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# The Determinants' of Workers' Remittances: A Case Study of the Gulf Cooperation Council (GCC)

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**Abstract**

Workers' remittances in the Gulf Cooperation Council (GCC) region has significantly contributed towards the development of many countries globally over the past decade. Using remittance flows data from GCC region countries, this study examines the determinants of workers' remittance by considering internal and external factors. We estimated a gravity model for remittance flows using a variety of existing literature to determine the extent to which macroeconomic factors control the remittance flows from the GCC region. The estimation was based on a variety of panel data from 6 host countries of the GCC region and 5 home countries; two Far East countries namely Philippines and Indonesia, and three Near East countries namely India, Pakistan and Bangladesh. The study found that several factors have a significant effect on remittance flows from GCC region include stock of migrant, inflation rate and exchange rate. The study also provided evidence that GDP of the GCC region have a positive and statistically significant effect on remittance flows. Empirical analysis also demonstrated that level GDP of the Far East and Near East regions responded negatively to remittances, however, this was not significant. Evidence indicated that workers' remittances responded on the level GDP of GCC region rather than GDP of other regions. The study also found factor like physical distance between host and home countries proved to be a poor proxy to determine the remittance flows.

**Keywords**: Workers' Remittances, GCC, Far East, Near East, Gravity Model

## Introduction

The one of the most important elements affecting economic relations between developing and developed countries in the 21st century is the Global migration. (Page and Adams, 2006). Remittance flows, which is one of the economic emigration consequences, have become a significant issue in the discussion of the economy in the recent decade. This is because there are a series of questions about what the macroeconomic determinants of these remittances. Remittances, in their most general usage, are the transfer of a portion of a migrant worker's wages back to his or her family. According to the World Bank and the International Monetary Fund, the remittances sent through formal, and informal channels are 50% more than the official aid provided to the developing countries. In fact, data has shown, remittance flows

are the second largest source behind Foreign Direct Investment, of external funding for developing, and this is via formal channels but if it takes into consideration informal channels, the remittances are larger than (FDI). The table 1 demonstrates the trend in workers' remittance flows among other financial sources over a span of eight years.

Table 1.
Resource Flows to Developing Countries (US$ billions)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|
| FDI | 3065 | 2444 | 1361 | 1859 | 346 | 2286 | 2111 | 1771 | 2165 |
| Remittances | 350 | 405 | 387 | 405 | 469 | 494 | 325 | 552 | 553 |
| ODA | 108 | 127 | 126 | 130 | 141 | 132 | 150 | 120 | 141 |
| Private debt portfolio equity | 127 | 121 | 128 | 123 | 117 | 128 | 122 | 123 | 128 |

Sources: World Development Indicators database and World Bank Migration and Remittances Unit. Note: Private debt includes only medium-and long-term debt. FDI = foreign direct investment; ODA = official development assistance; — = not available.

On the other hand, the World Bank Data estimated remittance flows from GCC region approximately 121.7 USD billions in 2015 which contributes 22% of the total world remittances. There was approximately a 5.12 per cent increase than previous year. Table 2 shows that a per cent of this remittance flows to the World Remittances come from the GCC region.

Table 2:
The Share GCC Region Remittances Vs World Remittances (US$ billions)

| Remittance Flows | 2014 | 2015 |
|---|---|---|
| GCC Region | 93.18 (US$ billions) | 121.7 (US$ billions) |
| World Remittances | 552 (US$ billions) | 533 (US$ billions) |
| Percentage | 16.88% | 22% |

Source: Author Calculated using World Bank data, 2017

Since remittances are based on the personal transactions from a migrant's accounts to their friends and families, they also tend to fulfil the needs of their recipients. Remittances not only contribute to the growth of many developing nations, they also have the ability to reduce poverty and promote human development. Remittances help in increasing the income of many households in many developing countries. By providing financial benefits to the poor people, remittances also have an impact on poverty and welfare through its indirect multiplier effect and the macroeconomic effects (World Bank 2014).

Remittance flows have attracted considerable attention of scholars in recent years. Despite the importance of the workers' remittances especially from GCC region as ever-increasing size of remittance flows, to date, very little attention has been paid onto this region. In fact, there is a lack of empirical evidence on the determinants of workers' remittance flows from GCC region. No studies have been carried out to determine the factors affecting the remittances of workers residing in the Gulf region. Thus, this research aims to explore, examine and analyse macroeconomic and non-macroeconomic determinates of workers' remittances from GCC region.
Therefore, this study fills this gap and contributes to the literature in two ways. First, it examines and evaluates the macroeconomic indicators in each individual region. Second, the study at a first time, contributes to literature, by testing the hypothesis whether macroeconomic and non-macroeconomic factors can influence into increase or decrease remittance flows from GCC region.

