on the previous four stages showed no statistically significant relationship is existing among governance and economic growth. Although a negative relationship was found between RL and GDP with r= -3.338 at 0.10% significance level, such a relationship was not confirmed in the solo-testing of RL with GDP1 as results showed no relationship existing.

However, given the logic that cross-national differences exist in growth rates and governance performance in the Arab World, a further analysis has been conducted each category as a fifth stage. The results of the categorical analysis indicate that there is a significant relationship between governance and economic growth as presented in Table 7.8.

Table 7.8: Summary Results of The Significant Independent Variables by Categories

Category	Sub-Category	GDP1			GDP3			GDP4		
		Var.	Coef.	St. Err.	Var.	Coef.	St. Err.	Var.	Coef.	St. Err.
Economic Category	Low-income economies	PS	1.63	0.43***	VA	5.26	2.29**	VA	5.28	2.02***
		GE	3.43	1.90*	PS	1.90	0.56***	PS	2.23	0.62***
		RQ	4.36	2.40*	CC	2.55	0.92***	RL	-3.55	1.43**
								CC	3.11	1.04***
	Lower-middle-income economies	VA	-1.91	0.77**	VA	-3.02	1.41**	VA	-2.88	1.15**
		PS	0.62	0.27**						
		RQ	2.05	0.78***						
	Upper-middle-income economies	RQ	2.12	1.20*	RQ	2.09	1.17*			
	High-income economies	VA	-2.12	0.81***	VA	-1.87	0.72**	VA	-1.69	0.78**
		GE	-6.03	2.61**	GE	-5.71	2.48**	GE	-7.43	2.76***
Regional Category	Greater Maghreb	VA	1.24	0.58**	VA	1.19	0.56**	VA	1.53	0.65**
		PS	2.55	1.23**	PS	2.48	1.20**	PS	3.38	1.39**
		CC	-4.53	0.93***	CC	-4.44	0.90***	CC	-4.98	0.91***
	Fertile Crescent				VA	-8.72	5.25*	CC	-5.87	3.32*
	Arabian Peninsula							PS	2.19	1.25*
	Horn of Africa	RL	-6.18	3.34*	VA	-1.43	0.54***	CC	-2.39	0.96**
					RQ	-5.73	3.35*			
					CC	-1.77	0.46***			
Political Category	Republics	VA	-1.38	0.53**	VA	-1.88	0.81**	VA	-1.89	0.86**
	Monarchies	GE	-4.97	1.96**	GE	-4.75	1.88**	PS	1.25	0.59**
								GE	-6.53	2.09***

*** p<0.01, ** p<0.05, * p<0.1

CHAPTER VI

DISCUSSION AND CONCLUSION

The purpose of this research was to examine the relationship between governance and economic growth in the Arab world over the period 1996-2017. Extensive literature has been reviewed on the governance-growth nexus to help in constructing an econometric model that guided this research. Six indicators were adopted from the WGI as measurements of governance including; voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. In addition, three variables were selected from the World Bank database as proxies for economic growth; GDP growth annual rate, GDP per capita growth, and GDP per capita PPP growth. The logic behind selecting three indicators for growth was to test whether there is consistency among these three indicators given that the first indicator looks at the overall growth rate of GDP, the second indicator adjusts for population disparities, and the third indicator adjusts for the purchasing parity power on a cross-national level.

Results of the descriptive statistics and empirical models were presented in the previous chapters, 4 and 5, addressing the research questions and hypotheses about the nature of the governance-growth relationship. In this chapter, a discussion of important findings of this research is presented as well as its implications, conclusion, and recommendations for policymakers.

Discussion of Research Findings

The following lines shed light on the discussion and interpretation of each of the eight hypotheses that were established earlier to test the governance-growth relationship. These hypotheses are:

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Hypothesis 1: there is no statistically significant relationship between governance and economic growth in the Arab World countries.

Hypothesis 2: Voice and accountability has no impact on economic growth in the Arab World countries.

Hypothesis 3: Political stability has no impact on economic growth in the Arab World countries.

Hypothesis 4: Government effectiveness has no impact on economic growth in the Arab World countries.

Hypothesis 5: Regulatory quality has no impact on economic growth in the Arab World countries.

Hypothesis 6: Rule of Law has no impact on economic growth in the Arab World countries.

Hypothesis 7: Corruption control has no impact on economic growth in the Arab World countries.

Hypothesis 8: There is a statistically significant relationship between governance dimensions and economic growth.

For testing the first null hypothesis, two econometric models were used; one with all the variables and the other with the composite governance variable. The findings of both models lend support to the hypothesis that no relationship found between governance and growth. This finding leads to rejecting the alternative hypothesis which is stated in the eighth hypothesis.

A further statistical testing for hypotheses pertaining to the relationship between each individual governance indicator and growth was undertaken using a specific model. The model

includes the individual independent variable along with the other variables. The findings lend also support for the second through the seventh hypotheses. These findings contradict findings from previous studies (Owens, 1987; Knack & Keefer, 1995; Kaufmann et al., 1999a and 1999b; Acemoglu & Robinson, 2008; Campos & Nugent, 1999). These previous studies found that good governance matters for economic growth. However, the difference in findings between earlier studies and the current study may be due to several reasons including, methodology, population of study, and variables selection.

Notwithstanding, due to the regional heterogeneities in growth rates and governance scores as noted in the descriptive statistics, a more detailed decomposition analysis was undertaken by category. This analysis was motivated by the researcher's interest to further investigate the relationship between governance and growth through various classifications given that the role of governance differs by the distribution of income (Fayissa & Nsiah, 2013), region (Huynh & Jacho-Chávez, 2009) and regime type. The results of decomposition analysis indicate noteworthy observations.

The following could be established from Table 7.8, in chapter 5, revealing summary results by each category and sub-category. In the economic category, which is basically based on income distribution, governance indicators show significant role in growth. However, it is worth noting that some variables are significant in some groups but not in others. To clarify the complexity of these findings, explanations of observations noted regarding each governance indicator are provided below.

Voice and accountability. The second hypothesis that VA has no impact on economic growth in the Arab World was tested by observing the patterns of coefficients and significance in the decomposition analysis. Correlations between VA and economic growth was found

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inconsistent through all the various categories and sub-groups. In the low-income economies, positive correlations between VA and the two variables of economic growth, GDP3 and GDP4, were significantly found at the 95% and 99% levels of significance respectively. This means, improving VA by one unit may lead to an increase in economic growth by approximately 5.26% to 5.28%. In the same sub-group, it is noted that VA does not show a significant relationship with GDP1. Such an observation is explained by the number of observations change as well as R-square. The number of observations is 52 with GDP1 higher than with GDP3 and GDP4 which is 40. R-square is 0.46 with GDP1 which is lesser than 0.50 with GDP3 and 0.55 with GDP4.

In the lower-middle-income economies, the relationship between VA and economic growth is, however, consistently observed. Negative correlation was found between VA and growth, indicating an inverse relationship, which means a decrease in VA by one unit would lead to an increase in economic growth by approximately -3.0% to -1.91%. Similarly, a negative correlation was significantly found between VA and economic growth in high-income economies, indicating that decreasing VA by one unit would lead to a -2.12% to -1.69% increase in economic growth.

In the regional category, VA was also found significantly positively correlated with economic growth in Greater Maghreb. But negative correlations were noted in Fertile Crescent and Horn of Africa with GDP3 in both regions, indicating an inverse relationship.

