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The Impact of Natural Resources and Foreign Aid On Governance: Evidence from The MENA Countries

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Abstract:

Theoretical and empirical literature points out the "Curse of Natural Resources" where the abundance of resources in certain countries may hamper economic growth through several channels. The paper extends the previous research and investigates whether higher revenues- not only from natural resources' rent but also from foreign aid- exhibit another type of curse in MENA countries. That is, do higher natural resources rent, and foreign aid erode the quality of institutions as measured by governance indicators in the MENA countries? This research utilizes a panel data fixed-effect model to investigate the abovementioned relationship during the period 2000-2020. The countries are divided into two groups: Gulf Cooperation Council (GCC) countries and the rest of the MENA countries. This research results indicate that natural resource abundance favorably impacts the quality of governance in the GCC countries but not the rest of the MENA countries. While foreign aid does impact the quality of governance in the GCC countries, it erodes this quality in the rest of MENA countries. These results exhibit some critical policy improvements for these countries in the future.

<u>Introduction:</u>

In the last two decades, revenues from natural resources and foreign aid have played a significant role in developing and growing any economy. In the 1960s, the aim of the support began to change after the amendments happened in the heads' positions of the World Bank. Robert McNamara became head of the World Bank in 1968. McNamara supported the idea that donor-funded programs should be made to meet people's primary education, health, and water needs. Unfortunately, there was still poverty in aid recipient countries, and the investment in economic infrastructure was not necessarily making any difference in the lives of the poor people. Moreover, economic growth does not necessarily focus on abolishing poverty in developing countries.

For natural resources, the Middle East and North Africa (MENA) region are among the richest in the world in terms of natural resources. It holds more than 60 percent of the world's proven oil reserves, primarily located in the Gulf region, and nearly half of global gas reserves (World bank, 2012). Oil represents almost 85 percent of the merchandise exports of the area, making it highly sensitive to fluctuations in international prices. A long strand of economic literature suggests that such dependence may hurt a country's growth prospects and job creation by reducing the scope for economic diversification (World bank, 2012).

The quality of governance is affected negatively by foreign aid. Unfortunately, previous studies indicated that foreign aid tends to negatively affect governance rather than increase the building of solid institutions due to illegal activities. This will reduce the accountability and local ownership, which decreases the incentive for collecting taxes from the people (Brautigam,2000).

Moreover, the government will already generate revenues from natural resources so they will tax people less than usual. Hence, this will slow down the development of the economy, as a low-taxed population may then demand less accountability of the government, so this will lower the pressure to improve institutional quality (Ros, 2001). Treisman (2000) investigates that countries with higher fuel, metals, and minerals have larger shares in exports which tend to have higher corruption. However, when economic development and democracy are controlled, this effect decreases.

This study uses panel data using fixed effects from seventeen countries across twenty years from 2000-to 2020 to estimate the relationship between foreign aid and natural resources on the quality of governance along with some control variables which are: trade, foreign direct investment (FDI), government expenditure on education, Automated teller machines (ATMs) and dummy variable (Arab Spring revolutions). The sample countries are the Gulf Council Countries (GCC) consists of six countries which are: United Arab Emirates, Saudi Arabia, Qatar, Oman, Kuwait, and Bahrain ; along ith the rest of the MENA countries, which are Algeria, Djibouti, Egypt Libya, Iraq, Jordan, Morocco, Syria, Tunisia, West Bank & Gaza and Yemen.

The MENA region countries are selected in this research as their quality of institutions is not good enough to allocate the resources (natural or aid) to the most efficient uses (best measure variables for quality of institutions: Governance indicators. Moreover, MENA Countries have either high natural resources or high recipients of foreign aid. However, the economic performance is relatively lower than in South East Asia and Latin America. Most developing countries are not efficiently utilizing their financial resources.

This study aims to analyze the impact of foreign aid and natural resources on the six governance indicators. Previous studies limited their research to only one indicator, not the six together in one research. The idea of this is to investigate the topic from different dimensions and aspects to analyze how foreign aid and natural resources can improve the quality of governance to achieve economic development.

The paper is structured as follows: the literature survey is followed by a section analyzing the model and methodology of the study, a discussion of the results, and finally conclusion.

Theoretical background:

Governance encompasses the processes by which institutions are directed, controlled ,and held to account. In other words, it is a critical factor for the growth of any country. Good governance quality helps ensure the institutions are well placed to respond to a changing external environment. In addition, governance ensures that principles and practices are applied throughout the institution, which is why governance is essential.

Natural resources have attained much theoretical scholarly attention as their revenues can help formulate better governance quality. Natural resources can investigate how power and duties over natural resources are exercised efficiently and how decisions are formulated. However, countries rich in natural resources face severe challenges in achieving development. These countries can reach high levels of inequality and poverty instead of development due to the natural resources curse (Cust, 2017).

Foreign aid involves a transfer of commodities such as food, financial resources, or technical advice and training. The resources can be grants from one country to another, also known as export

credits. The most common type of foreign aid is official development assistance (ODA), which is the assistance given to promote development and decrease poverty (Williams, 2021). Its history all started with military assistance to help warring parties considered necessary. The latter took place in the 18th and 19th centuries.

Moreover, European powers in the 19th and 20th centuries offered assistance as a sort of large amounts of money to their colonies to enhance infrastructure and their economic outputs (Williams, 2021). Moreover, by the late 20th century, Japan had become one of the world's two leading donor countries, and its aid programs had extended to non-Asian countries. However, much of the country's assistance was still directed toward Asia (Williams, 2021).

<u>Literature Review:</u>

Governance is a critical factor for determining the success or failure of any country. Governance is when the activities of the government are fulfilling the responsibilities of the citizens in the country and the way the society and individuals within the society interact to make decisions for the welfare of the whole people within the same society (Lorenzo & Ramos, 2018). In other words, governance is defined as the attitude in which power is exercised to rule a country's economic and social resources to achieve development (World Bank, 2012). The difference between governance and government is that governance covers all aspects of all decisions and implements processes within the public sector. However, the government is one of the governance actors as it is defined as one of the fundamental institutions within the country in parallel with non-profit sectors (Weil, 2015). When trying to reach good governance, as this is the aim for many economies for development, it helps to increase accountability, transparency, and responsiveness to offer a more effective policy process (Bannister & Conolly, 2014). According to (Kaufman, et

al., 2010), good governance has six dimensions: voice & accountability, political stability, government effectiveness, absence of violence, regulatory quality, the rule of law, and control of corruption. These indicators are classified into three categories which are economic, political, and cultural theories of governance. The economic aspect consists of government effectiveness and regulatory quality; the political aspect consists of voice & accountability and political stability & absence of violence—the cultural one is defined as the rule of law and control of corruption.

These indicators are defined as follows according to (World Bank, 2021) to define the perception of the excellent quality of governance in developing and developed countries to be achieved:

Governance indicators definitions

Governance indicators	Definition
1. Voice & Accountability	The extent to which citizens of the country can participate in selecting their government and how poor people's voices are heard and ensuring there is freedom of expression, speech, and media.
2. Political stability and absence of violence	This measures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

3. Government effectiveness	This measures the quality of civil and public services provided by the government and the degree of independence from political pressures.
4. Regulatory Quality	The ability of the government to adopt and formulate policies that can boost the development of the private sector and its competitiveness.
5. Rule of law	The extent to which agents can abide by the rules of society and the quality of laws and policies to avoid violence.
6. Control of corruption	This measures how much the public power is utilized for private gain for the elites and to what extent the elites and private gains capture the state.

These six indicators define the quality of good governance and try to reach good governance by reaching the maximum of these six indicators in any country. As a result, this economy will reach development and growth. Moreover, some variables can highly affect governance and its six indicators, such as natural resources abundance, foreign and USAID, trade, foreign direct investment, education, population growth, and digitalization. Therefore, these factors play a great role in estimating the efficiency of governance within the society.

The independent variables in previous research:

I. Natural resources:

It has been observed that countries with significant natural resources tend to develop more minor than the countries with a lower abundance of natural resources (Busse & Groning, 2010). This could happen for several reasons as the government will already generate revenues from natural resources so they will tax people less than usual. Hence, this will slow down the development of the economy, as a low-taxed population may then demand less accountability of the government, so this will lower the pressure to improve institutional quality (Ros, 2001). Treisman (2000) investigates that countries with higher fuel, metals, and minerals have larger shares in exports which tend to have higher corruption, but when economic development and democracy are controlled for, this effect decreases. On the other hand, with natural resources abundance which generates more revenues, governments can have financial support for the political system and the functioning of the government itself. Therefore, the government's institutions will improve public services to the country's population (Auty, 2001).