The paper has been structured as follows. The first part introduces the background and context of the study. The second part demonstrates study objective and the importance of the study. The third part reviews of exiting empirical literature in this field. The fourth part presents the methodology and empirical analysis. The fifth part demonstrates the study findings and discussion. The final part covers conclusion and summary of the study.

**Context of the Study**

The Gulf Cooperation Council (GCC) was established on 19 June 1981 in Riyadh, Saudi Arabia, as an accord made between Saudi Arabia, the United Arab Emirates (UAE), Kuwait, Bahrain, Qatar and Oman. The immediate objective of the GCC was to confront the security challenges of its members. Kapiszewski (2006) stated that the adoption of effective free trade economic policies and the geographic proximity of these countries motivated them to form the GCC. The member countries share a common religion (Islam), cultural beliefs, value systems, and political orientation, as well as a shared economic destiny, mainly driven by the oil industry.

The GCC growth model has delivered strong economic and social outcomes over several decades. The economies rely on oil as the main source of export and fiscal revenues. Over the years, the governments have increased public sector employment and expenses on infrastructure, health, and education. A portion of these revenues is spent directly by the government and provided to citizens through transfers and public-sector jobs. Another portion is invested in infrastructure as well as real estate, education, and health; while the rest is saved, including in sovereign wealth funds (SWFs) (Callen et al., 2014).

According to IMF report (2016), this growth model has helped achieve rapid economic development and a significant improvement in all macroeconomics indicators including social indictors. According to World Bank Report (2016), GCC countries have been "growing by oil and slowing by oil". The report shows the GCC mean annual gross domestic product (GDP) growth rate for the period between 2002 and 2016 ranges between 2.1 per cent to 9.4 per cent with an average of 6.5 per cent. Table 3 shows a summary of selected Indicators of the GCC region in 2015.

Table 3:
Selected Indicators of the GCC Region and Member States, 2015

| Indicator | Bahrain | Kuwait | Oman | Qatar | KSA | UAE | GCC |
|---|---|---|---|---|---|---|---|
| Area - 000 km2 | 0.7 | 17.8 | 309.5 | 11.5 | 2,250 | 83.6 | 2,673.1 |
| Nominal GDP –Mil $ | 30,362.1 | 183,236 | 78,110.8 | 192,403.9 | 711,998.9 | 383,799 | 1,579,910.8 |
| Per capita GDP | 24,322.7 | 57,462.3 | 21,449.7 | 104,755.2 | 24,386.9 | 45,377 | 33,225.8 |
| Oil reserves – Mill Bar. | 120 | 101,500 | 5,500 | 25,244 | 265,850 | 97,800 | 496,014 |
| Oil Res % of world | 0.0 | 8.1 | 0.4 | 2.0 | 21.2 | 7.8 | 39.5 |
| Gas reserves– B Cub M | 92 | 1,784 | 950 | 25,202 | 8,151 | 6,091 | 42,270 |
| Gas % of world | 0.0 | 0.9 | 0.5 | 13.1 | 4.2 | 3.2 | 22.0 |
| Oil % of exports | 77.7 | 93.7 | 77.5 | 88.4 | 87.1 | 34.5 | 69.9 |
| Oil % of total revenue | 87.3 | 91.5 | 86.8 | 69.6 | 85.2 | 81.9 | 83.4 |

Source: “Gulf Statistical Profile” Gulf Organization for Industrial Consulting (GOIC), 2015.

Economic diversification has also been recognized in the GCC economy. Non-oil growth has increased considerably in the GCC economies since 2000.According to World Bank (2015) growth in GCC non-oil output averaged 6.8 percent during 2000–2013, and the share of the non-oil sector in total real GDP rose by 12 percentage points to 70 percent, driven mainly by Saudi Arabia and the United Arab Emirates. However, high rates of non-oil GDP growth were primarily driven by concurrent growth in oil prices (Gruss 2014, IMF 2014). Rising oil prices since 2000 have helped governments finance rapid increases in spending, which has led to strong growth in consumption demand. In fact, regression estimates that the relationship of non-oil GDP growth to oil price growth is five times stronger than it is to oil price levels, (Callen et al, 2014). The figure 1.2 shows Real GDP growth oil and non-oil.
A strong growth in oil revenues and non-oil revenues has attractive job opportunities in the region. According to World Bank (2015), a high proportion of country national income, about 75 percent, goes to human capital and only a small portion goes to labor (about 25 percent). While oil-exporting countries, especially GCC cases, do typically have a higher share of

national income going to human capital than other countries given the nature of the oil sector, the GCC countries are still at the high end of this spectrum. Indeed, three countries named Qatar, Kuwait and United Arab Emirates among 20 countries have the highest GDP Per capita in the world.

