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A Quantitative Assessment of the Role of the Private Sector in Economic Diversification in UAE

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Abstract

The United Arab Emirates (UAE) has often been addressed as a success case in the GCC region due to its implemented policies that spurred growth and development with a market-friendly approach. This study aims to investigate the relationship between economic diversification and private sector development. For this, we employed an ARDL con-integration method to check the long run as well as short run relationship between variables. We found that the domestic credit to private sector has a positive relationship with diversification index. Also, domestic credit to private sector (DCPS) percentage of GDP has both short and long run relationship with economic diversification index. The results indicate that the domestic credit to private sector will promote the economic diversification in both the short and long runs. Moreover, the government infrastructure will also promote economic diversification in the long run but not in the short run. The trade openness has a negative impact on economic diversification in the long run, but it has a positive impact in the short run.

Keywords: economic diversification, private sector, United Arab Emirates, ARDL

JEL Classification: C01, C22, J2, L25, O11

1. Literature Review

There is consensus in literature linking economic diversity with sustainable development. A diverse economy based on a wide range of profitable sectors is more capable in providing new opportunities for growth, employment ensuring economic stability and building sustainable development. Within the context of resource rich economies, diversity is central to counteract the "Dutch Disease" problems and effects of natural resources. As efficient public finance targeting a range of lucrative sectors could detect and treat vulnerability and help stabilize the economy and ensure sustainable economic growth. (Auty, 1988; Sachs and Stiglitz, 2007; Gelb, 2010). In addition, economic diversification isn't possible without the collaboration between public and private sector, particularly the private sector is playing a critical role as a major engine of growth and sustainability. (Ekpo, 2013).

Recent literature has identified several determinants that explain the process of economic diversification in general. The first set of factors is related to an economy's level of income. Imbs and Waciarg's works (2003) have shown that diversification has an inverted U-shaped relationship with developmental level. Thus, with economic development, diversification increases. Another major factor identified by Barthélemy (2004) is investment that greatly contributes to the dynamics of growth and increase the productive capacity of new economic sectors. In this regard, the promotion of private sector investment in non- extractive sectors has been identified as a strong constraint to enable export diversification. The share of private sector credit in GDP remains a major indicator in the export intensity index formula. (United Nations, 2016). The role of financial sector to incentivize and facilitate credit to private sector is essential to develop the sector and deepen its role towards economic diversity. (Ogbonna, 2018). For this, allowing private sector specific policies would help attracting FDI and improve export diversification to enhance at the end the economic development process. (Onakoya, 2013).

The UAE's economy, similar to others oil trading nations, confronted extensive oil value instability during the 1990s. In any case, in that decade, the UAE enrolled a genuine GDP development found the middle value of around 7 percent. Quite a bit of this development was made through diversification in non-oil segments: first, in vitality escalated, petrochemicals, manures, concrete and aluminum, and therefore, the travel industry, exchange and assembling Yousef (2004). According to Helpman (2004), present day development financial aspects has concentrated on mechanical advancements and high innovative work as the motor elements for monetary development. Specifically, endogenous development hypothesis has featured the significance of mechanical advancement and factor efficiency. Different lines of research likewise underscored the job of foundations as a central reason for long-run development Acemoglu et.al (2005). Ongoing improvement experience recommend that a fitting business condition is among the key elements of economic advancement. Without a doubt hydrocarbon asset assumed a noteworthy job in "sustaining" the financial improvement Abu-Quarn and Abu-Bader (2007). Notwithstanding, reasonable arrangement making by the UAE central government was likewise essential in giving appropriate direction and utilization of such normal asset enrichments. Because of its accomplishments, the UAE is presently a good example for the oil-creating nations (Hvidt, 2013). Economic diversification is, in any case,

not another system among the GCC states. It has been on the political plan since oil and gas turned into the principle and practically sole wellspring of pay in these nations some 50 years prior McBrierty and Al Zubair (2004). As a result, despite all UAE government efforts to promote the private sector role by increasing investments in high- tech sectors, the UAE real diversification record is still lacking and not visible. For this, assigning a new strategy for private sector promoting industrialization is central to promote UAE economic diversity. (Chemingui, Feki, & Jabsheh, 2013). The Private sector contribution to the economy would develop diversified production base, further to creating new jobs for the population, particularly the Emiratis.

