The Nexus Between Worker Remittances and Economic Growth in Malaysia

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ABSTRACT

Working abroad offers a better remuneration for workers to earn a livelihood. Hence, the phenomenon of Malaysian working abroad has ballooned in size. The Malaysian Government is quite concerned about this issue and making concerted efforts to facilitate the return of Malaysian workers from abroad. However, the response of attracting back the oversea Malaysian may not be ideal due to the better job advancement in the host countries. Nevertheless, the unfavorable outflow of Malaysian workers may twist into beneficial economic development through remittances. The worker remittances inflows to Malaysia have increased tremendously, especially from US$0.6339 billion in 2001 to US$6.528 billion in 2010. However, the advantages of this huge remittance inflow may not effectively channeled to the economic development via investment and/or efficiency effect. Therefore, the objective of this study is to investigate the nexus between remittances and economic growth taking into account of the development in financial sector in Malaysia over the period from 1975 to 2009. A number of econometric techniques are used for the empirical analysis, namely autoregressive distributed lag (ARDL) model and Granger causality test. The empirical results show that the remittances and financial development are statistically significant in affecting the economic growth in Malaysia. Furthermore, the Granger causality tests also show that financial development statistically significantly Granger causes the remittance inflows in the short run. The significant relationship between remittances and economic growth may inspire the policy makers to consider remittances as an alternative policy instrument to motivate the growth of Malaysian economy.

Keywords: Remittances, Financial Development, Economic Growth, Bounds Test, Granger Causality test

INTRODUCTION

The Malaysian Government aims to transform Malaysia into a high-income nation. Therefore, the Prime Minister, Dato' Sri Mohd.NajidTunRazak has initialed the Economic Transformation Programme in 2010, in line with the objective to achieve Malaysia's gross income per capita of US$15,000 or RM48,000 by 2020. In fact, such objective can be achieved through value added production with a sound economic environment. Definitely, the skilled labor force and advanced technologies are required. However, the journey for such transformation seems to be prolonged by a huge and growing worker emigrationfrom Malaysia. It is estimated that about one million Malaysian working and living abroad in 2010 which included those are highly educated and skillful (World Bank, 2011). Most of them are residing in Singapore, Australia, Brunei, United Kingdom and the United State. Remarkably, Singapore has absorbed about 57% of the entire Malaysian migration. One of the push factors for Malaysian to work abroad is due to the better remuneration that offered by the host countries for workers to earn a livelihood.

The outflow of Malaysian talents may deteriorate the economic growth as professionals are the bedrock of a developing economy. Hence, the Malaysian Government is quite concerned about this issue and making concerted efforts to encourage the return of Malaysian professionals from abroad by launching the Returning Expert Program (REP), the Talent Acceleration in Public Service (TAPS) and the Scholarship Talent Attraction and Retention (STAR). However, the response to these programs might not be good owing to the fact that the benefits package of working abroad is much better than that of working in Malaysia. For instance, the salary in Malaysia for a mid-tier manager is generally about 10% to 30% lesser than some other Asia- Pacific counterparts like Singapore, Hong Kong and Australia (Goh, 2012).

While Malaysia may suffer from the outflow of talents, the incident of unfavorable brain drain may be translated into a competitive advantage for this country. For example, remittances might compensate for the outflow of talents from Malaysia like other developing countries do (World Bank, 2011). Why? In the recent years, migrant remittances have been discovered as one of the essential sources of foreign financing, followed by the foreign direct investment (FDI), especially for those developing countries like Pacific island countries (Jayaraman, Choong& Kumar, 2009), sub-Saharan Africa (Gupta, Pattillo&Wagh, 2009) and Ghana (Adenutsi, 2011). According to the World Bank (2012[a]), the remittance inflow to Malaysia has increased tremendously in the last decade from US$0.6339 billion in 2001 to US$6.528 billion in 2010. This upward trend of received remittances has motivated the authors to study if it would help to boost the Malaysian economy.

