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WORKERS' REMITTANCE, REAL EXCHANGE RATE AND ECONOMIC GROWTH IN LABOUR-EXPORTING ASIAN COUNTRIES

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By

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Workers' remittances have been identified as a significant and stable source of foreign exchange earnings for migrants' source developing countries. At the regional level, Asia accounts for more than 63 per cent of all global workers' remittance flows. The officially recorded inflows of workers' remittances to the labour-sending Asian countries were estimated to reach US$260 billion in 2012. Workers' remittances contributed more than five times official development assistance in the region. Countries such as India, China, the Philippines, Pakistan, Bangladesh and Lebanon, depend considerably on workers' remittances as a source of foreign exchange and stimulant for macroeconomic stability. However, little empirical evidence is established on the determinants and economic impact of workers' remttances in the region.

Theoretical considerations suggest that the flows of workers' remittances may have important long-run implications on real exchange rate appreciation and economic growth in remittance-receiving developing countries. However, empirical studies documented on these issues have produced inconclusive evidence due to omitted variable bias and measurement issues. Most existing studies disregard the impact of financial development and institutional quality in estimating the determinants and long-run growth effect of workers' remittances. Also, the presence of multicolinearity in analysing the interaction effects of workers' remittances and these variables has led to ambiguous results. In view of these problems, this research is set to reexamine these issues via three objectives while using orthogonalised interaction effects, which provide solution to the multicolinearity problem and Pooled Mean Group (PMG) estimator on panel data from 18 labour-sending Asian countries over the period of 1981-2010.

The first objective examined the impact of domestic macroeconomic conditions on the inflows of migrant workers' remittances. The finding of the study revealed significant evidence on the impact of domestic macroeconomic factors on the inflows of workers' remittances. In particular, factors such as interest rate differentials between the migrant home and destination countries, exchange rate depreciation and financial sector development in the recipient countries, favourably induce remittance flows from overseas working migrants. Conversely, workers' remittances respond negatively to

domestic economic uncertainty and institutional quality in remittance-receiving Asian countries.

The second objective considered the long-run impact of workers' remittances on real exchange rate appreciation, while accounting for the mitigating impact of financial development. Using both external and internal measures of real exchange rate, the research found significant evidence on the long-run impact of workers' remittances on real exchange rate appreciation in remittance-receiving Asian countries. However, the effect varies with the level of financial sector development. Higher level of financial intermediation in remittance-receiving countries have been observed to diminish the appreciation of real exchange rates brought about by high inflows of workers' remittances.

The third objective investigated the long-run impact of workers' remittances on economic growth, while accounting for the interactive effects of financial development and institutional quality. The result of the study showed significant evidence of the long-run positive impact of workers' remittances on economic growth in remittance-receiving Asian countries. Workers' remittances promote long-run growth regardless of the presence of quality institutions and financial sector development in these countries. Moreover, the existence of strong financial system, which funnels workers' remittances into productive investments, complements the growth impact of workers' remittances in the recipient countries. Conversely, better institutions undermine the use of workers' remittances for growth enhancing economic activities in remittance-receiving Asian countries.

The findings from this study suggest that migrant-sending Asian countries with competitive macroeconomic conditions and relatively weak institutional environment received higher inflows of workers' remittances than their counterparts. Also, persistent inflows of workers' remittances can raise the prices of non-traded goods, thereby leading to long-run real exchange rate appreciation and loss of export competitiveness. However, this adverse effect can be rectified if the development of the financial sector in these countries has the capacity to channel remittance income into productive investments. In addition, workers' remittance has the potential to generate long-run economic growth in remittance recipient Asian countries. The growth impact will be even more pronounced in countries with a higher level of financial development but relatively lower institutional quality.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KIRIMAN WANG, KADAR PERTUKARAN BENAR DAN PERTUMBUHAN EKONOMI NEGARA-NEGARA PENGEKSPORT BURUH DI ASIA

Oleh

ABUBAKAR LAWAN NGOMA

Mei 2015

Pengerusi: Profesor Madya, Normaz Wana binti Ismail, PhD
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Kiriman wang telah dikenal pasti sebagai sumber penting pendapatan pertukaran asing bagi negara-negara membangun yang mengeksport buruh. Di peringkat serantau, Asia telah menyumbang sebanyak lebih 63 peratus daripada aliran kiriman wang oleh pekerja asing di seluruh dunia. Catatan rasmi aliran masuk kiriman wang oleh pekerja asing ke negara-negara pengeksport buruh telah dianggarkan mencecah AS$260 bilion pada tahun 2012. Kiriman wang menyumbang lebih daripada lima kali ganda bantuan pembangunan rasmi di rantau ini. Negara-negara seperti India, China, Filipina, Pakistan, Bangladesh dan Lubnan, banyak bergantung pada kiriman wang pekerja sebagai sumber pertukaran asing dan rangsangan untuk kestabilan makroekonomi.

Sorotan teori mencadangkan bahawa aliran kiriman wang pekerja mungkin mempunyai implikasi jangka panjang yang signifikan ke atas kenaikan kadar pertukaran benar dan pertumbuhan ekonomi di negara-negara membangun yang menerima kiriman wang. Walau bagaimanapun, kajian empirikal lepas mengenai isu ini tidak menunjukkan bukti yang muktamad. Atas dasar ini, kajian ini telah dijalankan untuk mengkaji semula isu-isu ini melalui tiga objektif kajian dan menggunakan pengukur Pooled Mean Group (PMG) ke atas data panel dari negara-negara pengeksport buruh di Asia bagi tempoh 1981-2010.

Objektif pertama mengkaji kesan keadaan makroekonomi domestik ke atas aliran masuk kiriman wang pekerja asing. Dapatan kajian menunjukkan bukti yang signifikan bagi kesan faktor makroekonomi domestik ke atas aliran masuk kiriman wang pekerja. Khususnya, faktor-faktor seperti perbezaan kadar faedah antara negara asal dan negara destinasi, penurunan kadar pertukaran dan pembangunan sektor kewangan di negara penerima, mendorong aliran kiriman wang daripada pekerja di luar negara. Sebaliknya, kiriman wang pekerja bertindak balas secara negatif kepada ketidakstabilan ekonomi dan/atau politik domestik di negara penerima kiriman wang di Asia .

