




Nexus of Remittances, Poverty and Economic Growth in Gulf Cooperation (GCC) Countries

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ABSTRACT

This research explores the influence of remittances and poverty on the economic growth of Gulf Cooperation Council (GCC) countries using panel data spanning from 2000 to 2021. Various data analysis techniques, including panel unit root tests, panel ARDL models, and panel Granger causality tests, were employed. The long-term results of the panel ARDL analysis reveal several significant relationships with economic growth in GCC countries. Factors such as labor, gross fixed capital formation, secondary school enrollment, remittances, and the interaction between poverty and remittances all exhibit positive associations with economic growth. Conversely, the poverty headcount ratio shows a negative correlation with economic growth in these GCC countries. Notably, labor, gross fixed capital formation, poverty, and remittances all demonstrate statistically significant impacts. Based on the findings of this study, it can be concluded that remittances play a pivotal role in promoting economic growth, whereas an increase in the poverty rate hampers economic growth in GCC countries. Therefore, it is recommended that GCC countries take proactive measures to enhance remittance levels while simultaneously reducing poverty levels in order to foster improved economic growth.



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1. Introduction

Every country tends to promote economic growth, but poverty is one of the issues under discussion and debate in many countries that influence economic growth. One of the most important problems with economic development is the disparity in living standards between countries. Poverty also makes people doubt the benefits of market- and development-oriented policies (Akhtar et al., 2017). Poverty is a major barrier to economic growth (Siddiqui, 2001). Countries with a higher proportion of the population living in poverty may experience slow

economic growth due to the high public spending necessary to eradicate poverty, which would otherwise constrain economic growth. Low-income people are forced to have a large family to provide for their financial stability in old age due to their lack of access to credit, inability to pay for education for their children, and lack of physical or financial investment possibilities. Furthermore, a lack of credit prevents low-income people from taking advantage of business possibilities that may otherwise promote growth. Together, these elements result in lower growth of per capita income than what would occur if there were fewer cases of poverty (Todaro & Smith, 2020). Poverty can be decreased by offering work opportunities and access to education, food and health services. By giving accessible educational facilities to that portion of society, which is more disadvantaged than other sections, poverty in that group can be decreased (Siddiqui, 2001).

Remittances are emerging as a substantial source of foreign capital in numerous developing nations. In actuality, worker remittances presently constitute the second-largest reservoir of private external capital for developing countries, following FDI Moslares García and Ekanayake (2020). Remittances sent back by immigrants are a way to fight against poverty and promote the economic growth of a country (Topxhiu & Krasniqi, 2017). Remittances make it simple to inject a sizable amount of cash flow into a nation's economic system. The impacts of remittances on income, employment, and economic output encourage countries to invest more in housing, real estate, and the purchase of cutting-edge technology (Kalim & Shahbaz, 2009). At a household level, migrants' remittance can enhance the welfare of the poorest members of society since they enable beneficiaries to raise their consumption. Financial transfers from migrant workers to their family members back home increase consumption levels, educational attainment, and medical care access (Amuedo-Dorantes & Pozo, 2004). Remittances also alter recipient households' behaviour and opportunities by influencing entrepreneurial choices and job market involvement (Acosta, Lartey, & Mandelman, 2009).

On the other side, due to migration countries lose highly educated and skilled employees, referred to as brain drain, this form of migration abroad could harm the development process (Topxhiu & Krasniqi, 2017). Remittances may contribute to the moral hazard issue by lowering the motivation to labour for recipient families. This propensity could slow down economic growth. Since they are the second-largest source of external financing after FDI, remittances could also significantly alter the country's economic growth by reducing poverty. The private welfare system, which includes remittances, allows for transferring purchasing power from the wealthy to the less fortunate (Gupta, Pattillo, & Wagh, 2009).

Considering the discussion between remittances, poverty and economic growth, this study analyzes how remittances and poverty influence economic growth in GCC countries. Economists have focused on the factors that influence the economic growth. Despite the increasing size of remittances worldwide, there is not a lot of empirical research on how remittances and poverty affect economic growth, especially in GCC countries. Therefore, this study will be helpful for policymakers in designing policies to curtail poverty and enhance remittance levels and, thus, economic growth.

