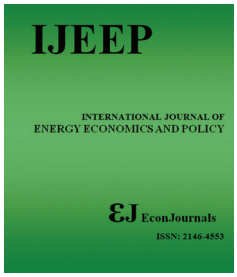

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An Analysis of the Impact of Rents from Non-renewable Natural Resources and Changes in Human Capital on Institutional Quality: A Case Study of Kuwait

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ABSTRACT

Non-renewable energy resources are considered to be an important input for industries that support local industrial production and employment. However, many researchers believe that such resources have a damaging effect on the institutional quality, because this quality has an effect on a country's decision-making mechanisms, and on the human capital, which is usually described as the accumulation of education in a specified population. This collective damage thus impedes economic growth and development. The present study analyses the impact of resource rents from non-renewable energy resources and the human capital on the institutional quality in Kuwait, using an autoregressive distributed lag (ARDL) approach based on data for the period between 1984 to 2018. The results indicate that an increase in rents from non-renewable energy resources has decreased institutional quality, whereas human capital enhances the institutional quality both in the short and long-term. This study concludes that an investment in the human capital could help insulate Kuwait from the damaging effects of over-reliance on the non-renewable energy resource rents.

Keywords: Non-renewable Energy Resources, Resource Rents, Institutional Quality, Human Capital, Kuwait, Resource Curse
JEL Classifications: F62; O11; O38; O40

1. INTRODUCTION

The notion in economics is that abundant resources can be a curse rather than a blessing and this has a long history. From as early as the 16th century, economists noted the destabilizing effects that the influx of gold had from Latin America (Auty, 1993; Prebisch, 1950; Singer, 1950). More recently, economists observed that some of the fastest growing economies are largely lacking resources, while resource-abundant countries have suffered economic slowdown (Aljarallah and Angus, 2018; Venables, 2016; Van der Ploeg, 2011). This narrative often points to the presence of the so-called "Resource Curse", explaining how resource abundant countries suffer from sluggish economic growth and development (Moradbeigi and Law, 2017; Ahmed et al., 2016; Bulte et al., 2005; Rodriguez and Sachs, 1999).

Despite this situation, natural resources serve as a useful input and raw materials are used for domestic industries that stimulate local industrial production. Despite the resource curse narrative, economic history is replete with accounts of nations that achieve sustained economic growth and development, such as Botswana with its rich diamond fields, Chile with copper, and Norway with petroleum resources (Omodadepo and Akanni, 2013; Asekunowo and Olaiya, 2012; Akinlo, 2012; Cavalcanti et al., 2011; Poelhekke and van der Ploeg, 2010; Alexeev and Conrad, 2009; Arezki and van der Ploeg, 2007). In particular, oil wealth has been beneficial for Gulf countries with a national income gained from oil exports and its association with a higher life expectancy, lower child mortality rates, higher per capita income and consumption levels, and better physical infrastructure than oil-poor countries (Hvidt, 2013; Sachs, 2007; Ross, 1999; Karl, 1997).

This paradox has left economists searching for the underlying factors that are responsible for the varying experiences that the countries face and the mechanisms through which resource

endowments could either impede or enhance economic growth. Several studies have highlighted the role of the institutional quality and the human capital as transmission channels of the resource curse (Oskenbayev et al., 2013; Bulte et al., 2005), where resource wealth crowds out growth-enhancing activities, thus affecting the overall growth (Sovacool, 2010; Welsch, 2008). Institutional quality is a concept that captures the effectiveness of law, individual rights, and the government's regulations and services (Hodgson, 2006; Knack and Keefer, 1995), whereas human capital is considered as the accumulation of skills and knowledge of a society (Armstrong, 2006).