Objektif kedua, mengkaji kesan jangka panjang oleh kiriman wang pekerja ke atas kenaikan kadar pertukaran benar, dengan mengambil kira kesan negatif pembangunan kewangan. Dengan menggunakan kedua-dua pengukuran 'dalaman' dan 'luaran' bagi kadar pertukaran benar, dapatan kajian ini menunjukkan bukti yang signifikan bagi kesan jangka panjang kiriman wang pekerja ke atas kenaikan kadar pertukaran benar di

negara penerima kiriman wang di Asia. Walau bagaimanapun, kesan didapati berbeza-beza dengan tahap pembangunan sektor kewangan. Tahap pengantaraan kewangan yang lebih tinggi di negara penerima kiriman wang dilihat telah mengurangkan kenaikan kadar pertukaran benar yang disebabkan oleh aliran masuk kiriman wang pekerja yang tinggi.

Objektif ketiga mengkaji kesan jangka panjang kiriman wang pekerja ke atas pertumbuhan ekonomi, dengan mengambil kira kesan interaktif pembangunan kewangan dan kualiti institusi. Hasil kajian ini menunjukkan bukti yang signifikan bagi kesan jangka panjang kiriman wang pekerja yang positif ke atas pertumbuhan ekonomi di negara penerima kiriman wang di Asia. Kiriman wang pekerja menggalakkan pertumbuhan jangka panjang tanpa mengambil kira kehadiran institusi yang berkualiti dan pembangunan sektor kewangan di negara-negara ini. Tambahan lagi, kewujudan sistem kewangan yang kukuh dan dapat menyalurkan kiriman wang pekerja ke dalam pelaburan yang produktif melengkapkan kesan pertumbuhan kiriman wang pekerja di negara penerima. Sebaliknya, institusi yang lebih baik mengurangkan penggunaan kiriman wang pekerja dalam meningkatkan pertumbuhan aktiviti ekonomi di negara penerima kiriman wang di Asia.

Dapatan daripada kajian ini menunjukkan bahawa negara-negara pengeksport buruh di Asia dengan penunjuk makroekonomi yang kompetitif dan kestabilan politik yang relatif menerima aliran masuk yang lebih tinggi daripada kiriman wang pekerja berbanding negara lain. Aliran masuk kiriman wang pekerja yang berterusan juga boleh menaikkan harga barangan bukan dagangan dan menyebabkan kenaikan pertukaran benar jangka panjang serta pengurangan daya saing eksport. Walau bagaimanapun, kesan buruk ini boleh diperbaiki jika pembangunan sektor kewangan di negara-negara terlibat berkeupayaan untuk menyalurkan pendapatan kiriman wang ke dalam pelaburan yang produktif. Di samping itu, kiriman wang pekerja mempunyai potensi untuk menjana pertumbuhan ekonomi jangka panjang di negara penerima kiriman wang di Asia. Kesan pertumbuhan juga adalah lebih ketara di negara-negara Asia yang mempunyai tahap pembangunan kewangan yang lebih tinggi tetapi kualiti institusi yang lebih rendah.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

AIC	Akaike Information Criterion
ARDL	Autoregressive Distributed Lag
BPS	Bangko Sentral NG Pilipinas
DFE	Dynamic Fixed Effect
FDI	Foreign Direct Investment
GCC	Gulf Cooperation Countries
GDP	Gross Domestic Product
GNI	Gross National Income
GNP	Gross National Product
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
MG	Mean Group
ODA	Official Developemnt Asistance
PMG	Pooled Mean Group
SBIC	Schwarz Bayesian Information Criterion
WDI	World Development Indicators
US	United State

CHAPTER 1

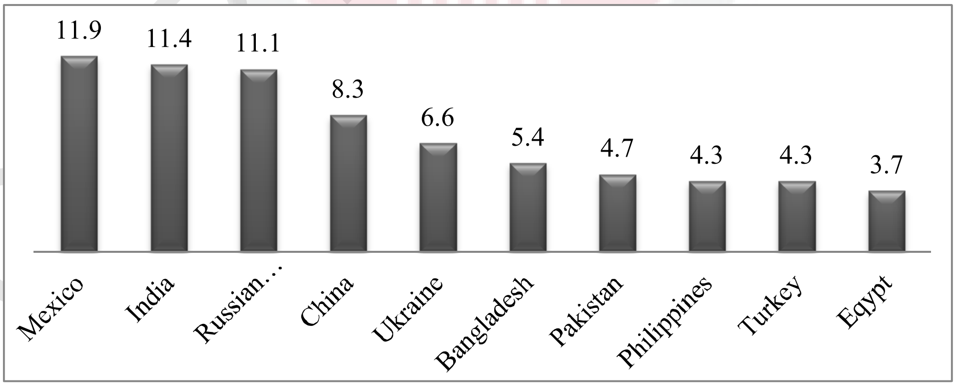
INTRODUCTION

1.1 Background of the Study

International migration has important socioeconomic implications for economic growth and development. It expands not only the opportunities available to individuals, but facilitate better access to information, resources, and technologies (United Nations, 2013). Through migrants' remittances, it also reduces the level and severity of poverty and increase human and physical capital accumulation, particularly in the migrant origin developing countries (Adams and Page, 2005; Kugler, 2006 and Chiodi, 2012).