However, advantage of this huge remittance inflow may not effectively channelled to the economic development via investment and or efficiency effect. Therefore, the objective of this study is to investigate the nexus between remittances and economic growth taking into the consideration of the level of financial development in Malaysia over the period from 1975 to 2009. A number of econometric techniques are used such as autoregressive distributed lag (ARDL) model and Granger causality test. The significant relationship between remittances and economic growth may inspire the policy maker to consider remittances as an alternative policy instrument to motivate the growth of Malaysian economy.

This study consists of five sections. The next section summaries a short review of economic literature on the relationship between remittances and economic development. The third section briefs on the employed methodology and the empirical model adopted in this study while the forth reports on the empirical findings. Lastly, this research is ended by a few conclusions with policy implications and future study suggestions.

LITERATURE REVIEW

In the recent years, remittances have been found as one of the important sources of foreign finances following foreign direct investment (FDI), especially for those developing countries (Giuliano& Ruiz-Arranz, 2009; Adenutsi, 2011; Rao& Hassan, 2011). According to the World Bank (2012[b]), the estimated inward remittance inflowsto all developing countries had been increasing dramatically from 1995 with a record of US$101.3 billion to over US$406 billion in 2012. This has drawn the attention of governments, policy makers and scholars.

From the theoretical point of views, wealthier families with higher education and purchasing power on consumption goods and properties will help to boost economic activities as well as the economic development in the developing countries. Hence, there is a bunch of studies which has examined the linkage between remittances and economic growth, yet the findings are remained inconclusive. McDowell and de Haan (1997) found thatremittances play a role as income insurance for households who are dependent on climatic vagaries. In other words, remittances help to diversify the income sources so that it could be more secure and potential in improving the livelihood of the poor (Bebbington, 1999). Besides, de Haan (2000) claimed that the savings of extra monies that are transferred by migrant workers can help to reduce the suffering of future shocks and stresses. Next, remittances have also contributed a significant improvement on the education (Adams, 2005). Hanson and Woodruff (2002) showed that children from the families with migrants in Mexico are attending school with more years than those from the families without migrants. The similar result was found in the case of the Philippines where the receiving remittances increased by 10% of initial income, and 10% points of the fraction of schooling children at aged 17-21(Yang, 2005).

Furthermore, remittances also help to reduce the poverty as most of this fund is used to support the living of remaining families; especially those are poor in the home countries. In view of that, remittances also help to reduce the income gap in the country of origin (Admas, 1989; Barham&

Boucher, 1998; and Docquier&Rapoport, 2003). Besides, Quartey and Blanson (2004) also noted that the remittance inflows to Ghana increased during the economic shocks and it helped to reduce the adverse impact of economic shocks on household welfare. In addition, some statistical evidences showed that the remittances have improved the purchasing power on consumption goods (Stahl &Habib, 1989 and Glytsos, 1993) as well as the investment in properties (Durand et al, 1996) since consumptions and investment are important components for GDP. All these findings imply that remittance may contribute the economic growth in developing countries. However, the work by Chami and his colleagues (2003) has shown a contradict result. Chami et al (2003) noted that there is a negative association between remittances and economic growth with the argument that remittances discourage recipients to work. Thus, the low productivity of remaining labors worsens the economic situation in remittance receiving countries.

Surprisingly, there is a group of researchers have found the mixed results about the linkage between remittances and economic growth. Glytsos (2005) analyzed that remittances have positive relationship with economic growth. Nevertheless, an asymmetric impact of remittances volatility is found in Glytsos's study. The cost of decrease in growth due to remittances is greater than the contribution of remittances to growth. Similar results are found in the studies by Jackman et al (2009) where remittances can bring goodness to an economy if it is at upward trend but remittances also can be harmful if it is at downward trend. Therefore, an economy should not rely heavily on remittances as an income. On the other hand, Craigwell et al (2010) revealed that remittances play an important role in alleviating the result of adverse output shocks but it does not contribute noteworthy force on consumption and investment changes in the studied sample.

Recently, a group of researchers attempt to study the impacts of remittances on economic growth taking into account of the level of financial development in remittances received countries. Intuitively, the financial sector with a better system helps to channel remittances to higher return investments and thus stimulate the economic growth. Again, inconclusive results are found on this area of research. According to Mundaca (2009) and Jayaraman et al (2010) noted that a well-developed financial sector potentially promotes better utilization of remittances and thus enhances the economic growth.In contrast,Giuliano and Ruiz-Arranz (2009) revealed that the impact of remittances on economic growth is stronger in a country with less financial development than the one with well-developed financial sector. The authors argued that the remittances can substitute the loan by banks to finance the growth.