The explanation of the resource curse that focuses on the institutional quality and the political factors (Caselli and Cunningham, 2009; Rosser, 2006) has a principal argument that resource rents from natural resources, as they are measured by the income obtained from oil, gas, and minerals, tend to increase corruption and rent-seeking behavior (Mavrotas et al., 2011; Dalgaard and Olsson, 2008; Isham et al., 2005; Woolcock et al., 2001; Leamer et al. 1999). In resource rich countries, the state typically owns the natural resource industries, which then encourages the abuse of resource windfalls by the public officials, it also damages the quality of political institutions, and delays the economic progress (Sala-i-Martin and Subramanian, 2013; Robinson et al., 2006; Bulte et al., 2005; Leite and Weidmann, 1999). There has been an upsurge of interest regarding the relationship between natural resource rents and the institutional quality; the interested reader is referred to Antonakakis et al., 2017; Douglas and Walker, 2017; Okada and Samreth, 2017; Olayungbo and Adediran, 2017; Eregha and Mesagan, 2016; Sala-i-Martin and Subramanian, 2013; Busse and Gröning, 2013; Anthonsen et al., 2012; Torvik, 2009; Brunnschweiler, 2008; Costantini and Monni, 2008; Mehlum et al., 2006; Easterly and Levine, 2003; and Ross, 1999. These past studies have motivated the aim of this paper and confirm the importance of examining the relevance of what is known as the political resource curse (Ross, 2015) in Kuwait as a case study. One of the main motives for this research is that there have been no previous studies conducted about Kuwait that have examined the political resource curse. The second motivation is that the institutional quality is recognized by most economists as an important factor in economic development (Acemoglu et al., 2005; Acemoglu and Robinsons, 2013) that raises the growth potential in an economy (Romer, 1986; Lucas, 1993; Acemoglu et al., 2005) and the per capita level of real income in the country (Góes, 2015). Countries with strong institutional quality utilize the human and physical capital more efficiently and attract investment, which results in long-term growth (Robinson et al., 2005).

Another significant question that has arisen is related to whether the human capital has any impact on the institutional quality. Like the institutional quality, human capital also plays a key role in the economic growth and development. Moreover, the human capital plays an important role in resource curse studies. About this role, Bravo-Ortega and De Gregorio (2005) assert that resource rich countries that have escaped the resource curse tend to have a higher human capital level. Suslova and Volchkova (2012) recommend developing educational policies that are directed towards a skilled labor force, as it is crucial to guarantee the economic development sustainability in resource rich nations. Accordingly, the significant role of the human capital in this study cannot be neglected.

The importance of the human capital and institutions as the key drivers of an economic growth and development have gained importance in the literature and is broadly acknowledged (Faruq and Taylor, 2011; Hanushek and Woessmann, 2007). Yet, the associations between the institutions and the human capital remain the subject of an ongoing debate, with some studies suggesting an interdependent relationship between the institutional quality and human capital (Tebaldi and Elmslie, 2013; Dias and Tebaldi, 2012; Coe et al., 2009; Castello-Climent, 2008; Glaeser et al., 2004; Engerman and Sokoloff, 2002; Lau et al., 1991; Psacharopoulos, 1994). Based on this argument, our study questions whether the human capital has any link to the institutional quality as a clarification providing a full picture of the relationships that may exist among the selected variables.

In fact, there is no consensus over the link between institutions, human capital, and resource rents, and many suggest that the link differs from country to country (Brunnschweiler and Bulte, 2008; Bulte et al., 2005). As a result, the impact of resource rents on the institutional quality, as well as the impact of the human capital on the institutional quality remains as a subject of interest, especially for policy makers and producers of resources in the developing countries (Torres et al., 2012). In this light, this study sets out to investigate the short and long-term impacts of rents from non-renewable energy resources (NRER) and the human capital (HC) on the institutional quality (IQ) of an oil rich country located in the Gulf region, since only a limited number of studies have conducted this investigation in resource rich countries found in the Middle East and North Africa (MENA) region. Accordingly, Kuwait has been chosen as an appropriate case study because it continues to be overly reliant on oil, which accounts for about 40% of their Gross Domestic Product (GDP) and 92% of export earnings (OPEC, 2019), thereby making it a prime candidate for the undesirable effects of the resource curse. Although Kuwait has tried to shield itself from the deleterious effects of oil exports by establishing a Sovereign Wealth Fund, through the Kuwait Investment Authority (KIA) with funds reaching over $500 billion (SWFI, 2018), yet further examination of the impact of natural resources on its economy is essential to identify the appropriate approach to attain sustainability and long-term growth.

This paper is novel because, to the authors' knowledge, it is the first time-series study of its nature to be conducted in Kuwait that examines the impact of non-renewable energy resources and the human capital on institutional quality. Most of the previous studies in the resource curse literature that include Kuwait in the sample are either panel or cross-sectional data approaches (Kakanov et al., 2018; Lehne et al., 2014; Frankel, 2012; Cavalcanti et al., 2011; Haber and Menaldo, 2011). However, since the countries under study have different socio-economic conditions, their non-renewable energy resources and human capital might have different marginal impacts in the short run and long run. We believe that non-renewable energy resource wealth has different impacts in recent times, which also might differ in the future. Moreover, the average impacts from the panel data techniques and the OLS will

show that non-renewable energy resources have the same impacts in both periods. As a result, using the ARDL model for a single country to derive the short and long run results seems appropriate.

