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## Influence of socio-economic, environmental and financial infrastructures in achieving inclusive growth in Gulf region: A panel data Analysis

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**Masahina Sarabdeen<sup>1</sup>, Manal Osman Ali Elhaj<sup>2</sup>, Safia Omer Hapallah Omer<sup>3</sup>, Ghadda Mohamed Awad Yousif · Influence of socio-economic, environmental and financial infrastructures in achieving inclusive growth in Gulf region: A panel data Analysis- Palarch's Journal Of Archaeology Of Egypt/Egyptology 17(9). ISSN 1567-214x, Keywords: Socio-economic and financial infrastructure, inclusive growth, Gulf region, Panel data**

### Abstract

Socio-economic, environmental and financial infrastructures are pre-requisites for achieving inclusive growth. Inclusive growth focuses on growth that result in a broader access to stable is it stabilize socio-economic opportunities for a wider number of people in the region or the country protecting the vulnerable and equal justice. In this context, this study aims to analyze the influence of socio-economic, environmental and financial infrastructure on inclusive growth in the short-run and long run among the six Gulf cooperation countries (GCCs). Panel Autoregressive distributed lag approach was used to investigate the relationship of the dependent and independent variables using secondary data for the period of 1990-2016. The findings show evidence of a significant long-run relationship between socio-economic, environmental & financial factors and inclusive growth of GCCs. Besides, it was found the case of disequilibrium in the short run, the Error Correction Mechanism can be significantly adjusted to restore the long-run relationship within the first year. This study is useful for academic specialists and decision-makers, offering extended support for improving the inclusive growth and developing socio-economic, environmental and financial infrastructural policies. In that context, the work proposes to go further, by supplementing inclusive growth with some new elements, required for the society's advancement.

### Introduction

Slow growth, high unemployment and widening inequality are the main causes of the financial and economic crisis in worldwide. There is a dire need to identify policy options to readdress global problems, to devise strategic agenda to tackle the problem. The The organization for economic co-operation and development (OECD) initiative launched a project on inclusive growth, derived from the "New approaches to Economic Challenges" which is looking for inclusive and sustainable growth and developing a strategic agenda to tackle the global financial crisis.

The significance of inclusive growth is increasingly being emphasized and highlighted in work plans and strategies worldwide to address issues of poverty and income inequalities, environmental imbalance and societal insecurity. Inclusive growth advocates that a vigorous inclusive growth approaches should accomplish to evoke economic growth to create equal

opportunity, together with a social safekeeping net to secure the most vulnerable due to the unexceptional economic growth. Inclusive development is focused on growth that ensures social and territorial structure and active participation of citizens, improving access to basic health care, reduce the unemployment rate, equal justice and political plurality (Raheem et al, 2016, Asian Development Bank, 2013). According to Ngepah (2017), the main concept of inclusive growth suggests a more active participation of the poor and sub concept proposes two pillars; labor absorbing growth and increasing productivity of those who are being employed. “The commission on growth and development laid an emphasis that inclusiveness, a concept that encompasses equity, equality of opportunity, and protection in market and employment transitions, is an essential ingredient for any successful growth strategy” (Ianchovichina and Lundstrom, 2009). According to The United Nations Development Programme (UNDP) perspective, inclusive growth implies participation and benefit-sharing. It ensures that everyone can participate in the growth process and that the benefits are shared equitably. Therefore, there is a need for improving structural transformation and create effective job opportunities for the poor people. Moreover, economic guidelines needs to be implemented by investing in human capital and other skilled expansion plans to develop social inclusion and equal access to employments (Alexander, 2015; McKinley, 2010). Thereby, undermining its sustainability would further rooting existing poverty level, injustice and inequalities (Pedro and Paula, 2013).

In the context of the debate on inequalities and strategies for inclusive growth, researchers have made a distinction between two types of inequalities: acceptable inequalities and unacceptable inequalities (Chaudhuri and Ravallion 2007). Acceptable inequality arises largely from differences in individual efforts, while unacceptable inequality arises from differences in circumstances beyond the control of individuals and prevent equal access to opportunities. It is the unequal access to chance that must form a fixed target of policy mediations towards inclusive growth. Forming equivalent access to chance should be at the necessary of inclusive growth as it intentions to reduce occurrence associated with unacceptable inequality (Chaudhuri and Ravallion 2007).