As a conclusion, the question on 'What is the relationship between remittances and economic growth in the remittance receiving countries?' is still remained unsolved despite numerous studies have focused on the roles of remittances in economic growth. Furthermore, to the best of author's knowledge, most of the remittances related studies only focused on the unidirectional relationship running from remittances to economic growth with panel data, with a less emphasis given to country based study. There is still a puzzle as to whether the reversed causation exists from economic growth to remittances. The argument comes in this way: a country with higher rate of economic growth will desperately demand for higher income as a capital to support growth, thus the economy may consider attracting higher inflow of remittances. Furthermore, the authors believes that the impact of remittances on economic growth, or vice versus is highly dependent on the development of financial sector in a country as it helps to channel remittances to fruitful return investment. To fill up the gap, the authors will try to study the bidirectional relationship between remittances and economic growth in Malaysia taking into the consideration of the financial development in Malaysia.

DATA, MODELING AND METHODOLOGY

The focus of this study is to shed light on the linkage between remittance inflows and economic performance in Malaysia with a period of 35 years, from 1975 to 2009. To sharpen the study, this research will highlight the nexus between remittances and economic performance with the consideration of Malaysian financial development. The annual data for this research are collected from the *World Development Indicators* which is available on the World Bank online database (2012[b]).

According to the argument by Smith (1776), financial development helps in shaping the specialization of an industry by financing a better technological progress. This smoothers the production activities and enhances the productivity of an economy. Furthermore, Rajan and Zingales (1998) summarized that industries with higher dependency on external financial assistance would grow relatively faster in an economy with greater financial development. This is because with the credit facilities provided by financial intermediaries for the technological support such as the purchase of more advanced machineries and the invention of new technologies, industries can enhance their

productivities and contribute to economic growth.On the other hand, remittances are treated as one of the income resources especially in those developing countries (Nyberg-Sørensen et al, 2002[a] and 2002[b]). They can provide liquidity and stimulate technological change (Taylor & Wyatt, 1996). In view of these findings, the authors assume that if the remittances are deposited in the banks by recipients, this will increase the liquidity of credits to private sector for greater investments or production enhancement. Thus, the production of goods and services will expand, the excessive goods and services in the domestic market will be exported and thus it offers a rise in exports. As a result, the remittances which are channeled by the financial intermediaries to the greater production will increase the exports and thus stimulate the economic growth. Therefore, authors hypothesize that remittances, credits to private sectors and exports are positively related to the Malaysian economic growth. Furthermore, the financial development will be proxied by the credit to private sector.

Hence, the following model is proposed:
RGDPPC = f (REM, PCREDIT, EXPORT)   (1)

where
RGDPPC = real GDP per capita in millions of Ringgit Malaysia
REM = remittances as percent of GDP
PCREDIT = credit to private sector as percent of GDP
EXPORT = exports of goods and services as percent of GDP

Bounds Testing Approach

In order to investigate the long-run relationship between remittances and real GDP per capita together with the financial development and exports, this research would employ an autoregressive distributed lag (ARDL) bounds testing approach which is developed by Pesaran et al (2001). The reasons of using ARDL bounds testing are: firstly, the results of such bounds testing are valid even the sample size is small, as this study involves 35 years, from 1975 to 2009. Hence, ARDL bounds test is more suitable and efficient to be used in this study compared to other techniques such as the Johansen cointegration (Johansen &Juselius, 1990) which it required a larger sample. Furthermore, the recent studies on the linkage between remittances and economic development by Paul et al (2011) and Jayaraman et al (2011) have shown the usefulness of ARDL models in their studies.