Moreover, countries with abundant natural resources will have less motivation to spend on improvements in public services as the quality of education. However, fewer workers with high skills are still needed or acquired so the labor market will be ineffective and unemployment will increase (Isham et al., 2005). Moreover, government effectiveness and the quality of public services will decrease as the country's infrastructure and civil services will not also be improved or developed by the government due to fewer tax revenues (Isham et al., 2005). In addition, natural resource abundance can increase corruption as governments tend to pay bribes to stay in power to

benefit from the revenues of the natural resources, so corruption increases and may lead to political instability (Soreide & Kolstad, 2009). Corruption is defined as, the misuse of public or entrusted authority for personal gain to remain in power (Soreide & Kolstad, 2009). Moreover, countries that have natural resources suffer from bad institutions. The latter affects the rule of law as the rent-seeking activities will increase, and the rules will be broken for private gains (Soreide & Kolstad, 2009).

However, the existence of corruption depends on the democratic institution of the government. For example, Saudi Arabia is a country that is rich in natural resources such as minerals, natural gas, oil, tantalum, and niobium. It is the fourteenth most significant country in the world. However, it has many restricted policies and penalties against corruption, so its percentage of corruption is relatively low. It has been announced that it has arrested more than one hundred people in charge of administrative and financial government corruption. Hence, Saudi Arabia's rule of law is also fulfilled as the government abides by its rules to avoid violence and unfairness (Anser et al., 2020).

In Gulf countries, an increase in corruption can significantly decrease governance efficiency due to the lack of transparency and illegal activities. Some theories investigated that Gulf countries are not also free from corruption. They have a significant probability of corruption. However, Gulf Cooperation Council (GCC) countries have established some anti-corruption regulations and policies to avoid the spread of illegal activities. The GCC countries have been able to keep side by side with the international community's approach to protecting the integrity and fighting corruption. They initiated the establishment of a committee of heads of anti-corruption bodies in

the Gulf Council in 2013 to maintain the role of the International Convention against corruption 2013. Moreover, the GCC countries have adopted legislation to ensure justice and transparency in transactions (Belloumi & Alshehry, 2021).

II. Foreign aid:

Moreover, Foreign aid can take many forms to strengthen the management of public financials and some other public sector roles (Knack, 2001). Some donors such as the World Bank, International Monetary Fund (,IMF) and USAID have made governance reforms in countries a priority to send them funds to help develop (Knack, 2001). It has been indicated that the impact of foreign aid on governance has different effects and dimensions. Unfortunately, previous studies indicated that foreign aid tends to negatively affect governance rather than increase the building of solid institutions due to illegal activities. This will reduce the accountability and local ownership, which decreases the incentive for collecting taxes from the people (Brautigam,2000). However, foreign aid can sometimes lead to good governance if technical support is provided to the governance and spending on human development (Ear, 2007). Other studies indicated that foreign aid would be more effective and valuable in less corrupt countries to be spent in the right way. Therefore, it can help improve the quality of institutions and governance (Okada & Samreth, 2012).

Moreover, it has been observed that foreign aid helps improve the salaries and training of public employees working as taxes, judges, and police. As a result, the incentive for bribes in the public sector will decrease, and institutions' quality will be improved (Rijckeghem & Weder, 2001). Moreover, foreign aid decreases the opportunity of achieving a healthy civil society, democrac,y and the rule of law (Knack, 2001). However, USAID has many achievements and activities in

Egypt. For example, it has activity in Egypt's Economic governance for development. This activity supports accountability, efficiency, and transparency of public institutions and the civil service. It improves the Government of Egypt's ability to provide access to public services, which increases government effectiveness. In addition, this activity collaborates with the public and private sectors to improve and formulate new and innovative service delivery systems to help the two sectors conduct business together. This delivery system service will also reduce costs, petty corruption, and overall risk exposure (USAID, 2022).

III. Foreign direct investment:

Foreign direct investment (FDI) is one of the critical variables in this research. The impact of FDI on governance indicators is a critical dimension to be investigated and analyzed. People will have a higher probability of being corrupt as vast amounts of money inflows are getting into the country (Larrain & Tavares, 2004). Hence, they perceive that this small amount of money will not affect this large flow, so they are getting this amount to speed up the regulations for the benefited people (Larrain & Tavares, 2004). Moreover, foreign direct investment is usually related to large infrastructure projects and privatization programs, so the economic rents involved are enormous (Larrain & Tavares, 2004).

On the other hand, FDI can decrease corruption when there is a high level of international capital mobility; some foreign investors will exit the market and no longer invest in the other countries due to the low check of corruption in developing countries. Like the American and European investors, some investors are not attracted to investing in countries with high levels of corruption

(Wei, 2000). The latter can be explained by the fact that they will be afraid their rate of return on their investments will be low due to illegal activities and high levels of corruption (Wei, 2000).

Moreover, FDI can decrease democracy in countries as democratic countries have the opportunity to get more corrupt than autocratic ones, so less country risk for foreign investors. Hence, the FDI will decrease in the countries, so its ruler will change it to an autocratic one to attract foreign investors and spend on infrastructure, increase government effectiveness, and increase the quality of public and civil services (Arslan & Okten, 2010). Moreover, FDI can incentivize the country to maintain political stability and reduce violence to attract foreign investors to invest. For example, during the Arab spring revolutions in 2011, foreign investors were afraid to invest in the Arab countries as they did not guarantee a return on their investment. Hence, FDI encourages governments to maintain political stability in their countries by satisfying the needs of their citizens to reach the status quo (Arslan & Okten, 2010).

IV. Digitalization as a form of ATMs:

Digitalization is another control variable that affects governance by how government organizations can be operated using technology and how they interact with their citizens using modern technology. Moreover, e-governance aims to reach a customer-friendly culture and offer a good service quality (Lorenzo & Ramos, 2018). Digitalization can improve government efficiency and transparency. Moreover, governments can use technology for cost reduction and easier interaction between citizens in terms of democracy and accessing papers quickly through the internet, increasing transparency and reducing corruption. Also, it helps improve the rule of law as governments' constitutions are accessed easily through the internet so citizens can know the

rules and laws of their government (Janowski, 2015). Furthermore, information and communication technology (ICT) create new facilities and capabilities in businesses and improve the performance of public government and people's life (Dobrolyubova, Klochkova & Alexandrov, 2019).

Furthermore, digitalization improves legitimacy in governance and the interaction between government and citizens, improving voice and accountability. In other words, e-governance improves public services and democratic processes (Lorenzo & Ramos, 2018). Moreover, digitalization can improve public services such as cash payments, introducing new services to citizens more accessible, and investigating and responding faster to citizens' needs (Freeman, 2007). Hence, transparency of transactions will occur without corruption or priorities, especially in the public sector. On the other hand, however, digitalization can cause political instability and violence, as happened in 2011; the initiative of the Arab Spring revolutions was organized electronically through social media and by collaborating through the internet to express their voices and change the regime that deprived them of their rights. The latter affected many Arab countries in the MENA region, such as Egypt, Syria, Bahrain, Liby,a and Yemen (Alshammari & Willoughby, 2017).

VI. Trade:

Trade is another control variable in this research. It has been argued that trade liberalization can increase corruption. However, extensive trade liberalization can reduce corruption (Treisman, 2000). Trade encourages illegal rent-seeking activities such as bribes, black markets, and corruption to get more opportunities in trading without obstacles and a bureaucratic routine (Majeed, 2014). Moreover, High restrictions on free trade reduce the competition of trade between

domestic and foreign countries, which opens the door for rent-seeking activities and corruption to maintain the trade between countries and the imported and exported countries to satisfy their goals (Gatti, 1999). Furthermore, as mentioned before, trade liberalization allows for more corruption; this is explained by paying bribes and giving suppliers access to the markets. In developing countries, corruption highly occurs as they depend on importing their commodities from foreign countries; hence, they have more opportunities for bribes and corruption (Majeed, 2014).

In addition, it has been investigated that economic globalization of international trade and foreign investment can help establish the proper institutions, so the rule of law can be enhanced by establishing some restricted policies to prevent people from violence and illegal activities (Majeed, 2014). Furthermore, trade facilitation deals with transparency and the possibility of local and foreign interested parties contributing to the customs rule forming process to apply policies to prevent corruption and promote trade, increasing the country's stock of necessities (Yang, 2013). Unfortunately, like FDI, the more democratic countries, the less likely to attract trade due to the level of corruption. Hence, countries such as the developing ones have less incentive to establish democracy to import commodities that they do not have a comparative advantage over (Yang, 2013).