Accordingly, inclusive growth can be defined as economic growth with equality of opportunity. Therefore, “inclusive growth is about raising the pace of growth and enlarging the size of the economy, while leveling the playing field for investment and increasing productive employment opportunities, as well as ensuring fair access to them. It allows every section of the society to participate in and contribute to the growth process equally, irrespective of their circumstances.” (ADB 2011, 47). Traditionally, studies analyzed poverty and economic growth separately; there may not be a trade-off between equity and efficiency. Economic growth alone is not sufficient to generate economic development and reduce poverty. It is necessary to develop research on inclusive growth (shared growth, broad-based growth, pro-poor growth). Recent studies should take into consideration growth together with income distribution, environmental balance, justice, social security simultaneously (Mthuli et al., 2013, ADB 2011). The main purpose rationale of the present study of this paper is to make a comprehensive assessment of key drivers in achieving inclusive growth among the GCCs and to explain the main motivation and contextualize the inclusive growth. These issues are now increasingly pertinent, as the principal objective of inclusive growth is an explicit response to reduce poverty without increasing inequalities and many transformations in terms of employment (Dollar, 2008). It is even more important to consider the role of human capital in the current pattern of inclusive growth more precisely in Gulf region countries. This research contributes to the on-going research issues about key determinants influencing factors for inclusive and sustainable development in developing countries especially, in GCC. However, attempts to measure inclusive growth and the influencing factors on achieving inclusive have remained limited.

Consequently, there is an urgent need for the state to assess the socio-economic, environmental and financial factors which boost the inclusive growth in worldwide in general. In this concept, this study focuses among the GCCs for letting the stakeholder or

policy makers to take strong actions to improve the country against adverse effects of instability and injustice. Thus, this paper aims to investigate the influencing socio-economic, environmental and financial factors on inclusive growth among GCCs. Further, this study would help policymakers to take into consideration to restructure the socio-economic, environmental and financial infrastructure to achieve the inclusive growth of the country, which will be of added value to the world at large.

## 2.0 Literature

### *Socio-economic factors related to inclusive growth*

There is an interaction between economic, social and environment to inclusive growth. Recent inclusive related studies have examined the relationship between economic growth and social dimension. Many of the existing studies confirmed that socio-economic variables such as health, education, trade openness, inflation, GDP per capita are the most important umbrella of institutions on inclusive growth for less and middle developed Asian countries (Aslam and Zulfiqar, 2016). Inclusive growth is a crucial factor to reduce the poverty and it would increase the employment and create opportunities for productive activities among the poor. Tsai and Huang (2007) analyzed the link between growth and poverty in Taiwan. It was found that that economic growth is a major driving force to reduce poverty while openness to foreign trade helps the poor people through a direct distribution effect as well as an indirect growth effect, in both the long and the short term. According to Nwosa (2016) exchange rate significantly influenced on unemployment rate while fiscal policy significantly influenced poverty, rate in Nigeria. Nwosa (2016) emphasized that, it is important to take initiatives prudently to utilize the fiscal and monetary policies to reduce unemployment rate in order to achieve inclusive growth in Nigeria. More & Ayea (2017) assesses the effect of social infrastructure on economic development and disparity in South Africa. Social infrastructure refers to infrastructure that gratifies for social services such as jails, hospitals, public educational institutes. The result shows that education spending positively related with economic development; meanwhile economic development and disparity were negatively associated with health in South Africa. Smorgunov (2018) describes that the formation of public management that encounters the justifiable development and enhancement of social welfare level, requires not only sharing institutions, but also sharing culture as a prerequisite of inclusive economic growth in BRICS. UNCTAD (2011) stated that tourism can play pivotal role to promote economic diversification, structural transformation, global fight to poverty reduction and peace and development in Africa continental inclusive growth.