Political stability and absence of violence. The third hypothesis states that PS has an impact on economic growth in the Arab world. Results of the decomposition analysis regarding this hypothesis show that there is a significant relationship between PS and economic growth, but in some groups of countries and with certain growth variables. In the low-income economies, a positive correlation was found between PS and economic growth, indicating that an

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improvement in stabilizing the political situation by one unit would contribute to approximate a 1.63% to 2.23% increase in economic growth. The same case with lower-middle-income economies where political stability was found to be significantly correlated with economic growth. An increase in PS by one unit would contribute to a 0.62% increase in economic growth.

In the regional category, political stability was found significantly positively correlated with all the growth variables in Greater Maghreb, indicating that an improvement in political stability by one unit may contribute to a 2.48% to 3.38% increase in economic growth. In Arabian Peninsula, PS is significant with GDP4 only at 90% significance level. In the political category, PS was significantly associated with GDP4 in monarchies.

Government effectiveness. The hypothesis that GE has an impact on economic growth in the Arab world was tested through the decomposition analysis. Results show that the relationship between GE and economic growth was found to be inconsistently significant. In the low-income economies, a positive relationship was found between GE and GDP1 at 90% significance level. However, it was negative in high-income economies, indicating an inverse relationship between GE and economic growth. In the regional category, there was no significant relationship found in any of the sub-groups. In the political category, an inverse relationship was found in the monarchies, indicating that a decrease in GE by one unit may contribute to a -6.53% to -4.75% increase in economic growth. Such inconsistency in correlations suggests that GE is probably affected by income and regime type rather than by cultural homogeneity.

Regulatory quality. The hypothesis that RQ has an impact on economic growth was tested by the decomposition analysis. Inconsistent correlations were noted; positive and negative depending on the sub-groups. In low-income economies, RQ was significantly positively correlated with GDP1 only, indicating that an increase in RQ by one unit would contribute to an

increase in economic growth by 4.36%. The same case with low-middle-income economics but with an increase by 2.05% in economic growth if one-unit improvement was made in RQ. In the upper-middle-income economies, RQ was found significantly positively associated with GDP1 and GDP3. The direction of relationship between RQ and GDP3 was changed into negative in Horn of Africa.

Rule of law. The hypothesis that RL has an impact on economic growth was tested by the decomposition analysis. A significant negative correlation was noted in low-income economies with GDP4 only and Horn of Africa with GDP1, but at 90% significance level in the latter. An interesting observation about this indicator that countries with relatively stronger rule of law suffer from lesser corruption. However, in some cases there are countries that have a moderate level of rule of law, but high corruption level. This means that law enforcement may be existing but corruption takes time to be eradicated.

Control of Corruption. The hypothesis that CC has an impact on economic growth in the Arab world was tested by the decomposition analysis. Results show significant correlations with economic growth, but inconsistent with variables and groups of countries. In the low-income economies, a positive relationship was found with GDP3 and GDP4, indicating that an increase in CC by one unit would contribute to an increase in economic growth by 2.55% to 3.11%. In the reginal category, an inverse relationship was found in Greater Maghreb with all the growth variables, with GDP4 in Fertile Crescent, and with GDP3 and GDP4.

In the light of the foregoing, it can be said that the results of decomposition analysis are in line with literature regarding the significance of some governance indicators. Governance, by and large, contributes to better economic growth, especially on the long term. Chong and Calderon (2000) found that the effect of institutional reform on economic growth in poorer

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countries takes longer time than the influence of economic growth on institutional quality. The study of Mehanna et al. (2010) concluded that voice and accountability, government effectiveness and control of corruption are among the six governance indicators that influence growth performance in the oil-rich countries of MENA region. These results are partially consistent with the decomposition analysis results regarding VA and GE, but CC does not seem significant in high-income economies which include oil-rich countries (see Appendix 5 for all countries by classifications). But Hakimi and Hamdi (2017) found that corruption is a serious barrier to economic growth in the MENA region as it affects investment activities.

As per political stability, results of this study are consistent with literature in terms of the importance of political stability for growth, particularly in low-income economies which include countries witnessing serious security issues. Mira and Hammadache (2017) found that political stability is significant for non-oil countries in the MENA. This finding also resonates with studies focused on other developing regions such that in Sub-Saharan Africa (Williams, 2017) and cross-sectional studies (Aisen & Veiga, 2013; Han et al., 2014). Similar results were found consistent with previous studies regarding regulatory quality (Han et al., 2014).

Findings on the indicator of rule of law are controversial. Kaufmann et al. (2000) and Ata et al. (2012) found that rule of law has a statistically significant and positive effect on economic growth. On the other hand, Oliva and Rivera-Batiz (2002) found that rule of law has a positive but insignificant relationship with growth, and consequently they opine that rule of law indirectly influences economic growth through encouraging the attraction of foreign direct investment.

In spite of the fact that some findings are in support of the decomposition analysis or the comprehensive analysis results, there are findings that either completely or partially contradict with this study's findings. It is notable that such paradoxical findings are due to several reasons

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related to methodology, population, or operationalization process. Some studies use different econometric models than the model used in this study. Also, some studies focus on many countries including the countries in this study, yet in a general context as in the study of Oliva and Rivera-Batiz (2002). Add to that, some studies include all the governance indicators or focus on one or two indicators as proxies for governance as in the study of Abdelbary and Benhin (2018) in which regulatory quality was selected as a proxy for governance. Even in those studies focused on the MENA, certain countries were selected out of the total number as in Hakimi and Hamdi's study (2017). Such differences in context, methodology, and variables selection explain the paradoxical findings about governance-growth nexus and how sometimes it is difficult to reach at definitive results.

It is also worth noting that this study's results show that some governance indicators have positive signs, suggesting that an increase in the governance indicator contributes to an increase in the economic growth. At the same time, there are cases where negative signs exist in governance indicators, depending on the growth variable used. It might be illogical from the first stance when interpreting these contradictory signs, but the presence of negative signs of some governance indicators suggest the reverse relationship between governance and economic growth. It helps to consider here control of corruption. In the low-income economies, its relationship has two directions, positive with GDP3 and negative with GDP4. While it is understood that GDP4 is accounted for the purchasing parity power (PPP) which adjusts for prices differences within regions of the Arab World, the change in direction of relationship is difficult to interpret hither. However, previous studies point to the possibility of such a reverse relationship of institutional variables with economic growth (Mauro, 1995; Ehrlich & Lui, 1999) and foreign direct investment in low-income economies (Abed & Gupta, 2002; Egger & Winner,

2005). These findings suggest that there are firms and government officials taking advantage from the existence of corruption in some public sector entities to speed up administrative proceedings and capture the lion's share from foreign direct investment (Egger & Winner, 2005).

Nature of Impact of Governance Indicators

One of the interesting observations in the findings of decomposition analysis is the direction of relationship. As indicated in Table 7.8, some governance indicators show positive significant relationship with economic growth in some sub-groups, whereas in other sub-groups a negative relationship is evident. The nature of relationship of voice and accountability, for example, changes from positive in low-income economies to negative in high-income economies. It is noted that the average score of voice and accountability in low-income economies is -1.28, whereas in high-income economies is -0.96. Both sub-groups are relatively close in their VA score, but wide variance is noted through the other governance indicators. In low-income economies, all governance scores negative, ranging from -1.43 to -1.14; but high-income economies scored positively in all governance indicators with exception of voice and accountability. The same case with economic growth where high-income economies performed better than low-income economies. The average GDP growth of low-income economies during the overall period is 2.43%, whereas for high-income economies is 4.64%. These observations indicate that high-income economies outperformed the low-income economies in both governance and growth. However, it might be bewildering to find that voice and accountability negatively associated with economic growth in the high-income economies, but positively correlated in low-income economies.

