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# Economic freedom, Resources endowment and economic growth nexus: The case of MENA countries

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**Abstract**: This paper focus on the possible economic freedom, resources endowment and economic growth nexus. To study this relationship for Middle East and North Africa countries, we divide the countries in two groups: the resources rich countries and the resources poor countries. We use panel data method over the period between 1995 to 2019 for selected MENA countries. Our empirical results showed the existence of a long relationship between the three variables only for resources rich countries. The countries suffer from the petroleum resources benefit from the economic freedom less than the rich countries. These results have some policy implications for these countries. Indeed, the resource endowment and economic freedom positively contribute to economic growth. Through its components, the economic freedom improves the quality of institution. Overall, the economic freedom can supports economic growth and limit the negative effect of dutch disease through efficiency of energy consumption.

**Keywords**: Economic freedom, resources endowment, Economic growth, resources rich countries and resources poor countries; Dutch Disease.

**JEL Classification Codes : Q11 ; Q430**

## 1.Introduction

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The natural resources are often considered as a vector of investment because it constitutes an input of production. The endowment of natural resources can lead to an increase in economic growth and development of countries. But the literature relative of the resource curse hypothesis has shown that in countries rich on natural resource, some other factors (non-democratic regime, institutional quality, openness…) can play a significant role for explain the weak growth in these countries.

Many studies have explained the inverse relationship between growth and natural resources endowment through their effects on institutions. The main explication of the weak economic growth of countries rich in natural resources is the Dutch Disease and the instability of oil price. The famous theory that explains the negative relationship between resource endowment and economic growth is the Dutch Disease model2. This model is developed by many researchers (Gregory (1976), Snape (1977), Corden and Neary (1982), Corden (1984) and Sachs and Warner (1995), Saadaoui and Jbir (2021)…). Sachs and Warner (1995) stated that "countries rich in natural resources seem paradoxically less efficient than countries which do not have them». Van der Ploeg, (2011), proved that not all countries realized a benefit from the endowment resource, countries which have a bad quality of institutions and a low degree of financial development corruption suffer from some difficulties. Leite and Weidman, (1999) showed that endowments in natural resources stimulate corruption and negatively influence growth. According to these studies, having strong institutions is of utmost importance. Isham et al., (2005) have argued that the endowments in natural resources, as well as the structure of exports, influence the quality of the institutions which are one of the determinants of growth. Sala-I-Martin and Subramanian (2003) proved that natural resources affect growth via price volatility and the quality of institutions and that this latter being one of the main determinants of long-term growth.

Some other past studies indicated that the impact of resource endowment can be negative on certain periods and positive on another (Hammache (2023)). The studies of Smith (2015) and James (2015) have shown that the dependence of countries on natural resources leads a weak economic growth rate during certain periods and a quick economic growth rate for other periods. Allcott and Keniston (2018) and Bjørnland., et al., (2019) have focused on the role of quality institutional in resources endowment. If the local institutions are weak, there will be a weak oil industry which leads to difficulty in economic growth in the countries. However, if the local institutions are strong, the countries grow quickly.

The remainder of this paper is organized as follow: section 2 focus on literature review of the link between economic freedom and macro-economy. Section 3 present empirical methodology and data and the last section analyze the results and summarize.

[2] For more details on Dutch disease model see (Jbir,2013).

## 2.Literature review

It is known that economic growth is dependent on many traditional factors such as investment, the stock of human capital, trade specialization.... Recently, some research added the economic freedom[3] variable as a factor contribute to the economic growth.