D'Souza (2018) analyzed the magnitude of exclusiveness among the homeless people in India. The study justifies that there is a need to address the difficulties of people who does not have home by adopting applicable or minimal-cost housing strategies and a careful operation in order to achieve level of justice, where the nations adore liberty, security, and basic services to achieve growth in india

### *Financial inclusive*

A study of Abor (2018) investigates whether telephone communication advances pro-poor improvement by making a difference households to efficiently designate consumption and explore out of deprivation. Secondly, the study analyzes whether access to a wide cluster of financial administrations improves the capacity of households to higher stranded of living. The consider found that mobile technology and financial inclusion significantly associate with diminished destitution and expanded family utilization per capita within the female-headed family and rustic tests in Ghana.

The study of Olusola & Oluwatobi (2017) shows that both the direct and indirect transmissions with which monetary policies distress on the inclusive development. The finding shows that monetary policy instruments needs to be adjusted to reach ideal and effective inclusive growth in Nigeria. Further, the result of structural vector auto regression framework indicates that the money supply shock and financial openness greatly affect inclusive advance in Nigeria. Ayinde & Yinusa (2016) examines the link between monetary improvement and inclusive development in Nigeria for the period 1980 – 2013. Finding the study shows that the effect of monetary development on inclusive advance subject to the measure of the prior up to the threshold level and not beyond. The results further revealed that government's inclusion within the working of the economy, monetary openness and capital speculation are delicate to the design of financial advancement in Nigeria.

### ***Environmental Inclusive***

While, several studies have considered the impact of growth on environmental conditions. The study of Smyth et al.(2008), analysis the correlation between development and environmental concerns in China. The outcome of the study shows that the high rate of economic development causes a high rate of contamination, which is experienced by many cities in China. Natural disasters, as well as a traffic congestion problem also are major problem in many cities in China. Those problems are becoming a major impediment for the future development of China. Another study investigated the impact of rising CO2 expulsions on inclusive human advance in 44 sub-Sahara African nations for the period 2000–2012 (Asongu, 2018).

### ***Review on inclusive growth and Gulf corporation countries (GCCs)***

The general economic execution of GCCs nations have a major impact on the economic development within the Middle Eastern region as a whole. Middle East and GCCs contributed to the actual GDP of the region remains steady with the higher share of around 59 per cent among the Arab region . Saudi Arabia and the United Arab Emirates collectively denote for more than two thirds of the total GDP of GCCs. The yearly average growth rate of real GDP per capita exhibited a shape comparable to that of the real GDP. Since of the economic emergency in 2008, GCCs recorded a actual GDP per capita development rate of -4.41 per cent in 2009. However, these countries recouped within the two years and recorded essentially superior development rates of actual GDP per capita, cresting at 3.99 per cent in 2011. In framework of economic sustainability, the Arab region has the most noteworthy youth unemployment rates within the globe and are creating a talented labor force. Creating jobs is a great challenge to the GCCs. Besides, the fact that the GCC countries are the largest recipients of temporary migrants in the world has implications for social sustainability in terms of the coherence and fabric of societies. In general, within the MENA region, the disappointment of nations to engage in economical advancement, with specific thought of the social and economic impacts, was apparently one of the most supporters to the Middle eastern Spring. For instance, from an economic viewpoint, as a outcome of the lack of strong sustainable development schemes, the MENA region is facing an unequal distribution of wealth. Correspondingly, from a social perspective, the disappointment to absorb all parts of the public in the decision-making process and afford equal chances for everyone, again through a lack of strategic sustainable development added a fuel to fire for developing a sense of alienation and isolation, which ultimately led to the Arab Spring (Mouzoughi and Al Rasheed, 2017)

The economic development of GCCs states, the last three decades have accomplished an extraordinary rates but at uncalculated cost to the region's, limited natural and conservational resources. Moreover, trading oil and gas, GCCs are gradually overwhelming greater share of their concealed reserves to fuel their rapid economic and urbanization

growth. Demand for electricity is mounting and will grow inevitably by seven to eight percent per annum for the next decade to meet the escalating need for air conditioning and water-generated mostly from energy-intensive desalination processes. Balancing their socio-economic development, coupled with inefficient energy use and damaging ( Mouzughy and Al Rasheed, 2017)

### 3. Methodology

For the estimation purposes, the study used panel co-integration techniques to address the impact of financial development, unemployment, Corbondioxide (CO<sub>2</sub>) emission, energy use, and mortality rate and schooling years on inclusive growth in GCCs. We used credit to private sector as a financial development indicator, unemployment is an economic indicator to measure the inequality, CO<sub>2</sub> and energy are environmental indicators, year of schooling and infant mortality rate are the socio variables to measure the educational level, and health condition and standard of living of the people of the country respectively.