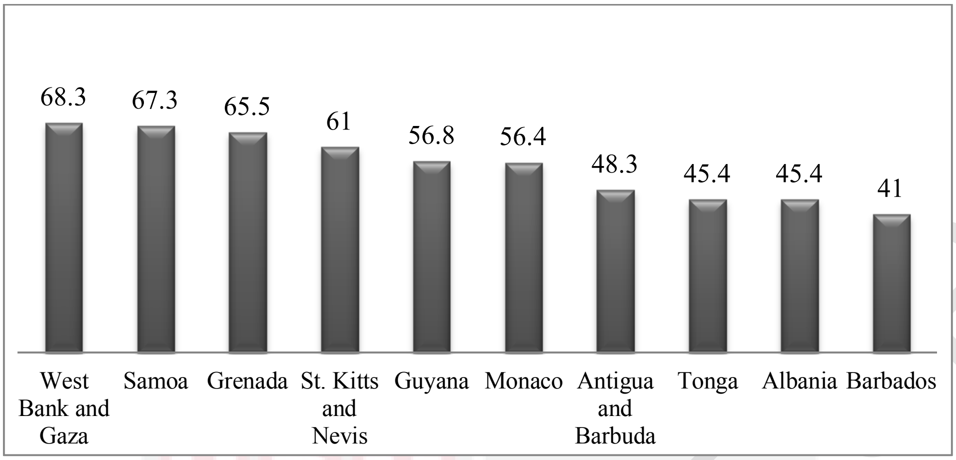
In view of this and so many other reasons, over the past six decades, international migration has, globally, remained on the increase. According to the recent reports by the United Nation the number of international migrants – that is people living outside their country of birth– has reached 232 million or 3.2 percent of the world's population in 2013. This figure is huge compared to 175 million and 145 million estimates of international migrants worldwide reported in 2000 and 1990 respectively.

The majority of these international migrants (about two-thirds) are of working age between 20 – 64 years of age and originate from developing countries. However, Asians represent the largest group of migrants living abroad with total estimates of 60 million emigrants in 2013. There are 19 million immigrants of Asian origin in Europe, 16 million in North America, more than 13. 5 million in the Gulf Cooperation Countries (GCC) and 3 million in Australasia (United Nation, 2013). Figure (1a) & (1b) below describe the top emigration developing countries worldwide in the year 2010.



Source; Migration and Remittances Factbook 2011

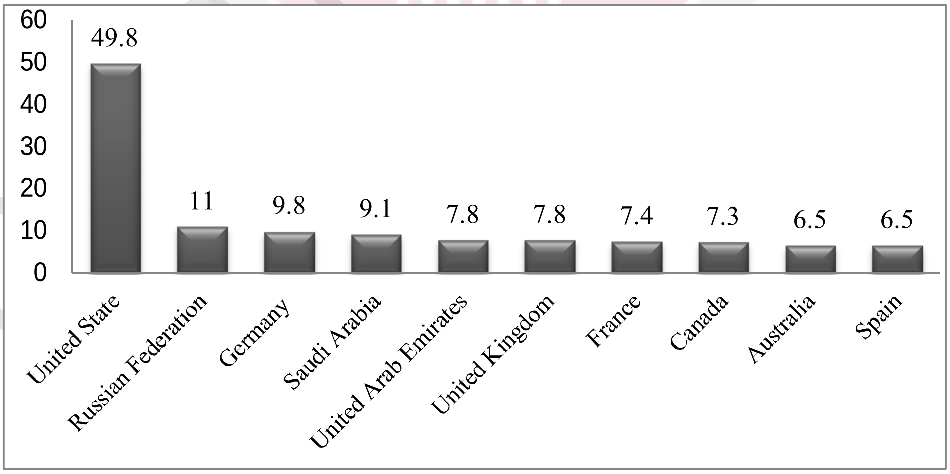
Figure 1a, Top 10 Emigration Developing Countries, 2010 (Number of emigrants, millions)



Source; Migration and Remittances Factbook 2011

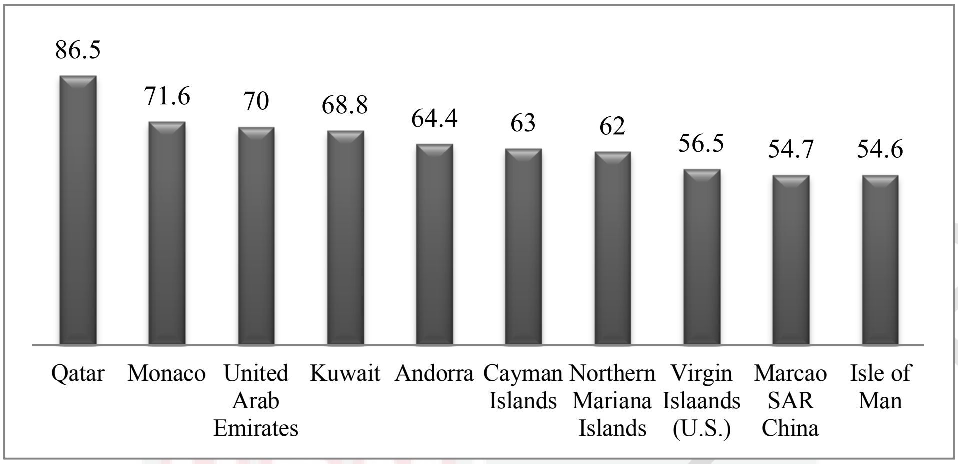
Figure 1b, Top 10 Emigration Developing Countries, 2010 (Percentage of population)

Moreover, of the estimated 232 million international migrants reported in 2013, virtually 59 percent or 139 million of these international migrants live in developed regions, while the remaining 41 percent or 96 million international migrants are hosted in developing regions. Overall, Europe and Asia host the largest community of international migrants with 72 million and 71 million respectively. Among the popular destinations for these international migrants is the United State with the highest number of immigrants estimated to reach 49.8 million or 20 percent of the global total in 2013 (United Nation, 2013). Figures 2a and 2b show the top destination countries of international migrants worldwide.