2. Research Hypothesis

The main aim of this study is to investigate the relationship between economic diversification and private sector development. So, to investigate this relationship we developed a following hypothesis.

$$H_0 : \mu = A\ long\ run\ relationship\ exists\ between\ economic\ diversification\ and\ private\ sector\ development \leq 0.05$$

$$H_1 : \mu = No\ long\ run\ relationship\ exists\ between\ economic\ diversification\ and\ private\ sector\ development > 0.05$$

3. Methodology

In this study, we will run a ARDL model to check the relationship between economic diversification and private sector development. To check whether long run relationship exists or not between dependent and independent variable we will run Bound test. The normality, serial correlation, and heteroscedasticity tests are used to confirm the robustness of error terms generated by the ARDL model. It includes cumulative sum (CUSUM) and CUSUM squared tests are applied to verify the stability of long- and shortrun relationships (Brown et al., 1975),

For this, consider the two-variable model ARDL are as follows:

$$Y_t = \alpha_0 + \sum_{i=1}^{n} \varphi_i Y_{t-i} + \sum_{i=0}^{n} \lambda_i X_{t-i} + d_1 Y_{t-i} + d_2 X_{t-i} + \nu_t \quad (1)$$

Where, d_1 and d_2 are the long run parameters and α_0 is a constant, φ_i , λ_i both are matrices of parameters. The Y_t is a vector of endogenous variable and X_t is the variables explanatory.

$$DIV_t = \delta_0 + \gamma_1 DIV_{t-1} + \gamma_2 CCR_{t-1} + \gamma_3 DCPS_{t-1} + \gamma_4 GGDP_{t-1} + \gamma_5 INFR_{t-1} + \gamma_6 TRADE_{t-1} + \sum \Delta\varphi_j DIV_{t-j} + \sum \Delta\varphi_k CCR_{t-k} + \sum \Delta\varphi_l DCPS_{t-l} + \sum \Delta\varphi_m GGDP_{t-m} + \sum \Delta\varphi_n INFR_{t-n} + \sum \Delta\varphi_p TRADE_{t-p} + \varepsilon_t \quad (2)$$

In equation (2), γ_i are the long run multiplier. So, by estimating this equation we will be able to stand on both short and long run relationship between dependent and independent variable.

4. Results

4.1 Data and Variables

There are total six variables one is dependent and five are independent. The dependent variable is Diversification index (DIV) and independent variables are Control of Corruption in terms of Rank (CCR), Domestic credit to private sector percentage of GDP (DCPS), growth of gross domestic product (GGDP), Infrastructure as a fixed telephone subscriptions per 1000 people (INFR), and Trade openness (TRADE). The diversification index data is collected from IMF and the other variables data is collected from World Bank (WDI). The used data is between 1990-2018.

4.2 Descriptive Statistics

The summary statistics results are given in table 1. The mean value of diversification index over the time period is (4.3186) and the variable data is positively skewed. The CCR minimum and maximum values are (57.2165) and (87.2037). The data is negatively skewed in case of CCR because the sign is negative. The minimum value of the growth of gross domestic product is (14.7863) and the maximum value is (11.7040). The next two variables INFR and TRADE are positively skewed.

Table 1. Descriptive Statistics Results and Relationship Matrix

	DIV	CCR	DCPS	GGDP	INFR	TRADE
Mean	4.318693	75.46008	47.82410	-1.217551	25.89983	122.6985
Median	4.191391	81.26569	37.29099	-0.158188	24.83682	109.4614
Maximum	6.107217	87.20379	84.47068	11.70408	32.63471	176.7476
Minimum	3.554326	57.21650	25.20510	-14.78631	17.88830	89.86458
Std. Dev.	0.657386	10.65225	19.98127	5.444266	4.139033	32.28603
Skewness	0.981189	-0.713443	0.572551	-0.289470	0.188742	0.486658
Kurtosis	3.427522	1.723772	1.839890	3.496498	1.969438	1.587560
Jarque-Bera	4.705981	4.275556	3.099965	0.678630	1.405311	3.432718
Probability	0.095084	0.117917	0.212252	0.712258	0.495268	0.179719
Sum	120.9234	2112.882	1339.075	-34.09142	725.1953	3435.559
Sum Sq. Dev.	11.66824	3063.701	10779.78	800.2809	462.5530	28144.47
Observations	28	28	28	28	28	28