Second, unlike the Johansen cointegration technique, the ARDL approach does not require the variables to be integrated at the same order. Hence, the pretesting of unit roots for variables is not necessary (Pesaran, 1997). In other word, the ARDL approach is applicable in examining the cointegration between real GDP per capita and remittances regardless the variables in the models are entirely I(0), entirely I(1) or mutually cointegrated. However, the analysis of this study will still start by performing the unit root test for all regressors in the models due to the criticism on hardly accepting the cointegration among the variables with different orders (Jayaraman et al, 2011). Furthermore, this study would like to ensure the variables are cointegrated at the same order in order to carry out the Granger causality test, with the objective of detecting the relationship between remittances and real GDP per capita together with variables of credit to private sector and exports is either unidirectional or bidirectional related. Lastly, the chosen of ARDL bounds test for this study is due to its simplicity. It allows the estimation on the cointegrating relationship by the Ordinary Least Squared (OLS) method after the lag order of the model is determined (Paul et al, 2011).

All the variables in ARDL model would be expressed in the natural log form except the variable of remittances and such model can easily detect the short- run impacts directly and long-run relationship indirectly as follows:

$$\Delta LRGDPPC_t = \alpha_0 + \alpha_1 LRGDPPC_{t-1} + \alpha_2 REM_{t-1} + \alpha_3 LPCREDIT_{t-1} + \alpha_4 LEXPORT_{t-1} +$$

$$\sum_{i=1}^{k} \beta_{1i} \Delta LRGDPPC_{t-i} + \sum_{i=0}^{k} \beta_{2i} \Delta REM_{t-i} + \sum_{i=0}^{k} \beta_{3i} \Delta PCREDIT_{t-i} + \qquad (2)$$

$$\sum_{i=0}^{k} \beta_{4i} \Delta LEXPORT_{t-i} + \varepsilon_t$$

There are two steps involved in ARDL bounds test. First, estimate Equation (2) with the ordinary least square (OLS) method. Secondly, we can test if there is a long-run co-integrating relationship between the dependent variable and independent variables by using the Wald test (or F-statistics). The null

hypothesis consists of no cointegration (H_0: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = 0$) while the alternative hypothesis involves a long-run cointegration relationship (H_1: $\alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq 0$). The critical values for this hypothesis testing would refer to the Narayan (2005) Table CIII unrestricted intercept and no trend. If the F-statistic is greater than the upper critical value, we reject the null hypothesis which means that long-run cointegration exists among the variables. By contrast, if the F-statistic is lesser than the lower critical value, we do not reject the null hypothesis and conclude no cointegration. If the F-statistic fall in between lower and upper critical value means that no conclusion can be drawn.

Unit Root Test

Before running the Granger causality test, the unit root test is required to ensure all the variables in this research are cointegrated at the same order. The stationary of the series is required to prohibit the spurious regression problem (Granger &Newbold, 1974). Hence, this study uses the Augmented Dickey Duller (ADF) and Phillips-Perron (PP) tests to detect if all the variables are I(1). The lag lengths for the ADF unit root test are based on Akaike Information Criterion (AIC) while the bandwidth for the PP unit root test is based on the Newey-West Bandwidth. Furthermore, the unit root tests include a constant and a linear time trend. The null hypothesis under both ADF and PP are the presence of a unit root whereas the alternative hypothesis states the absence of a stationary.

Granger Causality Test

In order to determine the short-run causality relationship between real GDP per capita, remittances, credit to private sectors and exports, this study would conduct the Granger causality test by using the parsimonious vector error correction model (PVECM) framework as below:

$$\Delta Z_t = \Pi Z_{t-1} + \Gamma_1 \Delta Z_{t-1} + \Gamma_2 \Delta Z_{t-2} + ... + \Gamma_{p-1} \Delta Z_{t-p+1} + \mu_t \tag{3}$$

Where

$$\Delta Z_t = [\Delta LRGDPPC, \Delta LREM, \Delta LPCREDIT, \Delta LEXPORT],$$

$$\Pi = -(1_m - \sum_{i=1}^{p} A_i),$$

$$\Gamma_i = -(1 - \sum_{j=1}^{i} A_j). \; For \; i = 1, ..., p-1.$$

Γ displays the short-run effect of the changes in Zt. The Granger causality test would be carried out by the Wald test based on the null hypothesis that the set of coefficients (Γi) on the lagged values of independent variables are not significantly different from zero. The rejection of the null hypothesis indicates that independent variables affect the dependent variables. Furthermore, the significant t-test for Π concluded that both the independent and dependent variables have a stable relationship in the long run.