Moreover, trade liberalization will improve government effectiveness as the government will have the incentive to upgrade, maintain, and formulate the public services and infrastructure to encourage trade (Yang, 2013). The latter happened in 2015 when the new Suez Canal was dug to increase the trade between Egypt and foreign countries to avoid waiting for the commodities to

arrive (Kenawy, 2016). Hence, the government effectively established the welfare of the country and the neighboring countries.

VII. Education:

Moreover, education is another explanatory variable in this research. Education can affect governance in several ways. The more educated people are, the more knowledgeable about government institutions and abide by policies and rules. It has been investigated that educated people react more strongly to corruption in society (Anduiza et al., 2013). However, this aspect has two dimensions: highly educated people are more likely to engage in illegal activities and bribes as they have prestigious places in government sectors. Hence, they are more likely to take bribes from the people who would like to avoid bureaucratic routines (Agerberg, 2018).

 However, another point of view states that highly educated people are less likely to engage in corruption. The latter is because they are well perceived that engaging in illegal activities can be reported to criminal cases and can be arrested. In other words, educated people are well-perceived by the policies and regulations adopted by the government, so their level of illegal activities will decrease. Hence, this affects corruption and the rule of law as two governance indicators (Bauhr & Grimes, 2013).

 However, as mentioned by (Agerberg, 2018), when the government regulations and institutions work poorly, the positive effects of education concerning politics cannot be satisfied (Agerberg, 2018). It is also demonstrated by Hillygus 2005 that educated people are more politically knowledgeable and understandable; also, the educated citizen is more likely to participate in

politics and understand the word "democratic" and how it is essential to choose their leader (Agerberg, 2018). According to Persson, 2015, the relationship between education and political participation is the most common relationship established in research on political behavior.

VIII. Taxes:

Furthermore, taxes impact governance and can affect it positively or negatively. Taxes are an effective method to collect revenues from the economy to the benefit of the government to spend them on public services such as education and improving infrastructure. However, if these taxes are too high, this can encourage corruption due to the incentive for tax evasion to decrease the tax burden either on individuals or corporates (Nawaz, 2010). Moreover, many bribes are being paid to workers or people with prestigious high places to avoid paying massive taxes (Nawaz, 2010). However, taxes show how efficient the country is in collecting taxes to spend them on public services. However, some countries, such as the European countries, determine their tax capacity depending on a person's income or corporate revenue so that these countries can have fewer corruption activities than the others (Nawaz, 2010). Moreover, high taxes can increase democratization as the government will spend on improving policies that increase democracy in the economy. As a result, the economy's social aspect will improve, and voice and accountability will be high (Repetti).

 Moreover, the impact of taxes on government effectiveness is significant as the revenues from taxes are spent on improving public services such as education, infrastructure, and improvement of any public services that can benefit the citizens and bring welfare to the whole economy. Moreover, the revenues from taxation can be spent on improving health by boosting the quality of

hospitals in the economy, leading to better health and higher productivity (Arora & Chong, 2018). Furthermore, when the revenues of taxes are used to formulate good institutional quality, the informal sectors will decrease. Hence, tax evasion will be lower due to policies that prevent these sectors from being established and the penalties that can be done against them (Arora & Chong, 2018).

Furthermore, the impact of taxation on the rule of law is how individuals and firms abide by the rules and policies that the government adopts in collecting taxes from the citizens and to what extent they can evade taxes, especially in the informal sectors (Arora & Chong, 2018).

Moreover, some researchers argued that countries with taxation could lead to political stability as reliable and successful taxation power can lead to a better quality of people, so they do not need to make a coup against their regimes (Estrada et al., 2011). In this regard, this can maintain the political stability in the economy and avoid any violence and waste of resources that can be done due to political stability by the country's residents. Thus, taxation has a significant impact on the quality of governance as taxation can affect the indicators of governance which determine if any particular governance is weak or strong. Hence, taxation is vital in most governance indicators, so it might be enormously significant to determine if governance is strong or weak.

Overview:

Two countries were selected as a sample from MENA countries to investigate their current richness in natural resources and foreign aid. According to the American chamber of commerce in Egypt (2022), Egypt is one of the top recipients of U.S. foreign assistance, coming in third after Israel and Jordan in 2020. In F.Y. 2020, Egypt received USD 1.43 billion in foreign assistance, mainly from the U.S. Agency for International Development (USAID). Egypt has many natural resources such as River Nile, Arable land, Fish, Natural gas, and Petroleum (World Bank, 2019). Moreover, Saudi Arabia is one of the largest providers in the Gulf region in terms of volume. Saudi Arabia chaired the G20 meetings in 2020. KSRelief reacted to the COVID-19 pandemic by funding humanitarian and aid projects in fragile countries such as Somalia, the Syrian Arab Republic, and Yemen. Saudi Arabia also sent aid to many other developing countries through grants through United Nations (U.N.) agencies and national and international organizations. The Egyptian economy has had ups and downs. However, it was one of the best developed in Africa at one time, primarily due to the country's proper utilization of its natural resources. Egypt was taken as a sample of the MENA countries of the non-oil countries (World Bank, 2019). Moreover, Saudi Arabia was taken as a sample of the GCC countries in the MENA countries. Saudi Arabia is the third-largest country for natural resources after Russia and the United States as shown in Table 2 (World Bank, 2019).

AVERAGE NATURAL RESOURCES AS (%) OF GDP IN THE MENA COUNTRIES

23.2 18.1 20.2 24.2 30.8 31.4 28.2 32.3 20.4 23.7 32.1 31.1 29.4 26.5 15.6 12.8 16.3 21.6 18.2 12.7

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
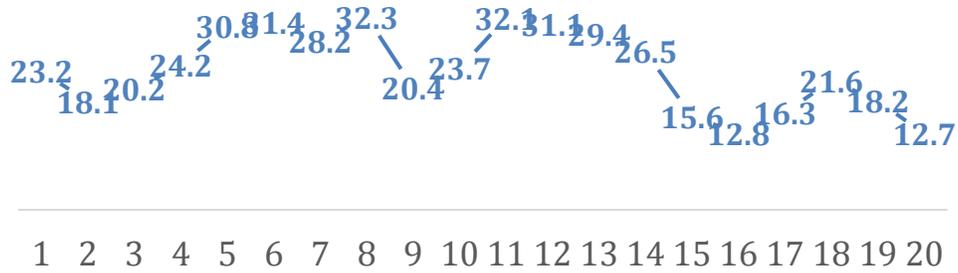
Table 1: Weighted average of natural resources as a percentage of GDP in the MENA region