From the above observations, it can be said that there may be other reasons standing out behind such a change in impact of voice and accountability. This paradoxical relationship leads

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to searching plausible explanations for such kind of change in the direction of relationship. The following lines discuss the possible reasons behind the dynamics in relationship of governance indicators at the sub-group levels.

One of the conjectural reasons why some governance indicators, such as VA, GE, and CC are positive in the low-income economies but not in other sub-groups may be related to the available observations. It is noted the average scores of VA, GE, and CC in low-income economies are -1.28, -1.42, and -1.14 respectively. In the high-income economies, these indicators have higher average scores; VA is -0.96, GE is 0.38, and CC is 0.43. However, the total number of observations for low-income economies is much smaller than in high-income economies. Variations in the number of observations are also clear within dependent variables; GDP1 is 56, GDP3 and GDP4 are 44. Those countries belonging to the low-income economies are Comoros, Somalia, Syria, and Yemen. Growth data for Somalia are missing for the overall period, but a number of years that data are missing in Syria.

Another possible reason may be related to the population growth. Where population growth is low, governance indicators seem positive; but where population growth is high, governance indicators seem negative. For example, in the low-income economies the population growth is 2.31, whereas it is 4.70 in high-income economies. The same case with regions, population growth is 1.59 in Greater Maghreb, while it is 4.42 in Arabian Peninsula; 2.27 in republics and 4.11 in monarchies. Such variations in population growth might be a factor in the directional relationship between governance and economic growth.

Another equally important observation is noted through the change of significance of governance indicators among categories that are relatively similar. For example, high-income economies, Arabian Peninsula, and monarchies include the Gulf countries but with addition of

one or more countries. In Arabian Peninsula, in addition to the six Gulf countries (Bahrain, Kuwait, Qatar, Saudi Arabia, Oman, and UAE) Yemen is included as well. In the monarchies, Jordan and Morocco are also added to the Gulf countries. The inclusion and exclusion of countries play a role in changing the output. Although in the high-income economies, VA and GE appeared as significantly negatively correlated with growth, in the Arabian Peninsula, the effect of VA and GE disappeared as a result of including a poor country, Yemen.

Regarding the variations in significance through the dependent variables, two main reasons might be speculated based on the given results. First, these changes in governance indicators significance may be as a result of the change in observations as well as the average score of each governance indicator at the sub-group level. For example, in low-income economies, the only governance indicator that is consistent throughout all the three growth indicators is political stability; the other governance indicators seem variant from a dependent variable to another. With GDP1, in addition to PS, GE and RQ are significant at 90%. With GDP3, VA, PS, and CC are significant, but with GDP4 there are variations in number of governance indicators that are significant and the directional relationship. RL is negatively correlated with GDP4 rather than VA, PS, and CC which are positively correlated. Such a negative correlation in RL might be attributed to the lack of implementing rule of law. All the countries in low-income economies have constitutions that citizens and the state follow, but the gap may be in the implementation of RL.

When looking at the summary statistics of dependent variables in low-income economies, a set of variations noted in the number of observations, the average, and data within countries belonging to this sub-group. For example, the average overall GDP growth for this sub-group is

2.43%, but the average GDP per capita growth is -0.67%, and GDP per capita PPP growth is 1.27%. These fluctuations of data affect the results.

In addition to the above variations, the changes in significance of governance indicators may be accrued to the change of relationships between independent and dependent variables. While growth variables are highly correlated with each other, the correlation is variant with the independent variables. Some governance indicators are correlated with some growth variables, such as RQ and CC. other governance indicators are not correlated with any of the three dependent variables.

The negative relationship between some governance indicators (VA and GE) and economic growth in high-income economies may be due to the 'resources curse' (Sachs & Warner, 1995). Natural resources abundance, especially in oil, can encourage governments for capturing the system, whether politically or economically. The oil endowment might have either positive or negative impact on institutional quality. The "rentier effects", as Ross (2001) notes, may exist in developing countries when governments own the natural resources and are therefore the only recipient of revenues from oil extraction. The concentration of revenues at the hands of governments can result in a set of issues, including rent-seeking, absence of property rights, corruption, and growth volatility (Frankel, 2010). These rentier effects may have specific implications on the quality of governance. First, government accountability towards the quality of public services provision may be less emphasized as government reduces the need to tax people. Oil dependence may be seen here as a barrier in front of developing a representative political system (Busse & Gröning, 2013). When citizens are less taxed, it is expected that demand for institutional improvement to be lower. This explains the negative relationship seen between government effectiveness and economic growth in high-income economies.

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Second, the revenues collected from the oil endowment enable government to minimize citizens' capacity to select, monitor, or replace their government. More money is spent by government to prevent any internal cleavages through patronage. Such a procedure makes the road to democratization difficult. Government may also use revenues to prevent establishing any independent entities that can exert influence on government accountability towards political rights. Oil-rich governments see that having more voice and accountability can be a threat to their capture and eventually leading to social dissent.

In other words, governments in high-income economies tend to use oil-revenues for suppressing any aspirations among citizens for better governance. Rather, oil-revenues along with volume of investment are not well-used for sustaining economic growth. This resource curse leaves oil-rich countries prone to bad governance. The deleterious impact of natural resources on institutions and growth has been robust through empirical literature. For instance, Sala-i-Martin and Subramanian (2013) found that natural resources have a negative influence on not only the long-run growth, but also governance, such as political stability, voice and accountability, government effectiveness, rule of law, or corruption. Likewise, studies confirm that oil and minerals are negatively associated with governance indicators (Isham et al., 2005; Bulte et al., 2005). These findings explain why voice and accountability and government effectiveness are found to be negatively associated with economic growth in high-income economies in this study. Although these reasons are logical in relation to previous studies, they are considered conjectural in this study. A further study is recommended to investigate such a relationship with controlling for natural resources, particularly oil effect.

Implications

Good governance is an essential factor in boosting economic growth. It forms an incentive scheme that empowers the efficiency of institutions and creates an environment conductive for investment, thereby resulting in sustainable economic growth. The negative consequences of weak governance can be seen in all walks of life, particularly economic activity such that indicated by the slow growth rates in the Arab World. Without protecting the rights of citizens to participate in the selection of their governments and putting more restrictions on civic engagement, citizens tend to feel isolated from society, which may eventually trigger destructive anarchy as the Arab Spring in some Arab countries. Even when property rights are not effectively protected, entrepreneurial activities become limited. Without good governance, corruption exacerbates in public institutions and leads to the government's incapacity to establish growth-encouraging environment.

Many empirical studies reveal a robust positive correlation between governance and economic growth, whether at the macro or micro level (Owens, 1987; Knack & Keefer, 1995; Kaufmann et al., 1999a and 1999b; Acemoglu & Robinson, 2008; Campos & Nugent, 1999). Although this study's findings contradict with previous studies because no significant relationship was found between governance and economic growth at the macro level, the role of good governance in reviving economic growth cannot be refuted at the micro level as indicated by the decomposition analysis.

