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Institutional Quality, Fight Against Corruption, Energy Consumption and Economic Growth in the MENA Region

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Abstract – The objective of this paper is show the effect of the Fight Against Corruption through the Institutional quality on energy consumption and economic growth. Using models of simultaneous equations and for a definite period (1984-2018), our empirical contribution will try to clarify the complementarity between the Institutional quality and the Fight Against Corruption and to show the direct and indirect effects of the action of the public power on energy consumption and economic growth in the MENA region.

Keywords – Institutional quality, Fight Against Corruption, Energy Consumption, Economic Growth, Simultaneous Equation Model.

I. INTRODUCTION

World energy consumption refers to the total energy used by all of human civilization. Typically measured per year, it involves all energy harnessed from every energy source applied towards humanity's endeavors across every single industrial and technological sector, across every country. Being the power source metric of civilization, World Energy Consumption has deep implications for humanity's social-economic-political sphere. Institutions such as the International Energy Agency (IEA), the U.S. Energy Information Administration (EIA), and the European Environment Agency record and publish energy data periodically. Improved data and understanding of World Energy Consumption may reveal systemic trends and patterns, which could help frame current energy issues and encourage movement towards collectively useful solutions.

In 2011, expenditures on energy totaled over 6 trillion USD, or about 10% of the world gross domestic product (GDP). For example, Marques et al. (2010) identify some political, socioeconomic and country- specific factors as important determinants of renewables consumption. Given the above discussions, a deeper understanding of the determinants of renewable energy consumption is of great importance, at least for the following reasons. The effect of lobby group size on the ability of special interests to influence policy is an unresolved issue in the literature.

Potters and Sloof (1996) point out that "*Most scholars indeed find an increased scope for political influence with higher degrees of concentration, but there are many that find no effect or even a negative effect.*"… and "*there seems to be relatively little direct empirical support for the Olson (1965) influential theoretical study on collective action*." A distinct literature discusses the effect of corruption (*Fight Against Corruption*) on policy outcomes, pollution, investment, and economic growth. Our contribution centers on the interaction between lobby group size and corruption in the determination of policy outcomes. We use energy policy in industrialized countries as our example. We start the analysis by developing a simple model of bribery of the government by worker and capital owner special interest groups. We build on the menu auction model originating with Bernheim and Whinston (1986)[2] and Grossman and Helpman (1994) (see also Aidt (1998) and Damania (2001)). As in Laffont and Tirole (1991), bribery is assumed costly to coordinate due to free-riding problems (see also Eerola (2002))

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II. Literature Review

1. Energy consumption and Economic growth

The debate on the relationship between energy consumption and economic growth has been more in detail in the theoretical and empirical literature. The first aspect of the existing energy literature addresses a wide range of mixed results of studies on the link between energy consumption and economic growth. Since the work of Kraft and Kraft (1978), the causal relationship between energy and economic growth has become a popular instrument. Existing literature presents conflicting views about this relationship.

For this reason, Payne (2010) and Ozturk (2010) examined the relationship between energy consumption and economic growth and have provided empirical four assumptions:

- the growth assumption that is to say, energy consumption causes economic growth which implies that the energy reduction policies should be discouraged and new energy sources should be explored
- whether there's a causal basis of economic growth to energy consumption, while energy consumption reduction policies should not have a negative effect on economic growth because the economic growth of the country should not be dependent on energy,
- The feedback hypothesis implies the interdependence between energy consumption and economic growth, and ultimately the hypothesis
- No causality between energy consumption and economic growth, known neutrality assumption, it indicates that the energy and growth are not interdependent.

The adoption of conservation and exploration of energy policies will not have a positive effect on economic growth. In a study of six countries in Central America, Apergis feat Payne (2009) examined the relationship between energy consumption and economic growth during the 1980-2004 periods. The cointegration test and panel data error correction model are used to detect the causal relationship. Based on the co-integration test developed by Pedroni (Pedroni [1999]), Granger causality in the sense of results indicates the presence of short and long-term causality from energy consumption to economic growth which supports the growth assumption. Hong (2010) reviewed the long and short-term relationship between GDP per capita and energy consumption. The results showed a long-term equilibrium relationship between energy consumption and real GDP.

