International Journal of Business and Applied Social Science

E-ISSN: 2469-6501
VOL: 10, ISSUE: 3
March/2024
DOI: http://dx.doi.org/10.33642/ijbass.v10n3p4

The Role of Non-Petroleum Production on the Economies of the GCC Countries

Mohammad Alawin
Economics Department
Kuwait University
e-mail: m_alawin@hotmail.com
Kuwait

ABSTRACT

This study aims to examine the role of non-petroleum production on the economies of the Gulf Corporation Council (GCC) countries for the study period from 1992 through 2021. GCC countries were adopting long-term plans to diversify the economy by expanding the base of domestic production to products other than petroleum. This study adopted an empirical model that depends on several variables to explain the development of economic growth. The model was estimated using a panel data regression method. The results found were generally consistent with the economic theory. The main finding of the model showed that the effect of domestic production of non-petroleum products was positive and statistically significant on economic growth. However, the road is still long. To achieve the goal of diversifying the economies to the point of substantial dependence on the non-petroleum sector, more efforts will be necessary.

KEYWORDS: non-petroleum production, oil production, Panel data, GCC Countries

1. Introduction

The issue of economic growth determinants was heavily examined in the literature. Prior literature on the theory of Export-Led Growth (ELG) was also examined in depth. Much of the literature proved the validity of the hypothesis that increasing the production of non-petroleum products spurs economic growth. This theory is especially important for the Gulf Corporation Council (GCC) countries that depend mainly on producing and exporting petroleum derivatives to the rest of the world to achieve their goals of high economic growth rates and sustained development and prosperity (Kalaitzi & Cleeve, 2018 and Faisal *et al*., 2017). In recent decades, the petroleum sector has played a major role in the development process in the GCC countries. This dependence on oil created a problem. Specifically, petroleum products became the main source of production, exports, government revenues, and employment for most of the GCC countries. The GCC countries saw this problem and adopted different strategies aimed at diversifying the base of domestic production. They aimed to enhance all economic sectors, including manufacturing, transportation, financial, and tourism sectors. This diversity will help ensure the long-term stability of the local economy. It will reduce the volatility in the economy created by the petroleum sector, whether oil, gas, or other derivatives, that has proven, historically, to be subject to big fluctuations in prices or quantity.

Most of the GCC countries are members of the Organization of the Petroleum Exporting Countries (OPEC). This means that these countries produce and export larger shares of oil than other oil-exporting countries. However, these big shares make these economies vulnerable to external shocks. Data show that the average shares of non-petroleum products as a percentage of the Gross Domestic Product (GDP) in the GCC countries are relatively low. For example, Kuwait, Saudi Arabia, and Oman have shares of 58%, 65%, and 66%, respectively. Many advisors have suggested that GCC countries need to invest more in the non-petroleum sector and diversify their investments to attract more foreign investments in all activities, not just in oil or gas industries.

Therefore, the purpose of this study is to study the role of non-petroleum production on the economies of the GCC countries for the study period of 1992 to 2021. This paper is organized as follows: Section 2 presents the literature review. Section 3 gives the methodology for analyzing the determinants of economic growth in the GCC countries, and Section 4 examines the empirical results. Finally, Section 5 addresses the conclusions and recommendations of the study.

2. Literature Review

In this section, we review the main literature that examined the impact of petroleum and non-petroleum products on economic growth. This section will cover the behavior of oil-exporting countries, especially the GCC countries. In addition, it will address the Export-Led Growth (ELG) hypothesis, since oil exports are believed to be the engine of growth for the GCC countries.

To the best of the researcher's knowledge, no paper has used the variable non-petroleum products as an independent variable in an economic growth model, specifically focused on the GCC countries. In essence, this research includes non-petroleum products as an exogenous variable to determine the effect of non-petroleum products on economic growth. Balila (2022) studied non-oil growth in GCC countries as a dependent variable. In particular, Balila studied the effect of economic structural reforms on non-oil growth. The results indicated that controlling the labor market, especially the informal one, has the biggest impact on the economy. Balila found that the government should decrease the costs associated with entry regulation to enhance economic growth.

International Journal of Business and Applied Social Science

E-ISSN: 2469-6501
VOL: 10, ISSUE: 3
March/2024
DOI: http://dx.doi.org/10.33642/ijbass.v10n3p4

Khan *et al*. (2022) examined the relationship between economic growth and international trade in Oman for the period 2000 to 2018. The methodology included an autoregressive distributed lag (ARDL) model and the Granger causality test. The results showed long and short-run relationships among the variables of interest. The results also proved that imports were crucial for economic growth. The authors stated that imports can provide the economy with advanced technology that can enhance domestic production and therefore enhance exports.