Economic output is affected by the contribution of the natural resources in order to achieve development. Revenues from natural resources, mainly from fossil fuels and minerals, contribute for a sizable account share of GDP. Rents from the natural resources such as minerals and fossil fuels indicate the liquidation of their capital stock (World Bank, 2021).
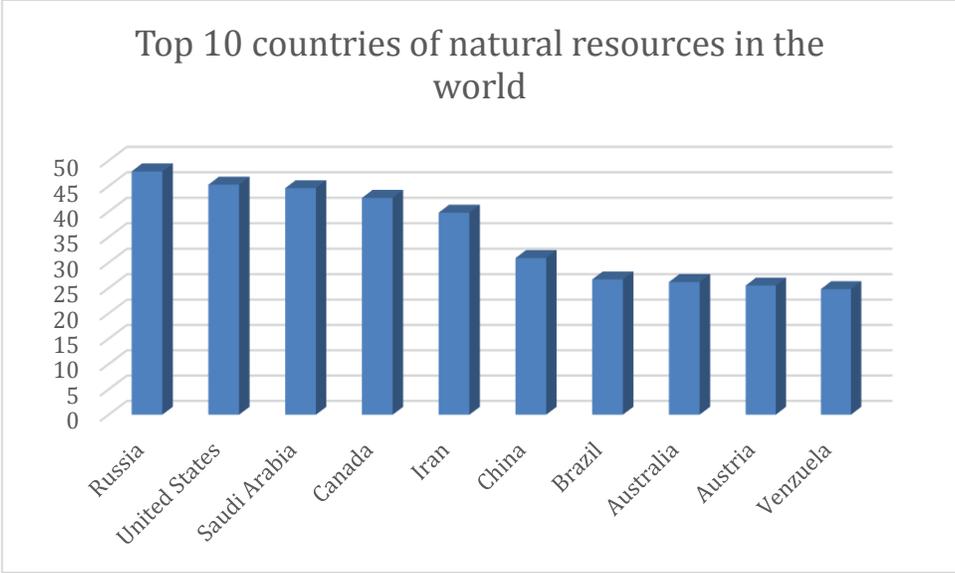
Table 2: Top 10 countries of natural resources in the world
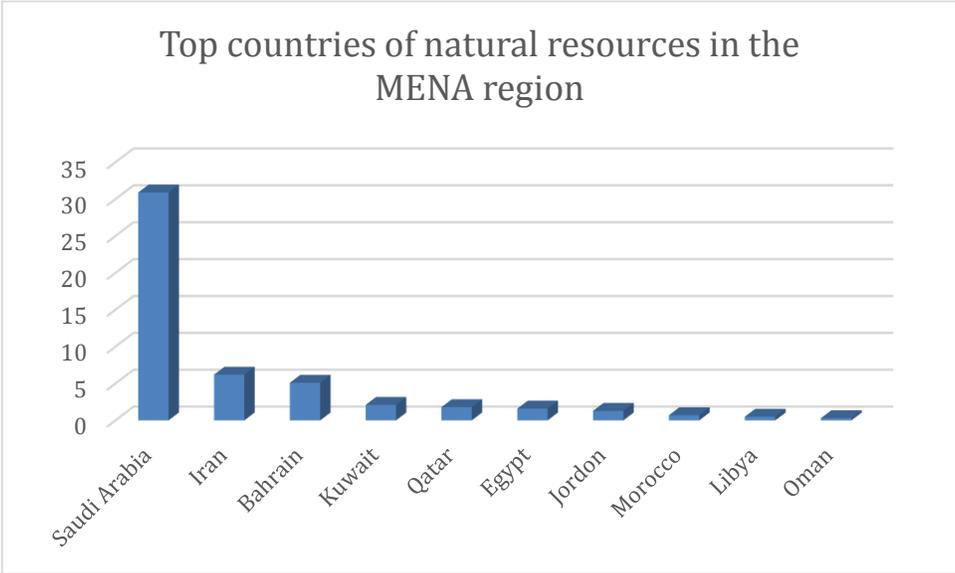
Table 3: Top 10 countries of natural resources in the MENA region

Methodology:

This research aims to analyze the impact of U.S. aid, foreign aid, and abundance of natural resources using some control variables such as education, trade, population growth and digitalization. The latter impact the quality of the six indicators of governance: Voice and Accountability, rule of law, regulatory quality, political stability and absence of violence, government effectiveness and control of corruption in selected countries in the Middle East and North Africa (MENA) region. The latter was divided into two groups: Gulf Countries (GCC), which s ists of six countries, United Arab Emirates, Saudi Arabia, Qatar, Oman, Kuwait and Bahrain. On the other side is the rest of the countries in the MENA region. Hence, investigating the differences between the impact of dependent and independent variables between developing and developed countries in the same years (2000-2020) excluding 2001. Finally, a simple average of the six indicators was taken to get the composite measure of the quality of governance. This variable will be named average governance.

Moreover, a dummy variable has been added to investigate the impact of the Arab Spring revolution for the MENA region on the dependent variables (six indicators of governance), as zero was given to the countries in the years before 2011, and one is given from 2011 to 2020 including 2011 for the MENA region only. Moreover, the countries of the MENA and European countries are scaled from -2.5 (poor quality of governance) to 2.5 (strong quality of governance). Hence, this scale reflects the score of each country in the two regions; if the country has a high score, then this reflects the strong quality of governance and low score reflects bad quality of governance.

This research used the time-series - cross-sectional data (panel data) of seventeen (17) MENA countries along with a comparison of twenty-seven (27) European countries in order to examine the validity of the investigation which is to what extent do foreign aid and natural resources abundance affect governance in the MENA countries in comparison with European countries. The foreign aid variable is excluded from the European countries as they were aid donors not aid receivers, when the model was run.

Moreover, to determine the best type of the panel data model, a Hausman test was used to investigate which one performs better with the data, whether the fixed effect or random effect. Furthermore, there are four countries dropped from the list of MENA region countries: Lebanon, Iran, Israel, and Malta. Lebanon and Iran were dropped due to their lack of data and the difficulty of obtaining regular data for these two countries. Lebanon is suffering from its central bank bankruptcy, so it is better to get dropped in order to get better overall results without outliers. Moreover, Israel and Malta were dropped as these are the foreign countries across the other Arab countries in the MENA region . Hence, they were dropped in order to obtain more accurate results.

Furthermore, data related to the six indicators of governance, which are the dependent variables in this research, obtained from World Governance Indicators (WGI). While the data for the independent variables which are U.S. aid (the net bilateral aid flows from DAC donors (development assistance committee). United States (U.S. dollars)). foreign aid (net official aid received as a share of national income), natural abundance of resources (total natural resources rent as a percentage of Gross domestic product (GDP). Trade (percentage of GDP), foreign direct investment (net inflow (percentage of GDP), education (government expenditure on secondary

education) , digitalization (Automated teller machines per 100,000 adults) and taxes which are measured by the percentage of taxes from the revenues which are collected from corporates. The data for these variables are obtained from World Development Indicators (WDI). As comparative analysis, the latter was done for the two regions, MENA and European countries.

In this research, the stationary test was done using the xtunitroot fisher test to determine if the dependent and independent variables are stationary or non-stationary. The variable, which is non-stationary and has a growth rate, the log will be taken for it to investigate if the variable is growing and fluctuating over time. The test is as follows: the variable is stationary if the H0 fails to be rejected. If the H0 is rejected then it is a non-stationary variable. The natural log was taken for the dependent and independent variables to investigate the effect of the growth rate of each indicator on the independent variables, so there are six models for each indicator of governance to find their relationship with each independent variable.

Moreover, the model will be checked for heteroskedasticity using xttest3 to check for its presence. The explanatory or control variables are trade, foreign direct investment, education, digitalization and taxes. While USAID, foreign aid and natural abundance of resources are the leading independent variables, the model will be tested and analyzed . Hence, this paper runs the panel data regression of the below-mentioned form including Arab Spring Revolutions (the dummy variable) and foreign aid, including U.S. aid, so the regression equation is as follows:

Quality of governance=B0+B1 foreign aid + B2 Ln_Natural resources+B3 trade+ B3 government expenditure on education + B4 Foreign direct investment (FDI) + B5 ATMs+ B6 Arab Spring revolutions+e.

The correlation matrix was observed in order to investigate the relationship between the independent variables as well as the summary statistics for the independent variables for the MENA countries :

Correlation matrix

	USAID1	trade	FDI	Government Expenditure on Education	ATMs	natural resources	Arab spring
USAID1	1.0000						
trade	0.0129	1.0000					
FDI	0.0204	-0.1330	1.0000				
GovExpEdu	-0.0912	-0.0032	0.1615	1.0000			
ATMs	0.0700	0.1500	0.1132	0.0469	1.0000		
natres	-0.0334	0.0666	0.0289	0.0308	0.0183	1.0000	
Arab spring	0.0816	0.0755	-0.1311	-0.1205	0.2917	-0.1423	1.0000

Summary statistics

Variable	Obs	Mean	Std. Dev	Min	Max
USAID1	231	129.7359	80.84104	1	273
trade	231	177.5801	120.3526	1	409
FDI	231	190.9957	118.5719	1	425
GovExpEdu	231	40.14719	63.58066	1	199
ATMs	231	78.23377	87.28069	1	298

natres	231	79.59307	57.69891	1	187
arabspring	232	.4784483	.5006154	0	1

For the GCC countries:

Correlation matrix

	USAID1	trade	FDI	GovExp~u	ATMs	lognat~s	arabsp~g
USAID1	1.0000						
trade	-0.0186	1.0000					
FDI	0.1590	-0.1819	1.0000				
GovExpEdu	0.1083	0.2909	-0.2618	1.0000			
ATMs	-0.1377	0.2020	-0.0315	-0.0208	1.0000		
lognatres	0.0616	0.1290	0.0320	0.0600	-0.0694	1.0000	
Arab spring	-0.2393	-0.1299	-0.1676	-0.1112	0.4738	-0.3021	1.0000

Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
USAID1	126	47.69048	46.76177	1	263
trade	126	213.881	151.7642	1	408
FDI	126	201.246	134.5215	4	416
GovExpEdu	126	39.79365	55.47011	1	189
ATMs	126	129.9762	108.4674	1	289

lognatres	126	5.198429	1.066073	.6931472	5.897154
Arab spring	126	.4761905	.5014265	0	1

Results and Discussion:

The model was run using cross-sectional time series (Panel data) across selected countries in the MENA region. However, the countries in the MENA region divided into two groups. The model was once run using the group of Gulf Cooperation Council (GCC) countries. The other time, the model was run with the rest of the other countries in the MENA region but without Israel, Iran, Lebanon, and Malta. These countries were dropped as Israel and Malta are foreign countries within the other Arab countries; Lebanon and Iraq were dropped due to their lack of data and sources, which might affect the results when the model is run. The fixed-effect model performed better to run the model after using a Hausman test when running the group of GCC countries. Generally, a fixed effect estimator captures the unobserved country-specific effects and produces consistent estimates (Chuang & Wang, 2009). Moreover, the panel data analysis with a country fixed effect approach is used to distinguish more systematically between foreign & U.S. aid and natural resources on the governance indicators over time and across the countries selected in the MENA region.