In the short term, the total energy consumption and production cause GDP per capita over the period 1953 to 2007 in China. The same results were supported by Peng and Sun (2010), they indicated that there is a bidirectional causality between GDP per capita and energy consumption in the short and long term in China. Ozturk et al. (2010) used panel data of energy consumption (EC) and GDP per capita for 51 countries from 1971 to 2005. These countries are divided into three groups: low-income group, lower middle income and an upper middle income group.

Belke et al. (2011) examined the long-term relationship between energy consumption and real GDP, including energy prices, for 25 OECD countries from 1981 to 2007. The distinction between common factors and idiosyncratic components using principal component analysis to distinguish between developments internationally and nationally as engines of long-term relationship.

Indeed, the co-integration between the common components of the underlying variables indicates that international developments dominate the long-term relationship between energy consumption and real GDP. In addition, the results suggest that the power consumption is inelastic. The causality tests indicate the presence of a two-way causal relationship between energy consumption and economic growth.

Shaari et al. (2013)[3] examined the relationship between energy consumption and economic growth and to address the problems of energy consumption in Malaysia in 1980 using data from 2010. The Johansen cointegration test is used to analyze the data.

The results show that energy consumption linked to economic growth. The Granger causality model is used to measure the causal effect on energy consumption and gross domestic product. The results indicate that consumption of oil and coal do not cause economic growth and vice versa. The causality runs from economic growth to electricity consumption. A one-way relationship exists between gas and economic growth, with causality ranging from the use of electricity to economic growth. Therefore, a policy to reduce gas use will harm economic growth in Malaysia.

2. The Fight Against Corruption and energy consumption

Mauro (1997) extended the study to a larger sample of countries considered, besides the links between corruption and investment, the effects of corruption on the composition of public spending. The results of the extension of the study confirm the earlier results from Mauro namely that corruption significantly affects economic growth and investment in the economy. Tanzi and Davoodi (1997) showed that corruption leads to decisions on the allocation of public funds that have adverse effects on economic development.

This paper is related to a more recent literature that studies the corruption–growth link using regional level analysis, especially for the region of the world Arab where the major energy reserves are located (World Energy Outlook, 2007). These studies include in their cross-country regressions a number of region-sp ecific institutional variables such as bureaucratic quality and corruption in order to distinguish the impact of these variables on economic growth at a regional level. For example, Guetat (2006)[4] attempts to distinguish the impact of corruption on growth in the world Arab countries from of its impact on countries in Latin America, Asia and sub-Sahara Africa.

Their results suggest that corruption may hamper economic growth more in MENA countries. Gyimah-Brempong and Camacho (2006) examine regional differences in the impact of corruption on economic growth in Africa, Asiaand Latin America. They find a negative impact of corruption on the growth of income per capita, with the largest negative effect in Africa. Kutanet al. (2008) provide further empirical evidence on the impact of corruption on economic development in the Arab world and Latin American countries. They report significant differences interms of the impact of corruption on economic development in both regions.

The present paper relates to recent theoretical attempts that model the control of corruption–economic growth link conditional on the action public power. Aidt and al. (2008) show that corruption may have no significant impact on economic growth in a regime where political institutions are of low quality.

