

The Effect of Remittance on Economic Growth in Cambodia

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Abstract

It is estimated that 1.7 million Cambodian migrant workers, accounting for 11% of its population, have sent remittances worth hundreds of millions of USD to their family members in the kingdom in 2018. This great outflow of workers and inflow of remittances has raised the government's concern about a proper migration policy for harnessing labor migration and remittances to enhance economic development. Therefore, the main objectives of this study are to provide a brief overview of migration policy in Cambodia and to investigate the effect of remittances on economic growth in Cambodia. We estimated multiple regression models, using Ordinary Least Square (OLS) method based on data from the World Development Indicators (WDI) covering the time period from 1993 to 2016. The results of our multiple regression analysis indicate that remittances have had a significant positive impact on the country's economy, having contributed 0.1180% to its economic growth, thanks to the increased use of remittances in enterprises, agriculture and healthcare in recent years, and financial institutions which have used remittances productively. Based on our findings, we suggest that the government should provide more financial literacy programs to migrant workers and their family members, so that the productive use of remittances in enterprises can be further strengthened.

Keywords

Migration policy; remittances; economic growth; Cambodia

Introduction

Remittance is defined as private income sent by foreign workers to their family members in their home countries. Studies indicate remittances are an important source of foreign currency which contribute to economic development and poverty reduction in destination countries. The effect of remittances on economic growth depends on how the recipient households use their remittances. If remittances are utilized for human capital investments, such as education, healthcare, and acquisition of investment goods abroad, they will affect positively on economic growth in the long run. The nexus between remittances and economic growth and social development in developing countries has become an interesting topic for researchers. The World Bank (2018) estimated the flow of remittances to low- and middle-income countries have risen significantly from USD 429 billion in 2016 to USD 466 billion in 2017. The increase in economic migration has led to the widening of income inequality between origin and destination countries, lower travel costs and a rise in South-North migration and authors such as Fagerheim (2015) and Sayantan (2017) claimed remittances appear to promote growth in countries which adopt an open policy and countries which have better financial institutions and financial markets to transform them into productive investments to promote growth. These open economies tend to allow free flow of capital and labor, which are crucial factors

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of production for economic growth. Empirical studies point to a positive significant impact on economic growth in many countries, especially in Asia, which have received significant amount of remittances during the last 10 years, and irrespective of accessibility of financial sector and level of openness of the countries. For example, studies carried out in South Asian countries, namely Bangladesh, India, Pakistan, Nepal and Sri Lanka (Salahuddin & Gow, 2015; Siddique, Selvanathan & Selvanathan, 2012; Jawaid & Raza, 2016) found a positive long-term relationship between remittances and economic growth in Bangladesh, but mixed results in other countries. The results from Bangladesh remain consistent regardless of different techniques and number of observation because remittances are the largest source of foreign exchange transfers in the country (Puja, 2013). This shows the significance of remittances to the economic growth of Bangladesh. Salahuddin and Gow (2015) and Jawaid and Raza (2016) further indicated positive significant relationship between remittances and economic growth in India. Siddique et al. (2012) and Jawaid and Raza (2016) also found positive significant relationship between remittances and economic growth in Sri Lanka. Salahuddin and Gow (2015) noted a positive long-term relationship between remittances and economic growth in Pakistan; the outcome is consistent with the study of Dilshad (2013).

Fagerheim (2015) reported positive significant impact of remittances on economic growth on Cambodia and the Philippines. Koay and Choong (2013) also found significant effect of remittances on economic growth in Malaysia between 1975 and 2009. Furthermore, Nwaogu and Ryan (2015) found positive relationship between remittances and economic growth in Latin America and Caribbean countries. Their study shows that foreign aid and remittances affect the economic growth of 53 African, 34 Latin American and Caribbean countries. Using dynamic panel approach and data over the period 1987-2012, Mohamed (2016) suggested remittances have had a significant impact on Tunisia's economy. Ronald (2013) showed positive effect of remittances on growth both in the short and long run in Guyana between 1982 and 2010, while aid has had a negative effect in the long run, and financial deepening is considered insignificant. Dietmar and Adela (2017) supported this and noted positive significant effect of remittances on economic growth in six high remittances-receiving European countries, such as Albania, Bulgaria, Macedonia, Moldova, Romania and Bosnia Herzegovina between 1999 and 2013. Makun (2017) pointed to positive impact of remittances and foreign direct investment (FDI) on economic growth in Fiji Islands between 1980 and 2015 using time series quantitative technique.

