Research Article

The Impact of Foreign Workers, Outflow Remittances on Economic Growth in Selected GCC Countries: ARDL Approach

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Abstract

This study investigates the impact of foreign workers and outflow remittances on economic growth of selected GCC countries, namely, United Arab Emirates, Saudi Arabia, and Qatar. The study covers the time from 1985 to 2014 and utilizes annual data obtained from World Bank and International Labour Organization, the study uses Autoregressive Distributed Lag approach (ARDL). The reason behind selection of these countries is that the three countries depend mostly on foreign worker in most of the sectors of their economies, besides, the outflow remittances from these countries are among the highest in GCC countries. The results of ARDL reveal that foreign workers contribute positively to economic growth while outflow remittances have negative significant impact on economic growth of countries of interest.

Keywords: Foreign Workers; Remittances; Growth; ARDL; GCC Countries

Introduction

In the past few years, the number of migrant workers increased noticeably due to demographic shifts, internal conflicts, climate change, and income inequality. For instance, around 150 million cross borders workers which account for around 60% of the world's international migrants, are searching for employment and security abroad[1]. In fact, each year millions of people leave their homes in search of employment in foreign countries. Furthermore, almost 90 percent of employees and their families living outside their country of origin are migrant workers. Importantly, migrant workers enhance the growth and development activities in their countries of destination, while their home countries get great benefits from their remittances and the skills acquired during their migration experience.

In Gulf Cooperation Council, the proportion of foreign workers to local workers is amongst the highest in the world. For example, in Qatar, 93% of workers are foreigners while in Saudi Arabia migrant workers are more than 51% of the labor-force. In United Arab Emirates, the foreign workers accounted for not less than 45% of the workforce, while in Jordan and Lebanon, migrants also make up a significant part of the workforce, particularly in sectors such as construction and domestic work [1]. The ILO[2] estimates that almost half of migrant workers in the region are women. However, those migrant workers contribute to economic growth in receiving countries and enhance other development activities, not only this but also expand workforce and encourages more business start-ups. In addition, they increase economic efficiency by supplying more labor to low- and high-skill labor markets [2].

On other hand, outflow remittances have globally increased over the past years as reported by the World Bank. For example, remittances outflow from Saudi Arabia increased from US$ 13600 million in 2004 to US$ 36924.24 million in 2014. Also, outflow remittances from Qatar increased significantly from US$ 2176.9 in 2004 to US$ 11230.2 million in 2014. Furthermore, in United Arab Emirates, the outflows have increased from US$ 4648 in 2004 to US$ 19280 million in 2014[3].

Therefore, this paper aims to examine the impact of inflow migrants and outflow remittances on economic growth in Saudi Arabia, United Arab Emirates and Qatar. The reason behind selection of these countries is that the three countries depend mostly on foreign workers in all economic sectors and activities. The rest of the paper organized as follows; section 2 is literature review, section 3 is data, methodology and empirical models, section 4 is econometrics results, and section 5 is conclusion and policy implications.

Literature Review

Empirical studies on impact of migration on economic growth of receiving countries concluded that international migrants contribute positively to economic growth in their countries of destination [2-4]. In fact, foreign workers help the start-ups of new companies by supplying more labors to low- and high-skill labor-markets, this is somehow increases the efficiency of business sector in receiving countries [1]. Besides, the more foreign workers the more human capital accumulation in a country which generates more economic growth and build-ups infrastructure stock that facilitates trade and doing business [5-7]. In general, international migrants contribute to economic growth and other development activities and enhance the workforce, besides, they increase the efficiency of economies and help in the technology transfer in the countries of destination [8,9].

Most of the studies that examined the impact of remittances have focused on receiving countries and ignored the effects of remittances on the sending countries, however, only few studies highlighted this issue. For example, remittances affect financial development of receiving countries in a positive manner and heighten economic growth in those countries [10-14]. Also, remittances affect exchange rate of currency of receiving country which reduces the cost of export, and therefore,

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[1]For more details, please refer to international labour organization (http://www.ilo.org/global/topics/labour-migration/lang--en/index.htm)

[2]International Labour Organization is a non-profit organization focus on social protection, workers' rights and safe employment environment.