2. Literature Review

Various research studies have analyzed the link between poverty, remittances (REM), and economic growth (EG). For instance, Safdar, Shah, and Liaquat (2022) delved into the influence of remittances on the Pakistan's EG, utilizing data spanning from 2002 to 2019. Their outcomes exhibited a positive impact on GDP from variables such as remittances, GFCF, and gross national expenditures. Conversely, population and imports exhibited negative correlations with GDP. Similarly, Nyasha and Odhiambo (2022) explored the effect of REM on EG in South Africa, drawing upon data from the years 1970 to 2019. The outcomes revealed that the South African remittances directly influenced the economy's growth. Authors suggested that remittances in

African countries should be encouraged to improve economic growth and alleviate poverty. The study conducted by Ellahi and Omer (2021) explored how workers' remittances helped Pakistan's economy to grow. The analysis used data from 1976 to 2017. According to the estimates, the rise in remittance inflows positively impacted Pakistan's economic growth. The consumption channel has the largest impact, but the investment channel was not seen to be significant. In the long run, consumption growth may encourage investment and improve a country's economic growth.

Different studies have explored the connections between poverty, income inequality, REM, and economic growth. Saleem, Farooq, and Aurmaghan (2021) investigated these relationships using data from 2002 to 2015, employing the Hausman test to validate their findings. They observed that economic growth was positively influenced by GCF, LFPR, population, and government spending, all of which had significant and positive effects on the EG. According to their research, addressing social injustice and poverty is essential for emerging countries to make economic success.

Moslars García and Ekanayake (2020) conducted a study focusing on the influence of worker REM on EG and poverty across 21 Latin American countries, using data spanning from 1980 to 2018. They applied the FMOLS method for their analysis and found mixed short- and long-term effects of REM on EG in most countries. It's interesting to note that their research also exhibited that worker remittances contributed to the decline of poverty in Latin America.

Conversely, Sutradhar (2020) utilized balanced panel data from 1977 to 2016 to investigate the influence of worker REM on EG in four South Asian nations. The results of this study demonstrated that remittances had an adverse influence on EG in Bangladesh, Pakistan, and Sri Lanka, while they contributed positively to India's economy. Overall, this study showed a negative correlation between REM and EG in these four nations.

Adjei, Bo, Nketiah, Adu-Gyamfi, and Obuobi (2020) examined the association between REM and EG in seven African nations using panel data from 2004 to 2018. Their outcomes indicated that trade openness, real effective exchange rate, investment, and remittances directly influenced economic growth, whereas domestic savings showed insignificant results. The study emphasized the value of remittances in both short- and long-term EG, as well as the significance of investments, trade openness, and the REER in promoting economic growth in West Africa.

In Mexico, Mansi, Hysa, Panait, and Voica (2020) analyzed the connection between poverty and EG by looking at data from 1960 to 2016. Their results indicated that increased economic growth led to a rise in per capita consumption, and the Granger causality test identified a bidirectional causal association between poverty reduction and EG in Mexico.

Nyasha and Odhiambo (2022) examined the connection between remittances, financial development, and EG using a panel of 20 Sub-Saharan African (SSA) nations from 2000 to 2015. According to their research, remittances and financial development (FD) both influenced these countries' economic growth favorably. Additionally, unidirectional causal links were identified between GDP and remittances and between GDP and financial development, though no significant connection was observed between REM and the FD of SSA countries.

Meyer and Shera (2017) analyzed a panel dataset encompassing several Eastern European countries from 1999 to 2013 to study the impact of REM on EG. REM had a favorable impact on growth, according to their analysis, which used the FE and RE models, and this effect grew stronger as remittance levels rose relative to GDP.