**Objective of the Study**

Although several studies have considered the question of whether labours remittance flows are affected by key macroeconomic variables, such as inflation rate and exchange rate differentials in the host and home countries, the evidence from GCC region does not exist. Therefore the study seeks to determine the factors influence the nature and extent of workers' remittance flows using a case study of the Gulf Cooperation Council. More specific, the major two objectives will be as follows: i) To investigate whether GDPs of the host and home country are correlated to increase or decrease remittance flows from GCC countries. ii) To examine the inflation rate and exchange rate on the workers' remittance flows from GCC countries.

The output of the study will be a seminal reference document on the nexus between finance through remittances and economic growth in GCC countries. It will provide a valuable comparison of GCC countries with other regions. Furthermore, the outcome of the research project will provide policy-makers with evidence into the factors that motivate economic growth or factors can influence the nature and extent of workers remittance flows. Policymakers and forecasters are particularly keen in what policies may encourage remittances and how they move with other macroeconomic variables, including inflation rate in the home country, GDP in the host country, or the exchange rate in the home. This will not only help guide future policies and regulation in this area, but also provide a tool for framing that will appropriate economic policies to deal with economy activities as whole in the home and host countries.

**Literature Review**

The current interesting argument among all previous literatures is what determines workers' remittances. The literature groups these determinants of workers' remittances into two main categories. The first category concerns the social characteristics of migrants and their families. The second category of determinants, on the other hand, considers macroeconomic and political variables as well as variables related to the institutional environment. A large part of the existing literature such as Knowles and Anker (1981) and Lucas and Stark (1985) focuses on the first group of determinants of worker remittances rather than on the macroeconomic variables that may influence the flow of migrants' savings to their home country.

A number of studies have examined the link between economic conditions and remittance flows. They found that economic activities play a significant role in the remittance flows (Hathroubi & Aloui, 2016; Hussain & Anjum, 2014; Rahman & Prashanta K, 2011; Rahman, 2006; Alkhathlan, 2013; Lim et Al., 2015; Alper & Neyapti, 2006).

The literature that focuses on the macroeconomic determinants of workers' remittances emphasizes the number of workers, wage rates, economic activity in the host and home countries, exchange rates, relative interest rate between labor sending and receiving

countries. Some factors such as political risk factors in the sending country, and facilities for transferring funds among them, the level of economic activity, real earnings of workers, and the total number of workers in the host country were consistently found to have a significant and positive effect on the flow of remittances. The earliest discussion paper about this was from Swamy (1981). Swamy, who was the first one, has highlighted the relationship between the economic activity in the host country and flow of remittances. Elbadawi and Rocha (1992) and El-Sakka and McNabb (1999) investigated this later.

An earliest discussion paper by Swamy (1981) on the macroeconomic determinants of migrant worker remittances highlighted the relationship between the economic conditions in the host country and the flow of remittances to the receiving households. Based on a regression analysis conducted on panel data, to study the determinants of worker remittances from Germany to Turkey, she found that 70% to 95% of the variation in the remittances sent is explained by the level and cyclical fluctuations in the aggregate economic activities in the host countries. In fact, both the number of migrants and their wages in the host country can vary the inflow of the remittances into the home country by approximately 90%.

Adenutsi (2014) utilised 36 Sub-Saharan Africa (SSA) countries to identify the macroeconomic determinants of migrant remittances received during period 1980-2009. The author found that the inflows of workers' remittances to sub-Sahara Africa are influenced by host-country macroeconomic conditions. In fact, evidence demonstrates that remittances respond to the economic conditions, e.g. wage rates and exchange rates of the host country.

In addition, the researchers also show evidence of how workers' remittances tend to increase during booms in economy and decrease during recessionary phases, (Buch & Kuckulenz, 2009; Popescu, 2014; Hathroubi & Aloui, 2016; Goschin, 2014; Fasano and Iqbal, 2003; Naufal, 2015; López-Feldman and Chávez, 2017).

Study by Abdel-Mahmoud and Abdel-Rahman (2006) explain how remittance flows increases during booms in economy and decreases during recessionary phases in the host country. Abdel-Mahmoud and Abdel-Rahman (2006) took oil revenues data from Saudi Arabia as a host country to examine and analyse how remittance flows responds to oil revenues. They found that workers' remittances are highly correlated with oil revenues, e.g. real oil GDP growth in the Saudi Arabia. Empirical analysis shows workers' remittances increased more rapidly during the oil boom during period 1970 and 1980 when oil GDP was increased. However, the workers' remittances declined in 1987 during recession period when there was a slow negative in oil GDP.