Source; United Nation International Migration Report 2013

Figure 2a, Top 10 Immigration Countries, 2013 (number of immigrants, millions)



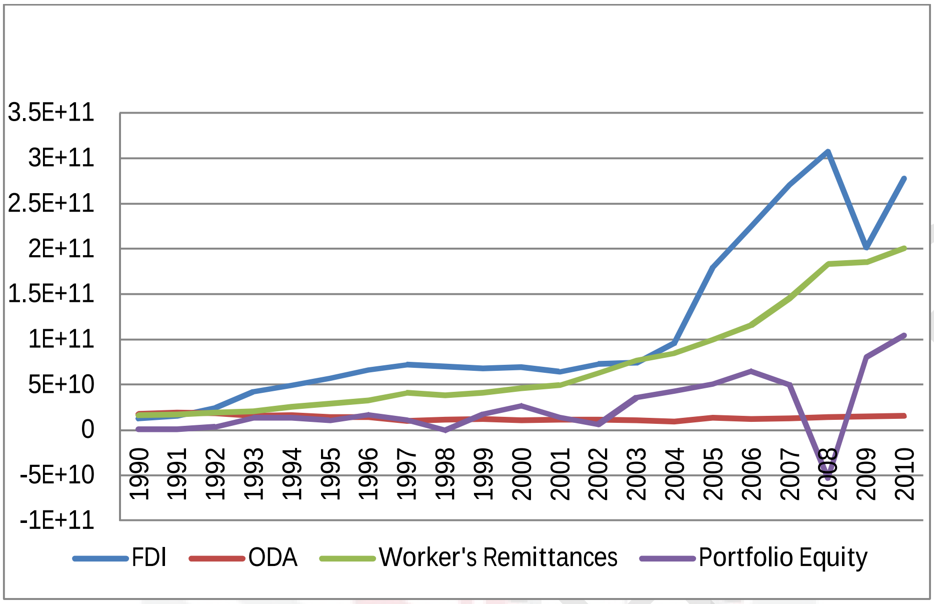
Source; Migration and Remittances Factbook 2011

Figure 2b, Top 10 Immigration Countries, 2010 (percentage of population)

This ongoing surge in the stock of immigrant workers in both developed and developing countries has generated huge inflows of international migrants' remittances, popularly known as workers' remittances, to migrant source countries. The global flows of workers' remittances have been estimated to reach US$529 billion in 2012. Out of this amount developing countries received about US$401 billion. This amount represents an almost fivefold increase in nominal term since year 2000[1] and more than twice as large as the level of official development assistance to developing countries over the same period.

Workers' remittances alone constituted one third of the total private capital flows into developing countries. This form of capital flows has remained resilient as a major source of foreign exchange and a stimulant for macroeconomic stability and economic growth in migrants' source countries (Ratha 2003). Moreover, this form of capital flows to developing countries is believed to be under-estimated because many transfers take place through unofficial channels. Figure 3 depicts the workers' remittances and other capital flows to labour-sending Asian developing countries over the period 1990 – 2011.

[1] Migration and Development Brief 2

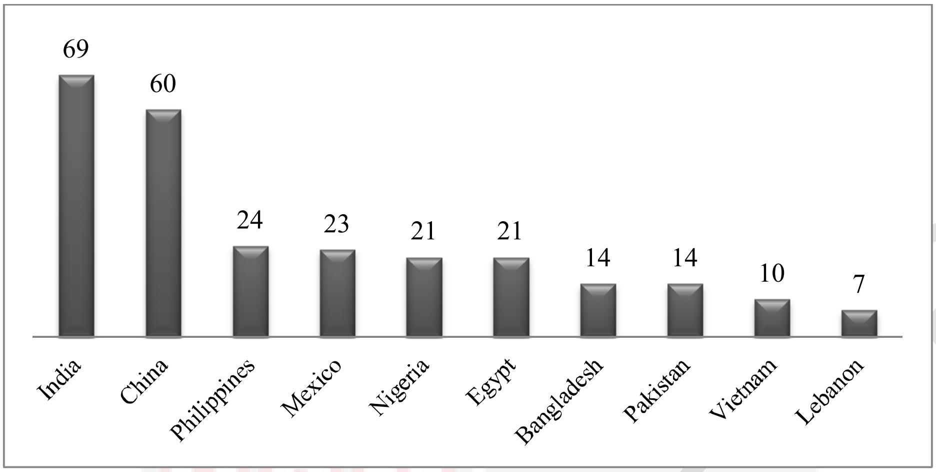


Source; World Development Indicators

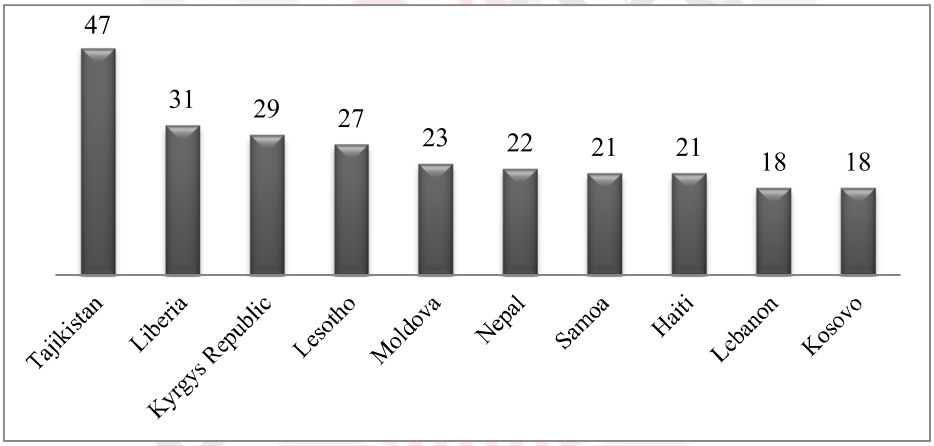
Figure 3, Workers' Remittances and Other Capital Flows to Labour-Sending Asian Countries 1990-2010 (in current US$)

At the regional level, Asian regions account for more than 63 percent of all remittance flows to developing countries in 2012 (IFAD 2013). The officially recorded remittance inflows to the labour sending Asian countries were estimated to reach US$260 billion in 2012. Countries such as India, China, the Philippines, Pakistan, Bangladesh and Lebanon to mention but a few, depend significantly on workers' remittances as a source of foreign reserves and stimulant for macroeconomic stability. Moreover, these countries have been among the top remittance recipient developing countries with India being the foremost receiving remittances to the tune of US$69 billion[2]. Figure 3a and 3b, depicts top developing countries' recipients of remittances in years 2011 and 2012.