In contrast, some studies pointed to a weak and no impact relationship between remittance and economic growth. Siddique et al. (2012) found no significant outcomes and therefore, no causal relationship between remittances and economic growth in India. Jawaid and Raza (2016) also pointed to negative significant relationship between remittances and economic growth in Pakistan. Different observation and analytical techniques could be the reasons behind these mixed results in India and Pakistan. Barajas, Chami, Fullenkamp, Gapen, and Montiel (2009) showed remittances have no significant impact on economic growth by using panel regression data from 84 countries between 1970 and 2004. Rao and Hassan (2009) and Lim and Simmons (2015) also suggested an insignificant relationship between remittances and economic growth. Jouini (2015) found an insignificant relationship between remittances on economic growth in Tunisia over the period 1970-2010 based on the nation's financial development and investment. Jongwanich (2007) proved empirically that remittances have a significant impact on poverty.

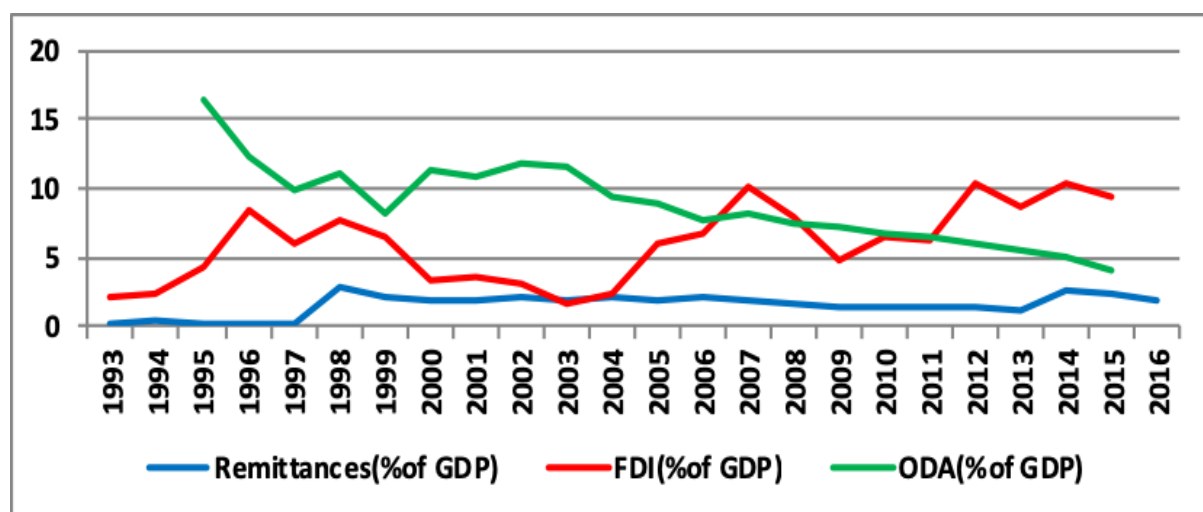
It is also worth noting that recent studies have showed a positive impact of remittances on economic growth while studies conducted before 2010 showed weak or no impact at all. This is likely due to globalization, which has led to free flow of remittances and the introduction of financial literacy program by local Non-Governmental Organizations (NGOs) and

international organizations to migrant workers and their family members in host countries over the last 10 years. Such activities promote economic growth.

In Cambodia, it is estimated that over one million workers have migrated to higher income countries, such as Thailand, South Korea and Malaysia, to work in various sectors, such as agriculture, construction, industry and domestic work. Migration of Cambodian people is believed to be driven by surplus of labor, financial debt in the country of origins coupled by high labor demand in destination countries. It is also estimated there were hundreds of thousands of undocumented migrants in Thailand before the establishment of verification process in 2017 which aimed to legalize illegal workers. High costs of migration have forced Cambodian workers to migrate using illegal channels. In 2010, it was estimated a migrant needed to spend USD 700 to migrate to Thailand legally, while the costs range from USD 840 and USD 1,200 to work in Malaysia. However, using a channel to enter Thailand illegally, a migrant would pay his smugglers only USD 100 (Tunon & Rim, 2013).