However, Ahmed et al (2014), Singh et al (2009 and 2011), Kock and Sun (2011), Lueth and Arranz (2008), and Docquier (2011) argue that the economic conditions in the home country play a significant role on remittances rather than the economic conditions in the host country. Ahmed et al (2014) used gravity approach similar to the model of Lueth and Ruiz-Arranz (2006). They examined the factors that influence the inflows of REM to Pakistan from 23 sending countries between 2001 and 2011. They found that the economic conditions in Pakistan, (home country) significantly respond to remittance inflows.

Moreover, there was wide agreement among previous studies that the stock of migrants in the host country had a positive impact on increasing the remittance outflows, (Al-Assaf & al-Malki, 2014; Naufal and Genc, 2014; Alleyne, 2008; Aydas et al., 2005; Aydas et al., 2006; Lim et al., 2015; Alper & Neyapti, 2006; Hagen-Zanker & Siegel, 2007; Barua et al., 2008; Lin, 2011; Ahmed et al, 2014).

The differentials of wage rates in the home and host country are very important determinants of workers' remittances. The findings are mixed in this context. Some researchers provided evidence that wage rates in the host country had a significant positive effect on remittances. Those researchers support the theory that strong economic conditions in the host country leads to a high level of wages. Consequently, it supports an increase in the level of the remittance outflows from the host country, El-Sakka and McNabb (1999), Wahba (1991), Lim et al., (2015) shahbaz et al., (2015), Finkelstein & Mandelman (2016), Akkoyunlu and Kholodilin (2006), and Vergas-Silva and Huang (2006).

Lahdhiri et al. (2015) used log of GDP per capita to measure wage rates in home and host country by using data panel approach. They found that the wage rates in the host country had a positive effect on remittances, while the wage rates in the home country had a significant negative effect on remittances. They observed that if the wage rates in home country are high, incentives to migrate will be relatively small and therefore remittances do not play a significant role in the home country wage rates.

Theoretically, the exchange rate factor is a vital factor to determine workers' remittances flows. There was wide agreement among previous studies that an exchange rate that is favourable for the migrant worker causes greater remittance flows, (El-Sakka & McNabb; 1999; Swamy, 1981; Glytsos, 1988; Elbadawi & Rocha, 1992; Ahmed et al., 2014; Barua et al., 2007; Freund & Spatafora, 2008; Lin, 2010, Chowdhury & Rabbi, 2014).

Vargas-Silva and Huang (2006) emphasized that a reduction in the exchange rates of the home country, in relation to the host country, would promote the flow of remittances from the host to the home countries. The researchers, including Amuedo-Dorantes and Pozo (2006), support this expectation, based on their analysis of panel data from the US and Mexico. They find exchange rates to be important in determining the remittance inflows. More importantly, a low exchange rate in the home country will not only encourage immigrants to remit more than what they would normally do, but it will also promote them to look for better investment opportunities in their home countries.

Barua et al. (2007) study involved into the same previous category. This author used panel data on bilateral remittance flows from 10 major host countries to Bangladesh from 1993 to 2005. Their results illustrated that a lower value of the Bangladesh currency, in relation to the currencies of the host country, increased the remittance inflows.

Lin (2010) assessed the inflation rate of the host and home countries to determine worker remittance flows. The regression results illustrated that higher inflation rates in the host countries resulted in a greater outflow of remittances. Lahdhiri et al. (2013) study obtained similar findings to Lin (2010). Lahdhiri et al. found that high inflation rate in host country had significantly positive impact on remittance outflows. This could be because higher inflation

could be associated with challenging economic conditions. The reverse was also true, in the sense that high inflation rates in the home countries decreased remittances.

**Methodology and Data Collection**

The study estimates a gravity model for workers' remittances. The gravity model is one of the most empirically successful models in economics. It has been widely used to infer trade effects of institutions such as customs unions, exchange rate mechanisms, ethnic ties, linguistic identity, and international borders. The theory was developed by Anderson (1979), who advises that after controlling for size, trade between two regions decreases in their bilateral trade barrier relative to the average barrier of the two regions to trade with all their partners.

This study, for the first time, estimates a gravity model for workers' remittances from6 GCC countries. The first study of remittances uses a gravity approach and was done by Lueth and Arranz (2006). According to their results the gravity framework is very powerful in explaining remittance flows. In fact, a few gravity variables such as partner countries' GDP, distance, common border, and common language can explain more than 50 percent of the variation in remittance flows across time and countries.