Hence, the correction for heteroskedasticity was done to overcome its problem. Moreover, the stationarity test showed that only natural resources variables have a growth rate across time, so it is non-stationary and the natural log will be added to it. However, foreign & USAID are not in the regression equation when the model is run across the GCC countries. This is because these countries do not receive aid from any countries as they can generate their revenues from natural resources to obtain their necessities. Hence, the general regression equation can be written as follows:

Quality of governance=B0+B1 foreign aid/USAID+ B2 Ln Natural resources+B3 trade+ B3 government expenditure on education + B4 FDI + B5 ATMs+ B6 Arab Spring Revolutions +e

This equation can be explained as B0 is the country-specific fixed effects quality of governance (it), representing how good the quality of governance is. These variables can be measured by how the six indicators are satisfied and can improve the quality of governance within each country. U.S. aid represents the lateral aid flows from DAC donors (development assistance committee), United States (U.S. dollars), and foreign aid, representing the net official aid received as a share of national income for the country i in period t. Natural resource abundance represents the total natural resources rent as a percentage of Gross domestic product (GDP) for country i in period t, a trade which indicates the total trade in the percentage of GDP for country i in period t. Moreover, the foreign direct investment represents the net inflow of foreign investment as a percentage of GDP for country i in period t. Education represents government expenditure on secondary education for country i in period t. GDP growth represents the annual GDP growth for country i in period t and digitalization which represents the Automated teller machines (ATMs) per 100,000 adults for country i in period t. When the model is run by the GCC countries only, USAID/aid variables were omitted as GCC countries are aid donors not aid receivers. As Rouis (2014) stated, the World Bank (2010) indicated that Kuwait, Saudi Arabia, and the UAE have provided generous aid financing over the years for financing other countries.

Moreover, Sensitivity analysis was taken in order to investigate more how the independent variables are affecting the dependent variables, and the results were as below:

Control of corruption:

Independent variables	(1)	(2)	(3)
USAID	-0.0014365***	-0.00154*	-0.009421
FDI	0.002284		0.003648
Education	-0.001803**		-0.0016134**
Natural resources	-0.0692434	-0.0752074***	-0.040736*
Dummy variable (Arab spring revolutions)	-0.21459*	-0.3274***	
Trade		-0.004033	0.00539
ATMs		0.001002	0.002105

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant at 10%

Government effectiveness:

Independent variables	(1)	(2)	(3)
USAID	-0.005948***	-0.005926**	-0.0081**
FDI	0.002253		0.004371
Education	-0.0016422***		-0.0022134***
Natural resources	-0.025612	-0.011995	-0.05526*
Dummy variable (Arab spring revolutions)	0.0766787	0.027674	
Trade		-0.001813	-0.007363
ATMs		0.005929*	0.006036

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Political stability and absence of violence:

Independent variables	(1)	(2)	(3)
USAID	-0.005397	-0.006215	-0.00254
FDI	-0.001464		0.003515***
Education	-0.001006		3.74006
Natural resources	0.0075294	0.0079496	-0.0338843
Dummy variable (Arab spring revolutions)	-0.3678859***	-0.4008621	
Trade		-0.003485	0.006062
ATMs		0.002488	0.004452

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%.

Regulatory Quality:

Independent variables	(1)	(2)	(3)
USAID	0.001351	-0.00317**	-0.00296
FDI	-0.0079		0.003518
Education	-0.005534***		-0.0012637
Natural resources	-0.453212***	-0.0527322**	-0.0518865**
Dummy variable (Arab spring revolutions)	-0.320489	-0.0219329	
Trade		-0.00874***	-0.006587***
ATMs		-0.00481	-0.005869

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Rule of law:

Independent variables	(1)	(2)	(3)
USAID	-0.004468	-0.006232	-0.004089
FDI	-0.00473		-0.0024
Education	-0.001312***		-0.0012899***
Natural resources	-0.0510848***	-0.0509***	-0.0474***
Dummy variable (Arab spring revolutions)	-0.036249	-0.0252	
Trade		-0.001356	0.00208
ATMs		-0.00193	-0.001183

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Voice and Accountability:

Independent variables	(1)	(2)	(3)
USAID	0.00985	-0.48001	-0.006503
FDI	-0.00234		-0.004014
Education	0.00397		-0.00505
Natural resources	0.014345	0.0190458	0.0511327
Dummy variable (Arab spring revolutions)	-0.2767603***	-0.24869***	
Trade		-0.001669	0.983
ATMs		-0.00233	-0.006227

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

MENA countries apart from GCC:

Control of corruption:

Independent variables	(1)	(2)	(3)
USAID	-0.002	-0.00195	-0.003207
FDI	0.0039*		0.005509**
Education	-0.00494		0.0098
Natural resources	0.0095*	0.0010611*	0.111*
Dummy variable (Arab spring revolutions)	-0.115**	-0.1426**	
Trade		0.00167	0.0186
ATMs		0.002826	-0.00411

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Government effectiveness:

Independent variables	(1)	(2)	(3)
USAID	-0.003836*	-0.003804*	-0.05724*
FDI	0.009293***		0.01049***
Education	0.008764**		0.00103
Natural resources	0.0013518***	0.017537***	0.01662***
Dummy variable (Arab spring revolutions)	-0.1375	-0.2250**	
Trade		0.02048	0.02323*
ATMs		0.009443***	0.0039

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Political stability and absence of violence:

Independent variables	(1)	(2)	(3)
USAID	-0.0011437*	-0.001083*	-0.0016413*
FDI	0.0015827***		0.0024471***
Education	0.0011414		0.0020284*
Natural resources	0.0016635	0.002466	0.0024622
Dummy variable (Arab spring revolutions)	-0.62121**	-0.7404***	
Trade		0.001291	0.001252
ATMs		0.0012307**	-0.003697

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Regulatory quality:

Independent variables	(1)	(2)	(3)
USAID	0.00531	0.00993	-0.00649
FDI	0.0011031***		0.000011503***
Education	0.009363		0.0010165*
Natural resources	0.0013644**	0.0018874***	0.0016355***
Dummy variable (Arab spring revolutions)	-0.936453	-0.1722599	
Trade		-0.00145	0.00299
ATMs		0.007519	0.002719

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Rule of law:

Independent variables	(1)	(2)	(3)
USAID	-0.001603	-0.002	-0.003918
FDI	0.004003		0.005902***
Education	0.00189		0.004139
Natural resources	0.005496	0.007175	0.009818
Dummy variable (Arab spring revolutions)	-0.2004875***	-0.260589***	
Trade		0.001361	0.001242
ATMs		0.00896***	0.003566**

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant

at 10%

Voice and Accountability:

Independent variables	(1)	(2)	(3)
USAID	0.004225	0.0033445	0.004468
FDI	-0.007558		-0.008011*
Education	0.004246		0.003595
Natural resources	0.00264	-0.001678	-0.00503
Dummy variable (Arab spring revolutions)	0.0390882	0.060092	
Trade		0.002671	0.0092
ATMs		0.001754	0.00289

Note: *** Coefficient significant at 1%, ** Coefficient significant at 5%, * Coefficient significant at 10%

I.   The investigation of the GCC countries:

When the model was run after correcting for heteroskedasticity, the results indicated that only government expenditure on education and natural resources has a significant effect on government effectiveness in the GCC countries but a significant negative effect. However, the other variables have no relationship with government effectiveness. The latter can be explained by the fact that when the government spends on education, there will be no more money that can be spent on the public and civil services for the whole welfare of the country. Hence, government effectiveness will decrease.