Despite encountering horrific treatment and abuses as well as mistreatment while working abroad, the workers continue to send huge amounts of remittances to their home country, and which increased significantly from USD 9 million in 1992 to USD 361.39 million in 2016 (The World Bank, 2018), and which accounted for about 3 percent of Cambodia’s GDP in 2015. In comparison to Foreign Direct Investment (FDI) and official development assistance (ODA), remittances as a share of Gross Domestic Product (GDP) of Cambodia is relatively low, but the flows of remittances appear to be stable. Figure 1 shows remittances are resilient to economic crisis or economic downturns and natural disasters.

Figure 1: Remittances, FDI and ODA as a share of GDP of Cambodia (1993-2016)



Source: World Development Indicators (World Bank)

Many studies have examined the impact of remittances on the economies of developed and developing countries using different methods and sample sizes. However, such study is rare in the context of Cambodia. Therefore, this study examines the effect of remittances on economic growth in Cambodia while providing at the same time an overview of Cambodia’s labor migration policy. The study will also serve as a basis for future studies on migration.

The paper is organized as follows: Section 2 provides a brief overview of Cambodia’s migration policy; Section 3 provides the conceptual framework for the study while Section 4 discusses data and the methodology. Section 5 discusses the results and findings while Section 6 offers policy recommendations and concludes the paper.

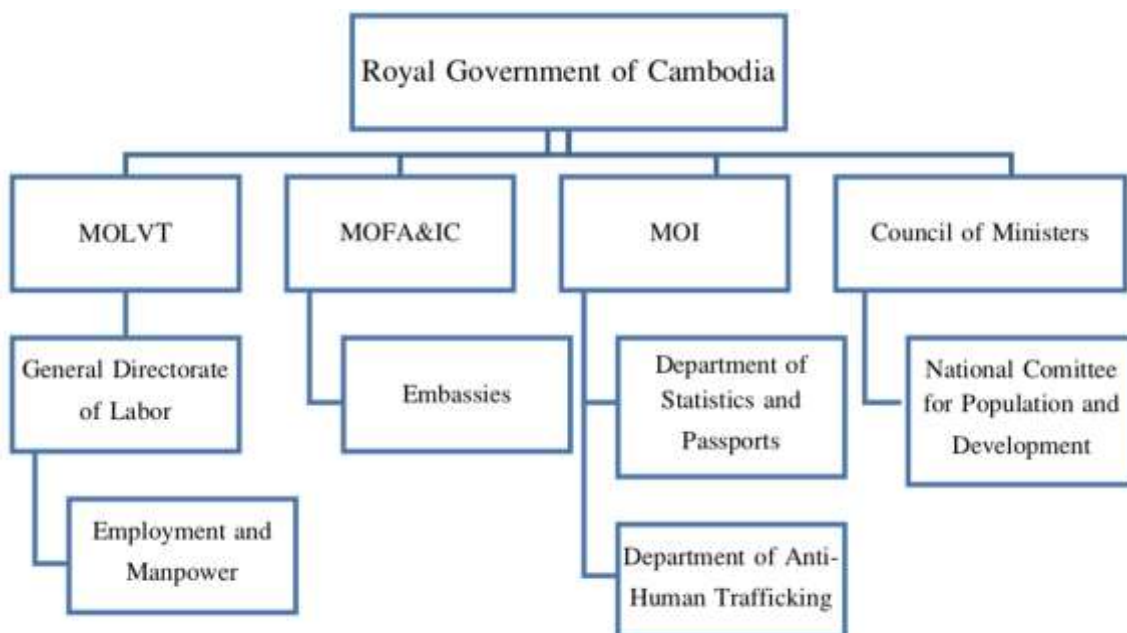
Overview of Cambodia's Labor Migration Policy

Labor Migration Governance and International Instruments

In Cambodia, labor migration was managed through Sub-Decree #57 on “sending Khmer migrant abroad” in 1995 and was supported by Prakas #108 on “education on HIV/ AIDS, safe migration and labor rights for Cambodian workers abroad” in 2006. The sub-decree and Prakas were later replaced by Sub-Decree #190 on “the management of the sending of Cambodian migrant workers through private recruitment agencies” in 2011. The new Sub-Decree was adopted to govern the Cambodian migrant workers, and was supported by eight Prakas issued in 2013 with technical assistance from International Labour Organization (ILO) in order to provide clear roles and responsibility of the related authorities. In addition to the two Sub-Decrees and Parkas, Sub-Decree #70 on “the creation of the manpower training and overseas sending board” was specifically created to manage Cambodian workers working in South Korea.