III. The Estimation Methodology

1. Simultaneous Equations Models

To meet our basic problem is that of the direct and indirect impact of the institutional Quality on growth, on The Fight Against Corruption (control of corruption) and foreign direct investment. We will estimate the simultaneous equation models that we have already specified previously. The model to estimate answers, mathematically speaking, the following three equations:

* ***Economic growth equation:*** $Y_{i,t}= \alpha_0 +\alpha_1 V_{i,t} + \alpha_2 C_{i,t} + \sum_{i=3}^{4} \alpha_i X_{i,t} + \varepsilon_{i,t}$

* ***Control of corruption equation :*** $Z_{i,t}= \beta_0 + \beta_1 Y_{i,t} + \beta_2 C_{i,t} + \sum_{i=3}^{3} \beta_i V_{i,t} + \mu_{i,t}$

* ***Energy of consumption equation:*** $C_{i,t} = \delta_0 + \delta_1 Y_{i,t} + \delta_2 Z_{i,t} + \sum_{i=3}^{4} \delta_i R_{i,t} + \omega_{i,t}$

Not to complicate things and simplistically, these equations become like this:

$$GDP_{i,t} = \alpha_0 + \alpha_1 EC_{i,t} + \alpha_2 EG_{i,t} + \alpha_3 TRAD_{i,t} + \alpha_4 INV_{i,t} + \alpha_5 Pop_{i,t} + \alpha_6 HK_{i,t} + \varepsilon_{i,t} \quad (A)$$

$$CC_{i,t} = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 EC_{i,t} + \beta_3 EG_{i,t} + \mu_{i,t} \quad (B)$$

$$EC_{i,t} = \delta_0 + \delta_1 GDP_{i,t} + \delta_2 EG_{i,t} + \delta_3 CC_{i,t} + \omega_{i,t} \quad (C)$$

(i = 1 . . . 17; N = 595; t = 1 . . . 35)

With ;

$Y_{i,t}=GDP_{i,t}$

$Z_{i,t}=CC_{i,t}$

$C_{i,t}= EC_{i,t}$

$V_{i,t}= EG_{i,t}$

$X_{i,t}=INV_{i,t}, Pop_{i,t}, TRAD_{i,t}$ et $HK_{i,t}$

$R_{i,t}= Z_{i,t}=CC_{i,t}$

$\varepsilon_{i,t}$, $\mu_{i,t}$ *and* $\omega_{i,t}$ *are respectively the random variables of the eauations A', B' and C'.*

To empirically study the effect of energy consumption (**EC**) on economic growth, specify a model that allows us to grasp the relationship between the Fight Against Corruption (control of corruption) (**CC**) and the Institutional quality and its Specifically, we need models that allow us to control endogeneity of corruption that included as a determinant of the nature of corruption and also of institutional quality **(EG)**. Therefore, this work specifies a basic econometric model that consists of a series of three equations describing the behavior of the endogenous variables. Specifically, the model comprises a growth equation (**GDP**), and two other equations; one for the The Fight Against Corruption (Control of Corruption) (**CC**) and the other for the energy consumption (**EC**).

❖ ***Economic Growth Equation***

We use the endogenous variable in the first equation the annual growth rate of **GDP** per capita (**GDP**) as the case of the empirical work of Mauro (1995). A variable population (**Pop**) represents the growth rate of the population. While domestic investment (***INV)*** measured by the percentage of gross fixed capital formation to **GDP**. In fact, a well-trained and educated population can act positively on technological innovation and promoting economic growth (Lucas, 1988). The Fight Against Corruption (control of corruption) indicator (**CC**) that reflects the Institutional quality **(EG)** is exercised for the purpose. We will regress, and the annual growth rate of per capita **GDP** on these variables aimed to verify the effect of the human corruption indicator and the indicator on the growth rate. The model is specified in Equation **(A)**:

*Economic growth equation : $\mathbf{Y_{i,t}= \alpha_0 + \alpha_1 EG_{i,t} + \alpha_2 EC_{i,t} + \sum_{i=3}^{4} \alpha_i X_{i,t} + \varepsilon_{i,t}}$

The equation becomes as follows:

$$GDP_{i,t} = \alpha_0 + \alpha_1 EG_{i,t} + \alpha_2 EC_{i,t} + \alpha_3 TRAD_{i,t} + \alpha_4 INV_{i,t} + \alpha_5 Pop_{i,t} + \alpha_6 HK_{i,t} + \varepsilon_{i,t}$$