For Gwartney et al., (1996), there two conditions when individuals have economic freedom. First because they take property without using force or fraud. Second, they can employ, exchange between goods without any restriction. For other authors (Gwartney et al., (2003)), economic freedom can increase economic growth through many transmission channels.
In any way, this variable (economic freedom) can support economic growth and the distribution of income (Berggren (2003)). For Berggren, theoretically, the variable of economic freedom contributes to install many institutions in the economy. These institutions stimulate actions to increase the production of more valuable output and then favorite the economic growth.
Murphy et al., (1991) showed that institutions can lead to implementing low taxation, independent legal system and the protection of private propriety wish puts a dynamic competition between different actors in the economy. Because in this situation, the actors can take rational decisions wish to promote investment and therefore stimulate economic growth.
Furthermore, for Barro, (2000), in reality when economies have more economic freedom, they grows more faster than other countries.
In econometrically point of view, many studies (Gwartne., et al., (1999), Haan and Sturm (2000), Adkins et al., (2002) and Panahi et al., (2014)…) use different econometric tools in this topic. Gwartney et al., (1999) proved that this contribution is weak at the initial level of economic freedom. Conversely, other studies4 (Hanson (2000), Ali and Crain (2001), Pitlik, (2002), Panahi et al., (2014) …) have showed that there is a strong positive contribution at the beginning of economic freedom.
After these studies, more recent studies (Esposito and Zaleski (1999), Melkumian (2004), Kreft and Sobel (2005), Ashby and Sobel (2008), Al Baiti1 et al., (2017), Sheshgelani and Badri, (2017), Mouhouni (2022), …) have analyzed the transmission channels by which the economic freedom affect the economic growth.
Esposito and Zaleski (1999) used health as a variable measuring economic growth. Melkumian (2004) has concentrated on the variable of migration and therefore technology transfer as a channel of transmission of the positive impact of economic freedom. Kreft and Sobel, (2005) and Ashby and Sobel (2008) use entrepreneurship as the main transmission means.

[3] See the book of the heritage foundation (2015) Index of Economic Freedom Promoting Economic Opportunity and Prosperity for completed detail on freedom economics.
https://www.heritage.org/index/pdf/2015/book/index_2015.pdf
[4] For summarize of results of some studies, see table 3 page 2002 in study of (Berggen, 2003).

Using a panel data method for 10 developing countries over the period from 2001 to 2013, for Sheshgelani and Badri, (2017), it is the foreign direct investment which explain the role played by economic freedom. Al Baiti et al., (2017) proved the same results for China.
For the possible engagement of economic freedom-energy, there is a lack of studies in this subject. The main studies are the study of Beland and Tiagi (2009), Kaznacheev (2013, 2017) and Nicolas (2015). In our knowledge, this study is the first study in this subject on MENA countries.
Using annual data of EFW (Economic Freedom of the World) index and real GDP per capita from 1970-2006, Beland and Tiagi (2009) showed that there is a close association between economic freedom and macro-economic variables for countries export more metals and ores (resource-abundant). Eight years later the same result finds by Kaznacheev (2017).
For Nicolas (2015), economically freer countries tend to consume energy more efficiently through innovation and enjoy cleaner environments and greater the environmental sustainability. In this way, this efficiency in energy can leads to a rationalization in energy consumption and less Co2 emission in environment wish is positively affect the economic growth. Indeed, the studies shown the impact of energy and the environment on economic growth are many and the results differ from country to other and period to others. Therefore, countries who have energetic resources endowment and a higher index of economic freedom must fastly growing than others. Kaznacheev (2013) indicated that some rich countries in resources such as Mozambique, Algeria, Congo DR, Angola, Republic of Congo, Zimbabwe suffer from Dutch disease because they have a lower economic freedom index. However, other countries (Australia, Canada, Bahrain, Finland and Chile) don't suffer from Dutch disease effects because of the existence of a high level of economic freedom. As we noted above, in this line, many studies (Smith (2015), James (2015), Allcott and Keniston (2018) and Bjørnland et al., (2019) have confirmed the positive role of intuitions in the economic growth of resources-abundant countries. For Kaznacheev (2013) the mechanisms through which economic freedom positively affects the economic growth include the institutional development, rent-seeking, property rights, trade freedom, and reduction of conflicts and violence. So according to the institutionalist approach or «institutionalism shcool5», weak institutions negatively affect growth and development and the reverse is true. In this paper, we investigate the long-run correlation between freedom economic endowment resource and economic growth for selected MENA countries.

## 3. Empirical methodology and model

To analyze the correlation between economic freedom, economic growth and resource-abundant for nine Middle East and North Africa (MENA) countries, we use the

[5] Is an approach who explain the role of rules of low and economics freedom in economic growth.