A number of institutions have been established to manage labor migration (Figure 2). The general directorate of labor under the Ministry of Labour and Vocational Training (MOLVT) is responsible for managing labor migration while the Department of Employment and Manpower is responsible for supervising labor migration and overseeing private recruitment agencies. Cambodia has an inter-ministerial working group which consists of MOLVT, Ministry of Interior (MOI), and Ministry of Foreign Affairs and International Corporation (MOFA&IC), whose role is to ensure the implementation of Memorandum of Understanding (MOU) with regards to protecting and safeguarding labor rights. Department of Statistics and Passports is responsible for issuing passports for migrant workers. The National Council for Population and Development under the Council of Ministers is responsible for formulating migration policy while MOFA&IC is responsible for the management of international labor migration by channeling information through the Cambodian embassies (Sophal, 2009).

Figure 2: Institutions involved in managing labor migration



Source: Author

Cambodia manages its international labor migration by inking formal recruitment agreements known as Memorandum of Understanding (MOU) as well as bilateral agreements with host countries. The MOUs or bilateral agreements between the two countries are legal migration frameworks which usually ensure smooth migration process ranging from admission, employment and repatriation. Cambodia has signed MOUs and bilateral agreements with many destination countries in order to open more legal channels for migrant workers to seek jobs abroad. Cambodia first signed MOUs with Thailand on the establishment of formal migration framework in 2003, which was enforced in 2006. The MOU between the two countries was again reinforced in 2015, though it has not been implemented at the writing of this paper. A labor agreement was also established between governments of Cambodia and Republic of Korea to recruit Cambodian workers in 2006, following a high demand for foreign workers. In 2009, an MOU was signed between the government of Cambodia and Malaysia. The MOU was revisited in 2015 after a moratorium was imposed by Cambodia in 2011 on sending workers to Malaysia. Besides the three main destination countries, Cambodia had bilateral agreement and has signed MOUs with many more countries, including Singapore, Hong Kong, Kuwait, Qatar, Saudi Arabia, and Japan.

In 2014, the government of Cambodia with cooperation and consultation with civil societies, international organizations, employers and recruitment agencies, established the 2015-2018 Labor Migration Policy with its overall policy objective to govern labor migration effectively, protect and empower the rights of all migrant workers, and enhance the impact of migration on development. The policy was built on previous labor migration policy (The Labor Migration Policy for Cambodia 2010-2014), which was criticized for not being in tandem with other national strategic plans, such as the national employment policy, the National Strategic Development Plan 2014-18, and the Rectangular Strategy Phase III 2013-18. Under the 2015-2018 policy, 17 policy goals were identified.

In addition, the government of Cambodia has reviewed certain international instruments and standards of labor migration in line with the national legal framework, and ratified and implemented labor-related conventions aimed at strengthening the rights and privileges of its migrant labor in host countries. Since Cambodia became a member of ILO in 1969, it has ratified all eight fundamental ILO conventions, and has been a signatory to UN International Convention on the Protection of the Rights of all Migrant Workers and Members of their Families (1990). The Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) was ratified in 1979. However, there are some important ILO conventions the government has not ratified, especially the convention on fishing and domestic work. The ILO conventions the government has not ratified include:

- Convention No. 97 on Migration for Employment Convention (revised) (1949)
- Convention No. 143 on Migration in Abusive Conditions and the Promotion of Equality of Opportunity and Treatment of Migrant Workers (1975)
- Convention No. 181 on Private Employment Agencies (1997)
- Convention No. 188 on Work in Fishing Sector (2007)
- Convention No. 189 on Domestic Works (2011)

Upon ratifying and implementing international labor standards, an increased number of traffickers have been convicted and with greater allocation of funds to the national anti-trafficking committee (Department of State Publication, United States of America, 2017). However, it is still not in line with the minimum standard for elimination of trafficking of persons.