Saeed & Altaee (2017) examined the impact of exports on economic growth in the GCC countries for the period 1990–2014. The paper used pooled ordinary least squares and panel data analysis as the methods of estimation. The paper's results supported the Export-Led Growth (ELG) hypothesis.

Kalaitzi & Chamberlain (2021a) examined the ELG hypothesis for five members of the GCC countries for the period 1975-2016. The methodology involved using cointegration and causality tests. The results proved the validity of the ELG hypothesis for Bahrain, Kuwait, and UAE. Kalaitzi & Chamberlain (2021b) studied the causality among economic growth, manufactured exports, and imports for one member of the GCC countries, Kuwait, for the study period 1970 to 2019. This study investigated whether manufactured exports contribute to economic growth and which categories of imports drive export diversification to achieve long-run economic growth. This study used several methods, including unit root tests, the Johansen cointegration test, dynamic ordinary least squares, Granger causality, and the Toda and Yamamoto test. The results showed that the variables of interest were cointegrated. However, one main result of the study was that manufactured exports do not cause economic growth.

Faisal *et al*. (2017) studied the relationship between economic growth and international trade for Saudi Arabia for the period 1968-2014. The study used the ARDL method. The results showed that GDP has a long cointegration relationship with exports and imports. In 2016, Alkhateeb *et al*. found the same result for Saudi Arabia for the period of 1980 to 2013. Their techniques involved using unit root, cointegration, and causality tests.

Kalaitzi & Cleeve (2018) examined the validity of the ELG hypothesis in the United Arab Emirates (UAE) during the period 1981 to 2012. The paper used several econometric techniques, including unit root tests, the Johansen cointegration test, and the Granger causality test. The main finding of this paper proved that the long-run relationship was stronger between economic growth and manufactured exports than with primary exports.

Finally, Islam *et al*. (2022) studied the ELG hypothesis in four Asian Countries-Bangladesh, China, India, and Myanmar-for different periods. They used the ARDL method. The findings of the paper confirmed the long-run cointegration relationship among the variables. However, the ELG hypothesis was proven only for China.

3. Methodology and Data

To evaluate the effect of non-petroleum production on economic growth, we use real GRP per capita in the GCC countries to measure economic growth. This paper uses a model that involves several independent variables that are the main determinants of economic growth. We test the economic growth function presented by the dependent variable (*RGDPP*), which is the logarithm of the per capita real GDP in the constant year 2015 US$. Building on the model presented by Saeed & Altaee (2017), equation 1 illustrates the general behavior of the log of the real GDP per capita function in response to several explanatory variables that are assumed to affect economic growth:

$$RGDPP = F(NON\text{-}PETROLEUM, X, M, LABOR, CAPITAL) \quad (1)$$

NON-PETROLEUM is the growth rate of the production of the non-petroleum sector. This variable excludes the production of oil and gas from GDP when calculating the share of it as a percentage of GDP. *X* is exports as a percentage of GDP, and *M* is imports as a percentage of GDP. *LABOR* is proxied by the labor force participation rate, which is the percentage of the population between the ages of 15-64 who are working. Finally, *CAPITAL* is the log of real gross capital formation in the constant year 2015 US$. All variables were retrieved from the Word Bank Open Data (data.worldbank.org) source. The sample study of the GCC includes the countries of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE.

CAPITAL and *LABOR* are the basic resources for any economy to proceed with production and development processes. We anticipate a positive effect for both variables on the economy and, as a result on the per capita real GDP. The growth of any economy can be accomplished by enhancing the quantity and increasing the quality of labor and capital, but also by the role of the export sector. As a country's economy grows, the export sector becomes one of the main growth sources. Therefore, the coefficient of the export variable is expected to have a positive sign in our empirical model.

There could be two expected effects of imports. Increasing imports could decrease economic growth since increasing imports implies replacing local production. That replacement may lead to higher rates of unemployment, and economic growth may be negatively affected. On the other hand, the increase in imports could enhance economic growth; imports provide the economy with the needed materials, whether raw or manufactured, to grow and continue expansion. This view is vital to consider since no economy can provide all of the necessary goods from the local market. In some cases, imports also give some kind of positive and helpful competition with the local products, encouraging them to be improved.