Uprety (2017) employed Johansen cointegration and ECM techniques to assess the impact of REM on EG in Nepal, utilizing data from 1976 to 2013. Though there was no proof that remittances were used for investment, the analysis found a positive and statistically significant

causal association between REM and consumption. Consequently, an increase in remittance inflows was found to reduce agricultural output, boost consumption, and has no impact on investment, resulting in a negative effect on GDP per capita, leading to the conclusion that REM had an adverse effect on Nepal's EG.

Afzal, Malik, Begum, Sarwar, and Fatima (2012) explored the association between EG, human capital, and poverty in Pakistan using data from 1971 to 2010. Their research showed a strong, positive correlation between EG and human capital as well as a favorable impact of physical capital on EG. The analysis emphasized the importance of building human capital infrastructure and effectively managing poverty alleviation initiatives, as human capital was identified as crucial for fostering EG and reducing poverty.

In the literature, remittances are generally seen as a positive factor for economic growth, while poverty is considered a negative factor. The GCC nations, which likewise struggle with poverty, rising remittances, and economic growth, have, however, received very little research on their particular setting. Hence, it is essential to analyze the roles of remittances and poverty in influencing EG in GCC countries. Such a study would offer valuable insights for policymakers seeking to formulate strategies that promote remittances, economic growth, and poverty reduction in GCC nations.

3. Data and Methodology

The panel dataset of golf cooperation countries (GCC) from 2000 to 2021 is used in a study. The countries included in a study for data analysis are Saudi Arabia, United Arab Emirates, Kuwait, Bahrain, Qatar and Oman. Classical production implies that labor and capital are important factors of production. In this study, the classical production function is used. In addition to labor and capital, other variables such as secondary school enrolment, poverty, and remittances are important to influence the production level of a country, so these variables are also incorporated into a model. To estimate the association between remittances, economic growth, and poverty in GCC countries, the following model is developed:

$$GDPPC_{it} = \beta_0 + \beta_1 LFPR_{it} + \beta_2 GFCE_{it} + \beta_3 SSE_{it} + \beta_4 HCR_{it} + \beta_5 REM_{it} + \beta_6 REM * HCR_{it} + \mu_{it} \tag{1}$$

For data analysis, several panel unit root tests are commonly employed, including the LLC test, IPS test, ADF Chi-square test, and PP Fisher Chi-square test.

Table 1
Description of Variables, Measurement Unit and Data Sources

Variables	Description	Measurement Units	Sources
Dependent Variable			
GDPPC	Economic Growth	GDP Per Capita (Current US Dollars)	WDI
Independent Variables			
LFPR	Labor Force Participation Rate	Employed labor force/ Total labor force	WDI
GFCE	Gross Fixed Capital Formation	Percentage of GDP	WDI
SSE	Secondary School Enrolment	Gross	WDI
HCR	Poverty Headcount Ratio	Percentage of poor population below the poverty line	WDI
REM	Foreign Remittances Inflows	Percentage of GDP	WDI

The selection of an appropriate econometric technique is contingent upon the integration order of the variables for long-run estimation in the model. When a set of variables exhibits stationarity at both levels, denoted as I(0), and as first differences, denoted as I(1), the panel ARDL (Autoregressive Distributed Lag) model is a suitable choice. This choice aligns with the

application of the panel ARDL model, which is well-suited for variables with a combination of I(0) and I(1) properties. The panel ARDL model is particularly advantageous as it can effectively estimate both the short-term and long-term relationships between variables within the framework of panel data analysis (Pesaran & Shin, 1995).

Data Analysis

This segment is design to present the data analysis. Different econometric techniques are applied for data analysis. The outcomes of these analyses are given as follows:

3.1. Descriptive Analysis

Table 2 displays the results of descriptive statistics. The descriptive analysis discusses the characteristics of variables. The results show that for GDPPC (Gross Domestic Product per Capita), the average value is 0.17, the median is 0.08, the highest value observed is 6.35, the lowest value is -7.53, S.D. is 2.72, the skewness value is -0.26, indicating a negatively skewed distribution, and the kurtosis value is 3.54, signifying a leptokurtic distribution. For LFPR (Labor Force Participation Rate), the average is 66.81, the median is 69.03, the highest value recorded is 83.17, the lowest value is 51.93, S.D. is 8.44, the skewness value is -0.09, suggesting a negatively skewed distribution, and the kurtosis value is 2.08, indicating a platykurtic distribution. Similar characteristics can be observed for other variables listed in Table 2 in a similar manner.