RESULTS

Table 1 displays the obtained results of bound tests from this study. Only the computed F-statistics from the equation with the dependent variable of LRGDPPC is found to be significant at 1% level but not the computed F-tests from the rest of equations with REM, PCREDIT and EXPORT as regressand respectively. In other words, among the four equations, only the LRGDPPC equation rejects the null hypothesis. This implies that remittances, credit to private sectors and exports have a long-run relationship with real GDP per capita in Malaysia from 1975 to 2009.

Hence, from the bound test results, we only obtain one significant long-run equation as such:

$$\widehat{LRGDPPC}_t = 5.5626 + 0.5579REM_t *** + 0.3554LPCREDIT_t *** + 0.4437LEXPORT_t ***$$
$$t \qquad (6.7434) \quad (6.1019) \qquad\quad (4.1160) \qquad\qquad (5.3540) \tag{4}$$

*** shows significance at 1% level.t-statistics are shown in parentheses.

The coefficients in the long-run equation above are consistent with the theoretically expected positive sign. Besides, they are significant at the 1% level. Again, these results confirm that remittances, credits to private sectors and exports help to stimulate real GDP per capita in Malaysia. Furthermore, the long-run equation has gone through a few diagnostic checks to ensure the validity of such equation. The diagnostic test results provide sufficient statistical evidences through (i) Jarque-Bera test shows that the error term are normally distributed; (ii) ARCH LM tests indicates the homoscedasticity of residuals; (iii) Serial Correlation LM test displays no serially correlated residuals; and (iv) Ramsey RESET test confirms that the model are correctly regressed. In addition, the plots of CUSUM and CUSUM of Squares also report that the parameters of model are stable throughout the studied period from 1975 to 2009.

(TABLE 1)

Before proceed to the Granger causality test, we have done the unit root tests – the ADF and Phillips-Perronas reported in Table 2. We find that all the variables are stationary at the first difference. In other words, LRGDPPC, REM, LPCREDIT and LEXPORT are integrated of order one, I(1). This result fulfills the requirement of Granger causality test.

(TABLE 2)

The results of Granger causality tests are reported in the Table 3. Among the ECTs, only the ECT in the equation with LRGDPPC as regressand meets the expected negative sign and it is also statistically significant at 1%. This result is consistent with the bound test results that there is only onecointegrating equation. This cointegrating equation indicates the unidirectional relationship, from remittances, credits to private sectors and exports to real GDP per capita. Besides, in the short run, there is a unidirectional causality running from remittances to real GDP per capita, fromcredits to private sectors toreal GDP per capital, from credits to private sectors to remittances and also from exports to remittances.

As a conclusion, the obtained empirical results from this study confirm the hypothesis that remittances help to stimulate economic growth. Furthermore, the effect of remittances on economic growth could be greater if the financial intermediaries assist on the allocation of remittances in the economic development activities through the credits to private sectors. In turn, there will be a rise in economic growth.

CONCLUSION AND POLICY IMPLICATIONS

Remittances, the monies sent back to the homeland by the workers who are working abroad, is widely accepted as one of the important foreign capital inflows especially for those developing countries. From this empirical study, we find that remittances and financial development (which is proxied by the credits to private sector) help to promote economic growth in both short-run and long-run for Malaysian economy. These findings may reflect that the financial intermediaries would help to channel the remittances to the industrial production through the credits to private sectors, thus, the economy grows. Furthermore, the Granger causality tests also show that financial development statistically significantly affects the remittance inflows in the short run. In view of this result, this study claims that financial development plays a dual roles, it does not only help to allocate remittances to the fruitful returned production but it also help to encourage the inward remittances to Malaysia.