Moreover, the abundance of natural resources has a negative impact on government effectiveness in GCC countries. There will be hidden illegal activities that can affect the effectiveness of the government, which stops its expenditure and efficiency, as stated in the literature review. However, the trade has no impact on government effectiveness, but this does not support the previous study (Yand, 2013), which analyzed that trade will incent the government to upgrade, maintain, and formulate the public services and infrastructure to encourage more trade percentage in the country. Furthermore, foreign direct investment (FDI) has no relationship with government effectiveness in the GCC countries. However, GCC countries have FDI inflows which decreased during the pandemic of Covid-19 but GCC countries still have FDI as they attract almost US$19.9bn FDI inflows. One reason why FDI does not impact the government's effectiveness is that the investments are spent on the business that generates a rate of return on the money of these investments.

Hence, the FDI will not be spent on improving the public services and the country's infrastructure. Moreover, trade has an insignificant impact on government effectiveness. In other words, trading between GCC countries and foreign ones does not influence what can be done to improve GCC countries' public or civil services.

Furthermore, the impact of the variables on the control of corruption has several dimensions. First, the results indicated that government expenditure on education negatively correlates with the control of corruption in the GCC countries. The latter is contradictory to what (Anduiza et al., 2013) investigated; as their study demonstrates, when people are knowledgeable and educated, they are more aware of the policies and regulations of the government and corruption will be

decreased. However, the results of this research model came up in the opposite direction. In other words, the quality of education increases, and the control of corruption will decrease as people will have deceptive ideas to conduct illegal activities without being penalized by the government.

Moreover, the results indicate a negative relationship between the growth of natural resources and the control of corruption. The latter supports what the previous researchers have explained; when the natural resources abundance increases, corruption increases in the GCC countries due to illegal activities such as bribes due to the enormous revenues generated from natural resources. Moreover, digitalization, which is measured by the number of ATMs machines, has no significant impact on the control of corruption. This result contradicts what (Freeman, 2013) investigated as transparency of transactions will occur without corruption or priorities between people, especially in the public sectors. Therefore, this result can be interpreted as ATMs or digitalization do not impact the control of corruption in the GCC countries. This is because they do not use digitalization to monitor transactions efficiently or their technology is not updated yet. Moreover, GCC countries restricted some websites from usage within their countries.

Furthermore, the impact of the independent variables on the political stability and absence of violence vary from one variable to another in the GCC countries. Trade has an insignificant impact on political stability and the absence of violence. This result contradicts (Yang, 2013) investigations as he analyzed that the revenues from the trade can help the government formulate better rules that will promote and maintain political stability in the country by setting rules and penalties for violence and applying them. According to this research, there is no relationship between trade and political stability and the absence of violence. Hence, the GCC countries do not

depend on the revenues from trade to justify their rules and policies. They have other revenues that they can depend on to update their rules to guarantee more stability in their country.

Moreover, there is no relationship between foreign direct investment (FDI), political stability, and the absence of violence in GCC countries. According to (Arslan & Okten, 2010), FDI encourages political stability and no violence to attract foreign investors to invest without any risk. However, the results in this research contradict this as GCC countries do not need to attract so much FDI as they have the resources that can generate revenues for them without the adequate need for FDI from foreign inventors.

In addition, government expenditure on education has an insignificant impact on political stability and the absence of violence. This result contradicts what was investigated by previous researchers as Hillygus (2005) analyzed that educated people are more politically knowledgeable and understandable. Moreover, educated citizens are more likely to participate in politics and understand the word "democratic" and how it is essential to choose their leader (Agerberg, 2018). Hence, educated people will understand how political instability and violence can cause a coup in the country and harm the economic and social aspects of the country.

However, the results of this research indicated that education does not have an impact on political stability in GCC countries. This is because people in the GCC countries are aware enough of the consequences of political stability due to the establishment of awareness in these countries, which makes education does not have a significant impact on political stability.

Moreover, natural resources are rich in GCC countries, and they generate most of their revenues. Therefore, natural resource abundance is negatively significant to political stability and the absence of violence. In this case, the government will tax their citizens less as they have natural resources and can generate revenues directly from them. Hence, they will have less incentive to contribute to the political aspects of the country, and they can make a coup at any time against their ruler.

Moreover, the Arab Spring revolutions are the dummy variable in this research. It has a significant negative relationship with political stability and the absence of violence. These revolutions incite many other Arab countries to demand their rights and make a coup against their president or king. Hence, the Arab spring revolutions caused many countries' political instability. Hence, the residents wanted to reach a significant result against their president or king, supporting the literature review and previous and recent research. Moreover, the ATMs variable, a measurement for digitalization, has an insignificant impact on political stability and the absence of violence.

The latter contradicts what (Alshammari & Willoughby, 2017) investigated, as digitalization offers better communication between residents through social media and the internet. Hence, the revolutions in 2011 initiated through these platforms caused the coup in the Arab countries. However, in this research, ATMs have no relationship with political stability and absence of violence; this can be explained by GCC countries restricting some applications and platforms from usage within the country. Hence, digitalization cannot affect the political stability of GCC countries.

Moreover, the rule of law is affected by the same variables. Trade has no relationship with the rule of law. However, previous studies analyzed that trade can impact the rule of law. It helps establish the proper institutions, so the rule of law can be enhanced by formulating some restricted policies to prevent people from violence and illegal activities (Majeed, 2014). However, there is no impact of trade in this research on the rule of law. Therefore, trade in the GCC countries is not the significant variable that can determine the formulation of laws in the GCC countries and cannot incent the individuals and firms to abide by the rules and policies in the country.

Moreover, FDI also has no relationship with the rule of law in the GCC countries, as mentioned before, as GCC countries do not depend entirely on FDI. It has abundant natural resources that can generate revenues without depending on FDI. Hence, FDI impact on the rule of law is significant in GCC countries.

Moreover, the government expenditure on education, a measurement of education, has a significant negative relationship with the rule of law. The latter strongly contradicts the previous researcher. They argued that educated people know the rules and policies that their government adopts, so they know the penalties and the borders they must follow and do not break them and engage in illegal activities. This study contradicts the previous research as education is negatively related to the rule of law. Hence, educated people are aware of the penalties. However, they can illegally evade them without being caught by the government to avoid income taxes or any other sort of income.

Moreover, natural resource abundance is negatively significant with the rule of law. The latter supports the previous researchers (Ros, 2001) & Treisman (2000) analyzed that natural resources lead to illegal activities and the laws will be broken by individuals and corporates to obtain private gains as natural resources revenues are too high.

Hence, they seek illegal activities such as corruption or bribes for private gain, not the welfare of the whole economy, so the abundance of natural resources negatively correlates with the rule of law.

Moreover, the Arab spring revolution has no relationship with the rule of law in the GCC countries. This relationship contradicts previous researchers as the Arab spring revolutions incent the Arab countries to speak out about their rules and abide by them to maintain their rights and talk about them. In this case, the GCC countries' rule of law is not affected by the Arab Spring revolutions; this can be explained as GCC countries are not affected by the Arab Spring revolutions. Their rule of law is not affected as their rules are modified to be modified fair without bias. Furthermore, ATMs, a measurement of digitalization, are insignificant to the rule of law as GCC countries are not developed. Digitalization and some platforms are restricted within their borders. Hence, digitalization has no impact on the rule of law in the GCC countries.

Moreover, voice and accountability or, in other words, democracy, are affected by the variables that are mentioned above. The primary variable in this research paper is natural resources abundance and aid, but GCC countries are not aid receivers, so they are omitted in this case. Moreover, trade has an insignificant impact on voice and accountability (democracy) in the GCC countries. According to (Yand, 2013), the more democratic countries, the less likely to attract trade

due to the level of corruption. Hence, countries such as the developing ones have less incentive to establish democracy to import commodities that they do not have a comparative advantage. However, the results in this research contradict what (Yand, 2013) mentioned, as trade has an insignificant impact on democracy. The latter can happen because GCC countries do not depend on democracy to determine their voice and accountability as they are productive and do not depend on imported goods as the developing countries. Also, their rules and policies are formulated according to their ruler, and the decisions are practiced with no democratization. Hence, voice and accountability are not affected by trade in Saudi Arabia.

Moreover, FDI has no impact on voice and accountability in the GCC countries. As stated by previous researchers before, FDI can decrease democracy in countries as democratic countries have the opportunity to get more corrupt than autocratic ones, so there is less country risk for foreign investors. Hence, the FDI will decrease in the countries, so the country president will change it to an autocratic one to attract foreign investors, improve the country, and serve the residents (Arslan & Okten, 2010). However, in this research in which, the result contradicts previous research. FDI does not influence voice and accountability in the GCC countries as they do not depend entirely on the revenues generated from foreign direct investment. As mentioned before in this research, they have many revenues generated from their natural resources, such as oil and gas.