#### Model Specification

The model specification of the relationship between inclusive growth (PGDP), financial development (FD), unemployment (UEMP), CO<sub>2</sub> emission (CO<sub>2</sub>), energy use (EU), infant mortality rate, (MORT) and schooling years (ESCH) is expressed as follows in Equation 1:

$$Y_{it} = \beta_{0i} + \sum_{i=1}^k \sum_{i=0}^{q_i} \beta_{ij} X_{it} + \varepsilon_{it} \quad , i = 1 \dots N, \quad t = 1 \dots T \quad (1)$$

Y the dependent variable (PGDP)

X the explanatory variable (FD, UEMP, CO<sub>2</sub>, EU, MORT, ESCH)

#### Unit Root test

Firstly, the study performed panel unit root tests to check the presence of root among the series.

#### Panel co-integration Test

The panel co-integration equation specified in the line of basic form of Pedroni (2004) test as follows in Equation 2:

$$\log PGDP = \beta_{0i} + \beta_{1i} FD_{it} + \beta_{2i} UEMP_{it} + \beta_{3i} CO2_{it} + \beta_{4i} EU_{it} + \beta_{5i} MORT_{it} + \beta_{6i} ESCH_{it} + \omega_{it} + \varepsilon_{it} \quad , i = 1 \dots N, \quad t = 1 \dots T \quad (2)$$

Where  $\omega_{it}$  represents the group effect (heterogeneity). The decision regarding the existence of co-integration among the variables is taken based on the results of the majority of the seven statistics proposed by Pedroni (2004) co-integration test.

#### Panel ARDL

Based on the results of the co-integration test, the study estimated the coefficients using the ARDL (p, q) model for the long-run relationship between inclusive growth and financial development, unemployment, CO<sub>2</sub> emission, energy use, mortality rate and years of schooling. This model is defined as follows in Equation 3:

$$\begin{aligned}
 LnPGDP_{it} = & \alpha_i + \sum_{k=1}^p \beta_{1i} LnPGDP_{i,t-j} + \sum_{k=0}^{q1} \beta_{1i} LnFD_{i,t-j} \\
 & + \sum_{k=0}^{q2} \beta_{2i} LnUEMP_{i,t-j} + \sum_{k=0}^{q3} \beta_{3i} LnCo2_{i,t-j} + \sum_{k=0}^{q4} \beta_{4i} LnEU_{i,t-j} \\
 & + \sum_{k=0}^{q5} \beta_{5i} LnMORT_{i,t-j} + \sum_{k=0}^{q6} \beta_{6i} LnESCH_{i,t-j} + \omega_{it} + \varepsilon_t
 \end{aligned}
 \tag{3}$$

Where i indicate the cross- section, and t represent the time period. The short-run parameters of ARDL were estimated using the error correction model ECM, which specified as follows Equation 4

:

$$\begin{aligned}
 \Delta LnPGDP_{it} = & \alpha_i + \sum_{i=0}^p \lambda_{ij} \Delta LnPGDP_{i,t-j} + \sum_{i=0}^{q1} \phi_{ij} \Delta LnFD_{i,t-j} + \sum_{i=0}^{q2} \theta_{ij} \Delta LnUEMP_{i,t-j} + \\
 & \sum_{i=0}^{q3} \delta_{ij} \Delta LnCo2_{i,t-j} + \sum_{i=0}^{q4} \varphi_{ij} \Delta LnEU_{i,t-j} + \sum_{i=0}^{q5} \gamma_{ij} \Delta LnMORT_{i,t-j} + \sum_{i=0}^{q6} \vartheta_{ij} \Delta LnESCH_{i,t-j} \\
 & \lambda_{ij} ECM_{t-i} + \omega_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{4}$$