This was confirmed by Adam (2006), whose results show that countries located close to a significant remittance-sending region (like the United States, OECD-Europe) are more likely to receive international remittances". This shows that there are not only macroeconomic factors that determinate workers' remittances, but there are also some other factors such as distance, languages, and culture which could be also considered.

The study takes a similar approach of that one Lueth and Arranzee (2006). Firstly, it applies a gravity model, typically used to describe trade and, recently, to describe workers' remittances. It will take 6GCC sending countries to examine workers' remittances in5 recipient countries which are divided into two primary regions; Far East and Near East. The Far East countries are Philippians and Indonesia, while Near East countries are India, Pakistan and Bangladesh.

Empirical Analysis

The gravity equation for trade states that trade flows between two countries are proportional to the two countries' economic sizes (GDPs) and inversely proportional to the distance between them. The model includes variables to account for income level (GDP per capita) and physical and cultural proximity (shared border, language relationship, and colonial history). The proposed empirical analysis is based on an unbalanced panel over the period 1989–2010 to assess the independent variables GDPs, GDPs per capita and some Dummy variables from country i to country j at time period t. The proposed technique is a regression analysis technique.

$$InRemjit = \beta o + \beta 1 \ \ In\,GDPit + \beta 2 \ \ In\,GDPjt + \beta 3 \ \ In\,D_{ij} + B4 \ \ In\,Xjit + \varepsilon jit \quad 1$$

Where Remjit is the total amount of remittances received by country j to country i at time period t, GDPji is the Gross Domestic Product of the country j at the period t, D ij is the physical distance between the two countries, Xijt is a vector of potential factors influencing remittance flows, and ε is a random disturbance term.

$InRemjit$ =ßo +ß1 InGDPcapij+ß2 InlNFij+ ß3 lnEXCij + ß4 lnSTOCkMIGRANT

In second model, where Remjit is the total amount of remittances received by country j to country i at time period, GDPcapji is the GDP per Capita of the country, In Inflation from country j to country I, In Exchange rate from country j to country I, In Sock of Migrant in host country, ε ijt is a vector of potential factors influencing remittance flows, and ε is a random disturbance term.

**Data Sources**

Data on bilateral remittance flows are an important shortcoming in the analysis of the determinants of workers' remittances. The IMF balance of payments statistics, IMF annual reports, World Bank annual reports and some central banks' data are main data source on remittances. Data from the following sources: World Economic Outlook (WEO), International Financial Statistic (IFS), World Development Indicators (WDI) and Andrew Rose's website will be also considered.

**Results and Discussion**

In the first specification, the explanatory variables in each of the models were the logarithms of e.g. GDP and GDP per capita of the host country, GDP and GDP per capita of the recipient country, the physical distance between host and the recipient country. Moreover, non-macroeconomics variables including dummy variables for border sharing (=1 if the country-pair share a border), sharing common language and sharing common colonizer were included. All the four models included a time fixed effect.

Fixed effect models remove the effect of time-invariant characteristics from the predictor variables in order to quantify the predictors' net effect. Once the pool OLS and the fixed effect model were fitted they were compared using a likelihood ratio test. The test was significant (Chi-squared=1318.98, p-value<0.0001) suggesting that the fixed effect model made a significant improvement. Random effect models assume that the entity's error term is not correlated with the explanatory variables, which allows for time-invariant variables to be used as explanatory variables. On the other hand, one needs to specify those individual characteristics that may or may not influence the predictor variables in a fixed effect model, which might lead to omitted variable bias if some variables are not included.

A Hausman test is normally performed to guide the choice between a fixed and a random effect model specification where the null hypothesis is that the preferred model is random effects versus the alternative, the fixed effects. Once the random effects model was fitted, it was compared with the fixed effect model using the Hausman test, however, the models did not meet the asymptotic assumptions of the Hausman test and an alternative, Sargan-Hansen test was used to make the choice. The test was significant (Sargan-Hansen statistic = 129.54, p-value <0.0001). The Mundlak approach estimates random effects models adding group means of variables in explanatory variables which vary within groups. It relaxes the assumption of the random-effects estimator that the observed variables are uncorrelated with the unobserved variables.