[2] Migration and Development Briefs 20



Source; Migration and Development Brief 2013
Figure 4a, Top 10 Recipients of Migrant Remittances, 2012e (US$ billions)



Source; Migration and Development Brief 2013
Figure 4b, Top 10 Recipients of Migrant Remittances, 2011 (percentage of GDP)

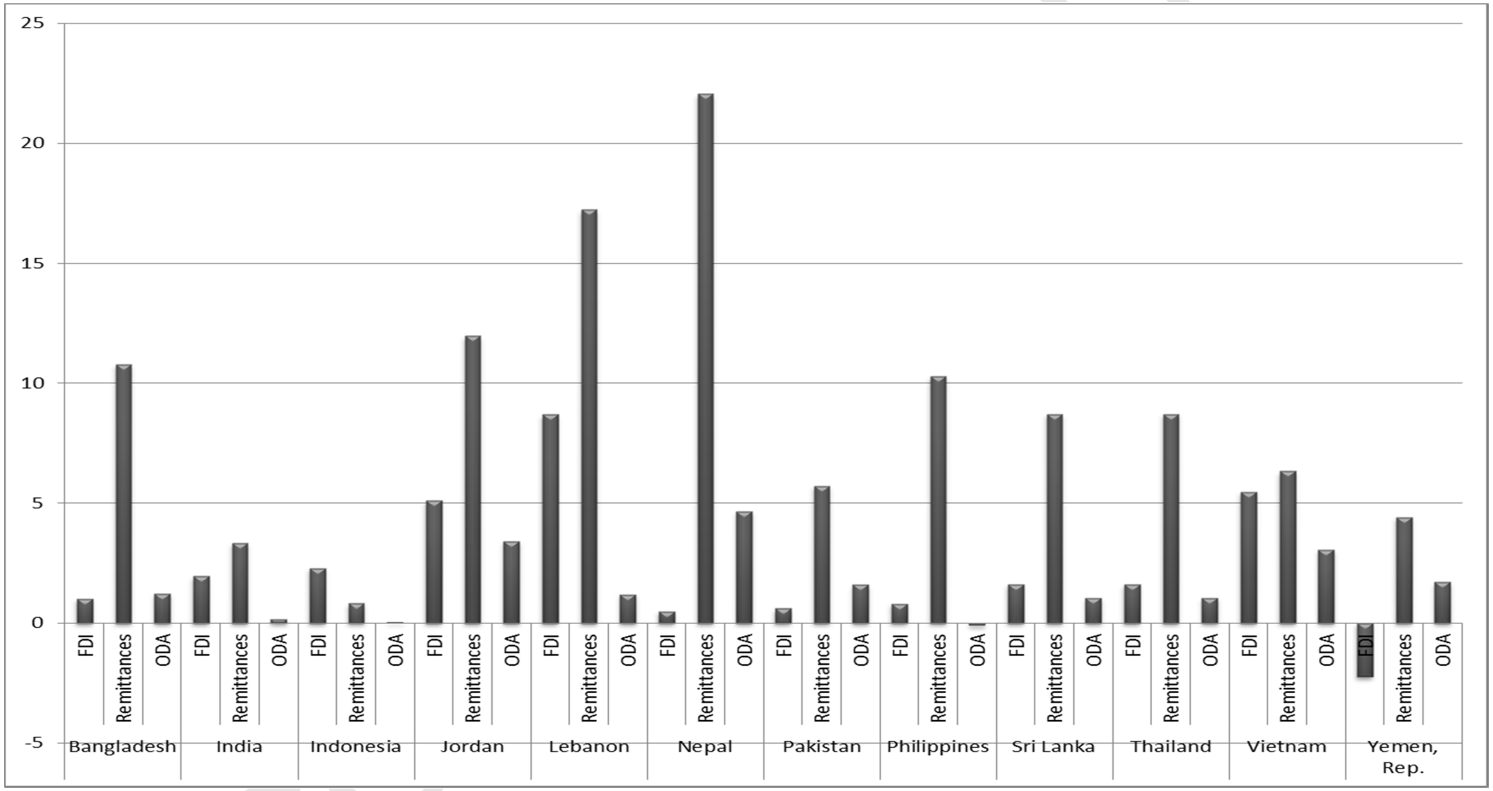
These workers' remittances represent a vital lifeline for millions of non-migrants and can play an important role in reducing poverty level. They also facilitate capital accumulations and investments in education and health care which enhance economic take-off in remittance-receiving developing countries. In view of this many developing countries, particularly in Asia have institutionalised international migration and provided many economic incentives in terms of premium exchange and interest rates and investment facilities that are meant for overseas working migrants in order to attract more inflows of workers' remittances. For example, in the early 1990s, India devalued its exchange rate and liberalized foreign exchange controls. This to some extent has rendered informal remitting channels less attractive and increased the volume of officially recorded inflows of workers' remittances (Gupta, 2006). In Bangladesh, the macroeconomic reforms set in 2002 required foreign exchange in the current account to be free floating. This has interestingly made the controlled market rate lower than the bank rate. In addition, the government also allowed the establishment of new exchange houses, where there is a large concentration of Bangladeshi migrant workers (Siddiqui, 2004).