Specific implications can be inferred from the findings of decomposition analysis. First, all dimensions of governance are not equally important for economic growth at all groups of countries. It is not the aggregate governance, but the specific dimension of governance that matters. When it comes to the upper-middle-income economies, for example, it is the economic

dimension that is most critical for this sub-group, represented by RQ. Similarly, when it comes to the lower-middle-income economies, it is both the political and economic dimensions that matter as indicated by the significance of VA, PS, and RQ.

Second, a high level of income does not necessarily contribute to high governance performance in some cases. In other words, while higher levels of income can lead to better governance if resources are well-invested in promoting the quality of institutional quality and rule of law (Kaufmann et a., 2000), good governance is not always contingent upon higher incomes. As Nabli & Humphreys (2003) state: "Good governance is not a luxury good that accrues automatically as countries become richer" (p. 81). In relation to this presumption, contradictory observations have been noted in this study. The descriptive analysis shows that those high-income economies have relatively higher average scores of governance indicators when compared with other sub-groups. But the decomposition analysis shows that only two governance indicators have significance in high-income economies rather than the low-income economies where all governance indicators were found significant.

Third, an interesting observation has been noted about the link between governance and growth. When a growth occurs in an environment plagued with weak governance, growth turns out to be volatile and fragile over time, especially at times of crises. Countries with higher rates of growth and simultaneously ineffective governance cannot cope with unforeseen dilemmas. For instance, the average overall GDP growth of Fertile Crescent region during the period 1996-2017 is approximately 5 %. While the growth rate of this region is the highest among the other regions of the Arab World, the quality of governance is low as evident in the average scores of governance dimensions in Table 5.3 in chapter 4, in which VA is scored -1.002, PS is -1.20, GE is -0.68, RQ is -0.61, RL is -0.52, and CC is -0.64. Such an economic growth was found

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unsustainable throughout the overall period. During the period 1996-2000, the average GDP

growth was as high as 6.30 %. However, the growth rate decreased surprisingly to 3.37 % during

the period 2012-2017. The lack of good governance environment explains the fragility and

volatility of this region's growth. In other words, Fertile Crescent was not capable of coping with

the Arab Spring events that triggered chaos. From this example, it can be implied that sustaining

a solid economic growth requires good governance. This observation is in line with Rodrik's

(2003) conclusion: "Sustaining high growth in the face of adverse circumstances requires ever

stronger institutions" (p. 16).

Fourth, it is noted through the descriptive analysis that some countries with relatively better

governance scores fare worse in the overall GDP growth than the countries with weak

governance. To better clarify this observation, a comparison between the two top countries with

higher aggregate score of governance (UAE and Oman) and the two countries that scored the

least in aggregate governance (Iraq and Sudan) was undertaken, excluding countries for which

growth data are unavailable for the overall period or some years (i.e. Qatar, Somalia, and

Djibouti). Composite governance scores of UAE and Oman are 0.52 and 0.42, whereas those of

Iraq and Sudan are -1.61 and -1.55 respectively. It was unexpectedly surprising to find that Iraq

and Sudan made higher growth rates with 8.16% and 5.35%, whereas UAE and Oman achieved

4.42% and 3.43 %. Such a wider variance in growth rates is presumably because of the catch-up

effect or as sometimes economists name growth convergence, in which poor countries grow

faster than rich ones (Quirbia, 2006). This observation implies that in some cases governance

might be a consequence of economic growth and not a driving cause. The importance of

governance in such cases is more likely to stand out when jointly combined with other factors,

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such as human capital (Romer, 1986; Lucas, 1988), grants and foreign direct investment (Akramov, 2012), and education (Barro, 1996).

Methodological Limitations

Any research has possible limitations that could affect the interpretation of findings. In this study, several methodological limitations can be noted here, that are different from the general limitations stated in the first chapter. First, studies with the purpose of examining relationships among variables, as it is the case in this study, are not necessarily indicating the causal effect. As Nabli and Humphreys (2003) note, "correlations do not shed light on the direction of causality or on whether any other factor is a cause" (p. 80). This study's findings may inform policymakers about which specific dimensions of governance are significant in certain groups of countries, thereby they should pay more attention for when drafting economic policies.

In addition, it is known that the WGI comprise six dimensions of governance. Each is based on several individual indicators collected from different governmental and non-governmental sources. These individual indicators have different scales. The WGI, therefore, rescale these indicators and combine them into aggregate governance indicators, using a specific statistical methodology called "unobserved components model". In the third stage of this study, the six aggregate governance indicators were combined into a single composite governance variable (GOVERN0 in order to statistically test its relationship with economic growth at aggregate. It is worth noting that the relationship between this composite governance variable and growth may differ if the composite governance variable is rescaled based on the initially collected individual indicators from the primary sources and not from the WGI. But due to time constraint, the WGI indicators were instead used. In addition, the quality of governance measures has been castigated

by many scholars due to the difficulty to measure an obscure notion as governance. Thus, the indicators used in this study are limited to the WGI definition.

Furthermore, some control variables were selected based on the availability of data for the overall period. Variables such as education and technology have no complete data for all the Arab countries. Their effects on the dependent variables are not definitely decided on this study. The relationship between governance and economic growth could be affected by the inclusion of exclusion of some variables. That means that the relationship can be dependent on the selection of appropriate variables that may exert impact on growth. For the variable of education, it was measured by the gross enrollment ration in the primary schooling regardless of age. Other studies used different measures of education, such as the enrollment rate in the secondary schooling or the graduation rate, which raises the debate in literature about the most accurate measure for education. Given these gaps in data availability, it was difficult to find convincing variables that are consistent with previous literature.

Conclusion

Economic growth has witnessed a volatile and slow trend during the last two decades in the Arab World. The degree of growth volatility varies among Arab countries dependent on their level of income. Some comparative researchers and development practitioners argue that weak governance performance stands out as the root cause of such a slowdown; other scholars see that it is triggered by other factors related to economic policies. Whether governance is a precondition of higher economic growth or vice versa has been debated among researchers.

This study, therefore, examined the relationship between governance and economic growth. The notion of governance has been discussed and debated in literature for years. Some scholars look at governance narrowly, while others define it in a very broad way. For the purpose of operationalizing governance, the six WGI governance indicators were selected including voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. Given that economic growth can be measured in different ways, three variables were used; overall GDP growth, GDP per capita growth, and GDP per capita growth using the purchasing parity power (PPP) index. Also, foreign direct investment, government expenditure, and population growth were appropriately used as control variables to test the pre-established hypotheses.

The results indicate that there is no relationship between governance and economic growth, whether at the aggregate level or when indicators are tested individually. However, the decomposition analysis findings overall suggest that there is a significant relationship between governance and growth when it comes to certain groups of countries based on the distribution of income, region, and regime type. Some governance indicators stand out more important than others at the sub-group level. In the economic category, the contributions of VA, PS, and GE are significant in low-income economies, while regionally, VA and CC are significant in the Greater Maghreb region. In the political category, VA is significant in republics, whereas GE is significant in monarchies.

The direction of relationship is difficult to fathom because it varies according to the dependent variable used. For example, VA is significantly positively correlated with GDP3 in low-income economies, but negatively associated with GDP4. This change in direction of relationship shows inconsistency among variables.

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Based on these findings, it is recommended that governments and policymakers in the Arab World should improve governance quality continuously to restore and sustain economic growth and catch up with those regions of higher growth rates. More attention should be paid to those dimensions of governance that significantly exert influence on economic growth. Governments at the country-level have to prioritize its own public policies in alignment with the critical dimensions of governance. For low-income economies, for example, all the governance dimensions seem important for the promotion of economic growth, however, political dimension should be more emphasized. Addressing security issues first would establish the safe environment for better economic performance and at the same time contribute to the improvement of other aspects of governance. Additionally, governments in countries with weak governance performance should be urged to learn from the experience of other countries that empowered governance quality and achieved better economic growth.