This should be of interest to an international audience as Kuwait serves as a good example of a small, oil rich country with a relatively high per capita income. Evidence from such economies are sparse in the literature and given the context-specific effects of the resource curse, this study provides another perspective on this phenomenon, as incorporating different variables helps in delivering more profound understanding about the relevance of the resource curse.

This research paper is organized as follows: Section 2 provides a review of the literature, Section 3 describes the empirical model, the estimation procedure, and the model variables and data sources. Section 4 illustrates the empirical results and discussion, and finally, Section 5 concludes and provides some policy recommendations.

2. LITERATURE REVIEW

Institutional quality is a concept that encapsulates individual rights, beliefs, and rules that shape behaviors and formulate collective action, hence conditioning development (Islam and Montenegro, 2002; North, 1990). Economists generally agree that good or poor outcomes from any policies designed to enhance economic growth are mainly contingent on the institutional quality within an economy (Farhadi et al., 2015; Sarmidi et al., 2014; Robinson et al., 2005; North, 1994; Barro, 1991). The effects that an institution has on institutions regarding growth have been examined in many studies (Orihuela, 2018; Haapanen and Tapio, 2016; Perera and Lee, 2013; Acemoglu and Robinson, 2008; Aidt et al., 2008; Rodrik et al., 2004; Acemoglu et al., 2002; Hall and Jones, 1999).

Knack and Keefer (1997) suggested that finding a correct measure of institutional quality is considered the most difficult task in such studies, and that they see that the ideal measures would consist of objective evaluations, which are comparable over time and among countries. However, judging from the various literature in this field, several measures of institutional quality have been used. For instance, Expropriation Risk was used in Acemoglu et al. (2001); the Fraser Institute measure and the Economic Freedom of the World, was used by, for example, Beland and Tiagi (2009); the Freedom House index was used in Barro and Sala-i-Martin (1997); the World Bank Governance Indicators were used by Sala-i-Martin and Subramanian (2013), Rodrik et al. (2004), and Easterly and Levine (2003); and finally the International Country Risk Guide (ICRG) was used by Knack and Keefer, (1997), Hall and Jones (1999), Knack (1999), Chong and Calderon (2000), and it was also mentioned in the resource curse literature by Okada and Samreth (2017), Busse and Gröning (2013), and Boschini et al. (2013).

In terms of research that has specifically focused on the institutions/political explanation of the resources curse, several studies have identified that a negative relationship between the natural resource abundance and macroeconomic performance tends to persist in countries with already poor institutional quality (Boschini et al. 2013; Mehlum et al., 2006; Papyrakis and Gerlagh, 2004), because resource wealth and poor institutional quality allow interest groups to closely control resource rents, hence affecting economic development (Boschini et al., 2007; Bulte et al., 2005; Isham et al., 2005; Rodrik et al., 2004; Karl, 1997). Similarly, Olanyugbo and Adediran (2017) found that low institutional quality and high oil revenues promote economic growth in the short-term but retard it in the long-term. Other studies that support the same view have highlighted the weakening effect of natural resources in institutions, resulting in the institutional resource curse (Guriev et al., 2009; Boix, 2003).

Other papers, such as Apergis and Payne (2014) and Costa and Santos (2013), argued that resource rents actively cause a deterioration in institutional quality, and this is not solely only a problem for the countries with pre-existing poor institutional quality (Ji et al., 2014; Cabrales and Hauk, 2011). It should also be noted that there are papers that dispute the link between resource rents, institutional quality, and the resource curse phenomena, such as Brunnschweiler and Bulte (2008). Similarly, Brunnschweiler (2008) found no evidence of any negative indirect effect of resource abundance through the institutional transmission channels, concluding that resource dependence is unrelated to growth and institutional quality. Similarly, Yang (2010) argued that institutional quality has no effect on the severity of the resource curse; however, the missing link between institutional quality and resource in these findings show how these countries followed good policies that minimized the negative impacts of the natural resources on their growth. Lehne et al. (2014) mentioned that resource wealth can be utilized to strengthen economic and political institutions, develop the business environment, and control corruption by raising the pay of regulators and officials.