### Causality Tests

The study applied vector error correction model (VECM) to test the short run and long run causality between the variables. The empirical analysis of study is based on balanced panel data cover the 6 GCCs during the time period 1991-2016. The selection of the period of the study is based on the availability of data on the selected variables. The variables used are; Inclusive growth is proxy with per capita GDP, financial development (domestic credit to private sector (% of GDP)), unemployment (% of total labor force), CO2 emissions (metric tons per capita), energy use (kg of oil equivalent per capita), mortality rate (infant), expected years of schooling. All the data transformed to logarithmic form. Data on the selected variables were obtained from the 2019 World Bank Development Indicators, United Nations Development Program (UNDP) and United Nations Conference on Trade and Development (UNCTAD).

## 4. Results and Discussion

### Unit root tests results

Unit root tests were used to check the stationary of data series. Im Pesaran and Shin W-stat, Augmented Dickey-Fuller test and Phillips-Perron test were used to check the stationary of the seven variables.

**Table 1 Panel unit root test result (series in level)**

Variables	Im, Pesaran, and Shin W-stat	ADF- Fisher Chi-square	PP- Fisher Chi-square
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Log PGDP	-2.75004*** (0.0030)	38.9706*** (0.0001)	6.00541 (0.9158)
Log FD	-1.48381* (0.0689)	20.3715* (0.0604)	8.25206 (0.7651)
Log UEMP	1.29677 (0.9026)	9.40392 (0.6681)	4.16213 (0.9803)
Log CO2	-2.37170** (0.0089)	28.8196*** (0.0042)	32.4048*** (0.0012)
Log EU	-0.89955 (0.1842)	15.0847 (0.2368)	12.6960 (0.3915)
Log MORT	1.05282 (0.8538)	7.90862 (0.7922)	17.8011 (0.1219)
Log ESCH	1.79158 (0.9634)	13.6587 (0.3230)	4.72591 (0.9665)

\*, \*\*, \*\*\* indicates that the estimated parameters are significant at the 10%, 5%, and 1%, respectively.

**Table 2 Panel unit root test result (series in first difference)**

Variables	Im, Pesaran, and Shin W-stat	ADF- Fisher Chi-square	PP- Fisher Chi-square
Log PGDP	-7.95464*** (0.0000)	72.3602*** (0.0000)	76.7472*** (0.0000)
Log FD	-6.31597*** (0.0000)	55.3572*** (0.0000)	61.7911*** (0.0000)
Log UEMP	-4.51488*** (0.0000)	40.3519*** (0.0000)	26.5194*** (0.0000)
Log CO2	-8.88784*** (0.0000)	82.3604*** (0.0000)	118.645*** (0.0000)
Log EU	-9.45214*** (0.0000)	85.6028*** (0.0000)	126.339*** (0.0000)
Log MORT	-6.68039*** (0.0000)	73.3843*** (0.0000)	39.3044*** (0.0000)
Log ESCH	-1.93572** (0.0265)	21.8285** (0.0395)	35.3375*** (0.0004)

\*, \*\*, \*\*\* indicates that the estimated parameters are significant at the 10%, 5%, and 1%, respectively.

Table 1 result shows that three of the selected variables (PGDP, FD, CO2) are stationary at the level.

Table 2 result shows that all the selected variables became stationary at the first difference. The results illustrates that all variables were integrated of order one; I(1) which allows to apply ARDL procedure for the panel data.

**Co-integration tests results**

To identify the long run and short-run relationship between the variables, the study applied Pedroni (2004), Kao (1999) and fisher (1999) co-integration analysis. The results presented in Table 3. Based on Pedroni’s test of co-integration none of the panel co-integration test statistics rejects the null hypothesis at 1%, 5% or 10% levels, while the results of Kao test reject the null hypothesis of no co-integration at 1% level of significance. Moreover, Fisher co-integration test for both trace and maximum eigenvalue statistics supported the co-integration of the variables at 1% and 5% level of significance.