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Appendix 1: Summary of governance and growth empirics

Study and year	Time period	Countries	Dependent variable	Independent variable	Findings	Techniques
Adams & Mengistu (2008)	1991-2002	82 developing countries	Real GDP growth rate and Real GDP per capita (World Economic Outlook (2004) and Global Development Network Growth Database	Governance (Kaufman et al., 2005)	Positive and significant effect of governance on growth	Least squares dummy variable approach
Anwar & Cooray (2012)	1970-2009	8 South Asian countries	Per capita income (constant 2000 US$) (World Development Indicators, 2011)	Democracy Freedom House Political Rights Index and Freedom House Civil Liverties Index (Freedom, House, 2011) Polity IV Index (Marshall and Jaggers, 2010)	Positive and significant even when interacted with money supply	Ordinary least squares method, Fixed effects, System GMM
Butkiewicz & Yanikkaya (2004)	1970-1999	29 developed and 85 developing countries	Real GDP growth rate (World Development Indicators, 1999) Initial GDP per capita (Penn-World Table)	Democracy (Freedom House and Polity III) Rule of law (Easterly, 1999)	Rule of law – positive and significant effect. Corruption – negative and insignificant. Bureaucracy – positive and insignificant. Democracy – positive and insignificant.	Seemingly unrelated regression technique (SUR) and/or three stage lease square (3SLS)

Butkiewicz & Yanikkaya (2011)	Two sample period: 1970-1999 1990-2004	Over 100 developed and developing nations	Growth of real GDP per capita (World Bank, 2007)	Rule of law (Kaufmann et al., 2007)	Positive and significant in case of developing countries Developed countries – positive but not significant	Seemingly unrelated regression (SUR) technique
Campos & Nugent (1999)	108 countries; 28 East Asian countries	1982-1995	Average level of real per capita GDP	Democracy (Freedom House) Bureaucratic quality (ICRG) Rule of law (ICRG)	Without interaction terms Democracy - positive and significant for all sample and East Asian; Bureaucracy – positive and significant for all sample, positive and insignificant – East Asian; Rule of law – Positive and significant for all sample, positive and insignificant for East Asian With interaction terms Only democracy is positive and significant	Ordinary least squares method
Evrensel (2010)	31 developed and 90 developing countries	1990-2000	Average growth rate of real GDP (International Financial Statistics, IMF, 2007)	Corruption (ICRG)	Negative and significant	Ordinary least squares method

Fernandez, Gonzalez and Suarez (2010)	84 countries	1980-2004	Growth rate of real per capita GDP (World Bank)	Rule of law (Heritage Foundation (Freedom))	Positive and Significant	Ordinary least squares method and random effects
Haggard & Tiede (2011)	74 developing and transition countries	2003-2007	GDP per capita in 1995	Corruption (Transparency International CPI) Rule of law (World Bank and others)	Both positive and significant	Two stage least squares
Jalilian, Kirkapatrick and Parker (2007)	117 countries for cross section regression 96 countries for panel regression	1980-2000	GDP growth per capita (World Bank)	Regulatory quality Government effectiveness (Kaufmann et al., 2005)	Positive and significant effect	Ordinary least squares method, fixed effects and random effects
Oliva & Rivera-Batiz (2002)	119 developing countries	1970-1994	Real per capita annual growth rate	Democracy (Polity IV) Rule of law (Kaufmann et al., 1999)	Democracy – positive and significant Rule of law – positive and insignificant	Ordinary least squares method and Three stage least squares
Goldsmith (1995)	59 less developed and transitional countries	1980-1990	Average annual growth rate of GDP (IMF, 1994)	Democracy (Freedom House) Property rights index (Johnson & Sheehy, 1995)	Both – negative and significant	Ordinary least squares method
Feeny (2005)	1 country	1965-1999	GDP growth (World Bank)	Governance (ICRG)	Mixed effect but insignificant	Auto Regressive Distributed Lag (ARDL)

Feeny & Mcgillivary (2010)	29 Small Island Developing States	1980-2004	GDP per capita growth measured in constant local currency units expressed as a percentage (World Bank, 2006); Asian Development Bank, 2006); Grimes, 2000)	Governance (World Bank)	Positive and insignificant	Fixed effects and GMM
Alonso (2010)	154 countries	2006-2007	Per capita Income (Maddison)	Governance index (World Governance Indicators)	Positive and significant	Two stage least squares with instrumental variable technique
Busse & Groizard (2008)	84 countries	1994-2003	Real growth of GDP per capita in per cent (World Bank, 2006)	Rule of law (PRS Group)	Positive and significant	GMM
Khamfula (2007)	17 countries	1994-2004	Real GDP (World Bank)	Corruption (Corruption perception Index from Centre for Corruption Research)	Positive and significant	Ordinary least squares method
Mo (2001)	49 countries	1970-1985	Growth rate of real GDP in percentage (Barro & Lee)	Corruption (Transparency International) Democracy (Freedom House) Political stability (PINSTAB)	Democracy – positive and insignificant Instability – negative and significant when transmission channels are not included	Ordinary least squares method, Two stage least squares
Mauro (1995)	67 countries	1980-1983	Per capita GDP growth	Corruption (Business International)	Positive and significant	Ordinary least squares method, Two stage least squares

Drury, Krieckhaus and Lusztig (2006)	More than 100 countries	1982-1997	Growth of GDP(World Bank)	Corruption (ICRG) Democracy (Freedom House and Polity IV)	Corruption – negative and significant in non-democratic countries; positive and insignificant in democratic; Democracy (Freedom house and polity IV – negative and insignificant; positive and insignificant (Alvarez, Cheibub, Limongi and Prezeworsk (ACLP) democracy data)	Ordinary least squares method
Assiotis & Sylwester (2012)	119 countries	1984-2007	Real GDP per capita (Penn World Table, version 6.3)	Democracy (Freedom House and Polity IV) Corruption (ICRG and Transparency International) Governance (World Governance Indicator)	Corruption and democracy – positive and significant Governance -negative and significant	System GMM and Fixed effects model
Ekanayake & Chatma (2010)	85 developing countries	1980-2007	Growth of real GDP per capita in constant (2000) US dollar (World Bank)	Democracy (Freedom House)	Negative and insignificant (significance varies with time)	Ordinary least squares method
Gani (2011)	84 countries	1996-2005	Real growth of gross domestic product (annual percentage) (World Bank, 2007)	Governance indicators (World Governance Indicators)	Democracy – negative and significant Political stability – positive and significant Government effectiveness – positive and significant	Ordinary least squares method

					Regulatory quality – negative and insignificant
					Rule of law – negative and insignificant
					Control of corruption – negative and significant
Seldadyo, Nugroho and Haan (2007)	82 countries	1984-2004	Average GDP per capita growth rates (World Bank)	Governance (ICRG)	Positive and significant	Parsimonious regression
Commander & Nikoloski (2010)	159 countries	1960-2009	Per capita GDP growth (World Penn Table) Real GDP growth (World Development Indicators)	Democracy (Freedom House and Polity IV)	Positive and insignificant	GMM
Law & Habibullah (2006)	8 East Asian countries	1980-2001	Real GDP per capita (World Bank)	Institutional quality (ICRG)	Institutional quality, Rule of law, Bureaucracy and corruption – Positive and significant	FMOLS