Despite these conclusions, the literature is deficient in how other important factors in a resource-rich economy, such as human capital, could affect the institutional quality. Generally, a few studies have found a link between natural resources, institutional quality, and the human capital. Those that have found a link suggest that high levels of oil production (and resulting incomes) coupled with weak institutions result in little opportunity to improve educational levels (Aljarallah, 2019; Suslova and Volchkova, 2012; Gylfason, 2001; Aron, 2000). Moreover, Bulte et al. (2005) found that natural resources damage the institutional quality and then these institutions harm the human capital, thus resource rich countries tend to experience lower levels of human development. Gylfason (2001) found that a low investment in the education sector in resource rich countries is a critical reason behind their slow development, as it relates to the security of income from the resource rents and the fact that resource extraction is very capital-intensive. An alternative explanation was introduced by Isham et al. (2005), which they called a "delayed modernization" effect, which was that the ruling elite in countries with point-source resources are encouraged to impede modernization, which includes education and modern industry, since they consider it to be a risk to them of losing their power.

What emerges in extensive literature is that institutional quality and the human capital are interdependent. Several studies have

analyzed the link between human capital and institutions from different angles (Tebaldi and Elmslie, 2013; Dias and Tebaldi, 2012; Coe et al., 2009; Catello-Climent, 2008; Glaeser et al., 2004; Engerman and Sokoloff, 2002). These studies found that countries with strong institutional quality, such as protection of property rights, control of corruption, market friendly policies, and an effective judiciary system, experience a higher rate of innovation (Tebaldi and Elmslie, 2013), and greater R and D spillover (Seck, 2011), R and D investments, and human capital formation (Coe et al., 2009). It has been argued that the human capital accumulation contributes positively to institutional quality, which fosters growth (Faria et al., 2016; Galor et al., 2009; Castello-Climent, 2008; Glaeser et al., 2004; Lipset, 1960). Human capital creates awareness, creativity, and behavior in the society, and hence increases institutional quality (Psacharopoulos, 1994; Lau, et al., 1991). Additionally, Lucas (1988) asserted that the human capital accumulation produces institutions that are symbolized by the average knowledge in the society. While this knowledge creation depends on institutional quality (Romer, 1990), as good institutions facilitate the procedure of registering new patents, encourage new projects, distribute ideas, and improve enforcement of property rights, all these aspects that prompt the R and D activities (Tebaldi and Elmslie, 2013). Contrary to these studies, Acemoglu et al. (2014; 2005) found that human capital has little impact on the economic growth, but this impact is likely to be an outcome of institutions.

Generally, the literature indicates that resource rents in these resource rich countries damage institutional quality, while the human capital accumulation has been found to improve institutional quality, which could provide some insulation from the negative impacts of the resource curse. Higher educational levels help in the management of natural resources by supporting technologies and innovations that assure the efficient use of resources and reduce the dependence on them. Furthermore, education encourages the development of the tradeable sectors as an alternative to high dependence on the resource sectors (Kurtz and Brooks, 2011; Stijns, 2006).

As it is revealed in the literature that human capital and natural resource wealth (Guriev et al., 2009) are important determinants of institutional quality, other factors, such as political institutions (Olson, 2000; North, 1990), geography (Robinson et al., 2005), history (Becker et al., 2016), and ethnic fractionalization (Alesina et al., 1999), are out of the scope of this study because they are beyond the possible explanations of the resource curse theory and cannot easily be explained.

Therefore, since past studies reveal different findings, it is crucial to understand the complex dynamics of the resource curse from a different perspective, since natural resources cannot be the only factor that ruins or enhances the institutional quality in a resource-rich country. As the effects of natural resources vary across countries, the examination is better conducted as a case study in Kuwait to be able to pinpoint the appropriate policies and to understand the situation in an economy that is over reliant on natural resources. To better comprehend the political resource curse, the next section provides the empirical test of this view.

3. EMPIRICAL MODEL AND ESTIMATION PROCEDURE

In this section, we explain a model helps assess the impact of resource rents (RR) and the human capital (HC) and its effect on institutional quality (IQ) with per capita GDP (PGDP) as covariates to check the role of accumulation of knowledge and income in determining the institutional quality. PGDP is used as a proxy for the degree of development in a country (following Olayungbo and Adediran, 2017; Akpan and Chuku, 2014; Busse and Gröning, 2013; Arezki and van der Ploeg, 2011). It is assumed that the higher the income, the higher the demand for better institutional quality and transparency (Treisman, 2000). In addition, a larger number of developed countries enjoy higher per capita income, which means that they are rich in financial resources that can build better institutions and improve government regulations (Busse and Gröning, 2013).