[3]For more information regarding remittances, please refer to the World Bank and see the data published there.

generates more economic growth [15]. However, remittances depresses the inflation rate of sending countries and plays a significant role in stabilizing the economy [16]. Furthermore, remittances have a negative impact on economic growth in Saudi Arabia, however, the impact was not significant during the period of interest [17].

Data and Methodology

Model specification

To examine the impact of foreign workers, outflow remittances on economic growth of countries of interest, this study utilizes the time serious analysis for the period from 1985 to 2014. The estimation model specified as follows:

$$LY_t = \alpha_0 + \alpha_1 LFW_t + \alpha_2 ORE_t + \varepsilon_t \qquad (1)$$

where LY is the natural log of GDP per capita which indicates the economic growth of country of interest, LFW is the natural log of foreign worker, ORE is the natural log of outflow remittances. While t indicate time and ε is the uncorrelated residual terms.

The variables of interest are economic growth which proxied by GDP per capita, foreign worker, and outflow remittances are all obtained from the World Bank and International Labour Organization ILO. GDP per capita is in US$, foreign workers measures the total number of the non-local worker who participating in the economic activities in United Arab Emirates, Saudi Arabia, and Qatar, and outflow remittances are the total remittances that sent by foreign workers to their home countries in US$ billion.

Unit root test

Granger et al. [18] concluded that spurious regression problem mostly linked to the non-stationary variables in time series analysis, to avoid that, the variables' order of integration must be indicated before conducting any estimation. Therefore, this study will run unit root test utilizing Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests. Including intercept and time trend, all variables will be tested for unit root in level and\or in first difference.

Autoregressive distributed lag ARDL approach for co-integration

The Autoregressive Distributed Lag ARDL co-integration approach is introduced by Pesaran et al. [19]. The estimator allows to test for the long-run relationship between the variables even if they have different order of integration, whether I(0) or I(1). Also, the estimator takes control the endogeneity problem that associated with Engle et al. [20] two-step estimator. Further, the long-run and short-run parameters are estimated instantaneously.

After verifying that the variables are either I(0) or I(1), the bound test co-integration test will be performed to examine the existence of the long-run equilibrium relationship between the variables. The ARDL bound test converts equation (1) into an unrestricted error correction model (UECM) which specified as follows:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{m} \beta_1 \Delta Y_{t-i} + \sum_{i=1}^{m} \beta_2 \Delta FW_{t-i} + \sum_{i=0}^{m} \beta_3 \Delta ORE_{t-i} + \beta_4 Y_{t-1} + \beta_5 LFW_{t-1} + \beta_6 ORE_{t-1} + \mu_t \quad (2)$$

the bound test uses Wald or F-joint test to make decision regarding the long-run co-integration. The null hypothesis of no co-integration, $H_0 = \beta_4 = \beta_5 = \beta_6 = 0$, is tested against the alternative hypothesis of cointegration, $H1 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0$. According to Pesaran et al. [21] if the calculated F-statistic value lies below the lower critical bounds value then the null hypothesis cannot be rejected. If the F-statistic value lies above the upper critical bounds then the co-integration between variables is

exist. Finally, if the value of F-statistic lies between the lower and upper bounds critical values then it is inconclusive. It is worth mentioning that this study relies on the critical values provided by Narayan rather than Pesaran [21]. According to Narayan et al. [22], and Narayan the critical values of Pesaran et al. [21] are more applicable to long dataset since the critical values are calculated for large sample size[4]. Therefore, the critical values of Narayan are more appropriate for small sample size less than 80 observations.

