

## The Nexus between Remittance Outflows and GCC Growth and Inflation

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### Abstract

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The literature contains a handful of studies examining the effect of remittance outflows on GCC economies. We re-examine this topic by using panel data for 2004-2014. Specifically, our objective is twofold: First, we examine the nexus between economic growth in the GCC countries and remittance outflows by relaxing the assumption that the effect of remittance outflows on economic growth is the same across the six GCC countries. Research has shown that economic growth declines as remittance outflows increase. Our results show that remittance outflows affect growth in GDP only in the case of Saudi Arabia. For example, when growth in remittance outflows increases by 1 percentage point, then growth in real GDP of Saudi Arabia declines by 0.139 percent. Second, we examine the nexus between inflation and remittance outflows by relaxing the assumption that the effect of remittance outflows on inflation is the same across GCC countries. The literature suggests that inflation declines as remittance outflows increase. Our results for GCC countries show that growth in remittance outflows affect inflation only in the case of Bahrain. For example, when growth in remittance outflows increases by 1 percentage point, then inflation in Bahrain declines by 0.135 percent.

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### 1. Introduction

The Gulf Cooperation Council (GCC), which consists of Bahrain, Kuwait, Oman, Qatar, the Kingdom of Saudi Arabia (KSA), and the United Arab Emirates (UAE), has evolved significantly over the past decade. These countries rely heavily on oil exports as the main source of revenue. Saudi Arabia, the world's second largest oil producer, has the largest economy in the Arab world with a 2013 GDP of about 750 billion dollars (World Bank, 2013). Similarly, UAE, the world's eighth largest oil producer, has a 2013 GDP of about 400 billion dollars (World Bank, 2013). Together, the six economies have about 1.6 trillion dollars GDP in 2013 (IMF, 2013). In an attempt to diversify, the GCC countries have invested in many development projects such as telecommunication, power generation, trade in non-oil goods and services, and financial markets. In their early years of independence, the GCC countries lacked the needed human capital and skilled labor for attaining rapid economic growth and development. Hence, they have been relying heavily on an external labor force.

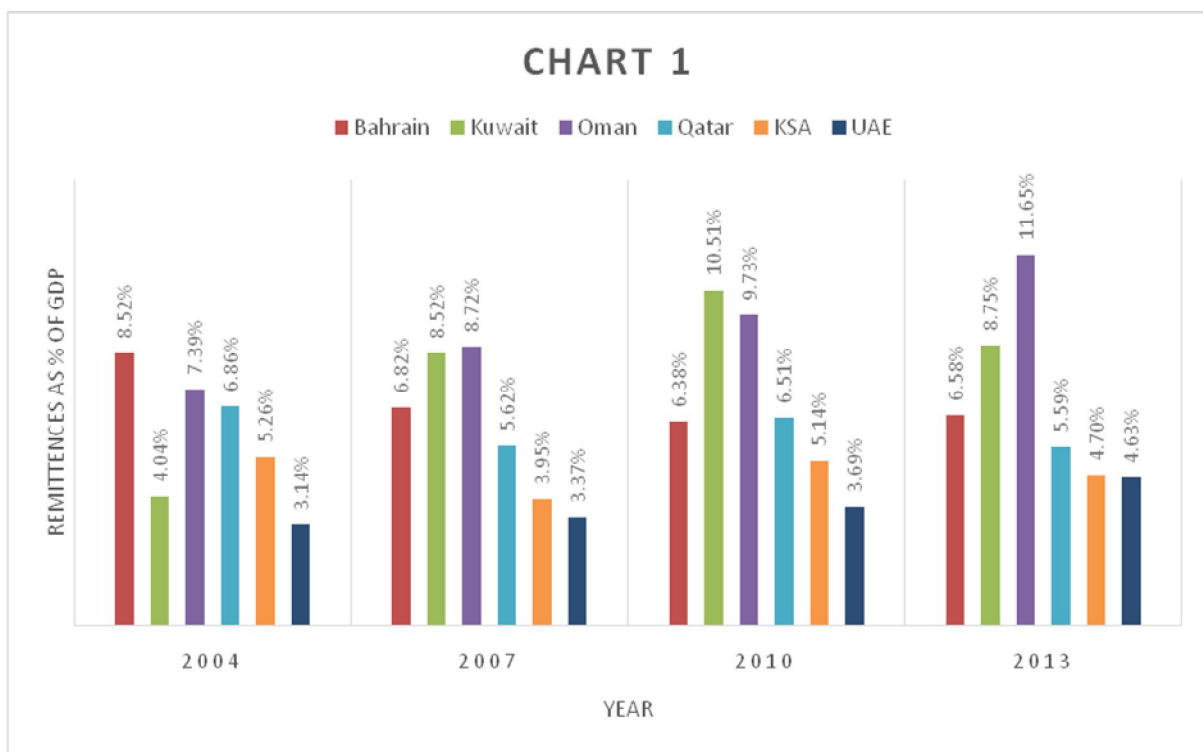
According to Naufal et al. (2012), the foreign labor force represents more than 50% of the population across the GCC countries. Most of the foreign low-skilled workers reside in these countries without their families. This is the main reason that the expatriates remit a large share of their income to their home countries. Chart 1 illustrates the size of remittances as a percentage of GDP for the six countries in 2004, 2007, 2010, and 2013. For more recent years on average, Kuwait and Oman have the largest remittance outflow as a percentage of the GDP remittance outflows. For instance, in 2013, Kuwait's and Oman's remittance outflows were 8.75 and 12 per cent of their GDP, respectively.