The autoregressive distributed lag (ARDL) method is used because it gives a long-term consistent estimate irrespective of variable integration I(1) or I(0) (Olayungbo and Adediran, 2017; Badeeb and Lean, 2017). This approach performs well for a small sample size in which the short-term and long-term effects of the independent variables on the dependent variable can be assessed simultaneously (Pesaran et al., 2001). Finally, all variables are assumed to be endogenous, and thus the endogeneity problems associated with the Engle–Granger method can be avoided (Pesaran, 2006). The linear form of the equation is written as follows:

$$IQ = \alpha_o + \theta_1 RR_t + \theta_2 HC + \theta_4 PGDP_t + \mu_t. \quad (1)$$

The General form of the ARDL model of equation (1) is as follows:

$$\Delta IQ_i = \alpha_0 + \sum_{i=1}^{p} \delta_i \Delta IQ_{t-i} + \sum_{i=1}^{p} \rho_i \Delta RR_{t-1} + \sum_{i=1}^{p} \varnothing_i \Delta PGDP_{t-i} + \sum_{i=1}^{t} \varphi_i \Delta HC_{t-i} + \lambda_1 IQ_{t-1} + \lambda_2 RR_{t-1} + \lambda_3 HC_{t-1} + \lambda_4 PGDP_{t-1} + \mu_t \quad (2)$$

where α_0 is the drift component and the terms δ_i, ρ_i, $\emptyset_i$, and φ_i are the parameters used for short-term analysis, while λ_1, λ_2, λ_3, and λ_4 are used for estimating the long-term parameters and μ_t is the error term. The Wald restriction test is used to test the long-term relationship or co-integration between the dependent and the independent variables. The value of the F-test is taken by applying the coefficient diagnostic Wald restriction test on the long-term variable parameters. The hypothesis for the co-integration test is:

$$H_0 = \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0 \left(\text{Means no co - integration}\right)$$

$$H_1 = \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq 0 \left(\text{Means there is co} - \text{integration}\right)$$

The F-test is used to check the existence of co-integration and a long-term[1] relationship between the dependent and independent

1 In this study, the long-term is the average effect of independent variable from 1984–2014, while the short-term is contingent on lags of dynamic model.

variables. The orders of the lag length in the ARDL model are selected through the Akaike information criteria (AIC).

Under the assumption of steady-state when the economy seeks to find an equilibrium condition, the long-term equations is $\Delta IQ_i=0$,

which means that $\Delta IQ=IQ_t-IQ_{t-1}=0\Rightarrow IQ_t=IQ_{t-1}$

By applying the above assumption and dividing by λ_1, equation (2) can be written in the long-term form as follows:

$$\frac{\lambda_1}{\lambda_1}IQ_t=\frac{\lambda_2}{\lambda_1}RR_{t-1}+\frac{\lambda_3}{\lambda_1}HC_{t-1}+\frac{\lambda_4}{\lambda_1}PGDP_{t-1} \quad (3)$$

Now by re-parameterizing,

$$IQ_t=\psi_o+\psi_1RR_{t-1}+\psi_2HC_{t-1}+\psi_3PGDP_{t-1} \quad (4)$$

Now the ψ_1, ψ_2, and ψ_3 are the long-term parameters; their values and signs will be determined by the long-term relationship between the dependent variable and independent variables in the model. For short-term analysis, the error correction model is used.

When a long-term relationship exists between the variables, then there is an error correction representative model, so the following error correction model runs in the third step:

$$IQ_i=\alpha_0+\sum_{i=1}^{p}\delta_i\Delta IQ_{t-i}+\sum_{i=1}^{p}\rho_i\Delta RR_{t-1}+\sum_{i=1}^{p}\varnothing_i\Delta PGDP_{t-i}+\sum_{i=1}^{p}\varnothing_i\Delta HC_{t-i}+\gamma ECM_{t-1} \quad (5)$$

The error correction model indicates the speed of the adjustment of the short-term shocks back to a long-term equilibrium. The coefficient of ECM_{t-1} determines the speed of adjustment of the short-term shocks toward the long-term equilibrium in the case of any disturbance.

3.1. Data and Description of Variables

Data on PGDP (constant 2010 USD) was retrieved from the World Development Indicators (WDI) provided by the World Bank (2020) for the period between 1984 and 2014. PGDP is measured in US dollars and divided by the population of Kuwait for each year and the period of analysis to get the per capita GDP; the population data was taken from the World Bank (2020).