Having established the co-integration relationship among variables the long-run parameters can be derived from the partial adjustment model in equation (2). The long-run model explains how energy consumption responds to changes in GDP, urbanization and internal conflict. The Engle-Granger representation theorem states that if the co-integration relationship exists between two variables or more, the relationship can be estimated in the form of error correction model (ECM). The ECM does not only explain the short-run dynamic but it also incorporates the long-run information represented by the error correction term (ECT). The estimation of the short-run model can be specified as follows:

$$\Delta LY_t = \theta_0 + \sum_{i=1}^{q} \theta_1 \Delta LY_{t-i} + \sum_{i=0}^{q} \theta_2 \Delta LFW_{t-i} + \sum_{i=0}^{q} \theta_3 \Delta LORE_{t-i} + \gamma ECT_{t-1} + v_t \quad (3)$$

where γ is the coefficient of the ECT, which must be negative and statistically significant to confirm the long-run relationship. The γ is also shows the speed of adjustment toward the long-run equilibrium value. To ensure the efficiency of the estimated model some diagnostics tests are applied. In particular, the serial correlation of the error term is tested using Breusch–Godfrey LM test, Jarque–Bera normality test, ARCH heteroscedasticity test, model specification Ramsey RESET test, and CUSUM and CUSUM of squares tests for model stability.

Empirical Results

Table 1 reports the results of unit root tests for all variables in United Arab Emirates (UAE). Table 2 reports the results of the same tests for Saudi Arabia (SA). Table 3 shows the results of unit root tests for the variables of interest for Qatar. For UAE, the results of ADF and PP tests reveal that all variables become stationary after the first difference. This indicates that all variables of interest which are economic growth, foreign workers, and outflow remittances are all I(1). For SA, the results of ADF and PP suggest that the variable FW is stationary in level, while the other two variables are become stationary after first difference. For Qatar, the results conclude that all variables of interest are become stationary after first difference which implies that all variables are I(1).

The following step after identifying the order of integration of

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[4]The critical values of Pesaran et al. (2001) are calculated with relatively large sample between 500 to 40000 time observations.

Level	ADF		PP	
	Constant	Constant & trend	Constant	Constant & trend
LY	0.667	-0.955	0.722	-0.874
LFW	0.769	-0.975	1.695	-2.546
LORE	-2.588	-2.593	-3.852	-2.667
1st difference				
ΔLY	-3.654***	-2.788**	-4.654**	-6.873***
ΔLFW	-3.973***	-3.865**	-2.745***	-3.673**
ΔLORE	-4.665***	-5.933***	-5.994***	-6.342***

Note: ***, ** and * denote significant at 1%, 5% and 10% respectively. The lag length is selected according to SIC for ADF test.

Table 1: Unit root tests (UAE).

	ADF		PP	
Level	**Constant**	**Constant & trend**	**Constant**	**Constant & trend**
LY	0.954	0.785	0.833	-0.894
LFW	-1.644**	-1.112***	-1.486***	-2.856**
LORE	-1.543	2.065	-2.085	-1.375
1st difference				
ΔLY	-3.654***	-3.989***	-5.111***	-7.885***
ΔLFW	-	-	-	-
ΔLORE	-2.844**	-4.894***	-3.944***	-5.443**

Note: ***, ** and * denote significant at 1%, 5% and 10% respectively. The lag length is selected according to SIC for ADF test.

Table 2: Unit root tests (SA).

	ADF		PP	
Level	**Constant**	**Constant & trend**	**Constant**	**Constant & trend**
LY	0.675	0.894	-0.933	-1.553
LFW	0.785	-1.766	-2.054	-2.632
LORE	-1.876	-2.058	-1.734	-2.887
1st difference				
ΔLY	-5.554***	-6.873***	-3.443***	-5.684***
ΔLFW	-4.759***	-5.872**	-2.322***	-2.665**
ΔLORE	-3.778**	-6.954***	-5.285***	-7.493**

Note: ***, ** and * denote significant at 1%, 5% and 10% respectively. The lag length is selected according to SIC for ADF test.

Table 3: Unit root tests (Qatar).

UAE	10%		5%		1%	
	I(0)	**I(1)**	**I(0)**	**I(1)**	**I(0)**	**I(1)**
F-stat = 5.75** SA	3.12	4.33	3.17	5.27	5.49	7.41
F-stat = 5.45** Qatar	2.12	3.75	3.01	5.45	3.71	4.91
F-stat = 5.95**	3.15	2.13	4.48	5.12	4.95	3.75

Notes: ** denotes 5% significant level. The critical values are from Narayan (2005) case unrestricted intercept and no trend. The optimal lags selected according to Schwarz information criterion (SIC).