Furthermore, government expenditure on education and natural resources abundance does not significantly impact the voice and accountability of democracy. As mentioned in the literature review, educated people understand the policies and rules. Hence, they are aware of penalties and

safely speak out about their rights. Also, the revenues of natural resources can help the country upgrade, formulate and adopt policies that improve the country's regulations and provide the necessary and adequate rights to residents. However, the results in this paper contradict the latter as education and natural resources do not affect voice and accountability in GCC countries such as Saudi Arabia which has restricted rules and regulations that the government and the king settle.

Moreover, the Arab Spring revolutions had a significant negative impact on voice and accountability. Some countries are afraid of what happened in the Arab Spring Revolution. Therefore, they adopted some policies to maintain the status quo within their countries and avoid any coup against their ruler. Lastly, ATMs variable, a measurement of digitalization, has no relationship with voice and accountability. GCC countries do not have unlimited access to all platforms and online sources for communication or information. Hence, digitalization does not have an impact on voice and accountability.

Furthermore, the investigation of the independent variables on regulatory quality varies from one to another. For example, in this research, trade and government expenditure on education and natural resources negatively impact regulatory quality.

However, FDI, Arab spring revolutions, and ATMs have an insignificant impact on regulatory quality. Government sets the rules for businesses and firms that influence the number of firms in a market and their productivity and competitiveness. In this research, trade negatively affects regulatory quality as when the trade in a country increases, the efficiency of regulatory quality will decrease as each private firm wants to take advantage of this trading pattern. Hence, they can give bribes to the beneficiary of the other country for their private gains other than the welfare of the

whole economy. Hence, the government's rules to maintain good regulatory quality will be broken. Moreover, education negatively affects the regulatory quality in the economy; this can be illustrated by the fact that educated people who build their own businesses can evade policies and regulations in order to earn more profits for their businesses and avoid competitiveness from other competitors in the GCC countries for their private gains.

In addition, natural resources abundance which also impacts regulatory quality negatively in the GCC countries and this can be due to that the revenues which are generated from natural resources incent the businessmen to corrupt by stealing or giving bribes for their private gain in order to avoid competitiveness. However, FDI, Arab spring revolutions and ATMs have no relationship with regulatory quality in the GCC countries; this can be illustrated as setting the rules for the private sectors or whether the private sector abides by these rules, not depending on these three variables.

II.   The investigation on the other countries in the MENA region:

For the rest of the MENA region countries, the control of corruption, has been affected by natural resources and Arab Spring revolutions. However, the other variables, trade, FDI, USAID, government expenditure on education and ATMs, have no impact on the control of corruption. The Arab Spring revolution had a negative impact on control of corruption.This indicates that the Arab spring revolutions increased corruption in the countries of the MENA region excluding GCC countries. The policies were not fully applied after the revolutions in some countries and the penalties of many rules breakdown such as bribes and evading rules and regulations are not fully

applied or people are not fully penalized. This contradicts the previous literature review as (Massoud, et. al, 2019) stated that countries with higher inflation, higher levels of corruption, less freedom, and a greater increase in the use of the internet and cell phones. They will shout out for their rights which will decrease corruption not to increase it.

 Moreover, natural resources positively impact the control of corruption, but this contradicts the literature review as the countries that have natural resources are cursed by them, as it increases corruption and bribes, but decreases government effectiveness as stated by Leite & Weidmann (1999). In this case, it can be explained that the revenues of the natural resources generated from natural resources in developing countries can help improve the policies and regulations that decrease corruption and bribes. Moreover, the other variables that have no impact on the control of corruption are FDI, trade , government expenditure on education, USAID and ATMs. The latter also contradicts the literature review as these variables can have an impact on the control of corruption as mentioned earlier, but in this case these variables cannot affect corruption since these developing countries in the MENA region do not have high levels of FDI or trade that can generate revenues and lead to corruption. However, some developing countries spend on education as education is their human capital asset other than the developed countries as stated in the literature review by Hayneman (2004).

However, education in this case does not impact the control of corruption.

The latter can be explained as that education does not educate people or consider corruption as a topic of concern to be taught and spread its consequences to students. Hence, government expenditure on education does not impact the control of corruption.

Moreover, foreign aid does not have an impact on control of corruption. This can be explained as the United States (U.S.) are sending aid to developing countries to help them grow and develop as mentioned in the literature review. However, the money from aid is not spent on fighting or decreasing corruption; they are instead spent on satisfying the necessities of the country's residents, as mentioned earlier in the literature review. Moreover, the Arab Spring revolutions negatively impacted the control of corruption, which contradicts what is mentioned in the literature review. However, this can be explained as after the revolutions immediately, the policies and regulations were not strictly applied, which increased corruption.

Moreover, ATMs variable, which is a measurement of digitalization, does not impact the control of corruption. However, as stated before, digitalization impacts monitoring and reporting corruption by controlling bribes and decreasing them. People know that they are tracked by cameras or documents that can report them as mentioned in the literature review. In addition, digitalization increases transparency and accountability by decreasing human interaction to reduce illegal activities.

However, in this case which contradicts the literature review, digitalization does not impact the control of corruption. Digitalization sometimes does not significantly monitor corruption as some illegal activities can be done outside the offices or by bribes. For example, it can incent people to delete recordings or abolish documents that can take them to prison; hence, digitalization does not impact corruption.

Control of corruption	Coefficient	P-value	95% confidence interval	
USAID	-0.000235	0.391	-0.000772	0.000302
trade	0.000207	0.223	-0.0001256	0.0005396
FDI	0.000382	0.131	-0.0001138	0.0008779
Government expenditure on education	-0.00095	0.545	-0.0008988	0.0007088
ATMs	0.0002123	0.370	-0.0002514	0.0006761
Ln_Natural resources	-0.1311434***	0.001	-0.0002309	0.0020707
Arab Spring revolutions	-0.7718385	0.000	-2.479427	-0.143442

In addition to all of the above, this research investigated the effects of the dependent variables on government effectiveness. It has been noticed that FDI, ATMs, natural resources, and Arab spring revolutions significantly impact government effectiveness. While trade, USAID and government expenditure on education have an insignificant impact on government effectiveness. Trade does not influence government effectiveness; this can be since the revenues generated from trade are

not spent on improving the infrastructure and public services of the country. Also, the revenues from trade cannot be high enough to improve public services such as education and infrastructure. However, the revenues generated from trade can be corrupted due to the low level of monitoring from the government, for example as stated and supported earlier in the literature review. Hence, the bribes increase for private gains. So, trade does not impact government effectiveness, which contradicts what was mentioned earlier in the literature review.

Moreover, FDI has a significant effect on government effectiveness; this can be since the government will have the incentive to improve and develop infrastructure and public services to attract foreign investors to invest in the domestic country as stated earlier in the literature review. Hence, FDI impacts the government to improve its quality of services. Furthermore, government expenditure on education does not affect government effectiveness. Education is a factor of government expenditure to improve its public services. However, this highly contradicts the literature review. Thus, educated people can benefit the world from the knowledge and mentality that is granted from education. Their perspective of different aspects will be high enough to make good decisions to benefit society.

Moreover, ATMs are variable as a measurement of digitalization and have a significant impact on government effectiveness. For example, ATMs, mobile banking and government platforms are used to issue papers for people to be accessed without consuming so much time. Also, licenses or documents can be issued from the government without human interaction, as supported by many researchers before. In other words, public platforms by the government are public services issued

by them to fasten the processes of the citizens' needs. Hence, the quality of public or government services will be improved and the illegal activities will be eliminated.

However, Arab Spring revolutions had a negative impact on government effectiveness due to the chaos that happened during the revolutions, which damaged many shops, groceries, and infrastructures and put a cost burden on the government so much to be fixed and repaired. Furthermore, natural resources have a significant positive impact on government effectiveness which is due to the revenues from natural resources that can be spent on the improvement of public services from the government to the residents. The last variable in this research is the USAID which does not have a relationship with government effectiveness, and this contradicts what USAID sources and websites mentioned, as they aim to improve the quality of the public services for the aid receivers countries to the welfare of the whole society. Hence, the money can be stolen and spent for private gains instead.