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cointegration panel data model. We separate between two groups of countries. We call the first group the resources rich countries and the second group the resources poor countries.
The first group of countries is constituted by countries heavily endowment resources of energy. Our sample continent of five countries (Algeria, Iran, Kuwait, Emirates and King Saudi Arabia). The resources poor countries are generally the energetic importing countries (Tunisia, Bahrain, Egypt and Oman).
The panel data model is:

$$Y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + .... + \mu_{it}$$

$i = 1,2,3,....$ countries, $t = 1,2,3,....$ years

Yit is the independent variable measure the economic growth (Lgdp)

Xit are the explicative variables (economic freedom (ef) and endowment resource (pr)).

All data used in this study are collected from Economic Data and Statistics on World Economy and Economics freedom (www.heritage.org) and world development indicators (WDI).
The empirical study of the relationship between variables is conducted in three steps. The first step it should be checked is the stationarity of all variables. We verify the stationarity of variable by using panel unit root test. In the second step, we analyze the long run relationship between variables if exist by using the panel Pedroni cointegration test. Finally, if we find a cointegration between variables, Granger causality test will be employed to find out whether a long run or a short causal relationship exist between variables.

### 3.1. Panel unit root tests results

The first step in econometric analyze is usually to check the propriety of variables (stationarity). In panel data model, many unit roots tests have developed ((Levin and Lin,1992), (Im-Pesaran-Shin,1997), (Harris and Tzavalis, 1999), (Maddala et Wu, 1999), (Choi,1999a) and Hadri ,1999)). Table1 and 2 present results for both resources rich and poor countries.

**Table 1: The results of unit root tests (first group)**

| Levin unit root tests | | | | |
|---|---|---|---|---|
| **Variables** | **Level** | | **First difference** | |
| | I | II | I | II |
| Lgdp | -1.557 (0.0596)** | 2.236 (0.987) | -7.154 (0.00)* | -6.364 (0.00)* |
| ef | -1.263 (0.1033) | -1.526 (0.0635)** | -7.247 (0.00)* | -5.121 (0.00)* |
| pr | -0.714 | 0.11 | -6.389 | -5.499 |

| | | | | |
|---|---|---|---|---|
| | (0.237) | (0.548) | (0.00)* | (0.00)* |
| **Im, Persean, shin unit root tests** | | | | |
| Lgdp | 0.654<br>(0.743) | 2.826<br>(0.997) | -5.585<br>(0.00)* | -4.522<br>(0.00)* |
| ef | -1.331<br>(0.0916)** | -2.246<br>(0.0123)* | -10.272<br>(0.00)* | -9.802<br>(0.00)* |
| pr | 0.891<br>(0.813) | -0.492<br>(0.311) | -6.571<br>(0.00)* | -6.008<br>(0.00)* |

*significant at5% level and ** significant at 10% level.

I: Individual Intercept.

II: Individual intercept and trend

Lgdp is the logarithm of growth domestic product.

Ef is the economic freedom variable.

Pr is proved reserve constitutes the endowment resource variable.

From table1 we can conclude that for Lgdp variable, the Levin and Im, Persean, shin test results show that the economic growth variable in logarithm is not stationary at level with P- value wish is upper than 0.05. Overall, the unit root tests results indicate that at 5% level we cannot reject the null hypothesis. The Lgdp is stationary at the first difference and is integrated with order I(1).

For the variables economic freedom (ef) and proven reserves (pr), table 1 shows that all variables are stationary in first difference and also I(1).

**Table 2: The stationarity tests results (second group)**

| **Levin unit root tests** | | | | |
|---|---|---|---|---|
| **Variables** | **Level** | | **First difference** | |
| | I | II | I | II |
| Lgdp | -1.547<br>(0.0609)** | 1.88158<br>(0.9701) | -6.229<br>(0.000)* | -5.756<br>(0.00)* |
| ef | -0.849<br>(0.1978) | -0.662<br>(0.2537) | -8.949<br>(0.00)* | -7.214<br>(0.00)* |
| pr | -0.1535<br>(0.4390) | 0.5344<br>(0.7035) | -4.718<br>(0.00)* | -5.065<br>(0.00)* |
| **Im, Persean, shin unit root tests** | | | | |
| Lgdp | 0.647<br>(0.7415) | 2.233<br>(0.9872) | -5.020<br>(0.00)* | -4.119<br>(0.00)* |
| ef | -1.397<br>(0.081)** | -0.788<br>(0.215) | -8.241<br>(0.00)* | -6.649<br>(0.00)* |

| | | | | |
|---|---|---|---|---|
| pr | -0.485<br>(0.313) | 0.019<br>(0.507) | -3.773<br>(0.0001)* | -3.949<br>(0.00)* |

Table 2 also indicate the same result of table1 that all variables are I(1).