**Table 3 Panel co-integration tests**

Tests	Statistic and probabilities	
	Statistic	Weighted Statistic
<b>Petroni test</b>		
Panel v- Statistic	-0.277907 (0.6095)	-0.398805 (0.6550)
Panel rho- Statistic	2.373546 (0.9912)	1.804455 (0.9644)
Panel PP- Statistic	1.736311 (0.9587)	0.087335 (0.5348)
Panel ADF- Statistic	-0.089798 (0.1650)	-1.000545 (0.1585)
Group rho- Statistic	2.894673 (0.9981)	
Group PP- Statistic	0.779254 (0.7821)	
Group ADF- Statistic	-0.974263 (0.1650)	
<b>Kao test</b>		
ADF statistic	-3.464719*** (0.0003)	
<b>Fisher test</b>	Trace test	Max Eigen test
None	337.2*** (0.0000)	351.9*** (0.0000)

At most 1	229.0*** (0.0000)	126.2*** (0.0000)
At most 2	125.8*** (0.0000)	60.80*** (0.0000)
At most 3	75.68*** (0.0000)	33.88*** (0.0007)
At most 4	50.13*** (0.0000)	29.32*** (0.0035)
At most 5	32.42*** (0.0012)	25.54** (0.0125)
At most 6	27.44** (0.0067)	27.44** (0.0067)

\*, \*\*, \*\*\* indicates that the estimated parameters are significant at the 10%, 5%, and 1%, respectively.

### Panel ARDL (PMG) estimations results:

The study applied Pool Mean Group (PMG) method modified by Pesaran and Smith (1995), to estimate long run and short run coefficients. The maximum lag length values (p, q1, q2, q3, q4, q5, q6), selected based on Akaike info. Criterion (AIC), Schwarz Criterion (SC) and Hannan-Quinn (HQ) Criterion. ARDL (2, 1, 1, 1, 1, 1, 1) model was revealed as the best model for the panel.

Table 4 summarized the panel PMG estimation results. The output confirmed the long-run relationship between the inclusive growth in GCCs. Financial development (FD), unemployment (UEMP), and CO2 emission are significant and have unexpected sign. Meantime, energy use, mortality rate, and schooling years were significant with expected sign.

The short-run results presented in table 4 showed that the value of ECM was implies (40%) deviation from long-run equilibrium. The negative sign for ECM, which was statistically significant, indicated that (40%) of disequilibrium in the short-run can significantly be recovered within the first unit of time. In addition, the short-run results showed that most of the variables have a statistically insignificant coefficient except the lag of per capita GDP and unemployment were significant at 10% level.

PMG estimates in Table 4 also showed the estimates of the error correction models for each GCCs, all coefficients of ECM for every country was negative and significant, indicated that there is long run equilibrium for all GCCs.

**Table 4 PMG estimation result**

Long-run estimations:	Coefficient	P value
Log FD	-0.192228	0.0001
Log UEMP	0.077730	0.0088
Log CO2	0.143839	0.0029
Log EU	0.174072	0.0043
Log MORT	-0.107155	0.0021
Log ESCH	0.277684	0.0011
Short-run estimations:		
ECM	-0.400896	0.0169
$\Delta$ Log PGDP(-1)	0.219088	0.0733
$\Delta$ Log FD	-0.043250	0.4899
$\Delta$ Log UEMP	-0.116711	0.0895
$\Delta$ Log CO2	-0.024378	0.3404
$\Delta$ Log EU	0.046487	0.6129
$\Delta$ Log MORT	0.427615	0.2767
$\Delta$ Log ESCH	-0.053191	0.8601
C	3.356721	0.0143
Cross-section short-run coefficient:		



Bahrain	-1.036984	0.0000
Kuwait	-0.432542	0.0001
Oman	-0.039594	0.0145
Qatar	-0.175369	0.0000
Saudi Arabia	-0.697659	0.0001
United Arab Emiratis	-0.023226	0.0038

**Panel causalities results**

Although the long-run relationship among the variables indicates the existence of Granger causality at least in one direction, which does not give any information regarding the direction of the causality. The study applied VECM model to test the short run and long run causality between the variables. The results of Table 5 shown a unidirectional short run causality running from PGDP to CO2, EU and ESCH; from UEMP to EU; CO2 to MORT, ESCH to MORT and from EU to ESCH. Moreover, there was a bidirectional causality between EU and MORT. In addition, the significant error correction coefficient indicates the existence of long run causality in five equation, ensuring that long run causalities are provided to FD, CO2, EU, MORT and ESCH.