Source: Output of the Eviews Software Version 9.0

4.3 Correlation Analysis

The correlation analysis results can be seen from table 2. The DIV has a positive relationship with DCPS, GGDP, and TRADE and has a negative relationship with remaining two variables. The next variable is CCR, which has a positive relationship with DCPS and Trade. The relationship between DCPS and GGDP is negative and GGDP has a positive association with INFR. The next two variable INFR and TRADE are negatively correlated with each other's.

Table 2. Correlation Analysis

Correlation	DIV	CCR	DCPS	GGDP	INFR	TRADE
DIV	1.000000	---	---	---	---	---
CCR	-0.089527	1.000000	---	---	---	---
DCPS	0.309378	0.708803	1.000000	---	---	---
GGDP	0.352922	-0.185342	-0.238825	1.000000	---	---
INFR	-0.360146	-0.202708	-0.547844	0.147183	1.000000	---
TRADE	0.445146	0.652134	0.931862	-0.029866	-0.617790	1.000000

Source: Output of the Eviews Software Version 9.0

4.4 Unit Root Test

We used unit root tests to determine stationarity in a time series. Indeed, we are employing many tests since no single test could be only valid enough to ensure our results. The majority of data series in finance and economics contain a stochastic trend. By construction, trend models are highly likely to exhibit serial correlation. In the presence of serial correlation, the preferred test to use is the Augmented Dickey Fuller (ADF) test. This study will therefore test for stationarity of Diversification index, Control of Corruption in terms of Rank, Domestic credit to private sector percentage of GDP, growth of gross domestic product, Infrastructure as a Fixed telephone subscriptions per 1000 people, and Trade openness.

4.5 Augmented Dicky Fuller Unit Root Test

According to Dicky and Fuller (1979) by adding lags (by augmenting) one can control for serial correlation. The data trend can be seen from appendix and it shows that data is non-stationary because the data mean, and variance is not constant. The diversification index, control of corruption, Domestic credit to private sector, and Trade openness variables are cointegrated on first difference, but the growth of gross domestic product and infrastructure variables are cointegrated on level. This study will make use of the ADF to test the stationarity of variables in the data series, it will test the null hypothesis has a time series y_t is stationary in the first difference $I(1)$ against the alternative that it is a trend stationary process $I(0)$. The AIC criterion is employed in order to choose the optimal lag used in the ADF. The ADF test are conducted in E-views 9 software.

The null and alternative hypothesis are given above and the ADF result can be seen in table 3.

The ADF unit root test results with intercept and also with trend and intercept. Moreover, diversification index, control of corruption, Domestic credit to private sector, and Trade openness variables is con-integrated on first difference and remaining variable are co-integrated on level at 1% high significant level. So, we concluded that most of the variables are co-integrated on first difference *I (1)* and GGDP and INFR has *I* (*0*) processes.

Table 3. Augmented Dicky Fuller Test

Variables	Level		First Difference	
	Intercept	Trend & Intercept	Intercept	Trend & Intercept
DIV	0.6902	0.1148	-4.3987	-6.5788
	(0.9897)	(0.9958)	(0.0018) ***	(0.0001) ***
CCR	-1.2589	-2.1925	-5.7490	-5.6404
	(0.6340)	(0.4751)	(0.0001) ***	(0.0005) ***
DCPS	-0.5548	-3.5277	-4.0615	-3.9540
	(0.8638)	(0.0571) *	(0.0046) ***	(0.0245) **
GGDP	-3.9108	-3.8046	—	—
	(0.0059) ***	(0.0314) **		
INFR	-5.1492	-4.2515	—	—
	(0.0008) ***	(0.0193) **		
TRADE	-0.9399	-2.5367	-4.1859	-4.4996
	(0.7573)	(0.3093)	(0.0033) ***	(0.0073) ***

Probability Value ()

Note: ***, ** and * show 1%, 5% and 10% level of significance.