Table 2
Descriptive Statistics of Key Variables (2000-2021)

	GDPPC	LFPR	GFCF	SSE	HCR	REM
Mean	0.17	66.81	6.50	97.63	0.35	0.27
Median	0.08	69.03	7.98	96.89	0.16	0.10
Maximum	6.35	83.17	36.01	116.46	4.50	4.50
Minimum	-7.53	51.93	-29.44	78.23	0.06	0.03
Std. Dev.	2.72	8.44	14.17	8.30	0.78	0.75
Skewness	-0.26	-0.09	-0.02	0.01	4.30	4.82
Kurtosis	3.54	2.08	2.85	2.75	21.31	25.48
Jarque-Bera	1.08	1.70	0.05	0.12	784.56	1146.28
Probability	0.58	0.43	0.98	0.94	0.00	0.00
Observations	132	132	132	132	132	132

Source: Author's Estimations

3.2. Correlation Analysis

The correlation matrix is essential in estimating the link between two variables.

Table 3
Correlation Matrix (2000-2021)

Correlation	GDPPC	LFPR	GFCF	SSE	HCR	REM
GDPPC	1					
LFPR	0.07	1				
GFCF	0.17	-0.19	1			
SSE	-0.24	0.26	-0.30	1		
HCR	0.13	-0.20	-0.06	-0.27	1	
REM	0.13	0.20	0.06	-0.03	-0.04	1

Source: Author's Estimations

The coefficient of the correlation (*c*) assists in knowing the magnitude, while the sign assists in understanding the direction of the link between variables. The value of *c* ranges between -1 to +1. The +1 value designates a perfect positive, while the -1 value designates a perfect negative association between two variables. Table 3 reports the correlation matrix of variables. It is found that the variable GDPPC as a measure of economic growth is positively related to the LFPR (0.07), GFCF (0.17), poverty headcount ratio (0.13), and remittances (0.13) while negatively associated with the secondary school enrolment (-0.24).

3.3. Unit Root Analysis

Unit root analysis is imperative in analyzing the level of stationarity of variables. Based on this analysis, a suitable technique for estimating long-run parameters is selected. In this context, various panel unit root tests have been used, and the results are documented in Table 4. The findings reveal that the variables GDPPC, GFCF, headcount ratio, and remittances exhibit stationarity at the level, while the variables LFPR and SSE (Secondary School Enrollment) display stationarity at the first difference. This mixed order of integration indicates that the panel ARDL (Autoregressive Distributed Lag) model is appropriate for estimating the long-term parameters in the analysis.

Table 4
Panel Unit Root Estimates

Variables	Intercept				Intercept and Trend				None		Result	
	LLC	IPS	ADF-Fisher Chi ²	PP-Fisher Chi ²	LLC	IPS	ADF-Fisher Chi ²	PP-Fisher Chi ²	LLC	ADF-Fisher Chi ²		PP-Fisher Chi ²
GDPPC	-3.081 (0.001)	-3.373 (0.000)	33.153 (0.000)	44.930 (0.000)	-2.731 (0.003)	-2.339 (0.009)	24.390 (0.018)	31.586 (0.001)	-6.489 (0.000)	59.398 (0.000)	74.696 (0.000)	I(0)
LFPR	-2.468 (0.006)	0.135 (0.554)	10.353 (0.585)	3.195 (0.994)	-0.459 (0.322)	0.423 (0.664)	8.502 (0.744)	4.705 (0.967)	3.597 (0.999)	0.584 (1.000)	0.176 (1.000)	I(1)
GFCF	-2.116 (0.017)	-1.874 (0.030)	15.620 (0.048)	32.582 (0.000)	-3.448 (0.000)	-2.681 (0.003)	21.513 (0.005)	60.165 (0.000)	-3.830 (0.000)	23.941 (0.002)	40.149 (0.000)	I(0)
SSE	-36.800 (0.000)	-18.535 (0.000)	33.680 (0.000)	11.816 (0.297)	0.319 (0.625)	0.148 (0.559)	6.462 (0.373)	1.669 (0.947)	0.304 (0.619)	4.102 (0.942)	4.235 (0.936)	I(1)
HCR	-3.118 (0.000)	-4.586 (0.000)	43.378 (0.000)	88.772 (0.000)	-2.251 (0.012)	-3.588 (0.000)	35.053 (0.000)	77.635 (0.000)	-1.851 (0.032)	19.593 (0.075)	34.309 (0.000)	I(0)
REM	-3.301 (0.000)	-4.176 (0.000)	41.895 (0.000)	41.135 (0.000)	-1.729 (0.041)	-2.352 (0.009)	28.448 (0.004)	41.707 (0.000)	-3.157 (0.000)	29.463 (0.003)	39.746 (0.001)	I(0)