Source: Yerrabati & Hawkes (2015)

Appendix 2: Measures of governance

Name	Producer	Mono/Multi-dimensional	Focus	Aim	Coverage	No. of variables
Berteismann Transformation Index (BTI)	Berteismann Foundation	Mono-	Quality of institutions	'The BTI is directed at the normative goal of market-based democracy … The BTI emphasizes the same values that underlie the European Union' integration process: a representative democracy under the rule of law combined with a socially responsible and sustainable market economy (Stiftun, 2005, p. 4)'.	129	2
Corruption Perception Index	Transparency International	Mono-	Administrative capacity	'Raising public awareness of corruption' (Lmbsdorff, 2007).	176	13
Freedom in the World	Freedom House	Mono-	Quality of institutions	'Analyze the challenges to freedom; advocate for greater political and civil liberties; and support frontline activists to defend human rights and promote democratic change' (Freedom House, 2014).	2	195
Global Integrity Index	Worldwide Governance Indicators	Multi-	Quality of institutions	'To assess the existence and effectiveness of mechanisms that prevent abuses of power and promote public integrity, as well as the access that citizens have to their government' (Global Integrity, 2014).	43	300
Legatum Prosperity Index	Legatum Institute	Mono-	Global wealth and wellbeing	'Assessment of global wealth and wellbeing' that attempt 'to understand how we move 'beyond GDP" ("The 2013 Legatum Prosperity Index," 2014).	142	89
Sustainable Governance Indicators	Berteismann Foundation	Multi-	Sustainability	'SGI thus targets the spectrum of those individuals who formulate, shape and implement policies, from political	41	67

				decision-makers in centres of government and the democratic institutions of the OECD and EU states, to representatives of civil society and international organizations, to scholars and interested citizen' (Schraad-Tischler, & Seelkopf, 2014, p. 2).		
The Country Policy and Institutional Assessment	World Bank	Multi-	State fragility	'The quality of a country's present policy and institutional framework. 'Quality' refers to how conductive that framework is to fostering poverty reduction, sustainable growth and the effective use of development assistance' (The World Bank Group, 2011, p. 1).	78	16
The Rule of Law	World Justice Project	Mono-	Administrative capacity (effective exercise of authority)	'The WJP Rule of Law Index is intended for a broad audience of policy-makers, civil society, practitioners and academics, and aims at identifying strengths and weaknesses in each country under review and at encouraging policy choices that advance the rule of law' (World Justice Project, 2014, p. 188).	99	43
Worldwide Governance Indicators	World Bank	Multi-	Quality of national governance	'Assessing a measure of governance originally devoted to create cross-country indicators of governance and to establish more effective instruments of government assistance' (The World Bank, 2007b).	215	340

Source: (Malito, 2015, p. 6).

Appendix 3: WGI Data Sources

Data Sources Used in 2018 Update of Worldwide Governance Indicators

Code	Source	Type*	Public	Country Coverage	Represe-ntative	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ADB	African Development Bank Country Policy and Institutional Assessments	Expert (GOV)	Partial	54			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
AFR	Afrobarometer	Survey	Yes	22				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ASD	Asian Development Bank Country Policy and Institutional Assessments	Expert (GOV)	Partial	28				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
BPS	Business Enterprise Environment Survey	Survey	Yes	30				x	x	x	x	x	x	x	x	x	x	x	x	x	x			
BTI	Bertelsmann Transformation Index	Expert (NGO)	Yes	129					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
CCR	Freedom House Countries at the Crossroads	Expert (NGO)	Yes	69						x	x	x	x	x	x	x	x	x	x					
EBR	European Bank for Reconstruction and Development Transition Report	Expert (GOV)	Yes	33		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
EIU	Economist Intelligence Unit Riskwire & Democracy Index	Expert (CBIP)	Yes	183	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
FRH	Freedom House	Expert (NGO)	Yes	198	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GCB	Transparency International Global Corruption Barometer Survey	Survey	Yes	115					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GCS	World Economic Forum Global Competitiveness Report	Survey	Yes	144	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GII	Global Integrity Index	Expert (NGO)	Yes	62						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GWP	Gallup World Poll	Survey	Yes	161	Y							x	x	x	x	x	x	x	x	x	x	x	x	x
HER	Heritage Foundation Index of Economic Freedom	Expert (NGO)	Yes	183	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
HUM	Cingranelli Richards Human Rights Database and Political Terror Scale	Expert (GOV)	Yes	194	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IFD	IFAD Rural Sector Performance Assessments	Expert (GOV)	Yes	98						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IJT	iJET Country Security Risk Ratings	Expert (CBIP)	Yes	197	Y					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IPD	Institutional Profiles Database	Expert (GOV)	Yes	143	Y							x	x	x	x	x	x	x	x	x	x	x	x	x
IRP	IREEP African Electoral Index	Expert (NGO)	Yes	54				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
LBO	Latinobarometro	Survey	Yes	18		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MSI	International Research and Exchanges Board Media Sustainability Index	Expert (NGO)	Yes	71					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
OBI	International Budget Project Open Budget Index	Expert (NGO)	Yes	100								x	x	x	x	x	x	x	x	x	x	x	x	x
PIA	World Bank Country Policy and Institutional Assessments	Expert (GOV)	Partial	136		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PRC	Political Economic Risk Consultancy Corruption in Asia Survey	Survey	Yes	17				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PRS	Political Risk Services International Country Risk Guide	Expert (CBIP)	Yes	140	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RSF	Reporters Without Borders Press Freedom Index	Expert (NGO)	Yes	177	Y				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TPR	US State Department Trafficking in People report	Expert (GOV)	Yes	185	Y				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
VAB	Vanderbilt University Americas Barometer	Survey	Yes	26						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
VDM	Varieties of Democracy Project	Expert (NGO)	Yes	171	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
WCY	Institute for Management and Development World Competitiveness Yearbook	Survey	Yes	59		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
WJP	World Justice Project Rule of Law Index	Expert (NGO)/Survey	Yes	97															x	x	x	x	x	x
WMO	Global Insight Business Conditions and Risk Indicators	Expert (CBIP)	Yes	203	Y	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

*Types of Expert Assessments: CBIP -- Commercial Business Information Provider, GOV -- Public Sector Data Provider, NGO -- Nongovernmental Organization Data Provider

Source: Worldwide Governnace Indicators.