The goal of this research is to study and analyze the effect of the non-petroleum variable on the studied GCC countries' economies. This variable is calculated as a percentage of GDP after the values of the oil and gas industries are subtracted from the domestic production. The GCC countries are historically dependent on revenues of all kinds of petroleum derivatives. Therefore, over the years, many opinions have

International Journal of Business and Applied Social Science

E-ISSN: 2469-6501
VOL: 10, ISSUE: 3
March/2024
DOI: http://dx.doi.org/10.33642/ijbass.v10n3p4

encouraged these governments to diversify their economies. Those views encouraged countries to be less dependent on the revenues of oil, gas, and other petroleum derivatives, because eventually substitutes for these products may come. Accordingly, we expect theoretically that the effect of increasing the share of the non-petroleum products in the GDP to have a positive effect on economic growth.

To examine the impact of different explanatory variables on the non-petroleum component of GDP (*NON-PETROLEUM*), the paper will utilize the panel data model approach. The first step of applying this approach is to estimate the random effects and fixed effects models. In the second step, we apply the Hausman test to determine which model is appropriate to choose. The Hausman test determines which model is more efficient between the fixed effects model and the random effects model. The null hypothesis of the Hausman test is that the random effects model is preferred because it is more efficient. The alternative hypothesis of the text is that the fixed effects model is consistent and thus preferred. This method uses the Chi-square statistic to choose the preferred model.

Equation 2 summarizes the reduced form of the model that will be used to estimate the effect of the non-petroleum portion of the GDP on economic growth for the GCC countries. The reduced form of the model is presented in the following equation:

$$RGDPP_{it} = \alpha_i + \beta_1 NON\text{-}PETROLEUM_{it} + \beta_2 X_{it} + \beta_3 M_{it} + \beta_4 LABOR_{it} + \beta_5 CAPITAL_{it} + \mu_{it} \quad (2)$$

β_i are the elasticity coefficients, μ is the disturbance term, and α_i denotes country fixed effects. The countries are denoted by i (i=1,..,6), and t is for the study period years (t=1992,…,2021).

4. EMPIRICAL RESULTS

To select the appropriate estimates of the fixed effects and random effects models, we use the Hausman test. The Chi-square statistic of the Hausman test is 423.6. This result indicates a definite rejection of the null hypothesis, that the random effects are the appropriate model, and acceptance of the alternative hypothesis, that the fixed effects model is the best model of estimation. However, the paper will report the estimations of both the random effects and the fixed effects model in Table (1). We will comment only on the selected, fixed effects model.

Table 1. Fixed effect model and random effect model results

Variables	Fixed effects	Random effects
Constant	3.913** (28.787)	3.153 ** (43.904)
NON-PETROLEUM	0.001 * (2.431)	0.002 ** (4.474)
X	0.090 * (2.200)	0.246 ** (7.618)
M	-0.155* (-2.470)	-0.396 ** (-11.627)
LABOR	-0.003 (-1.872)	0.016 ** (46.010)
CAPITAL	0.170** (3.850)	0.201 ** (12.024)

***Note*:** t-statistics are reported inside the parentheses.
** Significant at 1% and * Significant at 5%.

The results of the fixed effects model are almost completely consistent with the expectations of this paper. The only exception is the sign of *LABOR*. While it shows a negative sign, it was insignificant at either 1 or 5% level. However, this result is somewhat consistent with the results of Eludire (2023), who studied the effect of labor force participation on economic growth in advanced and developing economies. His results show that economic growth is strongly impacted by the labor force in advanced economies only. Eludire argues that developing economies should improve workers' skills by providing intensive training programs to equip labor with the required skills.

The main result of the regression in this research is provided by the coefficient of the variable *NON-PETROLEUM*. As explained, this variable represents the GDP, after excluding the petroleum products like gas and oil. The main idea of testing this variable is to see whether the variable *NON-PETROLEUM* would affect economic growth positively. We can see if the local governments of the GCC countries are achieving their goals of diversifying their economies to depend less on the returns of petroleum products by examining the change in the *NON-PETROLEUM* variable. The result of the variable's coefficient is consistent with our expectations. The positive effect on the economic growth of the GCC countries was significant at the 1% level. However, it is worth mentioning that this variable appears to have the lowest magnitude of effect among all other variables on economic growth. This result does not come as a surprise given the magnitude of the petroleum sectors in the GCC countries and the continuous dependence of these governments on the revenues of the petroleum sector.

The variables of international trade show the expected signs. Exports are the main engine of any economy; they show a positive and significant effect on economic growth. On the other hand, and as explained earlier, either sign may be expected for the effect of imports on economic growth. The first case is the negative impact of imports since they are considered obstacles to the growth of local production. The second case is a positive

International Journal of Business and Applied Social Science

E-ISSN: 2469-6501
VOL: 10, ISSUE: 3
March/2024
DOI: http://dx.doi.org/10.33642/ijbass.v10n3p4

effect, implying imports are necessary for the growth of the economy. In that instance, imports provide the economy with needed competition for the local products and provide the economy with the necessary raw and intermediate materials for the process of production. The results of this research found a negative impact, favoring the first view, and it was significant at the 5% level. However, this finding is somewhat consistent with the result found for the non-petroleum variable, which is found to have a low value of impact. Specifically, both of these results indicate the need for the GCC countries to rely less on petroleum revenues by enlarging the base of local production. This will help the evolution of imports from the substitution process.