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The objective of this study is twofold: First we analyze the nexus between economic growth in the GCC countries and remittance outflows by relaxing the assumption that the effect of remittance outflows on economic growth is the same across the six GCC countries. Research has shown that economic growth declines as remittance outflows increase (Alkhatlan, 2013). Our panel study results for 2004-2014 show that remittance outflows negatively affect growth in GDP of Saudi Arabia. More specifically, growth in GDP of Bahrain, Kuwait, Oman, Qatar, and the UAE do not respond to the rate of change in remittance outflows.

Second, we analyze the nexus between inflation in the GCC countries and remittance outflows by relaxing the assumption that the effect of remittance outflows on inflation is the same across the six GCC countries. Narayans et al. (2011) show that remittance inflows generate inflation in developing (receiving) countries. Termos et al. (2013) show that remittance outflows lower inflation in the GCC countries. Our results for 2004-2014, however, show that remittance outflows do not affect inflation in all but one GCC country. Specifically, inflation in Kuwait, Oman, Qatar, Saudi Arabia, and the UAE do not respond to growth in remittance outflows. However, inflation in Bahrain declines as remittance outflow increases.



The rest of the paper is organized as follows: Section 2 reviews the related literature. Section 3 describes the data and empirical methods used in the study. Section 4 presents our panel regression estimation results. Section 5 concludes.

## 2. Literature review

There is considerable literature that studies the effect of remittances on the recipient economies (Adams, 1991; Cox and Ureta, 2003; Ratha, 2013). However, most of these studies overlook the effect of remittance outflows on the remitting economies. In the past decade, GCC countries experienced strong economic growth. In a study published by the Middle East Institute, Naufal and Termos (2010) point out that the strong labor force, which is composed of expatriates, is the main force behind this growth. They further argue that the GCC is considered to be unique due to its geographical proximity, as it is a preferred destination with diverse expatriate laborers that share an important goal: that is, sending a large portion of their income back home. As noted by Termos et al. (2013, p. 46), the expatriate population in the GCC, "on average comprises about 50.4% of the total population, with the highest being Qatar (78.3%) and the lowest being Oman (24.5%)."

In what follows, we first examine the literature on how remittance outflows affect economic growth, and then we review the literature on how remittance outflows affect inflation.