Appendix 5: Classifications of Arab World based on Income, Regions, and Political Regime

Economically, Arab countries be divided into:

Low-income Economies ($995 or less)	Lower-middle-income Economies ($996 to $3,895)	Upper-middle-income Economies ($3,896 to $12,055)	High-income Economies ($12,056 or more)
Comoros Somalia Syria Yemen	Djibouti Egypt Mauritania Morocco Palestine Sudan Tunisia	Algeria Iraq Jordan Lebanon Libya	Bahrain Kuwait Oman Qatar Saudi Arabia UAE

Culturally, Arab Sates can be divided into four regions:

The Greater Maghreb	Fertile Crescent	Arabian Peninsula	Horn of Africa
Algeria Libya Mauritania Morocco Tunisia	Egypt Iraq Jordan Lebanon Palestine Syria	Bahrain Kuwait Oman Qatar Saudi Arabia UAE Yemen	Comoros Djibouti Somalia Sudan

Politically, Arab States can be divided into:

Republics	Algeria Egypt Libya Somalia Tunisia	Comoros Iraq Mauritania Sudan Yemen	Djibouti Lebanon Palestine Syria
Monarchies	Bahrain Morocco Saudi Arabia	Jordan Oman UAE	Kuwait Qatar

Appendix 6: Total Average percentage of Governance indicators for Arab World (1996-2017)

Year	VA	PS	GE	RQ	RL	CC
1996	-0.90	-0.53	-0.46	-0.55	-0.47	-0.46
1997	-0.94	-0.51	-0.46	-0.57	-0.45	-0.45
1998	-0.98	-0.41	-0.46	-0.59	-0.43	-0.41
1999	-0.98	-0.35	-0.50	-0.58	-0.44	-0.43
2000	-0.99	-0.28	-0.49	-0.58	-0.43	-0.43
2001	-1.00	-0.33	-0.44	-0.51	-0.42	-0.33
2002	-1.01	-0.38	-0.39	-0.42	-0.40	-0.21
2003	-1.00	-0.45	-0.43	-0.44	-0.38	-0.34
2004	-0.93	-0.51	-0.44	-0.43	-0.41	-0.36
2005	-0.98	-0.55	-0.51	-0.45	-0.45	-0.40
2006	-1.08	-0.62	-0.44	-0.49	-0.49	-0.44
2007	-1.09	-0.67	-0.50	-0.48	-0.48	-0.43
2008	-1.08	-0.68	-0.52	-0.46	-0.47	-0.43
2009	-1.11	-0.67	-0.44	-0.37	-0.42	-0.35
2010	-1.13	-0.77	-0.44	-0.44	-0.43	-0.42
2011	-1.11	-0.95	-0.50	-0.41	-0.49	-0.47
2012	-1.06	-1.01	-0.54	-0.51	-0.50	-0.47
2013	-1.08	-1.03	-0.55	-0.49	-0.52	-0.47
2014	-1.07	-1.07	-0.57	-0.53	-0.51	-0.52
2015	-1.09	-1.08	-0.57	-0.55	-0.55	-0.54
2016	-1.09	-1.07	-0.64	-0.59	-0.59	-0.53
2017	-1.10	-1.04	-0.63	-0.62	-0.60	-0.53

Appendix 7: Correlations of Dependent and Control Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) GDP1	1.000									
(2) GDP3	0.693	1.000								
(3) GDP4	0.705	-0.989	1.000							
(4) FDI	0.176	0.101	0.122	1.000						
(5) GOV	-0.186	-0.095	0.122	-0.185	1.000					
(6) LIFE	0.151	-0.039	0.046	0.316	0.101	1.000				
(7) POP	0.367	-0.289	0.270	0.131	-0.145	0.295	1.000			
(8) URBAN	0.163	-0.139	0.140	0.238	0.291	0.814	0.464	1.000		
(9) EDU	-0.002	0.007	0.009	0.125	-0.063	0.372	0.019	0.195	1.000	
(10) TECH	-0.084	0.119	0.108	0.041	0.003	-0.029	-0.300	-0.168	0.135	1.000

Appendix 8: Regression Results of Control Variables along with Dependent Variables

Regression Results of Control Variables with GDP1

GDP1	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
FDI	0.218	0.093	2.34	0.020	0.034	0.401	**
GOV	-0.271	0.117	-2.31	0.022	-0.501	-0.040	**
LIFE	-0.401	0.359	-1.12	0.265	-1.109	0.307	
POP	0.273	0.161	1.69	0.092	-0.045	0.591	*
URBAN	0.295	0.273	1.08	0.281	-0.243	0.834	
EDU	-0.038	0.050	-0.76	0.450	-0.137	0.061	
TECH	-0.075	0.116	-0.64	0.521	-0.304	0.155	
Constant	20.249	13.516	1.50	0.136	-6.399	46.897	
Mean dependent var		4.345	SD dependent var			4.351	
R-squared		0.097	Number of obs			229.000	
F-test		3.141	Prob > F			0.000	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$*

Regression Results of Control Variables with GDP3

GDP3	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
FDI	0.218	0.093	2.33	0.021	0.034	0.402	**
GOV	-0.226	0.118	-1.92	0.056	-0.458	0.006	*
LIFE	-0.363	0.361	-1.01	0.315	-1.074	0.348	
POP	-0.750	0.162	-4.63	0.000	-1.070	-0.431	***
URBAN	0.239	0.275	0.87	0.387	-0.304	0.781	
EDU	-0.024	0.051	-0.48	0.633	-0.124	0.076	
TECH	-0.068	0.117	-0.58	0.562	-0.300	0.163	
Constant	19.035	13.499	1.41	0.160	-7.585	45.655	
Mean dependent var		1.172	SD dependent var			4.200	
R-squared		0.129	Number of obs			221.000	
F-test		4.192	Prob > F			0.000	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$*

Regression Results of Control Variables with GDP4

GDP4	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
FDI	0.254	0.097	-2.63	0.009	-0.445	-0.063	***
GOV	-0.301	0.122	2.46	0.015	0.060	0.542	**
LIFE	-0.435	0.374	1.16	0.246	-0.303	1.173	
POP	-0.760	0.168	4.52	0.000	0.428	1.091	***
URBAN	0.231	0.285	-0.81	0.419	-0.794	0.332	
EDU	-0.020	0.053	0.38	0.706	-0.084	0.124	
TECH	-0.085	0.122	0.70	0.485	-0.155	0.325	
Constant	27.591	14.004	-1.97	0.050	-55.208	0.025	*

Mean dependent var	-3.115	SD dependent var	4.377
R-squared	0.141	Number of obs	221.000
F-test	4.626	Prob > F	0.000

*** p<0.01, ** p<0.05, * p<0.1*

Appendix 9: Heteroscedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Dependent Variables

Variables	Result
GDP1	Prob > chi2 = 0.0000
GDP3	Prob > chi2 = 0.3659
GDP4	Prob > chi2 = 0.6932

Appendix 10: Regression Results of all Variables

Random-Effects Model with Robust Standard Errors for Variables (GDP1)

GDP1	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
VA	-0.990	0.744	-1.33	0.183	-2.448	0.468	
PS	0.856	0.674	1.27	0.204	-0.465	2.177	
GE	-0.669	1.364	-0.49	0.624	-3.343	2.005	
RQ	0.801	1.181	0.68	0.498	-1.514	3.116	
RL	-3.338	1.726	-1.93	0.053	-6.721	0.045	*
CC	1.956	1.336	1.46	0.143	-0.662	4.575	
FDI	0.158	0.048	3.27	0.001	0.063	0.253	***
GOV	-0.047	0.081	-0.58	0.561	-0.206	0.112	
POP	0.381	0.364	1.05	0.295	-0.332	1.093	
low	-2.494	0.666	-3.75	0.000	-3.799	-1.189	***
upper	-0.530	1.074	-0.49	0.622	-2.636	1.576	
high	-0.260	1.980	-0.13	0.895	-4.141	3.620	
mag	0.506	1.423	0.36	0.722	-2.282	3.295	
cres	2.162	1.174	1.84	0.066	-0.139	4.463	*
horn	0.967	0.577	1.68	0.094	-0.163	2.097	*
mon	0.667	1.089	0.61	0.540	-1.468	2.803	
Constant	2.111	3.510	0.60	0.548	-4.768	8.990	

Mean dependent var		4.446	SD dependent var		5.036
Overall r-squared		0.112	Number of obs		389.000
Chi-square		484.697	Prob > chi2		0.000
R-squared within		0.064	R-squared between		0.474