With **X**.. is the vector specific macro - variables to the equation where the growth where (i = 1 . . . 17; N = 595; t = 1 . . . 35)**.**

❖ ***Fight Against Corruption (Control of Corruption) Equation***

The second endogenous variable and corruption. The latter is measured by the Fight Against Corruption (Control of Corruption) (**CC**), reflecting the fight against corruption. Indeed, global governance indicators do not reflect the official position of the World Bank, its directors or the countries they represent. They are not used by the World Bank Group to allocate resources. The impact of institutional factors or corruption that are the Fight Against Corruption (Control of Corruption) (**CC**). Similarly, we regress the Fight Against Corruption (control of Corruption) (**CC**) on these variables to check the effect of the structural indicator (**EC**) and the institutional indicator which is the effectiveness of the Institutional quality (**EG**) (reflecting the perception the quality of public services, the quality of the civil service and the degree of independence from political pressures, the quality of the formulation and implementation of policies and the credibility of the government's commitment to such policies) Control of corruption. The model is specified in Equation (**B**):

* Control of corruption equation: $Z_{i,t} = \beta_0 + \beta_1 Y_{i,t} + \beta_2 EC_{i,t} + \sum_{i=3}^{3} \beta_i V_{i,t} + \mu_{i,t}$

The equation becomes as follows: $CC_{i,t} = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 EC_{i,t} + \beta_3 EG_{i,t} + \mu_{i,t}$

With $\mathbf{V_{i,t}}$ is the variable vector (**EG**) specific to the equation where corruption (i = 1 . . . 17; N = 595; t = 1 . . . 35).

❖ ***Energy of Consumption Equation***

The third endogenous variable in the model is the energy consumption (**EC**) while using the tertiary enrollment rate in a definite period 1984-2018. The specification of the equation (**EC**) also comprises the annual growth rate of GDP per head (**GDP**) and corruption control indicator (CC), two other variables that are identified in the literature are determining factors of energy consumption (**EC**).

Like Berthélemy and Varoudakis (1998), we introduce the increased trade openness indicator accelerates economic growth and hence the expected sign of this variable is then positive. For the third variable regression latter essentially defines the human capital indicator (**HK**), trade openness indicator (**TRAD**) and government consumption indicator (**GC**) as determinants.

We will regress energy consumption (**EC**) on these variables aimed to verify the effect of the structural indicator (GDP) and the indicator of corruption (**CC**) on the economic growth rate. The model specified in equation (**C**):

* Energy of consumption equation: $\mathbf{C_{i,t}} = \boldsymbol{\delta_0} + \boldsymbol{\delta_1 Y_{i,t}} + \boldsymbol{\delta_2 Z_{i,t}} + \sum_{i=3}^{4} \boldsymbol{\delta_i R_{i,t}} + \boldsymbol{\omega_{i,t}}$

The equation becomes as follows:

$$CE_{i,t} = \delta_0 + \delta_1 GDP_{i,t} + \delta_2 CC_{i,t} + \delta_3 GC_{i,t} + \omega_{i,t}$$

With $\mathbf{R_{i,t}}$ is the variable vector (**GC**) specific to the equation where corruption (i = 1 . . . 17; N = 595; t = 1 . . . 35).

a. Effectiveness Government (Institutional quality)

It reflects "*the perception of the quality of public services, the quality of the civil service and the degree of its independence from political* pressures*, the quality of the formulation and implementation of policies and the credibility of the commitment these government policies.* " (Kaufmann et al. (2003)

It is a measure of the competence of the public bureaucracy and quality of public services.

This variable is mainly explained by the following:

- The quality of public policy.
- The probability that when a government agent violated the rules,
- The quality of services provided by the state.
- The predictability of changes in the rules and laws.
- The transparency of decentralization.
- The waste in government spending.

Finally, this tendency to measure "*Government Effectiveness*" is insufficient to give the exact institutional indicator.