**Table 5 Panel causality test results**

Short run causality	T statistic
Log PGDP → Log CO2	2.353218 (0.0188)
Log PGDP → Log EU	2.937440 (0.0034)
Log PGDP → Log ESCH	3.813579 (0.0001)
Log UEMP → Log EU	3.072082 (0.0022)
Log CO2 → Log MORT	-1.743010 (0.0816)
Log EU ↔ Log MORT	-2.147397 (0.0320) 2.600420 (0.0059)
Log EU → Log ESCH	3.561002 (0.0004)
Log ESCH → Log MORT	-3.986571 (0.0001)
Long-run causality	ECT
F(LPGDP,LFD,LUN,LCO2,LEU,LMORT,LESCH)	0.000745 (0.7753)
F(LFD,LPGDP,LUN,LCO2,LEU,LMORT,LESCH)	-0.015421** (0.0392)
F(LUN,LPGDP,LFD,LCO2,LEU,LMORT,LESCH)	0.007508 (0.2144)
F(LCO2,LPGDP,LFD,LUN,LEU,LMORT,LESCH)	0.013829 * (0.0788)
F(LEU,LPGDP,LFD,LUN,LCO2,LMORT,LESCH)	-0.016325*** (0.0000)
F(LMORT,LPGDP,LFD,LUN,LCO2,LEU,LESCH)	-0.002141*** (0.0000)
F(LESCH,LPGDP,LFD,LUN,LCO2,LEU,LMORT)	-0.002025* (0.0905)

\*, \*\*, \*\*\* indicates that the estimated parameters are significant at the 10%, 5%, and 1%, respectively; (→) , (↔) indicate unidirectional causality and bidirectional causality respectively.

**5. Conclusion**

To add up, inclusive growth is emphasizing that for the economic growth of a country, steps should be taken to develop employment & infrastructure, to mitigate reduce the inequality, poverty & general equity, accessibility, ensure social protection and governance.(the World Economic Forum 2017) The well-established Human Development Index (HDI) and the more recently developed Multidimensional Poverty Index(MDI) both focuses on health, education, and standard of living. The Inclusive Development Index (IDI) adds inequality as an overarching dimension to these existing indices and further contributes to a multidimensional understanding of development. Considering the three index; HDI,MDI, IDI, the current study includes all the dimensions together with environmental dimensions. This is the uniqueness of the present study. Panel co-integration techniques had being used to address the impact of financial development, unemployment, CO2 emission, energy use,

and mortality rate and schooling years on inclusive growth in GCCs. We used credit to private sector as a financial development indicator, unemployment is an economic indicator to measure the inequality, CO<sub>2</sub> and energy are environmental indicators, year of schooling and infant mortality rate are the socio variables to measure the educational level, and health condition and standard of living of the people of the country respectively. The result shows that there is long-run relationship between the financial, socio-economic, environmental variables and inclusive growth in GCCs. Financial development (FD), unemployment (UEMP), and CO<sub>2</sub> emission are significant and have unexpected sign. Meantime, energy use, mortality rate, and schooling years were significant with expected sign. However, to strengthen the focus on inequality in development practice, the implementation of concrete policies need to be followed to boost the financial development and create more job opportunities to absorb the labor force in GCCs. Specially, labor female participation increases equivalently or more than men labor participation. Significant of the variables; energy use, mortality rate, and schooling years proves that GCCs is achieved inclusive growth in social dimension (education and living standard). The Inclusive Development Index provides a useful picture of the current situation on a country level and allows to measure progress made in reducing inequality.

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