Furthermore, under the liberalized foreign exchange regime in the Philippines, overseas Filipinos and their beneficiaries are allowed to retain their remittances in foreign currency deposit accounts. While the Philippines government requires its migrant workers abroad to remit 80 percent of their salary, it rewards them with tax exemption through Tax Reform Act No. 8424 of 1993 (Gonzaga, 2009). Similarly, Korean domestic companies that obtained foreign job contracts under the auspices of government are required to deposit a portion of their workers' salaries into Korean banks.

Also in an effort to boost inflows of workers' remittances Turkish governments have employed special exchange rates for remittance, and special interest rates for foreign currency accounts at the central bank (the Dresdner scheme). In addition, Turkish migrants were granted special import privileges for consumer goods and machinery (Aydas et al., 2005). While the various efforts made by these labour-sending countries to attract additional inflows of workers' remittances have met with varied degrees of success, they are believed to have partly influenced the amount of workers' remittances received by them. Thus, it is important to empirically study the effectiveness of these domestic macroeconomic incentives in influencing inflows of workers' remittances in these labour-sending Asian countries.

However, although the use of workers' remittances might vary across Asian countries which would affect their contribution to economic growth in the region, in most of these countries workers' remittances constitute a significant component of national income. They have been estimated to be larger than foreign direct investments, official development aid and in some cases even exports. For instance, in and Nepal workers' remittances, represent more than and 25 percent of gross domestic product (GDP) in 2012. This figure is two times greater than exports earnings and fifty-two times larger than foreign direct investment to the country over the same period.

Similarly, in Sri Lanka inflows of workers' remittances are larger and less volatile than inflows of foreign direct investment and official development assistance to the country. Workers' remittances were 10 percent of the Sri Lanka's GDP in 2012. This was much higher than the foreign direct investment estimated to be only 1.5 percent of GDP over the same period. Figure 5 compares workers' remittances, foreign direct investment and official development assistance in some labour-sending Asian countries.



Source: World Bank WDI, note; Remittances and FDI are expressed as percentage of GDP while ODA as percentage of GNI

Figure 5, Workers' Remittance, Foreign Direct Investment and Official Development Assistance in Some Labour- Sending Asian Countries in 2011

Like other forms of private capital flows, such as foreign direct and portfolio investments, massive inflows of workers' remittances might have important repercussions on key macroeconomic factors in the receiving countries. Large and persistent inflows of workers' remittances can exert damaging effects on international price competitiveness by appreciating the real exchange rate, especially if they are used to purchase non-traded goods in the recipient countries (Ball et al., 2012; Lartey et al., 2012).

The higher inflows of workers' remittances experienced by the Philippines, for instance, which become aggressive since 2005 have led to a real appreciation of the country's peso, and a loss of external price competitiveness when compared to other currencies in the Asian region (BSP[3] Annual Reports, 2005-2011). This has slow-down the production of traditional export goods in the country. Similarly, in Nepal persistent inflows of workers' remittances have been cited among the reasons for the country's high inflation and overvalued real exchange rate, which undermined the country's export performance (Nepal IMF, 2009, 2001). Moreover, workers' remittance receipts has strongly contributed to the exchange appreciation in Bangladesh during the period of 1997 – 2002. This has led to several micro devaluations to improve the country's external balance (Almekinders, 2008).

While it is evident that in most labour-sending Asian countries the contribution of workers' remittances to the GDP have been quite enormous and far exceed that of foreign direct investment and official development assistance, it has remained empirically vague if their utilizations translate into growth performance in these Asian countries. Whether workers' remittances enhance economic growth will strongly depend on the type of economic activity they are used to finance and the subsequent feedback effects that they produce.

Workers' remittances will promote economic growth if they are channelled into productive investment and saving activities that increase human and physical capital accumulations in the recipient countries (Kugler, 2006; Chiodi et al., 2012). Besides, workers' remittances can promote growth by relaxing foreign exchange constraints which improve current account position and stabilise macroeconomic volatility (Abdul-Azeez and Begum, 2009; Chami et al., 2012). Inflows of workers' remittances can also boost growth of the financial sector by increasing the pool of deposits and credits intermediated by the banking sector (Aggarwal et al., 2011).

Conversely, if workers' remittances are used to service private consumption their positive growth effects may be negligible and in some cases their massive inflows may even pose growth challenges in the recipient countries. Inflows of workers' remittances can fuel brain drain which strengthens international inequalities of trained professionals, posing development impediments particularly in small labour-exporting countries (Beine et al., 2008). Moreover, workers' remittances could produce moral hazard consequences through wealth-effects by reducing the recipients' incentive to increase work effort. Also income received from workers' remittances may shield beneficiaries from the effect of government fiscal policy reforms, thereby delaying or distorting the policy outcomes (Chami et al., 2008). Consequently, these may indirectly undermine the growth performance of the remittance-receiving countries. Therefore,

[3] Bangko Sentral NG Pilipinas Annual reports 2005-2011

against these backdrops, this study is set to examine the role of domestic macroeconomic conditions in shaping inflows of workers' remittances and the long-term impact of workers' remittances on real exchange rates and economic growth in some remittance-receiving Asian countries.

1.2 Statement of the Problems

This study is motivated by three related issues that surround the inflows of workers' remittances and their impact on real exchange rate and long-term economic growth in labour-sending Asian countries.

Firstly, simple theoretical considerations suggest that the inflows of workers' remittances ought to be driven by domestic macroeconomic conditions. In view of this many labour-exporting countries in Asia have provided different economic incentives in terms of competitive exchange rate, interest rate differentials and lower cost of remittance transactions in order to attract more inflows of workers' remittances transferred by overseas working migrants.

However, empirical research seeking to support the effectiveness of these policies have produced counterintuitive results. These studies reported that financial and economic incentives tailored by migrants' source countries do not attract inflows of workers' remittances from overseas working migrants (Gupta, 2006; Lianos 1997; Straubhaar 1986 and Swamy 1981). These findings have brought into question the effectiveness of various macroeconomic and financial policies designed and believed to be capable of attracting large inflows of migrants' remittances in order to maximise their benefits in labour-exporting countries (e.g. see Chandavarkar 1980 and O'Neill 2001).