Table 1: Summary of studies over time

Author (s)	*Examples*	*Sources of the work*	*Main results*
Globerman and Shapiro (2002)	144 country	The index of governance, the rule of law, regulatory quality, political instability, government effectiveness, graft and corruption, voice and accountability; Kaufmann et al., 1999	The overall governance index is more important than his sub-component and the human development index and the index of infrastructure.
Alendro Quijada (2004)	Venezuela	Institutional quality and economic growth: the case of Venezuela	Institutional deterioration and growth rate of reduction.
Ouattara (2007)	8 country	Public expenditure, corruption and growth in the countries of the Economic and Monetary Union of West Africa (UEMOA)	The author shows that there is a long-term relationship between public spending, corruption and growth in the WAEMU countries, but the level of corruption is not induced by economic growth.
Seka (2013)[5]	38 country	Corruption, growth and human capital: what relationship? Africa Development, Vol. XXXVIII, Nos 1 & 2, 2013, pp. 133-150	The importance of human capital in the process of growth and development must appeal to governments, especially those in low-income developing countries.

Summary by Author 's from the empirical work.

2. Multicollinearity problem and model selection

**Principe*

The explanatory variables are highly correlated with the dependent variable. They must be weakly correlated.

**Consequences of Multicolinéarity :*

The explanatory variables are highly correlated with the dependent variable. They must be weakly correlated.

**Test de Klein:*

It is not a statistical test in terms of a hypothesis test, but simply a test of presumption of multi collinearity[6].There appearance of multi collinearity if the coefficient of determination of the complete model ($\mathbf{R^2}$) is less than the correlation coefficients ($\mathbf{r^2_{xi,\ xj}}$) and we have to compare the **r** to the correlation coefficients ($\mathbf{r_{Xi,\ xj}}$) that appear in the matrix of correlation coefficients.

**Farrar and Glauber test*

To the extent that the empirical value of $\chi 2$ is greater than the value read from the table, there supposition multi collinearity.

**Correct multicollinearity:*

When specifying the model, we eliminate the explanatory series could be correlated and represent the same phenomena and increase the sample size if the added observations differ from the first. To correct the regression channel: this is a purely numerical response of transforming X'X in (X'X + αI) where α is an arbitrarily chosen constant. We are expanding and the first diagonal and "digital" effects of multi collinearity are reduced.

IV. Selection Of Variables And Estimation Methodology

1. Presentation of the study data

We can now talk about corruption without mentioning the important role played by global organizations to fight against corruption (corruption control). Then we use the index of corruption control (CC). The DC advantage is due to the fact that multiple data sources are used primarily the World Bank Group. Both indicators reflect the institutional manner of governance. The data concerning the control of corruption and government effectiveness used in this study are those published by the base data used by Kaufmann et al. (2012) of the years 1984-2018 as data on tertiary enrollment rate is available during the study period (1984- 2018). We have therefore selected a number of countries for which the two variables are observed simultaneously for selected years. We wish we could select only the countries of the MENA region, but after the sample size of such a selection may not be sufficient to have good results estimation. Also, do we then expanded the selection of countries similar to them in relation to their behavior towards the study variables

In total, we selected 17 developing countries, including: Algeria, Bahrain, Egypt, Arab Republic. Mauritania, Iraq, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, Ordan, UAE and Yemen on a time axis from 1984-2018, forming a panel of 595 observations.

2. Presentation Model

The structural model allows us to test the direct effect of each indicator on the endogenous variable and allows to observe the feedback effects exerted between the endogenous variables. This model will later be transformed into a model "reduced" to explain where the variables are substituted by their functions in the equations of the other variables. The whole relationship of this model is explained in the following diagram:

$$\mathbf{GDP_{i,t} = \alpha_0 + \alpha_1 EC_{i,t} + \alpha_2 EG_{i,t} + \alpha_3 TRAD_{i,t} + \alpha_4 INV_{i,t} + \alpha_5 Pop_{i,t} + \alpha_6 HK_{i,t} + \varepsilon_{i,t}} \quad \mathbf{(A)}$$

$$\mathbf{CC_{i,t} = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 EC_{i,t} + \beta_3 EG_{i,t} + \mu_{i,t}} \quad \mathbf{(B)}$$

$$\mathbf{EC_{i,t} = \delta_0 + \delta_1 GDP_{i,t} + \delta_2 CC_{i,t} + \delta_3 GC_{i,t} + \omega_{i,t}} \quad \mathbf{(C)}$$