Source: Created by the author in E-views 9

4.6 Bound Test

In previous section, we concluded that some variables are co-integrated on level and others are co-integrated on first difference which means that we can run ARDL mode. In next step, we will check either a co-integration exists between variables or not by viewing the results of the Bound test in table 4. The F-statistics value is (5.7948), which is greater than the lower and upper bound limit. It means that, a long run relationship exists between variables and we can run ARDL model.

Table 4. Results of Bound test for Cointegration

	Value	
F-statistic	5.794803	
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Output of the Eviews software version 9.0

4.7 ARDL Long-run and Short-run Results

We employ the ARDL model simultaneously in order to obtain the long- and short-run elasticities. The long run relationship between dependent and independent variables is given in table 5. There is a positive relationship between DIV and CCR and statistical significant relationship exists between both variables because the probability value is less than the significant range.

Table 5. Estimated Long Run Coefficients Using the ARDL (2, 3, 3, 3, 2, 1) Selection Based on Akaike Info Criterion (AIC)

Dependent Variable: DIV (Long run coefficients)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CCR	0.045428 *	0.022215	2.044958	0.0963
DCPS	0.102921**	0.031523	-3.264996	0.0223
GGDP	0.021395	0.057948	-0.369212	0.7271
INFR	0.010768	0.065393	-0.164659	0.8757
TRADE	-0.053500 *	0.021354	2.505337	0.0541
C	-0.944604	3.277763	-0.288186	0.7848

Note: ***, ** and * show 1%, 5% and 10% level of significance.

Source: Created by the Author in E-views 9

On the other hand, a negative but statistically significant relationship exists between DCPS and diversification because the probability value is less than 0.05. The GGDP and INFR has a positive but statistical insignificant relationship because P-value is very high. The last variable

is TRADE, which has a significant negative relationship with diversification index (DIV). So, we conclude that, the domestic credit to private sector has a positive relationship with diversification index and the coefficient value of DCPS is (0.1029). It means that, if DCPS increase by one unit the value of diversification index will also be increase by (0.1029) units in long run and (0.1153) unit in short run. As a result, the domestic credit to private sector will promote the economic diversification in both short run and long run. The government infrastructure (INFR) will also promote economic diversification in long run but not in short run because coefficient has a negative sign in short run. On the other hand, trade openness will not promote economic diversification in long run, but it has a positive impact in short run.

4.8 Stability Test Results

Finally, we estimated and plotted the graphs of Cumulative Sum of Recursive Residuals CUSUM and CUSUM Square to examine the structural stability of long-term parameters as well as short-term movements. The examination of CUSUM and CUSUM Square proposed that if the charts of CUSUM and CUSUM Square residuals are kept inside the basic essentialness dimension of 5%, all relapse coefficients are steady. The CUSUM and CUSUM Square tests plot the total of recursive residuals and the entirety ought to be between with the 5% basic lines. The Cumulative sum (CUSUM) and CUSUM squared statistics plots are given in Figure 1.A and 1.B The outcomes demonstrate that the CUSUM and CUSUM Square residuals are inside the basic region of 5%, that show that both present moment and long run coefficients in the ARDL models are settled.

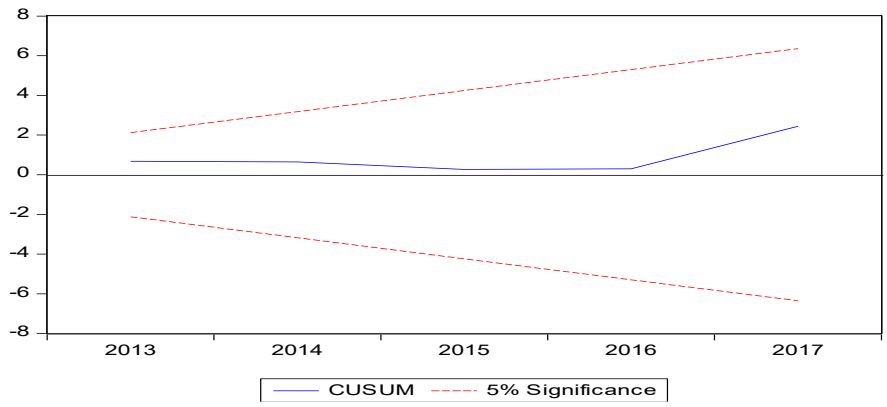


Figure 1. A: Plot of the Cumulative Sum of Recursive Residuals (CUSUM)