### 3.2. Panel cointegration tests results

Following the results above, we can conduct the cointegration analysis. We use a pedroni cointegration tests to study the possible long run relationship between variables for rich and poor countries. Table 3 and 4 present the results of pedroni tests.

**Table 3: Panel Pedroni tests results (resources rich countries)**

| | **Statistics[6]** | **P-value** |
|---|---|---|
| **Within-dimension** | | |
| **Panel v-Statistic** | -31.84533 | 1.0000 |
| **Panel rho-Statistic** | -0.596293 | 0.2755 |
| **Panel PP-Statistic** | -1.318432 | 0.0937** |
| **Panel ADF-Statistic** | -1.439417 | 0.0750** |
| **Panel v-Statistic (weighted)** | 0.236322 | 0.4066 |
| **Panel rho-Statistic(weighted)** | -0.681365 | 0.2478 |
| **Panel PP-Statistic(weighted)** | -1.386842 | 0.0827** |
| **Panel ADF-Statistic(weighted)** | -1.484283 | 0.0689** |
| **Between-dimension** | | |
| **Group rho-Statistic** | 0.005922 | 0.5024 |
| **Group PP-Statistic** | -1.350108 | 0.0885** |
| **Group ADF-Statistic** | -1.476465 | 0.0699** |

Table 3 summarizes the results of panel cointegration tests for rich countries. From this table, it is clear that there is a cointegration between three variables for rich countries at 10% level. Indeed, six among eleven tests confirm this result.

For the second group of countries (poor countries), table 4 presents the results of Pedroni cointegration tests.

[6] Pedroni Residual Cointegration Test: Trend assumption: No deterministic trend.

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**Table 4: Panel Pedroni tests results (resources poor countries)**

| | Statistics | P-value |
|---|---|---|
| **Within-dimension** | | |
| **Panel v-Statistic** | -1.5622 | 0.9409 |
| **Panel rho-Statistic** | 1.0637 | 0.8563 |
| **Panel PP-Statistic** | 0.1671 | 0.5664 |
| **Panel ADF-Statistic** | -0.0033 | 0.4987 |
| **Panel v-Statistic (weighted)** | -1.3597 | 0.9131 |
| **Panel rho-Statistic(weighted)** | 0.9913 | 0.8393 |
| **Panel PP-Statistic(weighted)** | 0.3401 | 0.6331 |
| **Panel ADF-Statistic(weighted)** | 0.1977 | 0.5784 |
| **Between-dimension** | | |
| **Group rho-Statistic** | 1.9060 | 0.9717 |
| **Group PP-Statistic** | 1.3680 | 0.9144 |
| **Group ADF-Statistic** | 1.0676 | 0.8572 |

Table 4 shows that there is no cointegration between the three variables for poor countries. Indeed, P-value of all tests are upper than 5% and 10%.

These results of cointegration tests for two group of countries, confirm the results of many studies especially (Beland and Tiagi, 2009) and (Kaznacheev, 2013, 2017).

## 3.3 Long run model estimation

As the results of cointegration tests confirm the existence of long run relationship for the group of resources rich countries, we can estimate model using FMOLS methods. Table 5 below give the results of long run estimation (LGDP is a dependent variable).

**Table 5: long run relationship estimation (FMOLS) (resources rich countries)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| **EF** | 0.230344 | 0.033130 | 6.952835 | 0.0000 |
| **PR** | 0.352937 | 0.033861 | 10.42318 | 0.0000 |

Table 5, also prove the existence of long run link between variables for rich countries. The p-value is equal 0.00 for economic freedom and proven reserves. In the long run, a positive deviation of 1% of economic freedom and proven reserves lead to a deviation of the economic growth respectively by 023% and 0.35%.