Human Capital (HC) is challenging to measure, but it is often regarded as the accumulation of education in a country (Sun et al., 2018). The Human capital theory explains how education is a significant source of the human capital, which in time is an important component in the economic growth of any country (Acevedo, 2008). The data was obtained from the Penn World Table (PWT) v9.0 and referred as the Human capital index (Feenstra et al., 2015). PWT introduced the human capital index based on the average years of schooling from Barro and Lee (2013) and an assumed rate of return in terms of education (Psacharopoulos, 1994). Past studies have confirmed that education introduces awareness and creativity in a society, discourages corruption and rent-seeking behaviors, and hence increases the quality of institutions (Psacharopoulos, 1994; Lau et al., 1991). Thus, this study included the human capital index (following Kim and Lin, 2017) to test the impact of education on institutional quality.

Corruption index (CI) is used as a proxy for Institutional Quality (IQ), which is an approach used by a range of studies (Busse and Gröning, 2013; Tebaldi and Elmslie, 2013; Boschini et al., 2013; Knack and Keefer, 1995). The data was taken from the ICRG by the PRS Group from the period of 1984 to 2018 (ICRG, 2019). The ICRG is a widely used source because of its comprehensive coverage of countries over the time. Most of the observations start from 1982 and are measured from low to high: the higher the score a country gets, the better the institutional quality and the lower the score, the worse the institutional quality (Knack and Keefer, 1995).

CI is measured as control of corruption on a scale from 0 to 6 (where 0 means the political risk is high and 6 means the risk is low), but in this paper, this score was inverted to be converted into corruption, which is an approach used by Okada and Samreth (2017).

This variable assesses the level of corruption within a political system and includes the financial corruption (e.g. demands for special payments and bribes in connection with import and export licenses, exchange controls, or tax assessments), excessive patronage, nepotism, secret party funding, "favor-for-favors," job reservations, and suspiciously close ties between politics and business (ICRG, 2019; Busse and Gröning, 2013).

Resource rents (RR) are assumed to lead to rent-seeking behaviors and corruption in a resource rich country (Brunnschweiler, 2008; Stijns, 2005); thus, this variable is taken as an independent variable to check the impact of non-renewable energy resources on institutional quality. Resource rents are defined as the total percentage of GDP associated with sales of the natural resources, with the data obtained from the World Development Indicators (World Bank, 2020). This indicator is commonly used by researchers (Okada and Samreth, 2017; Elbadawi and Soto, 2015; Farhadi et al., 2015; Bhattacharyya and Hodler, 2014; Anthonsen et. al, 2012).

4. EMPIRICAL RESULTS AND DISCUSSION

Checking the order of integration of variables is a precondition of any co-integration model. For this purpose, augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests were applied. The unit root test was conducted with intercept, trend and intercept, and None. Butthe results of unit root test with trend and intercept are reported in Table 1[2]. The probability values are given in parenthesis. The results from both tests were consistent. For PGDP, human capital, and institutional quality, the null hypotheses of the unit root could not be rejected at the 5% level of significance. All these variables were integrated of order 1, i.e. I(1). The other variable under consideration was resource rents and it was stationary at level, I(0).

2 The results with none and intercept are available from author on request

Table 1: Results of unit root test

Variables	Augmented Dickey fuller test		Phillips Perron test	
	Level	1st difference	Level	1st difference
Per capita GDP	–2.33237 (0.2519)	–4.61592 (0.0008***)	–2.37119 (0.2007)	–4.85101 (0.0004***)
Human Capital	–2.56413 (0.1715)	–3.08156 (0.0412**)	–1.40178 (0.4912)	–3.10111 (0.0031***)
Resource Rents	–3.32353 (0.0301**)	-	–3.29909 (0.0293**)	-
Institutional Quality	–2.55245 (0.1521)	–5.5111 (0.0001***)	–2.38534 (0.1572)	–5.31331 (0.0002***)

***, **, and * shows significance at 99%, 95%, and 90% confidence interval

Table 1 shows two important features regarding the univariate characteristics of variables used in this study. First, all variables followed different orders of integration: I(1) and I(0). Secondly, all proposed dependent variables were integrated of order one. These two characteristics of variables allowed us to apply the ARDL, as these characteristics were also important prerequisites. The other prerequisite for the ARDL was the existence of co-integration between I(0) and I(1). With these results, it could be assumed that for all equations, there was at least one short or long-term cointegrating relationship between I(0) and I(1) variables. This was conducted by a co-integration bound test (Pesaran et al., 2001), where the bound-testing procedure was based on the Wald-test (F-test) and degree of freedom (K). The results in Table 2, show that the values of the F-statistics is higher than the upper bound in a 95% confidence interval. These results confirm that, for the given equation, there is at least one short or long-term co-integrating relationship between the I (0) and I(1) variables. Since all preconditions to apply the ARDL were fulfilled, that allowed us to proceed towards the regression results.