Source: Author's Estimations

3.4. Panel ARDL Analysis

The panel ARDL long-term analysis of the relationship between remittances, EG, and poverty in GCC countries is presented in Table 5. Beginning with the examination of the link between LFPR and EG, it is evident that labor force participation is positively related, with a coefficient of 0.6944, and this relationship is statistically significant at the 1 percent level (t-statistic = 3.7019; Prob. = 0.0004). This implies that a one-unit change in LFPR results in an increase of 0.6944 units in Gross Domestic Product per Capita (GDPPC). These findings suggest that having a skilled and educated labor force is crucial for enhancing efficiency, raising production levels, and ultimately promoting economic growth. This conclusion aligns with previous research conducted by Saleem et al. (2021) and (Shahid, 2014). Another essential component of production that can significantly affect economic growth is capital. It is observed that GFCF is positively related, with a coefficient of 0.0370, although this relationship is significant at the 10 percent level of confidence (t-statistic = 1.6960; Prob. = 0.0936) in GCC countries. This indicates that a one-unit change in GFCF leads to an increase of 0.0370 units in GDPPC. It implies that an increase in capital formation contributes to the creation of employment opportunities, higher income levels for individuals, and an overall boost in production. So, improvement in GFCF leads to an upsurge in the EG of a country. These findings were also confirmed by Oshota and Badejo (2015); Saleem et al. (2021).

Poverty restricts people's abilities and also influences a country's EG. It is found that the poverty headcount ratio is negatively (*Coefficient* = -0.6911) and significantly (at 1 percent level) connected to the GDPPC (*t-statistic* = -6.5313; *Prob.* = 0.0000) in GCC countries. It directs that a unit change in HCR leads to decline the GDPPC by -0.6911 units. It suggests that if poverty rates are increasing in a country, the government has to spend income on providing the basic necessities, so the government can spend more on investment projects, which negatively influences economic growth. Conversely, individuals living in poverty often lack access to essential resources and the capital required to invest in productive endeavors. Consequently, they find themselves trapped in a cycle of poverty, which has a detrimental effect on EG. These conclusions align with previous research conducted by Afzal et al. (2012); Aqeel, Shafique, Raiz, and Shah (2022); Saleem et al. (2021).

Remittances are also a core variable of the study and an important factor in economic growth. Remittances not only improve the economic status of the people but also improve the country's EG. The outcomes showed that remittances are directly (*Coefficient* = 0.9014) and significantly (at 1 percent level) linked to the GDPPC (*t-statistic* = 5.5633; *Prob.* = 0.0000) in GCC countries. It directs that a unit change in RAM leads to arise in GDPPC by 0.9014 units. Remittances may boost capital accumulation. Remittance-receiving households accumulate physical and human capital faster and lead to enhance the level of EG (Barajas et al., 2009). The outcomes were also found by Kalim and Shahbaz (2009); Meyer and Shera (2017); Oshota and Badejo (2015); Sutradhar (2020).