## 2.1 Remittance outflows and growth

The increased inflow of human capital from foreign countries has enabled GCC countries to achieve rapid economic growth through obtaining the needed skills and work force. Naufal and Termos (2009) study the effect of remittance outflows in GCC countries and show that the freedom to remit earnings enable the host country to attract and retain a larger work force which, in turn, contributes substantially to the economic growth of the immigrant's country.

Alkhathlan (2013) provides empirical support for the argument made by Vargas-Silva and Huang (2006) that remittance outflows react more strongly to changes in the macroeconomic circumstances of the host country than changes in the macroeconomic circumstances of the home country. Moreover, expatriates' intention of settling in the host country determines the size of the remittance outflows. For example, if the expatriate were planning to settle in the host country for a long period of time, then the size of remittance outflows would be small. On the other hand, if the expatriate's intention is to be in the host country for a short period of time, then remittance outflows would be large.

Alkhathlan (2013) examines the nexus between economic growth and the remittances in Saudi Arabia for 1970 to 2010. His results indicate that remittance outflows negatively affect short-term economic growth in Saudi Arabia (2013). He argues this negative effect on growth may occur because expatriates tend to remit a large portion of their initial earnings immediately to their home countries. His results also show that both government spending and exports are positive and highly significant in promoting economic growth. Alkhathlan (2013) emphasizes that there is a need to redirect these outflows of capital to domestic consumption and investment in the host country. This can be accomplished by offering more incentives to expatriates to feel more at home. In addition, policymakers should consider policies that ensure favorable labor laws in order to create a sense of confidence within the migrant workforce (Alkhathlan, 2013, p. 700).

## 2.2 Remittance outflows and inflation

Naufal et al. (2013) examine the effect of remittance outflows on inflation in remitting countries. They point out that economists generally ignore the effect of remittance outflows on the remitting countries due to the insignificant size of remittances, whether in a monetary unit or as a ratio of GDP. This is, however, different in the case of the GCC where remittance outflows in terms of dollar amount or as a ratio of GDP are large (Naufal et al., 2013). Table 1 shows the size of remittance outflows from the GCC countries as a percentage of GDP for 2013. As seen, this ratio varies significantly across the countries with the highest percentage (11.7%) for Oman and the lowest for the UAE (4.6%). Naufal et al. (2013) find that domestic investment and consumption are inversely related with remittance outflows. Despite this, they still find a negative relationship between remittance outflows and inflation. Specifically their findings indicate "that outflows exert deflationary pressure in the sending economy" (p. 46).

**Table 2: Descriptive statistics: 2013**

Country	Remittances(billions of \$)	GDP(billions of \$)	% of GDP
Bahrain	\$ 2.17	\$ 32.88	6.6%
Kuwait	15.24	174.17	8.8
Oman	9.10	78.11	11.7
Qatar	11.28	201.79	5.6
Saudi Arabia	35.00	744.68	4.7
United Arab Emirates	17.90	386.61	4.6

Another reason for previous studies to neglect the effect of remittance outflows on sending countries is the fact that normally the amount of monetary leakage is negligible as a percentage of GDP. For example, remittances sent from Europe to developing countries have a very small impact on Europe's economy. This is different for the GCC countries where remittance outflows are a larger percentage of GDP. Therefore, it is expected that remittance outflows have potentially larger impacts on GCC economies. Naufal and Termos (2010) raise five important concerns regarding GCC economies as follows:

1. Pressure on exchange rate: remittance outflows exert pressure on the foreign reserves. Except for Kuwait, the remaining 5 GCC countries' currencies are pegged to the US dollar; remittance outflows thus apply additional pressure on central banks in the GCC countries in order to maintain the pegged exchange rate.
2. Pressure on fiscal policy: A large portion of remittances leaving the economy is expected to weaken the performance of fiscal policy, thus exerting a downward pressure on the government spending multiplier.
3. Pressure on monetary policy: Since GCC currencies are pegged to the US dollar; interest rates in the GCC are affected by the instability of interest rates in the US. Remittances, therefore, exert pressure on the money supply and in turn the money multiplier.
4. Pressure on investment: Due to remittance outflows, income made in the GCC countries is not fully recycled in the local economy. This results in downward pressure on the investment multiplier.
5. Risk of underground economic activities: Although some expatriates use conventional methods such as financial institutions, others use the "hawala" system that depends on individuals who use agents to send and receive money from the sending and receiving countries. This may create concerns as the transferred money is not properly monitored.