Table 2: Co-integration bound test results

Dependent variable	F-statistics	K
Institutional quality	3.91	3

Table 3: Impact of resource rents on institutional quality (corruption)

Variable	Coefficient	Prob.
Short-run results		
Resource rents	0.432*	0.069
Resource rents (–1)	0.250*	0.0853
Human capital	–0.512***	0.015
Human capital (–1)	–0.467*	0.065
Per capita GDP	0.152	0.621
Per capita GDP (–1)	0.173**	0.039
CointEq (–1)	–0.310**	0.048
Long-Run Results		
Resource rents	0.444*	0.063
Human capital	–0.679***	0.009
Per capita GDP	0.557	0.647
C	11.872**	0.041

***, **, and * shows significance at 99%, 95%, and 90% confidence interval

Table 3 shows the results for the impact of resource rents on institutional quality measured by corruption. Based on AIC, the order of the ARDL was selected. It appears that resource rents (% of GDP) induced corruption and caused a deterioration of institutional quality both in the short and long-term. With a 1% increase in the proportion of resource rents in Kuwait GDP, corruption increased 0.43% in long-term, which was significant at the level of 10%. The short-term results showed that the current and first lag of the percentage of resource rents in GDP had significant impact on the institutional quality by 0.43% and 0.25%, respectively.

Human Capital, as measured through education, also had a significant impact on the institutional quality in both the short and long-term. A 1% increase in HC reduced corruption by 0.68% in the long-run, while in the short-run, the current and lag of HC also reduced corruption by 0.51% and 0.46%, respectively. However, PGDP at the current level did not have a statistically significant influence on corruption, while the lag of PGDP was positive and significantly influenced corruption in the short-term. PGDP appeared positive but insignificant in the long-term.

The model was stable overall with a 0.31 error correction term. Further, to check the stability of the model, the cumulative sum control chart (CUSUM) and CUSUM of Squares tests were applied and both tests indicated that the model was stable (see Appendix: Figure A1 and A2).

The model findings show a negative association between resource rents and institutional quality, indicating that the proportion of resource rents in GDP could have led to an increase in corruption in Kuwait. These findings are consistent with studies in other contexts, namely Okada and Samreth (2017), Antonakakis et al. (2017), Olayungbo and Adediran (2017), Apergisa and Payne, (2014), Akpan and Chuku (2014), Dias and Tebaldi (2012), Anthonsen et al. (2012), Easterly and Levine (2003), and Ades and Di Tella (1999).

The results also suggest that the human capital can remediate some of the damages to the institutional quality caused by the resource rents. These results are aligned with several studies that confirm that education encourages legal and anti-corruption behaviors and increases the tendency of practicing good citizenship (Faria et al., 2016; Tebaldi and Elmslie, 2013; Dias and Tebaldi, 2012; Coe et al., 2009; Oreopoulos and Salvanes, 2009; Cheung and Chan, 2008; Beets, 2005; Glaeser et al., 2004; Lederman et al., 2005).

The lack of relationship between PGDP and institutional quality is aligned with Busse and Gröning (2013). This result indicates that although Kuwait is highly dependent on resource rents (92% of export revenues) (OPEC, 2019), and the vast oil revenues are reflected on its PGDP, Kuwait is still lagging in translating this blessing into development and growth.

The results from the model suggest that rents from oil have damaged the quality of institutions in Kuwait. Rents appear to increase the level of corruption in the short and long-term. However, human capital appears to be capable of mitigating this

effect. Thus, as Kuwait increases its oil rents, its government must be mindful of how this could impact their institutional quality. One policy to mitigate this impact would be to invest more in the field of education**.** The model here indicates the level of investment required to offset the negative impacts of resource rents on institutional quality, as the results reveal that a 1% increase in the human capital completely offsets the institutional quality damage caused by a 1% increase in resource rents in the long-term. Thus, the critical question that has arisen is how much does it cost to increase human capital by 1% and is it efficient to do this? This question must be further examined.