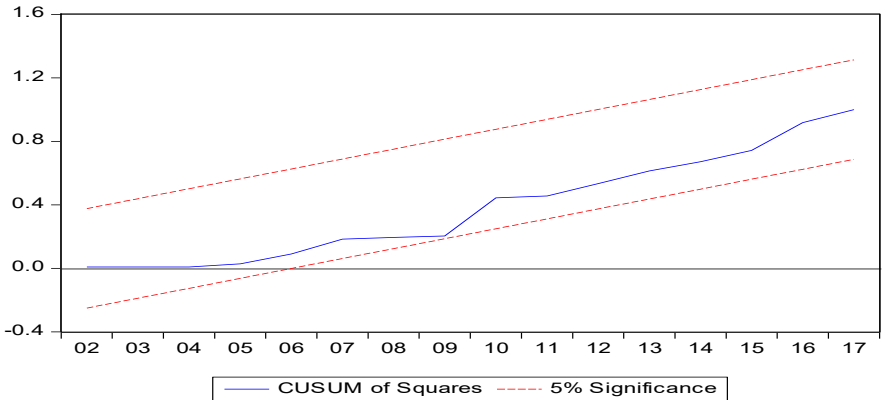


Figure 1. B: Plot of the Cumulative Sum of Squares of Recursive Residuals (CUSUM- SQUARE)

Source: Output of the Eviews Software Version 9.0

5. Conclusion

The UAE economy has shown significant progress in the last two decades. Trade openness helped the economy to integrate into the international market with significant growth potential for the private sector and development of skilled human capital. As per the UAE vision 2021, the government addressed private investment to promote diversification. However, the role for the private sector remains limited to work as an active factor to push ahead the country efforts towards economic diversity. Within current global economic challenges, all progress achieved by the government throughout the last two decades, need to be resumed by tailoring specific strategy for the private sector and industry in order to be able to attract more FDI improving productivity, integration in value chain and lowering its economic concentration increasing its diversity, not only via increased efficiency, productivity and innovation y deepen the private sector role in UAE economy.

The main aim of this study was to investigate the relationship between economic diversification and private sector development. For this, we ran ARDL con-integration method in accordance with Bound Test to check either long run relationship exits or not between dependent and independent variable and the results ensured the long run relationship between variables. As a result, we found that the domestic credit to private sector has a positive relationship with diversification index and that DCPS has both short and long run relationships with economic diversification index. It means that, the domestic credit to private sector will promote the economic diversification in both the short and long runs. The government infrastructure (INFR) will also promote economic diversification in the long run but not in the short run because coefficient has a negative sign in the short run. On the other hand, trade openness will not promote economic diversification in the long run, but it has a positive impact in the short run. In sum, this paper analysis indicate that the level of private sector investment is central to long term growth to attain sustainable development for the UAE economy.

A major policy recommendation that could be drawn on the basis of the results obtained from

this paper analysis is the need to incentivize the role of the private sector via promoting laws and adopting specific strategies to promote the private sector contribution in UAE economy and then the economic diversity. Promoting the role of the private sector in the UAE economy is no longer an option, it's now a crucial driver for sustainable development. The current private sector model in the UAE that shows overdependence on the government, would not be effective in the long run. Indeed, this overdependence could lead to its poor performance and hinder its role as a mail driver for diversification plans in the long term.

References

Abu-Qarn, A. S., & Abu-Bader, S. (2007). Sources of growth revisited: evidence from selected MENA countries. *World Development, Elsevier, 35*(5), 752-771.

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. *Handbook of economic growth, 1A*, 385-472.