Their study suggests that the ultimate objective is to redirect remittance outflows into domestic investment. This could happen only if expatriates felt more at home. Therefore, policymakers in the GCC are urged to consider new policies that may reduce the outflow of remittances from the GCC by allowing full or partial property ownership, encouraging family reunions, and open the door for gradual naturalization (Naufal and Termos, 2010).

Furthermore, Genc and Naufal (2012) look at the macroeconomic effects of remittance outflows. They point out that most of the foreign labor force hosted by the GCC is low-skilled workers who reside in the GCC countries without being accompanied by their families. This is the main reason why these expatriates remit a large share of their income to their home countries. As discussed above, this may have serious monetary and fiscal policy implications. These implications are aggravated due to the fact that currencies in the GCC are largely pegged to the US dollar. As a result, monetary policy will take a secondary role in the region due to preannounced exchange rates with the US dollar (Genc and Naufal, 2012). Moreover, the volatile oil price has opposite impacts on the United States and GCC countries' economies, as "remittances provide an avenue to streamline the domestic monetary policy in the GCC by substitution for the nonexistent strong institutional bond market by playing the role of the open market operations" (Genc and Naufal, 2012).

### 3. Data and empirical results

The data used in this study covers the period from 2003 to 2014. The nominal and real GDP, and remittance outflows data for the GCC countries are obtained from the *World Development Indicators* database (published by the World Bank). The data on the consumer price index (CPI), capital formation (or investment), government spending, exports, money supply (the M1 definition) are all from various issues of the *International Monetary Statistics Yearbook* (published by the International Monetary Fund, IMF). The data on crude oil prices are obtained from the Federal Reserve Bank of St. Louis website. See the appendix for more information.

#### 3.1 Empirical results for growth

In examining the nexus between economic growth in the GCC countries and remittance outflows, our model includes growth in real GDP ( $Y_{it}$ ) as the dependent variable and growth in real remittance outflows ( $RRM_{it}$ ) as the main independent variable. The control variables in our model include the CPI inflation rate ( $P_{it}$ ), government spending as a percentage of GDP ( $G_{it}$ ), and exports as a percentage of GDP ( $X_{it}$ ), and previous year's investment as the percentage of GDP ( $I_{it-1}$ ). The inclusion of the first three control variables is in line with Alkathlan (2013) who examines the effect of remittance outflows on Saudi Arabia's growth in real GDP. The reason for the inclusion of the fourth independent variable is because the GCC countries are developing countries, and capital formation is the driving force for economic growth. Specifically, we start with the following model:

$$Y_{it} = \alpha + \beta_1 RRM_{it} + \beta_2 P_{it} + \beta_3 G_{it} + \beta_4 X_{it} + \beta_5 I_{it-1} + u_{it} \quad (1)$$

Where country subscript  $i = 1, 2, 3, 4, 5$ , and 6, and time subscript  $t = 2004, 2005, \dots, 2014$ . The OLS estimation results for Model 1 are reported in Column 1 of Table 2. The numbers in parenthesis are absolute t-ratios. In order to account for such possible problems as heteroscedasticity and autocorrelation, we use the autocorrelation-heteroscedasticity consistent (Newey and West, 1987) standard errors to calculate the t-ratios. As shown, the coefficient estimate of growth in remittance outflows and the coefficient estimates of the control variables are all insignificant, and the  $R^2 (=0.12)$  is very close to zero. These results may be due to the fact that the constant term is assumed to be fixed both over time and countries. We relax this assumption by allowing the constant term to vary over time. Accordingly, we have the following period fixed effect model:

$$Y_{it} = \alpha_1 D_{2004} + \alpha_2 D_{2005} + \dots + \alpha_{11} D_{2014} + \beta_1 RRM_{it} + \beta_2 P_{it} + \beta_3 G_{it} + \beta_4 X_{it} + \beta_5 I_{it-1} + u_{it} \quad (2)$$

where  $D_{2004}$  is one for 2004 and zero otherwise,  $D_{2005}$  is one for 2005 and zero otherwise, ..., and  $D_{2014}$  is one for 2014 and zero otherwise. The estimation results for model (2) are reported in column 2 of Table 2. Again, the coefficient estimate of growth in remittance outflows as well as the coefficient estimate of control variables are all insignificant, the  $R^2 (=0.23)$  is not different from zero.

**Table 2: Dependent Variable: GDP Growth (Y): 2004-2014**

	Model (1)	Model (2)	Model (3)	Model (4)
RRM	0.023 (0.67)	0.048 (1.05)	-0.005 (0.20)	
DB*RRM				-0.360 (1.46)
DK*RRM				-0.015 (0.49)
DO*RRM				0.197 (1.39)
DQ*RRM				0.084 (0.88)
DS*RRM				<b>-0.139 (4.74)</b>
DU*RRM				0.047 (0.98)
Control Variables:				
P	0.438 (1.51)	0.654 (1.47)	<b>0.267 (2.41)</b>	<b>0.295 (1.85)</b>
G	-0.013 (0.17)	-0.039 (0.47)	0.231 (1.31)	<b>0.304 (1.73)</b>
X	0.035 (1.18)	0.035 (1.29)	0.025 (1.37)	0.318 (0.62)
I(-1)	0.007 (0.31)	0.014 (0.48)	<b>0.024 (2.79)</b>	<b>0.040 (4.31)</b>
Year Fixed Effects	No	Yes	No	No
Country Fixed Effects	No	No	Yes	Yes
R <sup>2</sup>	0.12	0.23	0.53	0.58
Number of Observations	66	66	66	66

Note: Countries included in the sample are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE. Numbers in parentheses are absolute t-ratios calculated using heteroscedasticity-autocorrelation consistent Newey-West standard errors. Next, we allow the constant term to vary over countries. Accordingly, we have the following country fixed effect model:

$$Y_{it} = \alpha_1 D_B + \alpha_2 D_K + \alpha_3 D_O + \alpha_4 D_Q + \alpha_5 D_S + \alpha_6 D_U + \beta_1 RRM_{it} + \beta_2 P_{it} + \beta_3 G_{it} + \beta_4 X_{it} + \beta_5 I_{it-1} + u_{it} \quad (3)$$

where  $D_B$  is one for Bahrain and zero otherwise,  $D_K$  is one for Kuwait and zero otherwise,  $D_O$  is one for Oman and zero otherwise,  $D_Q$  is one for Qatar and zero otherwise,  $D_S$  is one for Saudi Arabia and zero otherwise,  $D_U$  is one for UAE and zero otherwise. The estimation results of model (3) are reported in column 3 of Table 2.

As shown, the coefficient estimate of growth in remittance outflows and the coefficient estimates of growth in exports and government spending are all insignificant. However, the coefficient estimates of inflation and investment are both significant, and the  $R^2$  (=0.53) improves significantly. This indicates that the country fixed effect estimates in column 3 are superior to period fixed effect in column 2.