At regional level, Cambodia and other ASEAN members have actively participated in regional migration discussion and have adopted a number of ASEAN instruments related to the right and protection of migrant workers. In 2007, ASEAN member states adopted ASEAN Declaration on the Protection and Promotion of the Rights of Migrant Workers, also known as Cebu Declaration, in Cebu, the Philippines. Ten years later, the ASEAN member states signed the ASEAN Consensus on the Protecting and Promotion of the Rights of Migrant Workers in 2017, which aims to ensure the protection of migrant workers. The ASEAN Consensus outlines the principles, fundamental rights of migrant workers and their family members, obligations and commitment of ASEAN Member States (ASEAN, 2018). In addition to ASEAN Consensus on the Protection and Promotion of the Rights of Migrant Workers, ASEAN Declaration on Strengthening Social Protection was adopted in 2013 in Brunei.

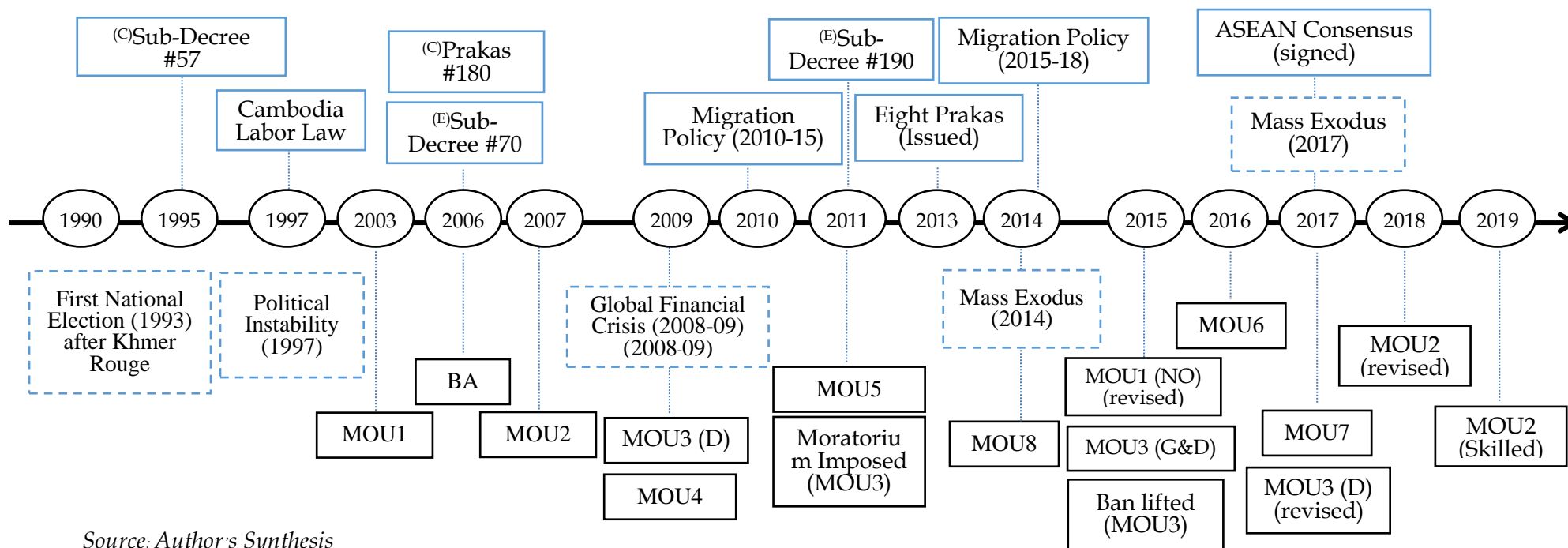
Right Protection for Migrant Workers

The government of Cambodia has actively pursued efforts to protect migrant workers from being abused, trafficked and mistreated by their employers and private recruitment agencies through establishing complaint mechanism to help migrant workers access to justice. The complaint mechanism was established via Prakas No. 249 on Complaint Receiving Mechanism for Migrant Workers in 2013, which has a section at MOLVT and Provincial Departments of Labour and Vocational Training (PDOLVTs) which receives and supports complaints from migrant workers (Harkins & Ahlberg, 2017). Furthermore, a Migration Workers Resource Center was established in early 2014 with primary function to support the resolution and organize training on complaints process with participation from provincial governor, chief of PDOLVT and other relevant stakeholders. The standard complaint forms and complaint database for case management was also developed by Winrock International to operationalize the Prakas No. 249 (ILO, 2016). In practice, the dispute can be resolved through three resolution mechanisms: administrative process, informal mediation and court. Prior to the establishment of complaint mechanism in 2013, all issues related to abusive treatment are resolved by regular justice system which is difficult for average people to access.