Auty, M. R. (1988). Economic Development and the Resource Curse Thesis. In: Morrissey O., Stewart F. (Eds.), *Economic and Political Reform in Developing Countries*. Palgrave Macmillan, London. https://doi.org/10.1007/978-1-349-13460-1_4

Barthélemy, D., & Nieddu, M. (October, 2004). Multifunctionality as a concept of duality in economics: an institutionalist approach. Presented to the 90th EAAE Seminar "Multifunctional Agriculture, Policies and Markets: Understanding the Critical Linkages", 27–29, Rennes, France, 18. Retrieved from https://www.semanticscholar.org/paper/MULTIFUNCTIONALITY-AS-A-CONCEPT-OF-DUALITY-IN-ANBarth%C3%A9lemyNieddu/0b9b8890c822b307b3150a287a5075999f62e94b

Bento, J. P. C., & Moutinho, V. (2016). CO2 emissions, non-renewable and renewable electricity production, economic growth, and international trade in Italy. *Renewable and Sustainable Energy Reviews*, *55*(C), 142-155. https://doi.org/10.1016/j.rser.2015.10.151

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society*, *37*, 149-192.

Chemingui, M. A, Feki, K., & Jabsheh, F. (2013). Private Sector Development and Economic Diversification in the GCC: The Case of the UAE. Conference: ERF workshop on economic transformation in the Arab region. Retrieved from https://www.researchgate.net/publication/274698723_Private_Sector_Development_and_Economic_Diversification_in_the_GCC_The_Case_of_the_UAE.

Ekpo, A. H. (2016). Growth without Development in Nigeria: Confronting the Paradox. *The Nigerian Accountant*, *46*(4), 18-31. https://doi.org/10.1007/978-3-319-16826-5_3

Frankel, A. J. (2012). The Natural Resource Curse: A Survey of Diagnoses and Some Prescriptions. *HKS Faculty Research Working Paper Series,* RWP12-014, John F. Kennedy School of Government, Harvard University. Retrieved from

https://dash.harvard.edu/bitstream/handle/1/8694932/RWP12014_Frankel.pdf?sequence=1&isAllowed=y

Gelb, A. (2010). Economic Diversification in Resource Rich Countries. *Center for Global Development*, IMF press 101310. Retrieved from https://www.imf.org/external/np/seminars/eng/2010/afrfin/pdf/Gelb2.pdf

Helpman, E. (2004). *The Mystery of Economic Growth*. Harvard University Press. Retrieved from https://www.shorturl.at/fwzDL

Henry, C. M., & Springborg, R. (2010). *Globalization and the Politics of Development in the Middle East*. Cambridge University Press. Retrieved from https://www.shorturl.at/dyQWY

Hvidt, M. (2013). *Economic diversification in the GCC countries-past record and future trends. Kuwait Programme on Development, Governance and Globalisation in the Gulf States* (27). London School of Economics and Political Science, London, UK. Retrieved from http://eprints.lse.ac.uk/55252/1/Hvidt%20final%20paper%2020.11.17_v0.2.pdf

McBrierty, V. J., & al-Zubayr, M. I. (2004). *Oman: ancient civilization: modern nation; towards a knowledge and service economy*. Trinity College Dublin Press, ISBN-10: 1871408239.

Ogbonna, C. I. (2018). Private Sector Development and Economic Diversification: Evidence from Nigeria. *Advances in Social Sciences Research Journal*, *5*(3).

Onakoya, A. (2012). Foreign Direct Investments and Economic Growth in Nigeria: A Disaggregated Sector Analysis. *Journal of Economics and Sustainable Development*. Retrieved from https://www.iiste.org/Journals/index.php/JEDS/article/view/2906/2969

Sachs, D., Stiglitz, E., & Humphreys, M. (2007). Escaping the Resource Curse. *Columbia University Press*, ISBN: 9780231141963.