Table 4: Results of co-integration test.

each series is to verify whether the co-integration relationship exists or not. Table 4 presents the results of bound test for co-integration for all countries. The results show that the computed F-statistic is greater than the critical upper bounds at 5% significance level. This indicates that the long-run relationship does exist among variables of interest in the three countries.

Table 5 reports the results of ARDL estimations for the three countries; the Table presents the results of both long-run and short-run estimations. The results indicate that FW have positive and statistically significant impact on economic growth in United Arab Emirates, Saudi Arabia, and Qatar. This implies that foreign workers contribute to economic growth in those countries in a positive manner. In fact, foreign workers are participating in many sectors in those countries and help in supplying more labours to both low-skill and high-skill labour markets. One advantage of these foreign workers is that they help in the issue of start-up of new business and companies as they provide the needed labours by these companies.

The findings reveal that the countries of interest are getting positive impact on economic growth and other development activities; this reflects the important role of the foreign workers in enhancing the economics of United Arab Emirates, Saudi Arabia, and Qatar. Om other hand, the results obtained from ARDL estimation conclude that outflow remittance harm economic growth of the countries of

	Coefficient	**Coefficient**	**Coefficient**
Long-run model	**UAE**	**SA**	**Qatar**
LY$_{t-1}$	0.675***(0.242)	0.756**(0.218)	0.654**(0.291)
LFW	0.317**(0.052)	0.228**(0.021)	0.271***(0.056)
LORE	-0.105*(0.101)	-0.332**(0.197)	-0.221*(0.102)
C	2.335***(1.956)	3.836***(1.029)	4.484***(1.023)
Short-run model			
ΔLY$_{t-1}$	0.326**(0.147)	0.493**(0.102)	0.746***(0.291)
ΔLFW	0.218***(0.312)	2.192(3.399)	0.283(0.772)
ΔLFW$_{t-1}$	0.493***(0.248)	0.221**(0.082)	0.883(0.992)
ΔLORE	-0.842(0.933)	0.278(0.529)	0.299(1.398)
ΔLORE$_{t-1}$	-0.728(1.409)	-0.201(0.733)	-0.192*(0.104)
C	2.33***(0.743)	3.038**(1.029)	5.594**(2.293)
ECT	-0.432***(0.102)	-0.392***(0.022)	-0.733***(0.293)
Diagnostic tests:			
LM = [0.24], RESET = [0.39], Normality = [0.43], Heteroscedasticity = [0.69]		LM = [0.25], RESET = [0.36], Normality = [0.39], Heteroscedasticity = [0.63]	LM = [0.28], RESET = [0.31], Normality = [0.42], Heteroscedasticity = [0.64]

Notes: ***, **, and * denote 1%, 5%, and 10% significant level, respectively. The (2, 2, 2, 2) lags are chosen according to Schwarz information criterion (SIC). Figurers in ( ) are the standard errors, while figures in [ ] represent probability values.

Table 5: Results of ARDL.

interest since its negative significant impact on economic growth. As reported in the introduction of this study that outflow remittances in the three countries have dramatically increased in the past years, the results reveal that these remittances slowdown the economic growth of the three countries. However, the impact is negative in the long-run while it is not significant in the short-run. It's now widely accepted that remittances provide a better source of finance for receiving countries, therefore, the outflow remittances cause a loss of financial sources in sending countries which harm economic growth and other development activities in the three countries.

Conclusion

This study investigated the impact of foreign workers and outflow remittances on economic growth of selected GCC countries, namely, United Arab Emirates, Saudi Arabia, and Qatar. The study covered the time from 1985 to 2014 and utilized annual data obtained from World Bank and International Labour Organization, and used Autoregressive Distributed Lag approach (ARDL). The reason behind selection of these countries is that the three countries depend mostly on foreign worker in most of the sectors of their economies, besides, the outflow remittances from these countries are among the highest in GCC countries. The results of ARDL revealed that foreign workers contribute positively to economic growth while outflow remittances have negative significant impact on economic growth of countries of interest. In this regard, policy-makers in the three countries should introduce polices that aim to lessen the outgoing remittances and facilitate doing business and investment. This will not only encourages foreign workers to invest their money instead of sending it out to their home countries, but also will help in new business start-ups and heighten economic growth.

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