(i = 1 . . . 17; N = 595; t = 1 . . . 35)

3. The variables used in the estimate

Table 2: Summary measures of the variables used in this estimate

Variables	***Formulas***	***Measure adopted and Data Source***
Economic Gowth	***GDP***	*The annual growth rate of GDP per capita.(WDI)*
Fight Against Corruption	***CC***	*Control of Corruption (WGI)*
Humain Capital	***HK***	*Tertiary enrollment rate.(WDI)*
Domestic Investment	***IN***	*The gross fixed capital formation to GDP. (WDI)*
Demographic Variable	***POP***	*The population Growth rate .(WDI)*
Foreign Drect Investment	***FDI***	*Net flows of foreign direct investment.(WDI)*
Trade	***TRAD***	*The sum of exports and imports to GDP.(WDI)*
Government Consumption.	***GC***	*The level of government consumption as a percentage of GDP.(WDI)*
Institutional quality	***EG***	*The effectiveness of government.(WGI)*
Energy consumption	***EC***	*Public spending as a percentage of GDP in Energy consumption.(WDI)*[7]

Work done by Author's

4. The estimation method: simultaneous equations in data panel

**Problem endogeneity* : The study of several economic models such as growth, corruption and human capital require the consideration of the problem of endogeneity as the tested variables interact simultaneously. Indeed, there are strong reciprocal causality between these factors which brings us to the problems of endogeneity and simultaneity. Estimation methods that may be

used in the context of simultaneous equation models are functions of the model identification criteria and to estimate the endogeneity problem.

The problem of identification of the model equations The identification requirements of a model are determined by equation equation. Three situations may arise. The sub-model is identified, if a model equation is sub-identifiable (that is to say that there are fewer equations than to identify parameters in the structural form). In such a situation, the system is impossible to solve. When all equations are "just" identifiable, the model would be "just" identified. The model is over-identified if the model equations are either "fair" or on- identifiable identifiable. When the model is under-identified, it is impossible to estimate its parameters and modeling must be re-specified. The model identification requirements are the subject of a sometimes complex development. In the following, we will limit our analysis to the study of simple rules that are, in practice, applied first. The most applied identification requirements are the conditions of order and rank conditions. However, to make these identifications, it is essential to check whether there are any restrictions to be considered in this study or not. There is a restriction on a coefficient of the structural shape, each time a parameter is constrained to be equal to a predetermined value. There are two types of restriction which can be identified, namely the exclusion restrictions and linear restrictions.

* *Exclusion Restrictions:* This restriction is to assign a zero coefficient for each endogenous or exogenous variable that does not appear in a structural equation. In our model, the variable "GDP" is set at the first equation and, respectively, at the second and third equation. Likewise, the variables "POP", "INV", "Ouv", "HK" and "FDI" are at the first equation and do not appear at the second or the third equation. There are variables which occur at the second and the third equation and is not available at the first. That is to allocate all of these variables zero coefficients in the equations in which they are not shown.

Linear Restrictions: Some specifications require that the model variables are assigned an identical coefficient. This type of restriction is not present in our model. Once the restrictions on the coefficients performed, it is essential to carry out the identification of the

system of equations. There are two conditions identifications: order conditions (necessary conditions) and rank conditions (sufficient conditions).

The conditions: Conditions order After selecting the variables to include in the model a step prior to the treatment step of simultaneous equations models is to perform model identification tests to choose the method of the most appropriate estimate. In our case, we find for the model to study, all equations are over-identified. Indeed, we have three endogenous variables in the model (W = 3) "GDP", "CC" and "EC" and exogenous variables onzes "TRAD", "INV", "FDI", "HK", " POP "," EG "," From "," Road "and" CG ",(K = 10) The

first equation has six exclusion restrictions and no restrictions. By applying the identification requirements, the variables in the equation of poverty give: W '= 1, K = 6 and r = 0 with W' is the number of endogenous variables in an equation and K 'is the number of exogenous variables in an equation.