Therefore, we use the country fixed effect model to make further improvements by allowing the effect of growth in remittance outflows ( $RRM_{it}$ ) on real GDP growth ( $Y_{it}$ ) to vary across the countries. Accordingly, we have the following model:

$$Y_{it} = \alpha_1 D_B + \alpha_2 D_K + \alpha_3 D_0 + \alpha_4 D_Q + \alpha_5 D_S + \alpha_6 D_U + \beta_{11} D_B RRM_{it} + \beta_{12} D_K RRM_{it} + \beta_{13} D_0 RRM_{it} + \beta_{14} D_Q RRM_{it} + \beta_{15} D_S RRM_{it} + \beta_{16} D_U RRM_{it} + \beta_2 P_{it} + \beta_3 G_{it} + \beta_4 X_{it} + \beta_5 I_{it-1} + u_{it} \quad (4)$$

where  $\beta_{11}$ ,  $\beta_{12}$ ,  $\beta_{13}$ ,  $\beta_{14}$ ,  $\beta_{15}$ , and  $\beta_{16}$  are, respectively, the effects of growth in remittance outflows on growth in real GDP. The estimates for model (4) are reported in column 4 of Table 2. Except of growth in exports, the coefficient estimates of the remaining control variables are significantly different from zero. These results further show that growth in remittance outflows affect growth in real GDP only in the case of Saudi Arabia. For example, when growth in remittance outflows increases by 1 percentage point, then growth in real GDP declines by 0.139 percentage point. This is consistent with Alkhatlan (2013) study that remittance outflows adversely affect economic growth in Saudi Arabia. Other GCC countries including Bahrain, Kuwait, Oman, Qatar, and the UAE are much smaller than Saudi Arabia in terms of GDP and are still in the process of development. This may explain why real GDP growth rates in these countries are not affected by growth in remittance outflows. In addition, our results show that investment is important in increasing economic growth. Therefore, in line with Alkathlan (2013) and Naufal and Termos (2010), we emphasize that, as a solution, policymakers in Saudi Arabia should implement policies to re-direct remittance outflows into domestic investment (and consumption), by offering expatriates more incentives to feel more at home.

### 3.2 Empirical results for inflation

In examining the nexus between inflation in the GCC countries and remittance outflows, our model includes the CPI inflation rate ( $P_{it}$ ) as the dependent variable and growth in nominal remittance outflows ( $NRM_{it}$ ) as the main independent variable. The control variable include the crude oil price inflation rate ( $POIL_{it}$ ) and growth in money supply ( $M_{it}$ ). The inclusion of the control variables is aligned with Termos et al. (2013) study. We start with the following model:

$$P_{it} = \alpha + \beta_1 NRM_{it} + \beta_2 POIL_{it} + \beta_3 M_{it} + u_{it} \quad (5)$$

Where country subscript  $i = 1, 2, 3, 4, 5$ , and 6, and time subscript  $t = 2004, 2005, 2014$ . The OLS estimation results for model (5) are reported in column 1 of Table 3. The numbers in parentheses are absolute t-ratios. In order to account for such possible problems as heteroscedasticity and autocorrelation, we use the autocorrelation-heteroscedasticity consistent (Newey and West, 1987) standard errors to calculate the t-ratios. As shown, the coefficient estimate of growth in remittance outflows and the coefficient estimate of growth in money supply are insignificant, and the  $R^2$  (=0.11) is low. These results may be due to the fact that the constant term is assumed to be fixed over both time and countries. We relaxes this assumption by allowing the constant term to vary over countries. Accordingly, we have the following country fixed effect model:

$$P_{it} = \alpha_1 D_B + \alpha_2 D_K + \alpha_3 D_0 + \alpha_4 D_Q + \alpha_5 D_S + \alpha_6 D_U + \beta_1 NRM_{it} + \beta_2 POIL_{it} + \beta_3 M_{it} + u_{it} \quad (6)$$

Where  $D_B$  is one for Bahrain and zero otherwise,  $D_K$  is one for Kuwait and zero otherwise,  $D_O$  is one for Oman and zero otherwise,  $D_Q$  is one for Qatar and zero otherwise,  $D_S$  is one for Saudi

Arabia and zero otherwise,  $D_U$  is one for UAE and zero otherwise. The estimation results of model (6) are reported in column 2 of Table 3. As shown, the coefficient estimate of growth in remittance outflows and the coefficient estimate of growth in money supply is still insignificant, and the  $R^2$  declines (= 0.10).