From the empirical results in this study, the policy implications are clear:

    i.   In order to transform Malaysia to a high-income nation, the country needs a strong financial support to fund the development program, such as Economic Transformation Program. Thus, the Malaysian Government and policy makers may consider remittances as one of the development funds.

    ii.   The responses to the Returning Expert Program (REP), the Talent Acceleration in Public Service (TAPS) and the Scholarship Talent Attraction and Retention (STAR)might not be good owing to the fact that the benefits package of working abroad is much better than that of working in Malaysia. Instead of encouraging the return of Malaysians who are working abroad,

the Government, the central bank of Malaysia and policy makers may simplifythe process of remit in order to encourage higher remittances inflows.

iii. Financial intermediaries may offer better interest for the deposits of remittances compared to the local currency deposits. This would encourage more oversea Malaysians to remit their savings to Malaysia. By doing so, financial intermediaries would increase the liquidity of credits and launch more loans for investments and entrepreneurship purposes to stimulate the economic development.

iv. Financial institutions may revise the charges or fees on the process of remit and make the process of remit easy and fast through the online banking and also through the automatic teller machine (ATM).

For future research, we may suggest to include the variable of institutional qualities in explaining the relationship between remittances and economic growth. Institution is defined as "the rule of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" by North (1990). Furthermore, in the study by Nelson and Sampat (2001) has identified institutions as 'social technologies' in explaining the productivity of an economy. When an economy which is well-administrated by stable and respected policies, rules and laws; which is strongly protected by contracts and property rights; and which is free from corruptions, such economy is more willing to well allocate its resources and stimulate higher growth. Since remittance is found to be statistically significant in influencing the economic growth in Malaysia, we may consider the role of institutions in channeling remittances. If it is proven that institutions are crucial, then a sound institutional environment should be reformed and enhanced. The presence of good institutions is able to influence the efficiency and volume of investments; hence remittances may be channeled more efficiently and leading to higher economic growth.

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TABLE 1: Results of Bound Tests

Dependent variable	Computed F-statistics			
LRGDPPC	13.9872***			
REM	1.7093			
LPCREDIT	2.1717			
LEXPORT	1.7962			
	Pesaran et al. (2001)[a]		Narayan (2005)[b]	
Critical Value	Lower critical value	Upper critical value	Lower critical value	Upper critical value
1 per cent	4.29	5.61	4.614	5.966
5 per cent	3.23	4.35	3.272	4.306
10 per cent	2.72	3.77	2.676	3.586

Notes:

[a]The above mentioned critical values are obtained from Pesaran et al. (2001), Table CI(iii) Case III: unrestricted intercept and no trend, p.300

[b] The above mentioned critical values are obtained from Narayan (2005), Table case III: unrestricted intercept and no trend, p.10

*, ** and *** show significant at 10%, 5% and 1% levels respectively.

TABLE 2: Results of Unit Root Tests

Variable	ADF		Phillips-Perron	
	Level	First Difference	Level	First Difference
LRGDPPC	-1.9196(1)	-4.4107***(0)	-1.9518 (2)	-4.4107***(0)
REM	-2.6279(1)	-4.3825***(0)	-2.2167 (1)	-4.2284**(5)
LPCREDIT	-2.5474(3)	-4.2309**(0)	-1.1979 (2)	-4.2309**(0)
LEXPORT	-0.5096(0)	-4.5332***(1)	-0.7001 (4)	-4.3685***(12)

Notes:

The above unit root tests are based on the model with intercept and trend.

The null hypothesis for ADF and Phillips-Perron tests states that a series is non-stationary while the alternative hypothesis is that a series is stationary.

*** indicates significant at 1% level while ** displays significant at 5% level.

TABLE 3: Granger Causality Test for Real GDP Per Capita, Remittances, Credits to Private Sectors and Exports in Malaysia

Dependent Variable	F-statistics				ECT (t-statistics)
	ΔLRGDPPC	ΔREM	ΔLPCREDIT	ΔLEXPORT	
ΔLRGDPPC	-	4.1932**	2.5633*	1.1091	-0.7330*** (-4.19875)
ΔREM	1.6364	-	3.3006**	3.0430**	0.7111 (1.7926)
ΔLPCREDIT	0.6228	0.6146	-	0.3149	0.44425 (0.9424)
ΔLEXPORT	0.1900	1.5752	0.7379	-	0.1339 (0.3626)

Notes:

*,** and *** indicate significant at 10%, 5% and 1% levels, respectively.

Figures in parentheses are t-statistics.