5. Conclusion

This study examines the effect of domestic production of the non-petroleum sector on the economy presented by real GDP per capita in the GCC countries. The main question was whether these countries, which adopted a diversity strategy for their economies, were able to achieve the goal of allowing the non–petroleum sector to influence the economy. For that purpose, the study builds an empirical model for the economic growth in GCC countries. The model includes several independent variables that explain the behavior of economic growth for the study period from 1992 to 2021. The paper applies a panel data regression approach and the Hausman test to choose between the results of the fixed effects model or the random effects model.

The fixed effects model is determined to be the appropriate model. In general, the results of the fixed effects model are consistent with economic theory and the expectation of this paper, except for labor. The main interest of this study is the variable that represents the domestic production of non-petroleum products. The effect of this variable is positive and statistically significant. This indicates the GCC countries are on their way to achieving a diversified economy that is not heavily dependent on petroleum products and can achieve the targets of economic goals. However, this variable has the lowest magnitude of effect among all other variables that affect economic growth.

These results suggest recommendations that encourage GCC countries to keep pursuing the steps toward diversifying the economy. Improving the skills of workers and equipping them with suitable advanced technology should help to achieve that goal. This should enhance the base of the non-petroleum part of the economy, giving the whole economy the flexibility to adapt to external and unexpected shocks.

References

Alkhateeb, T., Mahmood, H., & Sultan, Z. (2016). *The Relationship between Exports and* Economic Growth in Saudi Arabia. *Asian Social Science*, *12*(4), 117-124. DOI: 10.5539/ASS.V12N4P117

Balila, Basel (2022). Non-oil Growth in the GCC: Estimating the Impact of Structural Reforms. *Scientific Journal for Publishing Research*, *11*, 1-15. Available at: https://sjr-publishing.com/wp-content/uploads/2019/03/Non-oil-Growth-in-the-GCC-1.pdf

Eludire, Abigeal (2023). The Impact of Labor Force on Economic Growth: A Global View. Eastern Michigan University. Available at: https://www.researchgate.net/publication/376557034_the_impact_of_labor_force_on_economic_growth_a_global_view

Faisal, F., Türsoy, T., & Reşatoğlu, N. (2017). Is Export-Led Growth Hypothesis Exist in Saudi Arabia? Evidence From an ARDL Bounds Testing Approach. *Asian Journal of Economic Modelling*, *5*(1), 110-117. DOI: 10.18488/journal.8/2017.5.1/8.1.110.117

Khan, U., Khan, A. M., Alam, M. D., & Alkatheery, N. (2022). Causation Between Consumption, Export, Import and Economic Growth of Oman. *Etikonomi*, *21*(1), 67-78. https://doi.org/10.15408/etk.v21i1.20034.

Kalaitzi, A. & Cleeve, E. (2018). Export-led growth in the UAE: Multivariate Causality between Primary Exports, Manufactured Exports and Economic Growth. *Eurasian Bus Rev*, *8*, 341–365. https://doi.org/10.1007/s40821-017-0089-1

Kalaitzi, A. & Chamberlain, T. (2021a). The Validity of the Export-Led Growth Hypothesis: Some Evidence from the GCC. *The Journal of International Trade & Economic Development*, *30*(2), 224-245. DOI: 10.1080/09638199.2020.1813191

Kalaitzi, A., & Chamberlain, T. (2021b). Export Diversification in the Gulf: The Kuwait Experience. *International Advances in Economics Research*, *27*, 147–149. https://doi.org/10.1007/s11294-021-09825-4

Islam, M., Tareque, M., Moniruzzaman, M., Idris, M. (2022). Assessment of Export-Led Growth Hypothesis: The Case of Bangladesh, China, India and Myanmar. *Ekonomika Regiona /Economy of Regions*, *18*(3), 910 – 925. https://doi.org/10.17059/ekon.reg.2022-3-20

Saeed, S. & Altaee, H. (2017). Export and Economic Growth Nexus in the GCC Countries: A panel Data Approachk. *International Journal of Business and Social Research*, *7*(12), 01-09. DOI: http://dx.doi.org/10.18533/ijbsr.v7i12.1084