**Is therefore:* W - W '+ K - K' = 3 - 1 + 11-6 = 7 > W - 1 = 3 - 1 = 2, the first equation is on-identified. The second equation presents seven exclusion restrictions but no constraint restrictions. We consequently W = 3, K = 11, W = 1, K = 3 and r = 0, which gives: W - W '+ K - K' = 3 - 1 + 11 - 3 = 10> W - 1 = 2, the equation is over-identified. The third equation has six restrictions of exclusion but no constraint restrictions. We therefore W = 3, K = 11, W = 1, K = 3 and r = 0, This implies W-W '+K – K' = 3 - 1 + 11-3 = 10> W - 1 = 2, the third equation is over-identified. Since in our model all equations are over-identified, the model will be on-identified.

* *Sufficient conditions*: If conditions rank order of conditions are satisfied, it is also important to check the rank conditions (sufficient conditions). However, in practice, they reveal is difficult or sometimes impossible, to implement. This is what drives us to limit our analysis to the level of verification of qualified order conditions necessary conditions. Method ***SUR*** (*Seemingly Unrelated Regression*)[8]. In our case, the model presented is over-identified. The adopted method was the econometric method ON (*Seemingly Unrelated Regression*). This method is suitable for treating this kind of model. However, our model is characterized by the presence of an endogeneity problem of order two, by its definition, which is why the estimate by the least squares method would triple longer recommended.

V. Analysis Of The Model Results

1. Effects of the action of public power in the three regressions

Table 3: Results of the regression model analysis on the effects of the Institutional Quality (EG) on growth (GDP), on The Fight Against Corruption (CC) and Energy Consumption (EC).

Variables	GDP	CC	EC
Cte	*11.63414* *(3. 74)****	*-0.2639644* *(-0.59)*	*10.84725* *(50.61)****
GDP	--------	*0.0117557* *(1.64)**	*-0.0206288* *(-2.87)****
EC	*-0.7290166* *(-2.32) ****	*0 .0049822* *(0.11)*	--------
CC	--------	---------	*-0.0308163* *(-4.80)****
EG	*0.5237992* *(103)*	*0.6209784* *(9.39)****	-------
HK	*-0.3775138* *(-0.31)*		
FDI	*0 .1246814* *(1.31)*	-------	-------
TRAD	*-0.2422801* *(-0.79)*		
INV	*0.0202529*	-------	-------- *(0.3)*
POP	*0.1234987* *(0.91)*	-----	
GC	--------	*-1.784982* *(-4.8)****	
Observations	*595*	*595*	*595*
R^2	0.165	0.223	0.531

- *** *Significant at* 1%, ** *Significant at* 5%, * *Significant at* 10%.

2. Interaction between the Institutional quality and the Energy consumption

We can remember that the purpose of this study is to test the institutional indicator that can promote economic growth or not that is the Institutional quality can promote the creation of social wealth of a country? The institutional factor, in this case, as an element of control that we need to explain its key role in the management and manner of governing public spending and especially energy consumption and its effectiveness in stimulating economic growth. In this context, we can explain the nature of relationship between public spending as an engine of growth and action of public power?

Our intuition is to know the weight of government's ability to keep well and also to steer by applying a control and monitoring strategy. We analyze the effects of an indicator on the two other variables and the same work is repeated with the other variable to be [the effects of (EG) on (CG), (EC) and (GDP) and also on other variables Exogenous. Indeed, what primarily concerns the direct effect of government effectiveness on growth. The results show that the institutional indicator (government effectiveness) is positively colored and not significant with economic growth. So the action of public power does not explain the growth. This then implies that the action of public power in the world Arab is ineffective. We are talking about the bad institutional quality followed by poor governance in the presence of inefficiency of governmental power to stimulate growth in the MENA region.