The ILO revealed the results of its assessment of the complaint mechanism in 2016 and found desirable outcomes in general. The mechanism resolved more than 500 complaint cases for over 1,500 migrant workers and the victims received nearly USD 220,000 in compensation during an 18-month period (ILO, 2016). Out of 501 cases, 335 were resolved through administrative process, and only 16 cases were resolved through court hearing, which can be interpreted as a good result in providing responsive approaches. Moreover, almost 78% of all cases were resolved within 3 months. The assessment indicates a successful mechanism to help migrant workers to access to justice.

In the case of abusive treatment of Cambodian workers in destination countries, migrant workers could lodge their complaints to labor attachés (from MOLVT) which are deployed in three main destination countries, such as Thailand, South Korea and Malaysia (Harkins & Ahlberg, 2017). The labor attachés are basically responsible for offering legal help, promoting and protecting migrant rights and monitoring working condition of migrant workers (Sophal, 2009). In addition to labor attaches, Cambodia has deployed its representatives from PRAs to oversee working and living conditions of migrant workers. Before attaches were deployed in 2017, all assistance was provided by officials working at embassies and consulates in destination countries. Good working relationship with embassies in destination countries has been reported, though the assistance provision and proactiveness from the embassies is limited due to inadequate staff, capacity and resources.

Figure 3: Evolution of Cambodia's Labor Migration Governance, 1990-2019



Source: Author's Synthesis

- ❖ MOU1=Thailand; MOU2=Japan; MOU3=Malaysia; MOU4=Kuwait; MOU5= Qatar; MOU6=Saudi Arabia; MOU7=Hong Kong; MOU8=Singapore; BA= Bilateral Agreement with South Korea
- ❖ (D)=Domestic Workers; (G&D) =General and Domestic Workers; (NO)=Not yet operationalized; Dash line=external factors
- ❖ Sub-Decree #190 (in effect): The Management of the Sending of Cambodian Migrant Workers through Private Recruitment Agencies, 2013; Sub-Decree #57 (Cancelled): Sending Khmer Migrant Abroad, 1995; Sub-Decree #70 (in effect): The Creation of the Manpower Training and Overseas Sending Board, 2006

Promoting the Flows and Uses of Remittance

The government of Cambodia has acknowledged the importance of remittance for poverty reduction efforts in the country and to promote economic growth of the country. The government also expedited flow of migration by adopting the latest technology that will reduce lengthy migration process. Additionally, since majority of Cambodian migrant workers were illegal they did not have proper access to formal financial services for remittance transfer. Sophal (2012) in his study (where he interviewed over 50 households) found that majority (85%) of Cambodian migrant workers in Thailand preferred to send money through informal channels. Deelen and Vasuprasat (2010) found the cost of sending remittance through the banks was higher than that through informal agents. Therefore, the Cambodian government and international organizations have worked together to promote the flow and use of remittances in the Kingdom aimed at ensuring safe and low-cost remittance transfer and also promoted productive investment of remittances. However, the response to the promotion of remittances seems to be lukewarm since there is no legal framework for remittances although remittance is specified in the Policy Goal on Labor Migration in Cambodia (2015-18). The Policy Goal discusses the role of government to work with financial institutions in both countries to provide access to safe, efficient and cheaper remittance to migrant workers. In practice, the government has worked to increase access to formal remittances channel by requiring all recruitment agencies to assist workers open personal bank accounts and facilitate the use of formal remittance channels (Testaverde, Moroz, Hollweg & Schmillen, 2017).

The ILO has worked together with the government agencies to promote the use of remittances. It has supported and piloted a training kit on financial literacy for migrant workers and their family members. The training kit includes modules on how to send remittances, set up savings plan, and make productive investments. The issue of remittances was also mentioned in Multilateral Framework on Labor Migration and in OSCE-IOM-ILO Handbook on Establishing Effective Labor Migration Policies which calls for incentives to promote remittances transfer and to suggest measures to increase remittance flows through formal channels.