Table 4.
Estimation of Equation (1 and 2) to Evaluate Remittance flows by using Four Models.

| **I. Estimation** | **Pooled OLS** | | **Randon Effects** | | **Fixed Effects** | | **Mundlak Model** | |
|---|---|---|---|---|---|---|---|---|
| Basic model | 0.5530 | *** | 0.9766 | *** | 1.2850 | *** | 1.2839 | *** |
| logGDPSources | [0.0408] | | [0.0865] | | [0.1124] | | [0.1128] | |
| | -10.5317 | *** | 0.5483 | | 0.8505 | | 0.8115 | |
| logGDP Recipient | [2.3333] | | [1.0335] | | [1.0501] | | [1.0530] | |
| | 15.7441 | *** | 17.8564 | *** | | | 13.5513 | *** |
| Comlangoff | [0.3338] | | [1.0512] | | | | [1.2950] | |
| | -0.3063 | | -0.4129 | | | | 0.0863 | |
| Comlangethno | [0.1953] | | [0.6917] | | | | [0.6909] | |
| | 2.4204 | *** | 2.7572 | ** | | | 0.5777 | |
| Contigent | [0.2331] | | [1.2163] | | | | [1.3040] | |
| | 0.7355 | *** | 1.3287 | *** | | | -0.1757 | |
| Comcol | [0.1247] | | [0.4450] | | | | [0.5144] | |
| | 0.0023 | *** | 0.0026 | *** | | | 0.0023 | *** |
| Distcap | [0.0000] | | [0.0001] | | | | [0.0002] | |
| | | | | | | | -0.7217 | *** |
| mean_lngdpout | | | | | | | [0.1931] | |
| | | | | | | | -0.0726 | |
| mean_lngdpin | | | | | | | [0.5622] | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Host characteristics** | | | | | | | | |
| lnGDPcapout | -0.8288 | | -0.0279 | | -0.2052 | | -0.2052 | |
| | [0.8845] | | [0.4522] | | [0.4452] | | [0.4450] | |
| **Home characteristics** | | | | | | | | |
| Lngdpcapin | 11.1057 | *** | -0.8355 | | -1.4223 | | -1.3838 | |
| | [2.2607] | | [1.0359] | | [1.0741] | | [1.0771] | |
| Lnpopin | 11.6351 | *** | 0.5521 | | -0.5882 | | -0.5453 | |
| | [2.3204] | | [1.0261] | | [1.0262] | | [1.0290] | |
| Realgdpin | 0.0461 | *** | 0.0186 | * | 0.0203 | ** | 0.0204 | ** |
| | [0.0170] | | [0.0099] | | [0.0097] | | [0.0098] | |
| Erin | 0.0083 | *** | 0.0091 | *** | 0.0098 | *** | 0.0098 | *** |
| | [0.0020] | | [0.0019] | | [0.0021] | | [0.0021] | |
| mean_lnpopin | | | | | | | 2.0621 | ** |
| | | | | | | | [0.8905] | |
| mean_realgdpin | | | | | | | 1.7404 | *** |
| | | | | | | | [0.3310] | |
| mean_erin | | | | | | | -0.0106 | * |
| | | | | | | | [0.0062] | |
| **II. Statistic Estimation** | | | | | | | | |
| N | 1,104 | | | | | | | |
| R-square | 0.9170 | | | | | | | |
| Adjusted R-square | 0.9162 | | | | | | | |

| | | | |
|---|---|---|---|
| F value | 1468.8 | | |
| Log likelihood | -2094.8 | | |
| Robust standard error in brackets | | | |
| **III. Diagnostic Tests** | | | |
| N | 1,104 | 1,104 | 1104 |
| N_g | 48 | 48 | 48 |
| R-squarebetween | 0.4936 | 0.4955 | 0.4955 |
| R-squarewithin | 0.9318 | 0.0491 | 0.9639 |
| R-squareoveral | 0.9081 | 0.0107 | 0.9385 |
| Rho (⍰) | 0.5758 | 0.9761 | 0.5612 |
| Sigma | 1.457 | 6.133 | 1.4327 |
| df_m | 16 | 53 | 16 |
| Hausman test (RE vs FE) | | -32.32 *** | |
| F test (OLS vs FE) | | 324.022 *** | |
| Standard error in brackets | | | |

*,**, and *** significant at 0.1, 0.05 and 0.01 respectively

The study employed four models in columns (1) to (4), the adjusted R-squared shows that pooled OLS regression explain about 90 percent of the variation in log of bilateral remittances and more than 80 percent Random Effect, Effect model and Mundlak model.

The result shows that the GDPs of the GCC region have a positive and statistically significant effect on remittances at 10 percent level of confidante, regardless of the choice of methods (Columns 1-4 in Table 4.1). In fact, empirical analysis shows that a 1-percentage-point increase in real GDP growth in host countries is associated with a 05-percentage-points increase in remittances GDP growth captures the potential capacity of expatriates for sending money back to home country.