We can use the DOLS method to confirm this result. Table 6 presents the results of long run estimation with DOLS method.

**Table 6: long run relationship estimation (DOLS) (resources rich countries)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EF | 0.235805 | 0.035168 | 6.705106 | 0.0000 |
| PR | 0.319480 | 0.051518 | 6.201362 | 0.0000 |

As shown table 6, the results of DOLS estimation indicate the same results and confirm the existence of long run relationship between economic freedom, resource endowment and economic growth.

Overall, our results showed that at long-run level, the resource endowment coupled with economic freedom can positively contribute to economic growth. This result confirms the finding of many past studies Kaznacheev (2013) and Nicolas (2015). Al Baiti *et al.*, (2017). This result is also in agreement with other studies (Allcott and Keniston (2018) and Bjørnland et al., (2019)). These studies analyze the existence of strong correlation between quality of institutions and economic growth. Indeed, due to the components of economic freedom (propriety rights, and freedom from corruption) the quality of institutions will be more strong. This positive effect of economic freedom can limit the negatives impact of dutch disease for resources rich countries.

For resources poor countries, the economic freedom does not seems to be an important factor contribute to increase of the economic growth. In these countries, the weak level of energy income does not increase the economic growth even in presence of strong quality of institutions.

## Conclusion

Through this research, we analyzed the possible nexus of economic freedom, resource endowment and economic growth for two groups of MENA countries. Using panel data estimation, our finding indicate that the results of resources rich countries are different from the results of resources poor countries. Indeed, the results confirm the importance of long run link

between economic freedom, resources endowment and economic growth for rich countries. Whereas there is no long run relationship between variables for the resource's poor countries. This result means that in long run economic freedom positively contribute to economic growth for rich countries especially from the government spending and investment freedom which are two key elements of economic freedom. Indeed, its known that in resources rich countries, government spend and invest more than resources poor countries and as shown (Kaznacheev, 2013) and (Panahi *et al*., 2014) the economic freedom limits on the government's ability to transfer wealth through subsidies. Moreover, in this case, it will be more efficiency of energy use in the rich countries as stressed (Nicolas, 20015). This efficiency of energy used for production leads to less of environment pollution. Finally, these positive consequences of economic freedom play a significant role to mitigate the bad effects of Dutch disease on economy. This result encourages countries who have endowment resources to more invest for improves they economic freedom indicator.

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**ppendix**

Dependent Variable: LGDP
Method: Panel Fully Modified Least Squares (FMOLS)
Date: 04/08/20 Time: 15:30
Sample (adjusted): 1996 2019
Periods included: 24
Cross-sections included: 4
Total panel (balanced) observations: 96
Panel method: Grouped estimation
Long-run covariance estimates (Bartlett kernel, Newey-West fixed bandwidth)
Warning: one more more cross-sections have been dropped due to estimation errors

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EF | 0.230344 | 0.033130 | 6.952835 | 0.0000 |
| PR | 0.352937 | 0.033861 | 10.42318 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | -3178.680846 | Mean dependent var | 25.61601 |
| Adjusted R-squared | -3212.507238 | S.D. dependent var | 0.810621 |
| S.E. of regression | 45.95232 | Sum squared resid | 198491.9 |
| Long-run variance | 4.265317 | | |

Dependent Variable: LGDP
Method: Panel Dynamic Least Squares (DOLS)
Date: 04/09/20 Time: 14:08
Sample (adjusted): 1997 2018
Periods included: 22
Cross-sections included: 4
Total panel (balanced) observations: 88
Panel method: Grouped estimation
Fixed leads and lags specification (lead=1, lag=1)
Long-run variances (Bartlett kernel, Newey-West fixed bandwidth) used for
individual coefficient covariances
Warning: one more more cross-sections have been dropped due to estimation errors

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EF | 0.235805 | 0.035168 | 6.705106 | 0.0000 |
| PR | 0.319480 | 0.051518 | 6.201362 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | -2585.622849 | Mean dependent var | 25.62587 |
| Adjusted R-squared | -3628.615933 | S.D. dependent var | 0.800727 |
| S.E. of regression | 48.24084 | Sum squared resid | 144285.1 |
| Long-run variance | 3.068787 | | |