In this context, according Bardhan Pranab (1996), the possibility for the state to control corruption depends on its vis-à-vis credibility of its people and the establishment of credible and strong institutions. Also, the effect between the action of the public power remains significant (1%) and positively stained 0.6209784 with The Fight Against Corruption (control of corruption) (CC), when tow variables are complementarity. in addition, on the effect of the government's effectiveness in total public spending. Analysis of the results shows a negative and significant effect of *-0.0308163* (1%) between The Fight Against Corruption (control of corruption) and energy consumption (EC), so the institutional indicator remains effective since the action of the public indirect effect to participate to create Social rich even in a context of economic and social development.. If there is an effective action of public power then there will be a good orientation of the relevant expenditure in the energy sector. The latter a negative effect with the efficiency of public power so there is a misallocation of resources because consumption was well governed.

Moreover, the results found works the studies Filmer, Hammer and Pritchett (2000) and Gupta, Verhoeven and Tiongson (2001)[9] discuss the results that assume that even with a homogeneous distribution of public spending on health among different social groups, the effect of public spending on energy consumption will still be more important for the poor. But it could be argued that before considering an increase in public spending, it should focus on improving the efficiency of systems, good governance of public spending through the proper allocation of financial resources. Finally, the direct effect of public spending (GC) appears mainly to expenditure of energy consumption (EC), since the latter a negative effect (-1.7858) and significant (1%). So the expenses are still needed to improve basic social sectors and especially the energy sector and also these expenses can develop the energy consumption.

Nevertheless, the role played by energy resources in the Arab world is by no means positive by default. Energy export revenues have fuelled the development of some industries more than others. Oil and gas reserves have also proven to have the potential to exacerbate differences between countries, and possibly even to be a source of conflict, both nationally and bilaterally. Countries such as Sudan, Iraq, and Yemen suggest that energy wealth does not automatically translate into higher levels of prosperity and human development; effective government management, and a local modus operandi that allows many, rather than just a few, to prosper from their country’s natural resources, are essential ingredients to making energy resources a fuel for growth, rather than economic decline.

VI. Conclusion

This work focuses on assessing the weight of public power in a context of good governance and economic growth and to answer some questions related to empirical data reported in the new literature, so it is interesting to know to what extent the action of public power is effective at the decisions taken in the allocation of resources.

Indeed, the analysis takes as an example the world Arab consists of 17 countries during the period from 1984 to 2018. According to the main findings of this paper, we first note, institutional indicator plays an important role in the economic development of nations, because the action of public power seems to have an effect on public expenditure management that remain in this case a catalyst for growth and which were explained by the journal the existing literature.

The results show that the Institutional quality does not explain the growth. This then implies that the action of public power in

the world Arab is ineffective. This is the result of poor institutional quality in the presence of inefficiency of governmental power to avoid waste of public spending especially in energy consumption and public resources to guide it in the proper pattern of growth in the MENA region. In total, we studied the weight of power and efficiency of application within the world Arab countries to know the action of public power in the energy sector, and we have proved that the effect the Institutional quality (government effectiveness) on energy consuption spending and economic growth as conceived by the economic literature, and we tried to verify empirically the interaction between the Institutional quality and economic development. To fight against corruption by the Institutional quality, we must update the legal standards and must also create new laws affecting the reality of the citizens of this area. This is one of the economic policy goals most prominent today to the possibility of increasing the country's wealth while reducing corruption.

Energy has undoubtedly played a defining role in the MENA region's economic development over the past fifty years, if not more. The region's energy resources have affected development choices, shaped economic structures, promoted certain patterns of industrial activities, and have integrated the MENA region into the global economy. More than any other economic activity, oil and gas industries have provided the most important source of income for many producing countries' governments, allowing for the creation of modern welfare states among the GCC states, and similar development programmes in a number of other large and medium sized producers.

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