The table 4 demonstrates that GDPs of the Far East and Near East countries respond to remittance negatively and significantly at level of 5 percent of confidant. This means that remittances decrease during booms in economy and increase during recessionary phases in the home country, which is also in accordance with the expectation. This reflects that migrant sends more remittances when the economic conditions back home are low, and decrease during good economic condition. This implies the principle complies with the altruistic motive. This result is consistent with earlier studies done by Kock and Sun (2011), Lueth and Arranz (2008), and Docquier (2011).

The second specification examines the relevant macroeconomic determinants to remittance flows from the GCC country. We first estimated equation (1), basic gravity model, and then employed Log of GDP per capita of GCC country, Log of inflation rate, and Log of stock of migrant in the GCC country. The statistical analysis shows a negative relationship between GDP per capita in host country and remittance flows, however, this is not significant. The result implies the GDPs per capita in host country do not respond to the remittance flows. The results underlines that of Sayan‘s (2004) Buch and Kuckulenz (2004) studies. These researchers found the GDP per capita in the host countries are insignificant in explaining the remittance determination.

Table 4 shows the second specification which employed gravity factors with home country characteristic including log of GDP per capita, log real GDP growth rate, and Log exchange rate. Holding other variables constrain, the pooled OLS (column 1) results show GDP per capita respond as positive and significant to remittance flows at 10% level. While Random Effect, Fixed Effect and Mundlak. (column 2 to 4) show the GDP per capita is negatively associated to increased remittance flows. This implies that GDP per capita in home country responds negatively to remittance but this is not significant.This implies that per capita income in home country and remittance inflows are negative correlated: a low per capita income encourages remittance inflow. In contrary, a high per capita income at home country discourages remittance inflows.

Therefore, migrants send more remittances when the income back home is low, which in principle is the altruistic motive. In contrast, better economic situations in the home country, which result in a rise in family income at home, may lead to a fall in the inflow of remittances, as migrants are less willing to send the same to the home country. The findings emphasize with the findings by (Ahmed et al 2014, luath & Arrzan 2016, Ratha 2003, El-Sakka and McNabb, 1999).

The result interprets that the emigrant attends to decrease remittance once GDP per capita increases in the host country. The motive of this could be self-interest purpose, as the migrant

attempts to invest some earrings into their host country. Another possible interpretation is insurance purpose. This includes cost of living in the host country as they move into the country for the first time to set themselves up host country.

The coefficient of the inflation rates shows economically positive on remittance flows from GCC countries. The regression results illustrated that higher inflation rates in the GCC countries resulted in a greater outflow of remittances. A higher inflation could be associated with challenging economic conditions in the host country and therefore, encouraging the migrant to remit more to their home country instead. This finding is consistent with the findings by Elbadawi and Rocha 1992, Naufal & Termos 2013, Lahdhiri et al. 2013.

In addition, high inflation reflects the price instability as well as captures monetary instability. Monetary instability is often associated with false informational content, which results in inaccurate price signals, causing inefficiency and the misallocation of resources and investment, thereby reducing the return on money that is remitted. High inflation in the host country also re-implies greater uncertainty and higher risks, thus dampening the volumes of remittance inflows into the home country as remitters mistrust the monetary institutions and are less willing to take unnecessary risks in the host country.

In regards to the effects of migrant's stock on remittances, the results show that remittances depend positively on migrant's stock. In fact, the regressor shows a one percent increase in the stock of migrant in the host country increases remittances by about 0.26 percent on average of the remittance flows from host country. This means that countries with an increasing size of migrant's stock attract higher volume of remittances (Freund and Spatafora, 2005).

The stock of migrants is a good proxy to determine to remittance flows from GCC region to other regions. These findings are consistent with the previous empirical analysis that higher amounts of remittance sent are directly correlated with larger numbers of migrants. The results are robust and consistent with the literature.

Table 4 provides results of exchange rate in determining remittance flows. The result shows that the exchange rate variable (EXRATE) is positive and significant at 10% level in four Models (columns 1 to 4). The coefficient of the exchange rate shows as economically positive to increase remittance flows from the GCC countries to Fare East and Near East . Indeed, the regressor provides evidence that a one percent appreciation of exchange rate in home, leads to a 0.09 increase remittance flows from GCC.

It suggests that an appreciation of the receiving's currency vis-à-vis the Lei yield a substitution effect: migrants remit more, while keeping unchanged the purchasing power of the amount transferred. The results demonstrate the migrant remits more when the rate of exchange in home country rise as there is a need for more money to meet the households' requirements.