It should be noted that there could be other explanations of the phenomena under examination. The effects that were detected could be caused by the semi-democratic political system in Kuwait, which may foster corruption, relative to other systems of the government (Collier and Hoeffler, 2009; Montinola and Jackman, 2002). As the political system is divided between an appointed government and elected parliament, it is less accountable and less representative, and thus provides more loopholes for rent-seeking activities and misallocation of natural resources (Andersen and Aslaksen 2008). Moreover, resource rents are linked to rent-seeking activities to obtain financial gains and personal benefits by the officials (Busse and Gröning, 2013). In this case, it would be the political system itself that is creating the conditions for corruption. Exploration of this could be fruitful grounds for future research.

The outcomes of this study must be seen considering some limitations concerning the time frame of the data, which was limited to 30 years (1984–2014) which represented the full extent of the publicly available data. Although the data was adequate to show reliable results under the ARDL approach, more data would have been desirable. There is abundant room for applying the model developed on other Gulf countries as well as a way to confirm its generalizability, which is an essential element in any research methodology, as well as to improve the applicability of the findings of the other Gulf countries of Saudi Arabia, Qatar, and the United Arab Emirates.

5. CONCLUSION AND POLICY RECOMMENDATIONS

This study analyzed the impact of non-renewable energy resource rents on institutional quality in Kuwait and the possible mitigating effect of the human capital on institutional quality. The results indicate that an increase in resource rents decreases the institutional quality both in the short and long-term. However, the human capital increases the level of institutional quality in the short and long- term.

From all the above, it is obvious that institutional quality is the base of every step that has been taken or followed by the government and any step forward that will be followed in the future as well. To conclude, despite the blessings that Kuwait is enjoying from non-renewable energy resources, over time weak institutions will turn it into a curse. Since, the corruption intensity tends to cancel out the advantages of the oil abundance.

Since the study indicates that the human capital could offset the damage to institutional quality from the natural resource wealth, the results recommend that authorities in Kuwait should give more prominence and attention to the development of the human capital. Accordingly, skill-based education could be a key element in any diversification strategy.

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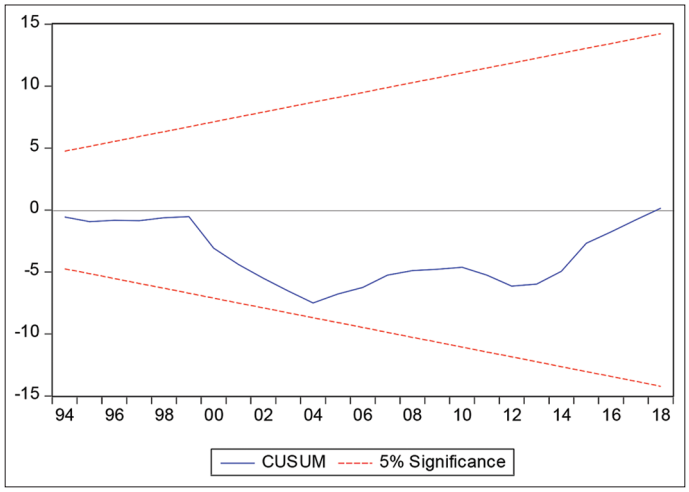
APPENDIX

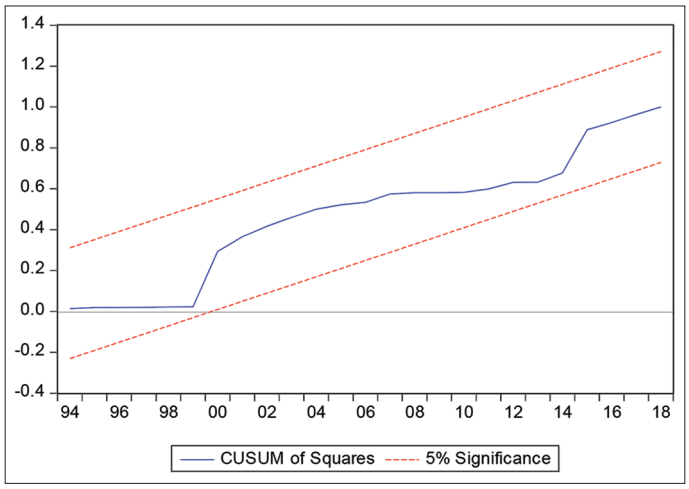
CUSUM and CUSUM of Squares tests

Figure A1: CUSUM stability test



Source: Author's own calculations

Figure A2: CUSUM of squares stability test



Source: Author's own calculations