Government effectiveness	Coefficient	P-value	95% confidence interval	
USAID	-0.0004508	0.062	-0.0008802	0.000131
trade	0.0002607	0.146	-0.000111	0.00058
FDI	0.000813	0.001	0.0002934	0.0011325
Government expenditure on education	0.0007318	0.049	1.950006	0.0013147
ATMs	0.0007462	0.001	0.0003283	0.0013017
Ln_Natural resources	0.001381	0.001	0.0006544	0.0023181
Arab Spring revolutions	-0.1846776	0.106	-0.260924	-0.1148538

Furthermore, the variables as mentioned earlier tested the political stability and absence of violence variable. It has been observed that Arab Spring revolutions, foreign direct investment (FDI), and USAID significantly impact political stability and the absence of violence. However, trade, government expenditure on education, ATMs and natural resources abundance have no significant impact on the political stability and absence of violence. These results can be interpreted as FDI which has a positive impact on political stability and the absence of violence which is due to countries that have the incentive to attract FDI. They have to maintain the political stability of their country to decrease the risk of foreign investors investing in their countries without taking the risk of low return on their investments. Hence, FDI incent countries to maintain the stability of their country. This study supports what was mentioned earlier in the literature review by Kim (2010).

Moreover, USAID has a positive impact on the political stability and absence of violence in the MENA region apart from the GCC countries. This is because USAID helps the countries to fulfill and satisfy the needs and rights of their citizens. The latter can be done by adopting and formulating rules that grant the citizens their basic needs and the right to vote to choose their ruler. However, the Arab Spring revolutions had a significant negative impact on the country's political stability; this is so logical as Arab spring revolutions incent many countries to go against their ruler and make a coup to call for the rights that they were deprived of. Hence, the Arab Spring revolutions increased the violence and instability in the countries. However, trade does not have an impact on the country's political stability, and this can be since the trading system of the country does not

influence the political stability of the country as its revenues or deficit do not have an impact on the political aspect of the country.

Moreover, government expenditure on education has an insignificant impact on political stability and the absence of violence. Therefore, the level of expenditure on education does not influence political stability. Some people can be passive ones whether they are educated or not as they believe that no one will fulfill their needs. Hence, they do not even try to make revolutions or speak aloud. Furthermore, ATMs and natural resources have an insignificant impact on political stability as natural resources cannot determine the level of political stability of a country. They can influence the policies and the government itself but not the residents' rights.

Political stability and absence of violence	Coefficient	P-value	95% confidence interval	
USAID	-0.0012229	0.048	-0.0024342	-0.000117
trade	0.000219	0.710	-0.0009362	0.0013742
FDI	0.0015005	0.013	0.0003141	0.0026868
Government expenditure on education	0.0010222	0.449	-0.16249	0.0036694
ATMs	0.0009259	0.069	-0.000722	0.001924
Ln_Natural resources	0.0016359	0.306	-0.14951	0.004767
Arab Spring revolutions	-0.6760871	0.002	-1.103111	-0.2490629

Another dependent variable is the regulatory quality, tested by the same variables mentioned above: USAID, FDI, trade, government expenditure on education, ATMs, natural resources, and Arab Spring revolutions. The FDI and natural resources variables have a significant impact on regulatory quality. In contrast, the rest of the variables have no relationship with the regulatory quality. Therefore, it can be analyzed that FDI positively impacts regulatory quality. This is because the government has the incentive to formulate strict rules and regulations for the private sector to attract foreign investors. Moreover, natural resources have a positive impact on the regulatory quality as the revenues generated from the natural resources can be spent on improving policies and regulations that improve the private sector's regulations to have fair competition between each other.

However, the other variables have an insignificant impact on regulatory quality. USAID, trade, government expenditure on education, ATMs and Arab spring revolutions do not influence the regulatory quality in the MENA region. Unfortunately, rules and regulations formulated by the government to regulate the performance of the private sector are not adopted from the revenues of USAID, trade or the investment of government in education. However, this interpretation contradicts what has been mentioned by the previous studies. Also, ATMs, which are a measurement of digitalization and a tool used to reduce human interaction, do not have a relationship with regulatory quality. This point of view contradicts the literature review. The Arab Spring revolutions are supposed to incent the government to adopt fair and excellent policies and regulations upon the request of the needs and wants of the citizens as stated by previous researchers. However, in this research, the revolutions do not contribute to improving the private sector's regulations.

Regulatory quality	Coefficient	P-value	95% confidence interval	
USAID	0.000156	0.947	-0.9994493	0.0004805
trade	0.000506	0.870	-0.0005544	0.0006556
FDI	0.009954	0.024	0.0001339	0.0018568
Government expenditure on education	0.0008372	0.414	-0.0011723	0.0028466
ATMs	0.0005103	0.388	0.0006491	0.0016696
Ln_Natural resources	0.0014435	0.011	0.0003336	0.0025534
Arab Spring revolutions	-0.123599	0.409	-0.4169221	-0.1697242

Moreover, the rule of law is also tested by the same variables listed before. The significant variables on it are ATMs and Arab Spring revolutions. In contrast, the insignificant variables on the rule of law are USAID, trade, FDI, government expenditure on education and natural resources. ATMs decreased human interaction and increased the use of technology which reduced the illegal activities and abided by the rules set by the government that can occur due to human interaction with each other as stated in the literature review. Moreover, Arab Spring revolutions incent people to follow policies and regulations set by the government. After these revolutions, governments are forced to abide by the rules, penalize those who break them, and force them to follow them. The latter strongly supports what has been mentioned in the literature review.

However, the insignificant impact on the rule of law can be illustrated as that the revenues generated by USAID, trade, FDI, and natural resources are not spent on improving the policies

and regulations set by the government. Hence, people do not have an incentive to abide by the rules and regulations. Hence, the rule of law is not affected by these variables. Furthermore, the government's investment in human capital does not impact the rule of law, which contradicts the literature review as educated people know and are more aware of the government's rules and regulations.

Rule of law	Coefficient	P-value	95% confidence interval	
USAID	-0.0002265	0.579	-0.0010275	0.0005745
trade	0.0001624	0.554	-0.0003752	0.0007
FDI	0.0002626	0.253	-0.0001881	0.0007132
Government expenditure on education	0.000416	0.920	-0.0007736	0.0008567
ATMs	0.0008423	0.015	0.0001665	0.001518
Ln_Natural resources	0.0006053	0.387	-0.00767	0.001775
Arab Spring revolutions	-0.2510331	0.005	-0.4280233	-0.0740429

Furthermore, all these variables have an insignificant impact on the voice and accountability in the MENA region apart from GCC countries. This result contradicts the literature review as these variables impact the democracy of the countries. However, in this research, trade, FDI, USAID, government expenditure on education, natural resources and Arab spring revolutions do not relate to voice and accountability. The developing countries in the MENA region, democracy is not granted upon the results of these variables as governments are setting strict policies and regulations that are not allowed to be broken to avoid any strict penalties.

Voice & Accountability	Coefficient	P-value	95% confidence interval	
USAID	0.0004212	0.398	-0.005565	0.0013988
trade	0.000853	0.776	-0.005029	0.0006736
FDI	-0.0007527	0.081	-0.0015981	0.00928
Government expenditure on education	0.000416	0.511	-0.008245	0.0016565
ATMs	-0.000474	0.843	-0.005174	0.0004226
Ln_Natural resources	0.000126	0.991	-0.0022215	0.0022467
Arab Spring revolutions	0.029705	0.759	-0.2143464	0.2937565

Conclusion, limitations, and future research:

The study investigated that natural resources have an insignificant impact on voice and accountability in the GCC countries. However, they have a significant negative impact on the rest of the governance indicators. It has no relationship with governance indicators regarding foreign aid, as GCC countries are aid donors, not aid receivers. For the rest of the MENA countries, natural resources have a significant positive impact on controlling corruption, government effectiveness, political stability and absence of violence, and Regulatory quality. However, they have an insignificant effect on the rule of law and Voice & Accountability. The study results add to our understanding of the role of foreign aid and natural resources on governance and add weight to the

body of literature arguing for the beneficial effect of aid on governance. The latter was investigated in a sample of 17 countries in the MENA region from 2000 to 2020.

The limitations of this research are that the results are limited to the selected sample of the MENA countries. However, each country has its resources and policies to differentiate each country from the other. Moreover, the research suffers from a shortage of data sources, especially in developing countries such as Egypt. Hence, the results can be insignificant or biased for certain countries.

Future researchers have to consider more explanatory variables such as poverty and population growth, which may affect the quality of governance. Moreover, more investigations could be done to analyze the quality of governance's impact on economic growth. However, countries in the MENA region differ in their degree of growth, poverty, and macroeconomic measures.

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