On the contrary, the households' requirements including goods and services in the home country become cheaper, thus the anticipated remittance falls as it does not require the same

amount of money remitted to purchase a given amount of goods and services. This implies the substitution effect.

The result refers to the geographical distance between the sending and receiving countries. It was also obvious that the greater the distance between two countries, the larger the flow of remittances. This finding was consistent with various authors (Ahmed et al., 2014; IMF, 2006; Nnyanzi, 2016) .These authors found that distance is not statistically significant and not an important driver of remittance flows because migrants use a wide array of informal channels to send money back home. In the GCC region, researchers (Freund and Nikola, 2009; Ozaki, 2012) found that when the destination and origin are in close proximity, there is a likelihood of an increase in remittances sent by using informal channels. This is because of speed, cost, discretion, convenience, trust and reliability.

**Summary and Conclusion**

The study has determined the macroeconomic factors that influence the nature and extent of workers' remittance flows using a case study of the Gulf Cooperation Council. The study has provided empirical evidence on this subject in the context. Results obtained generally point to a number of facts .There is a significant positive relationship between the level of GDP and remittance flows from GCC region. In fact, the level of GDP of GCC region have booted to increase remittance flows from the region. While, the level of GDP of Near East and Far East regions responded negatively to remittances, however, this is not significant.

This implies that Remittance flows responded to GCC region as a host county rather than home country. This finding has significant policy implications. Firstly, if the home countries wish to increase the volume of remittances, they should focus more on the level of emigrant issues and immigration policy, as the economic conditions of the home country have been found to have no significant impact on the remittances. While, the host country economic activities are strongly associated with outflow remittances. Secondly, the formulation policy in the host country, including the fiscal policy and/or monetary policy, will have a direct impact on remittance outflows. Polices such as bonds or interest rate could encourage migrant to have some saving in host country which lead to re-invest the remittances.

The study also found that the GDP per capita in the home country responded negatively to remittance. This reflects that migrant sends more remittances when the economic conditions back home are low, and the same decreases during good economic conditions. The result also demonstrates the purpose of remitting is to support their family at the home country and poorer countries receive more remittances. This could lead to the fact that remittance flows from GCC countries to Far East and Near East countries are pure altruism. A policy in the home country's government could maximize the benefits of labor flows and remittances by ensuring that the migration channels are kept open. This could be through enhancing the safety and security of transferring funds back to home countries, by strengthening formal transfer systems, and by providing an environment that encourages households to create assets by investing more of the funds that they receive from family members working abroad.

The study also proved that inflation rate has economically positive on remittance flows from GCC countries. This indicates that a high inflation rate in host country has booted to increase

the level of remittance outflows. High inflation in the host country re-implies greater uncertainty and higher risks, thus dampening the volumes of remittance inflows into the home country as remitters mistrust the monetary institutions and are less willing to take unnecessary risks in the host country. Similarly, a high inflation rate in the home country suggests that migrants remit more, while keeping unchanged the purchasing power of the amount transferred. Hence, Policy-makers are recommended to have the capacity to develop audit tools to better identify the macroeconomic variables to maintain stable inflation rates.

The study also provided evidence that the exchange rate has economically positive to increase remittance flows from the GCC countries to Far East and Near East regions. However, Physical distance was not a significant proxy to determine remittance flows from GCC region. Counties that are closer together might not be well captured, as migrant workers might use channels that are not recognized in the main financial reporting systems. Thus, the governments are recommended to format the policy system of informal channels' remittances including addressing weaknesses of the formal system services. Central banks should provide more facilities for non-resident workers to maintain formal transfer channels. Some facilities include open multi-bank accounts or access to bank loans will encourage migrant to use formal channels such as bank draft, electric and telegraphic transfers between banks.

The policy-makers in GCC region should pay attention to maintain a stable balance of payments and current account if increasing size of remittances significantly recorded every year. Since this could lead to increase the probability of imbalance in current account in the long run in GCC countries. In contrary, the international remittances could finance and support the current account deficit in the receiving country.

Therefore, this can be achieved for both, home and host countries, if specific initiatives and/or policies are developed and executed towards this goal. These initiatives could include lowering or raising the transfer costs of funds remitted overseas (lower fees and more favourable exchange rates), addressing the risks involved in these transfers, the creation of appropriate saving instruments and offering attractive investment opportunities within the host country, so as to make funds available for domestic productive investments. Other ways could include providing opportunities for expatriates to setup business ventures in the host country. This would be very helpful in recycling the funds within the host country (Vargas-Silva, 2006).

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