Next, we allow the constant term to vary over time. Accordingly, we have the following period fixed effect model:

$$P_{it} = \alpha_1 D_{2004} + \alpha_2 D_{2005} + \dots + \alpha_{11} D_{2014} + \beta_1 NRM_{it} + \beta_2 POIL_{it} + \beta_3 M_{it} + u_{it} \quad (7)$$

where  $D_{2004}$  is one for 2004 and zero otherwise,  $D_{2005}$  is one for 2005 and zero otherwise, ..., and  $D_{2014}$  is one for 2014 and zero otherwise.

**Table 3: Dependent Variable: CPI inflation (P): 2004-2014**

	Model (5)	Model (6)	Model (7)	Model (8)
NRM	0.025 (1.37)	0.018 (0.89)	-0.009 (0.36)	
DB*NRM				<b>-0.135</b> <b>(2.48)</b>
DK*NRM				-0.009 (0.40)
DO*NRM				-0.035 (0.52)
DQ*NRM				-0.042 (0.42)
DS*NRM				-0.003 (0.05)
DU*NRM				0.116 (1.10)
Control Variables:				
POIL	<b>0.044</b> <b>(1.93)</b>	<b>0.046</b> <b>(1.98)</b>	<b>1.024</b> <b>(3.69)</b>	<b>0.863</b> <b>(1.88)</b>
M	0.042 (1.49)	0.036 (1.34)	<b>0.040</b> <b>(1.91)</b>	<b>0.029</b> <b>(1.65)</b>
Year Fixed Effects	No	No	Yes	Yes
Country Fixed Effects	No	Yes	No	No
R <sup>2</sup>	0.11	0.10	0.30	0.36
Number of Observations	66	66	66	66

Note: Countries included in the sample are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE. Numbers in parentheses are absolute t-ratios calculated using heteroscedasticity-autocorrelation consistent Newey-West standard errors. The estimation results for model (7) are reported in column 3 of Table 3. The coefficient estimates of growth in remittance outflows are still insignificant. However, the coefficient estimates of growth in money supply and oil price inflation are significant, and the  $R^2$  (=0.30) improves significantly. This indicates that the period fixed effect estimates in column 3 are superior to country fixed effect in column 2.

Therefore, we use the period fixed effect model to make further improvements by allowing the effect of growth in remittance outflows ( $NRM_{it}$ ) on inflation ( $P_{it}$ ) to vary across the countries. Accordingly, we have the following model:

$$P_{it} = \alpha_1 D_{2004} + \alpha_2 D_{2005} + \dots + \alpha_{11} D_{2014} + \beta_{11} D_B NRM_{it} + \beta_{12} D_K NRM_{it} + \beta_{13} D_O NRM_{it} + \beta_{14} D_Q NRM_{it} + \beta_{15} D_S NRM_{it} + \beta_{16} D_U NRM_{it} + \beta_2 POIL_{it} + \beta_3 M_{it} + u_{it} \quad (8)$$

where  $\beta_{11}$ ,  $\beta_{12}$ ,  $\beta_{13}$ ,  $\beta_{14}$ ,  $\beta_{15}$ , and  $\beta_{16}$  are, respectively, the effects of growth in remittance outflows on inflation in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE. The estimates for model (8) are reported in column 4 of Table 3. The coefficient estimates of all control variables are significantly different from zero, and the  $R^2$  (= 0.36) improves. The results also show that growth in remittance outflows affect inflation only in the case of Bahrain. For example, when growth in remittance outflows increases by 1 percentage point, then inflation in Bahrain declines by 0.135 percent. Again, this is consistent with the argument that an increase in remittance outflows lower inflation (Termos et al., 2013). However, for other GCC countries including Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, inflation does not respond to growth in remittance outflows. One possible explanation is that Bahrain by far has the lowest GDP compared to other GCC countries, as shown in Table 1 for 2013. Therefore, it is vulnerable to higher growth in remittance outflows when it comes to inflation.