Domestic Workers in Destination Countries

Domestic work is considered the most vulnerable job due to its isolation (different from a regular workplace) and most domestic workers are female. There continues to be many reported and unreported cases of forced labor and abusive treatment of Cambodian migrant workers, such as excessive working hours, withholding of wages and salaries, food deprivation and physical and sexual abuse (Human Rights Watch, 2011). Malaysia is host to the largest number of Cambodian domestic workers. The two countries signed a MOU in 2009 following a temporary moratorium imposed by Indonesia after many reports of abuses on Indonesian workers. The number of visas granted to Cambodian workers increased from 5,304 in 2008 to 12,682 in 2009 and which increased dramatically to 20,909 between January and August 2011, of whom 18,038 (86%) were domestic workers (Human Rights Watch World Report, 2011). In 2011, a series of abuses on Cambodian domestic workers were reported and the government of Cambodia responded by imposing moratorium on domestic workers to Malaysia in October 2011. After negotiation between the two governments, Cambodia lifted its ban on sending domestic workers in 2015. In spite of this, the country has not sent any domestic workers at the writing of this paper.

Cambodian domestic workers have no access to proper protections from Malaysian government due to problems with Malaysia's Employment Act of 1955 which needs to be amended to ensure this. Under this Employment Act, a domestic worker is defined as "domestic servants" and they are excluded from important labor protections, such as restricted working hours, a weekly day off, overtime wages, annual leave, and maternity protections (Human Rights Watch World Report, 2011). The Malaysian government amended Anti-Trafficking in Persons Act of 2007 as it was concerned about trafficking of labor who are either forced into prostitution or function as modern day slaves. The amendment was in line with the government's ratification of ILO Convention No. 189 on Domestic Workers (2011).

Cambodia also signed MOUs and inked bilateral agreements on domestic workers with Singapore, Saudi Arabia, and Hong Kong, where abusive treatment of foreign domestic workers has been repeatedly reported. Cambodia sent its first 111 domestic workers to Singapore in 2013 as a part of pilot program followed by another 400 in 2015. Another 14 domestic workers were sent to Hong Kong in December 2017 under the bilateral agreement between the two countries. The agreement between the two countries was despite a report released in 2016 by Justice Center that found one out of six foreign maids in Hong Kong were subject to forced labor. In 2016, Cambodia signed a MOU with Saudi Arabia to send both domestic and general workers. The country has been criticized for failing to protect domestic workers from abysmal treatment and slave-like conditions.

Regulation on Private Recruitment Agencies

Since Private Recruitment Agencies (PRAs) are involved directly with migrant workers, especially in recruitment process, the government has to manage them carefully. Some of the PRAs were taken to task for cheating migrant workers who were falsely promised jobs, charging exorbitant recruitment fees, and for physically abusing the workers during training. The government of Cambodia adopted a sub-decree concerning the management of PRAs in 2011 in order to protect migrant workers from being abused. The sub-decree specifies the requirements for recruitment agencies to become legal agencies and defines the framework of cooperation between the MOLVT and recruitment agencies. The recruitment agencies can apply for license from MOLVT and can be unlicensed anytime if they violate the regulation. In order to become a legal private recruitment agency, the agency must make a security deposit of USD 100,000, report its activities regularly and have a representative in any destination country (Testaverde et al., 2017). Cambodia also enforced its regulation on recruitment agencies by carrying out a close inspection of private recruitment agencies every two years and imposing sanction on any recruitment agencies that violate the regulation. As at December 2017, there were 85 private licensed recruitment agencies (there were 18 agencies in 2008) in the kingdom.

However, it is important for the government to continue to monitor private recruitment agencies and revisit the Sub-Decree to improve it. The sub decree has certain glaring weaknesses, such as no legal restriction on the fees that can be charged by recruitment agencies, no minimum capital, no employer accreditation nor pre-departure orientation are mentioned in the sub-decree, and the government has not ratified the ILO convention No. 181 on Private Employment Agencies (1997).

Conceptual framework

The conceptual framework of our study is constructed based on the findings of Jawaid and Raza (2016) who applied the Cobb-Douglas Production functions. The function can be expressed as:

$$Y = f(A, L, K) \quad (1)$$

In this equation, L represents the labor or human capital; K stands for the stock physical capital; A is any productive factors for economic growth, and Y is output.