These contradictory results can be attributed to the possible correlation among the macroeconomic variables considered and omission of important policy variables such as financial development and quality of institutions in the migrant sending countries (Kemegue et al. 2011). By increasing access to quality financial services and promoting competitive formal remitting channels, which reduces remitting cost, financial development is more likely to promote inflows of workers' remittances (Freund and Spatafora, 2005 and Spatafora and Luna, 2012).

Moreover, the real value of workers' remittances are underestimated due to unrecorded remittance transactions that take place through informal channels and money transfer operators. It is, therefore, reasonable to predict that countries with developed financial system should receive more inflows of workers' remittances via official channels.

In addition, better institutional quality ensures lesser distortionary policies and reduces cost of investing workers' remittances by eliminating bureaucratic red-tape and rent-seeking cost in migrant countries of origin (Acemoglu et al., 2005). In view of these omitted variable bias, this study contributes to the existing literature by examining the impact of domestic macroeconomic conditions on inflows of workers' remittances, while accounting for the role of financial development and institutional quality in remittance-receiving Asian countries.

Secondly, a concern has been raised in the literature that rising inflows of workers' remittances in Asia, which was estimated to reach 260 billion US dollars in 2012, put upward pressure on the relative price of nontraded goods. This leads to real exchange rate appreciation and loss of price competitiveness (Barajas et al., 2011; Wahba, 1998).

However, there are virtually no cross-country, empirical studies that examine such claim using data from labour-exporting Asian countries. The only exceptions are studies by Bakardzhieva et al. (2010) and Berajas et al. (2011), which produced conflicting results. While the former found evidence of real exchange rate appreciation caused by inflows of workers' remittances the latter found evidence of depreciation. These conflicting findings have emerged due to measurement issues not address in these studies while examining the impact of workers' remittances on real exchange rates. The studies have used real effective exchange rate as a proxy measure of real exchange rate instead of relative prices of traded goods in terms of nontraded goods as suggested by the theory (Edward, 1989).

The use of only real effective exchange rate to measure real exchange rate movement, particularly, in developing countries has received criticisms due to parallel exchange rates, unrecorded trade, volatility in commodity export prices and trade policies (Hinkle and Montiel, 1999). Consequently, it only give limited information about the presence of Dutch disease effect of workers' remittances . It does not capture the effects of workers' remittances on the traded and nontraded sectors of remittance-receiving countries, which causes real exchange rate appreciation (Lartey et al., 2012).

In addition, the role of financial sector development has, recently, been stressed by the literature in mobilising and allocating workers' remittances into productive investment activities. It was claimed to attenuate the real exchange rate appreciation that accompany the use of workers' remittances for consumption in the recipient countries (Acosta et al., 2009b and Mundaca 2009). Unfortunately, these studies have ignored this effect of financial development in mitigating the real exchange rate appreciation associated with inflows of workers' remittances in labour-exporting Asian countries.

In response to these problems, this study constructed an index of real exchange rate based on the relative prices of traded and nontraded goods to examine the impact of workers' remittances on real exchange rate appreciation. In addition, the study examined the ability of financial development to mitigate real exchange rate appreciation resulting from inflows of workers' remittances. This was done by constructing an orthogonalised interaction effects between workers' remittances and financial development, which overcome multicolinearity issue.

Thirdly, Asia account for more than 63 percent of all remittances to developing countries. As a source of external funds, workers' remittances represent up to 47 percent of gross domestic product in some Asian countries (World Bank 2012). Workers' remittances are three times more than official development assistance to the region. When china is excluded workers' remittances surpassed foreign direct investment to developing countries. These inflows of workers' remittances are believed to promote economic growth through their effect on investments in human and physical capital.

However, research on long-term growth effect of workers' remittances in Asia has remained an open empirical question. On the one hand, studies reported that workers' remittances are compensatory and are mostly spend on consumption, housing and land. Therefore, they do not contribute to long-run income growth in the recipient countries

(Rao and Hassan, 2011; Jongwanich, 2007; and Chemi et al., 2005). On the other hand, recent studies established that inflows of workers' remittances are associated with positive albeit small growth effects in Asia (Imai, 2013; Saddique et al., 2012; and Vargas-Silver et al., 2009).

These conflicting findings have occured as a result of measurement problem e.g. colinearity and omitted variable bias. Policy variables such as financial development and institutional quality determine the country's capacity to benefit from such inflows of private transfers (Mundaca, 2009; Acemoglu et al., 2005). By enabling business friendly environment and channelling workers' remittances into productive investment activities, institutional quality and financial development can enhance marginal growth effect of workers' remittances. Unfortunately, none of these studies reviewed in Asia has considered the interaction effects of workers' remittances with these important policy variables using a unified standard growth equation.

Studies in other regions (Driffield and Jones 2013; Nyamongo et al., 2012; Ramirez and Sharma 2009; Catrinescu et al., 2009) recognised the moderating effects of one of these variables. Yet, their result appeared to be contaminated by untreated multicolinearity due to presence of interaction terms and original variables that defined them, which are not orthogonal in their regression models (Darlington 1990). This has led to ambiguity in interpreting the interaction effects among these variables. Workers' remittances, financial development and institutional quality were reported to be both complementary and substitutes in fostering economic growth.

This study contributed to the scant literature on the long-run growth effect of workers' remittances in Asia. Unlike the existing studies, in this study the long-run growth effect of workers' remittances and their interaction effects with measures of financial development and institutional quality are examined. This study also employed a partial Gram-Schmidt orthogonalisation prodcedure described by Burrill (2007) to avoid multilinearity among the interaction effects and other variables used to construct them.

1.3 Objectives of the Study

The objectives of this study are to empirically analyse the impact of domestic economic conditions on inflows of workers' remittances and the effects of workers' remittances on equilibrium real exchange rate and long-term economic growth in Labour-sending Asian countries.