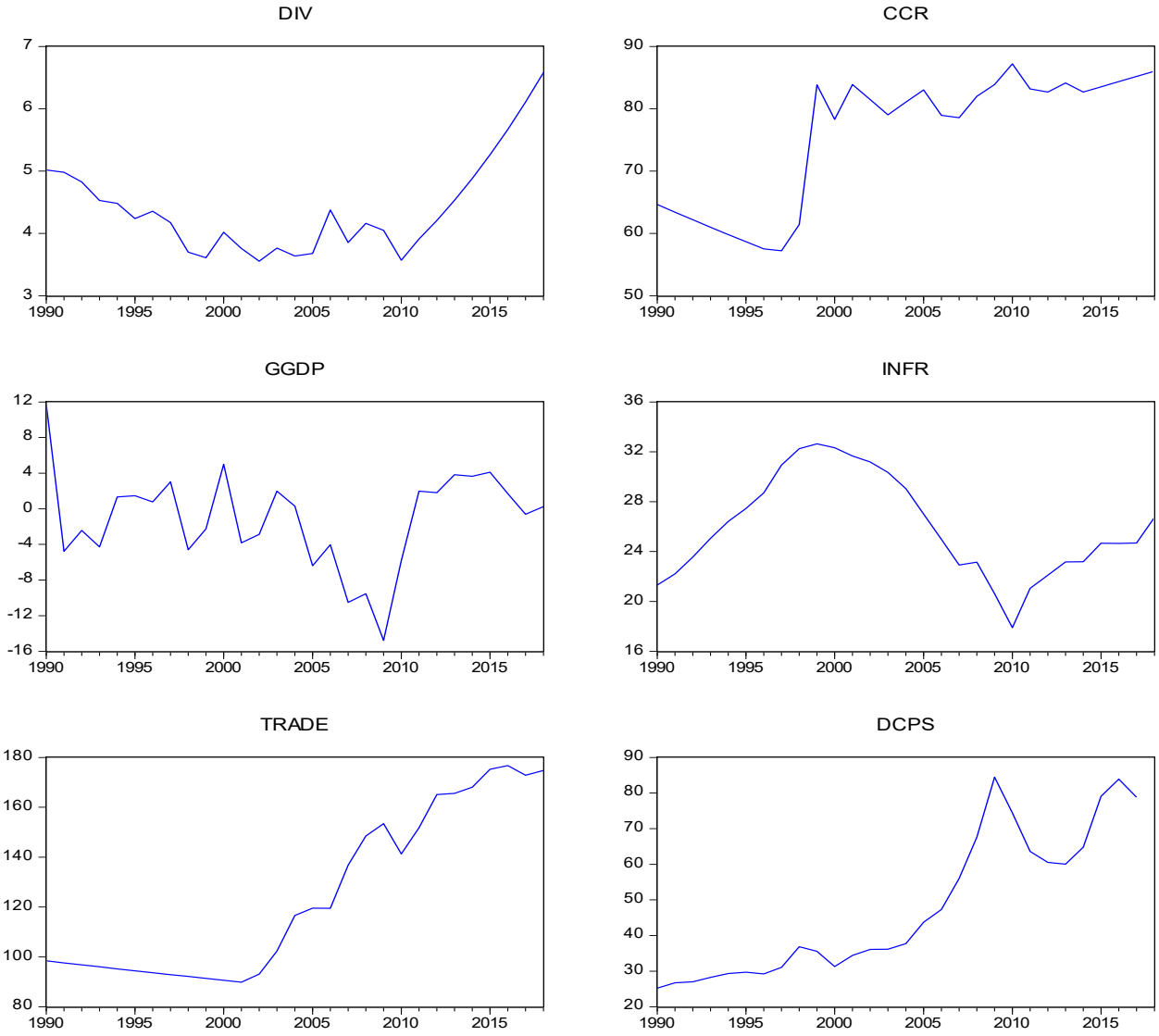
Seznec, J. F., & Kirk, M. (2011). Industrialization in the Gulf: A Socioeconomic Revolution. *Center for Contemporary Arab Studies, Georgetown University*, London. https://doi.org/10.4324/9780203846650

Wacziarg. R. (2007). Stages of Diversification. Commission on Growth and Development, Workshop on Global Trends and Challenges. Yale University. [ONLINE]. Retrieved November 17, 2019 from shorturl.at/enIQ7

Yousef, T. M. (2004). Development, growth and policy reform in the Middle East and North Africa since 1950. *Journal of Economic Perspectives*, *18*(3), 91-115.

Appendix

The Model Variables Data Trends (The Stationarity of Variables)



Source: Output of the Eviews Software Version 9.0

Dependent variable is Diversification index (DIV) and independent variables are Control of Corruption in terms of Rank (CCR), Domestic credit to private sector percentage of GDP (DCPS), growth of gross domestic product (GGDP), Infrastructure as a Fixed telephone subscriptions per 1000 people (INFR), and Trade openness (TRADE).