#### 4. Conclusions

Remittance outflows play a crucial role in the GCC economies and, therefore, it is important to study their effects on both economic growth and inflation. Using panel data for Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates over the period from 2004 to 2014, we show that growth in remittance outflows affect growth in real GDP only in the case of Saudi Arabia. For example, when growth in remittance outflows increases by 1 percentage point, then growth in real GDP declines by 0.139 percent. This is consistent with Alkhatlan (2013) study that remittance outflows adversely affect economic growth in Saudi Arabia. Other GCC countries including Bahrain, Kuwait, Oman, Qatar, and the UAE are much smaller than Saudi Arabia in terms of GDP and are still in the process of development. This may explain why real GDP growth rates in these countries are not affected by growth in remittance outflows.

Also, our results show that the coefficient estimate of investment is positive and highly significant. This indicates that growth in investment positively affects economic growth in the GCC countries. As a result, it is vital to redirect remittance outflows to domestic investment (and consumption) in Saudi Arabia (Alkhatlan, 2013) and other GCC countries. This can be achieved by offering expatriates incentives to feel more at home. Therefore, policymakers in the GCC countries should allow expatriates full or partial property ownership, encourage family reunions, and open the door for gradual naturalization (Naufal and Termos, 2010).

We also investigated the effect of growth in remittance outflows on inflation in the GCC countries. Our results show that growth in remittance outflows affect inflation only in the case of Bahrain. For example, when growth in remittance outflows increases by 1 percentage point, then inflation in Bahrain declines by 0.135 percent. Again, this is consistent with the argument that an increase in remittance outflows lower inflation (Termos et al., 2013). However, for other GCC countries including Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, inflation does not respond to growth in remittance outflows. One possible explanation is that Bahrain by far has the lowest GDP compared to other GCC countries and, therefore, it is vulnerable to higher growth in remittance outflows when it comes to inflation.



## References

- Alkhatlan, Khalid A. (2013) "The nexus between remittance outflows and growth: A study of Saudi Arabia." *Economic Modelling* 33: 695-700.
- International Financial Statistics Yearbook* (various issues). International Monetary Fund (IMF).
- Malit Jr, Froilan T., and Ali Al Youha (2013) "Labor migration in the United Arab Emirates: Challenges and responses." *The Online Journal of the Migration Policy Institute*.
- Migration & Remittances Data. (n.d.). Retrieved January 7, 2016, from <http://econ.worldbank.org/wbsite/external/extdec/extdecprospects/0,,contentMDK:22759429~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>
- Narayan, Paresh Kumar, Seema Narayan, and Sagarika Mishra (2011) "Do remittances induce inflation? Fresh evidence from developing countries." *Southern Economic Journal* 77: 914-933.
- Naufal, George, and Ismail Genc (2012) *Expats and the labor force: The Story of the gulf cooperation council countries*. Palgrave Macmillan.
- Naufal, George, and Ali A. Termos (2009) "The Responsiveness of Remittances to the Oil Price: the Case of the GCC." IZA Discussion Papers, No. 4277, <http://nbn-resolving.de/urn:nbn:de:101:1-2009082062>
- Naufal, George, and Ali Termos (2010) "Remittances from GCC Countries: A Brief Outlook." *Migration and the Gulf*: 37-41.
- Newey, Whitney K., and Kenneth D. West (1986) "A simple, positive semi-definite, heteroskedasticity and autocorrelationconsistent covariance matrix." *Econometrica* 55: 703-708.
- Termos, Ali, George Naufal, and Ismail Genc (2013) "Remittance outflows and inflation: The case of the GCC countries." *Economics Letters* 120: 45-47.
- Vargas-Silva, Carlos, and Peng Huang (2006) "Macroeconomic determinantsof workers' remittances: Hostversus home country's economic conditions." *Journal of International Trade & Economic Development* 15: 81-99.
- World Development Indicators | World DataBank. (n.d.). Retrieved January 7, 2016, from <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators&preview=on>