1.3.1 Specific Objectives

1. To examine the effects of domestic economic conditions on inflows of workers' remittances.
2. To assess the impact of workers' remittances on equilibrium real exchange rate and how such impact varies with the degree financial sector development.
3. To examine the effect of workers' remittances on long-term economic growth and how financial sector development and institutional quality, affect long-run growth effect of workers' remittances.

1.4 Significance of the Study

Given the persistent increase in the inflows of workers' remittances in the labour-exporting Asian countries and the recognitions attached to them by policy-makers as a potential source of external funding for developing countries, it has become critical to evaluate whether domestic macroeconomic conditions played a role for their persistent inflows. Moreover, it also become pertinent to empirically examine their likely impact on economic performance of the receiving countries.

This study contributes to the existing body of empirical literature in three different but closely related perspectives. Firstly, the study empirically tests the effectiveness of various macroeconomic incentives in terms of competitive exchange and interest rates provided by labour-sending Asian countries in their policy efforts to attract more inflows of workers' remittances from overseas working immigrants. Unlike previous studies that focus more on the impact of microeconomic and demographic factors that influence the inflows of workers' remittances into the migrants' origin countries, this research centred on macroeconomic fundamentals in the remittance-receiving countries.

The study further considered the role of financial sector development in facilitating remittance inflows by increasing competition and access to quality financial services which reduce cost of sending remittances. Moreover, instead of pursuing a country-specific study as happened to be the case for most existing studies at the macro level, this study pooled virtually all the labour-sending Asian countries together for which data are available and systematically analysed them.

Secondly, the study also augments the few existing empirical evidence in the literature on the nexus between workers' remittances and real exchange rate in remittance-receiving Asian countries by revisiting the issue. Unlike the foregoing studies on the topic, in addition to the use of a measure of the external real exchange rate, this study constructed a production based estimates of the internal real exchange rate in a two good framework by dividing sectors of production in each remittance-receiving Asian country in our sample into those producing traded and non-traded goods. This is to further examine the impact of workers' remittances on internal real exchange rate, which captures the domestic incentive and profitability of producing more traded goods relative to non-traded goods.

This approach will not only resolve the conflicting findings that permeate the few available empirical evidence in the literature, but will highlight the type of expenditure activities that workers' remittances financed in the remittance-receiving Asian countries. The study further examines the strength of financial sector development in diminishing the appreciation of real exchange rate induced by workers' remittances, an issue not explored by the previous empirical studies in the region.

Thirdly, the study also adds to the existing empirical literature by revisiting the growth effects of workers' remittances, which has remained unclear after years of empirical research. Instead of pooling all developing countries with distinct level of income, culture and migration policies and history as has been the case in most existing empirical studies, this study concentrated on labour-exporting Asian countries in order to minimise the possible country-specific heterogeneity.

Contrary to former studies, this study also incorporates both measures of financial sector development and institutional quality and their interaction effects with workers' remittances in accessing the long-term growth impact of workers' remittances. The study further employed artificial orthogonalisation to treat multicolinearity problems encountred in previous studies. Findings from this study will not only help in resolving the conflicting findings in the literature on the growth effects of remittances, but will also provide answers to the question of whether workers' remittances, institutional quality and financial sector development are complementary or substitutes in advancing the growth performance of remittance-receiving Asian countries.

In terms of practical policy implications, the findings from this study will provide a better underpinning for the development of policies to boost and manage inflows of workers' remittances. For instance, as suggested by the theoretical consideration the flows of workers' remittances ought to be partly driven by domestic macroeconomic incentives and institutional quality in the receiving country. If this suggestion holds empirically, it will somewhat explain why some Asian countries such as Bangladesh and Pakistan with high level of international migration estimated to reach 5.4 million and 4.7 million respectively received lower levels of workers' remittances estimated at 11.1 billion and 9.4 billion respectively in 2010 when compared to the Philippines with only 4.3 million emigrants but received higher level of workers' remittances estimated to reach 21.3 billion over the same period. The results will also inform policy makers on the role and efficacy of the existing domestic economic incentives and quality of institutions in influencing aggregate inflows of workers' remittances.

However, since inflows of workers' remittances has been theoretically suggested to be associated with, on the one hand, growth-enhancing effects by promoting investments in human and physical capital, but on the other hand, with growth-negating effects by distorting price competitiveness of other sectors through appreciating the real exchange rate. The outcomes of this study will help policy makers in devising measures that can minimise these adverse effects of inflows of workers' remittances in order to maximise their benefits. For example, if high inflows of workers' remittances empirically lead to real exchange rate appreciation as suggested by the theory and the development of efficient financial intermediations in the receiving country mitigate such effects, such findings will be of practical policy relevance. The use of financial institutions to trap officially transmitted workers' remittances and funnel them into productive investments can be encouraged by policy makers in order to harness their growth potentials and promote long-term economic growth in remittance receiving Asian countries.

1.5 Organisation of the Study

The rest of the study is organised as follows. Chapter 2 is the literature review. The chapter thoroughly discusses the theoretical and empirical literature on the linkages among workers' remittance and macroeconomic conditions, real exchange rate and economic growth. The chapter also highlights the possible role of financial development as well as institutional quality in shaping the impact of workers' remittance on real exchange rate and economic growth.

Chapter 3 is the methodology. The chapter provides the mathematical derivations and discussion of three different theoretical frameworks that underpinned the empirical estimations of the study. This was followed by a presentation and discussion of the econometric model specifications as well as definitions of variables. The chapter also explained the sources and description of the data used in the estimation analysis of the study.

Chapter 4 covers the results and discussion. The chapter discusses the findings of the study. Initially, it presents both descriptive statistics and graphical analysis of the relationship among the key variables considered in the estimation of each objective. The chapter concludes with the presentation of the results of the regression analysis and their interpretations.

Chapter 5 is the summary and conclusion. The chapter provides a summary of the entire study. This was followed by a Policy implications. The limitations of the study were also highlighted in the chapter. The chapter concludes with a recommendation for future research directions.

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