Table 5
Long-Run Panel ARDL Estimates of Remittances, Economic Growth and Poverty Model

DV: GDPPC				
Selected Model: ARDL (1, 1, 1, 0, 1, 1, 0)				
Variables	B	S.E.	t-Statistic	P-value
LFPR	0.6944	0.1876	3.7019	0.0004
GFCF	0.0370	0.0218	1.6960	0.0936
SSE	0.0631	0.0399	1.5821	0.1191
HCR	-0.6911	0.1058	-6.5313	0.0000
REM	0.9014	0.1620	5.5633	0.0000
HCR*REM	1.3451	1.0655	1.2625	0.2118
C	3.1573	1.6889	1.8694	0.0666

Source: Author's Estimations

3.5. Error Correction Analysis

Table 6 presents the estimates of the panel ARDL short-term error correction model. These estimates reveal a negative and statistically significant value for the Error Correction Mechanism (ECM) term.

Table 6
Error Correction Model of Remittances, Economic Growth and Poverty Model

DV: GDPPC				
Selected Model: ARDL (1, 1, 1, 0, 1, 1, 0)				
Variables	B	S.E.	t-statistic	P-value
ECM(-1)	-1.3305	0.3596	-3.6997	0.0005
D(LFPR)	1.0626	0.8657	1.2274	0.2231
D(GFCF)	0.0004	0.0398	0.0107	0.9915
D(SSE)	0.0758	0.0409	1.8522	0.0695
D(HCR)	-0.0080	0.0044	-1.8186	0.0745
D(REM)	2.5915	15.7640	0.1644	0.8700
D(HCR* REM)	6.7806	3.4089	1.9891	0.0518
C	0.1538	0.0968	1.5880	0.1160

Source: Author's Estimations

This finding confirms the convergence towards equilibrium in the long run. The ECM term signifies the speed of adjustment from the short-term to the long-term equilibrium, occurring at a rate of 1.33 percent.

4. Conclusions and Recommendations

In this analysis, the influence of remittances and poverty on the growth of economy of Gulf Cooperation Council (GCC) countries has been analyzed. To conduct this analysis, panel data from GCC nations, encompassing the years 2000 to 2021, was utilized. The GCC countries incorporated in the analysis are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The findings of the study reveal several significant relationships with Gross Domestic Product per capita (GDP per capita). Specifically, variables such as LFPR, GFCF, secondary school enrollment, remittances, and the interaction between poverty and remittances exhibit positive associations with GDP per capita. Conversely, the variable measuring the poverty headcount ratio displays a negative correlation with GDP per capita. Importantly, these relationships are statistically significant. In light of these research outcomes, it is concluded that remittances serve as a significant catalyst for EG in GCC countries. However, an increase in the poverty rate is found to hinder economic growth in these nations. Therefore, it is recommended that GCC countries take proactive measures to enhance the inflow of remittances while simultaneously addressing and reducing poverty levels as a means to promote and enhance EG. The study offers the following suggestions in light of findings: first, countries are urged to convey the knowledge, skills, and technologies they have learned to their home countries and send more remittances home. With this, industrialization will expand, most issues will be resolved, including creating jobs for the large population of unemployed young people, and the economic growth of the GCC countries may thus improve. Secondly, to alleviate poverty, poverty reduction programs should be designed where people get better health, education, skills and training and then get better jobs. In this way, the poverty rate not only declines, but the economic growth of GCC countries may also increase. Thirdly, employment opportunities, especially for poor people, should be provided to decline the poverty level and enhance the level of economic growth. Fourthly, education and vocational training must be facilitated for poor people to get better jobs and improve their living standards. Lastly, GFCF is also a positive factor in EG, so it is suggested that the government should invest more on projects that increase people's income and employment opportunities.

Author's Contribution:

Shehzad Yousaf: initiated the core idea of performed data analysis and drafting.

Muhammad Imdad Ullah: reviewed and revised overall quality and writeup of the manuscript.

Muhammad Ramzan Sheikh: provided guidance for data analysis, reviewed, supervised.

Abdul Saboor: provided guidelines for empirical analysis.

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