*** p<0.01, ** p<0.05, * p<0.1

Random-Effects Model with Robust Standard Errors for Variables (GDP3)

GDP3	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
VA	-1.111	0.802	-1.39	0.166	-2.682	0.461	
PS	0.442	0.626	0.71	0.480	-0.784	1.669	
GE	-1.490	1.992	-0.75	0.454	-5.395	2.414	
RQ	0.448	1.461	0.31	0.759	-2.416	3.312	
RL	-1.523	2.239	-0.68	0.496	-5.911	2.865	
CC	1.991	1.319	1.51	0.131	-0.594	4.576	
FDI	0.162	0.057	2.85	0.004	0.051	0.274	***
GOV	-0.065	0.081	-0.80	0.425	-0.224	0.094	
POP	-0.625	0.323	-1.93	0.053	-1.258	0.009	*
low	-2.852	0.922	-3.09	0.002	-4.659	-1.045	***
upper	-0.230	1.130	-0.20	0.838	-2.445	1.984	
high	-0.477	2.225	-0.21	0.830	-4.839	3.884	
mag	0.402	1.534	0.26	0.793	-2.606	3.409	
cres	1.421	1.710	0.83	0.406	-1.930	4.772	
horn	1.002	0.603	1.66	0.097	-0.180	2.183	*
mon	0.120	1.219	0.10	0.922	-2.270	2.510	
Constant	2.762	3.797	0.73	0.467	-4.679	10.204	

Mean dependent var		1.361	SD dependent var				5.283
Overall r-squared		0.143	Number of obs				377.000
Chi-square		887.313	Prob > chi2				0.000
R-squared within		0.089	R-squared between				0.581

*** p<0.01, ** p<0.05, * p<0.1

Random-Effects Model with Robust Standard Errors for Variables (GDP4)

GDP4	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
VA	-1.061	1.077	0.98	0.325	-1.050	3.171	
PS	0.908	0.771	-1.18	0.239	-2.419	0.603	
GE	-2.245	2.015	1.11	0.265	-1.705	6.195	
RQ	0.742	1.526	-0.49	0.627	-3.733	2.248	
RL	-1.540	2.328	0.66	0.508	-3.023	6.104	
CC	2.044	1.483	-1.38	0.168	-4.950	0.863	
FDI	0.234	0.064	-3.65	0.000	-0.360	-0.108	***
GOV	-0.125	0.094	1.33	0.183	-0.059	0.309	
POP	-0.701	0.332	2.11	0.035	0.050	1.351	**
low	-2.966	1.133	2.62	0.009	0.746	5.187	***
upper	-0.245	1.356	0.18	0.856	-2.412	2.903	
high	-0.633	2.532	0.25	0.803	-4.329	5.595	
mag	-0.023	1.898	0.01	0.990	-3.696	3.743	
cres	1.415	1.964	-0.72	0.471	-5.265	2.435	
horn	0.311	0.694	-0.45	0.654	-1.671	1.049	
mon	0.065	1.466	-0.04	0.965	-2.939	2.809	
Constant	6.180	4.547	-1.36	0.174	-15.091	2.732	

Mean dependent var		-3.259	SD dependent var				5.525
Overall r-squared		0.131	Number of obs				373.000
Chi-square		5444.993	Prob > chi2				0.000
R-squared within		0.103	R-squared between				0.407

*** p<0.01, ** p<0.05, * p<0.1

Appendix 11: Regression Results of the Composite Governance Index

Random-Effects Model with Robust Standard Errors for Composite Governance and CVs and Dummy Variables (GDP1)

GDP1	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
GOVERN	0.639	1.528	0.42	0.676	-2.357	3.634	
FDI	0.179	0.049	3.66	0.000	0.083	0.276	***
GOV	-0.032	0.065	-0.49	0.623	-0.159	0.095	
POP	0.389	0.350	1.11	0.266	-0.297	1.075	
low	-1.933	0.663	-2.92	0.004	-3.232	-0.634	***
upper	0.417	1.578	0.26	0.792	-2.676	3.510	
high	-0.025	2.782	-0.01	0.993	-5.478	5.429	
mag	0.111	1.421	0.08	0.938	-2.674	2.896	
cres	0.686	1.073	0.64	0.522	-1.416	2.789	
horn	1.549	0.449	3.45	0.001	0.668	2.429	***
mon	-0.876	1.336	-0.66	0.512	-3.495	1.743	
Constant	3.439	2.141	1.61	0.108	-0.758	7.636	

Mean dependent var	4.446	SD dependent var		5.036
Overall r-squared	0.085	Number of obs		389.000
Chi-square	164.370	Prob > chi2		0.000
R-squared within	0.058	R-squared between		0.298

*** p<0.01, ** p<0.05, * p<0.1

Random-Effects Model with Robust Standard Errors for Composite Governance and CVs and Dummy Variables (GDP3)

GDP3	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
GOVERN	0.097	1.355	0.07	0.943	-2.560	2.753	
FDI	0.142	0.056	2.53	0.011	0.032	0.252	**
GOV	-0.023	0.050	-0.46	0.646	-0.121	0.075	
POP	-0.577	0.324	-1.78	0.075	-1.211	0.058	*
low	-2.863	0.546	-5.24	0.000	-3.933	-1.792	***
upper	0.164	1.421	0.12	0.908	-2.621	2.949	
high	-0.134	2.518	-0.05	0.957	-5.070	4.802	
mag	0.088	1.441	0.06	0.951	-2.736	2.912	
cres	0.564	1.123	0.50	0.615	-1.637	2.765	
horn	1.806	0.349	5.18	0.000	1.122	2.490	***
mon	-0.642	1.093	-0.59	0.557	-2.785	1.501	
Constant	3.331	1.871	1.78	0.075	-0.336	6.999	*

Mean dependent var	1.361	SD dependent var		5.283
Overall r-squared	0.128	Number of obs		377.000
Chi-square	294.964	Prob > chi2		0.000
R-squared within	0.084	R-squared between		0.526

*** p<0.01, ** p<0.05, * p<0.1

Random-Effects Model with Robust Standard Errors for Composite Governance and CVs and Dummy Variables (GDP4)

GDP4	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
GOVERN	-0.091	1.385	0.07	0.947	-2.623	2.806	
FDI	0.153	0.059	-2.60	0.009	-0.268	-0.038	***
GOV	-0.044	0.054	0.81	0.415	-0.062	0.150	
POP	-0.565	0.340	1.66	0.096	-0.101	1.231	*
low	-2.523	0.513	4.92	0.000	1.517	3.529	***
upper	0.215	1.508	-0.14	0.887	-3.170	2.741	
high	0.271	2.513	-0.11	0.914	-5.196	4.654	
mag	0.499	1.489	-0.34	0.737	-3.417	2.418	
cres	0.836	1.139	-0.73	0.463	-3.068	1.396	
horn	1.711	0.210	-8.15	0.000	-2.122	-1.300	***
mon	-0.613	1.094	0.56	0.575	-1.531	2.757	
Constant	5.227	1.889	-2.77	0.006	-8.928	-1.525	***

Mean dependent var	-3.259	SD dependent var		5.525
Overall r-squared	0.118	Number of obs		373.000
Chi-square	23969.161	Prob > chi2		0.000
R-squared within	0.085	R-squared between		0.431

*** p<0.01, ** p<0.05, * p<0.1