For the purpose of this study, it is also plausible to assume that:

$$A = g(REM) \quad (2)$$

Therefore, by substituting (2) into (1), equation (1) becomes:

$$Y = f(REM, L, K) \quad (3)$$

Equation (3), for estimation, can be written as a linear equation as follows:

$$GDP = \beta_0 + \beta_1 REM + \beta_2 TLF + \beta_3 GCN \quad (4)$$

Here, TLF is total labor force, REM is remittances, and GCN is gross capital formation.

Data and Methodology

The study was aimed at examining the impact of remittances on economic growth of Cambodia. In order to achieve that objective, data from the following was analyzed: annual time series data such as Gross Domestic Product (GDP), Remittances, Net Official Development Assistant (ODAN) and Domestic Credit to Private Sector (DCP) from the website of World Development Indicators (WDI) with a total number of 24 observations covering the period 1993 to 2016. All variables were converted into log form. Nominal GDP was used as dependent variables while the rest were used as independent variables. Since Cambodia is a highly dollarized economy where foreign currencies, especially US dollars, are widely used, all variables are measured in USD rather than local currency.

The nexus between remittances and economic growth was estimated by adopting Fagerheim's (2015) framework which used remittance as a share of GDP (REMP) as an independent variable. The empirical model is extended by adding three controlled variables, such as official development assistance, credit to private sector and capital formation, to test if outcomes would change. These three variables were added to confirm the outcomes as per Ronald (2013), who analyzed the same controlled variables. The extended model is expressed as follows:

$$GDP_t = \beta_0 + \beta_1 REMP_t + \beta_2 ODANP_t + \beta_3 DCP_t + \beta_4 GCN_t + \varepsilon_t \quad (5)$$

where,

GDP_t = Gross Domestic Product

$REMP_t$ = Remittances as a share of GDP

$ODANP_t$ = Net Official Development Assistance

DCP_t = Domestic Credit to Private Sector as a share of GDP

GCN_t = Gross Capital Formation

ε_t = error term

All data series are transformed into log. By transforming variables into log, all slope coefficients will be interpreted as elasticity, that is, the percentage change in dependent variable with respect to the independent variable. An advantage of elasticity is that it could help free the model from the problem of serial correlation.

Thus, equation (5) can be expressed as follows:

$$LGDP_t = \beta_0 + \beta_1 LREMP_t + \beta_2 LODAN_t + \beta_3 LDCP_t + \beta_4 LGCN_t + \varepsilon_t \quad (6)$$

First, Ordinary Least Square (OLS) regression is adopted to see if there is any effect of remittances on GDP. Fagerheim (2015) used REMP merely as an independent variable and GDP as dependent variable and seven ASEAN countries, namely Cambodia, Indonesia, Laos Malaysia, the Philippines, Thailand and Vietnam, as dummy variables. Since this study focuses on only one country, we do not include dummy variables. Among all seven ASEAN countries, the study found positive significant impact of remittance on economic growth only in Cambodia and the Philippines. Therefore, in this study, the coefficient of remittance is expected to be positively significant.

Finally, before equation (6) is estimated, it will be predicted without variable GCN as we are doubt that the variable is highly correlated with variable ODAN and DCP.

After estimating the models, a diagnostic test will be performed to detect the problems of multicollinearity, serial correlation, heteroscedasticity, and normally distribution to avoid meaningless outcomes. In this study, Variance Inflation Factor (VIF) will be used to detect multicollinearity, LM test will be employed to check for the problem of serial correlation while Breusch-Pagan-Godfrey and Jaque-Bera test will be used to detect the problem of heteroscedasticity and normally distribution of error term respectively.

Results

In order to examine the effect of remittances on Cambodia's economic growth, Ordinary Least Square (OLS) method were employed. The study will estimate three regression models with the same LGDP as dependent variable. First, the model will be estimated with only REMP as independent. Second, it will be estimated with REMP along with two controlled variables, such as LODAN and LDCP. Finally, the third model will be estimated with all independent variables in model 2 with another controlled variable LGCN. We decide to add LGCN in the last model because the correlations between this variable with other independent variables are quite high, which might lead to meaningless outcomes.

Table 1: Determinants of Cambodian Economic Growth (dependent variable: log GDP)

Explanatory Variables	Model 1	Model 2	Model 3
LREMP	0.338 (0.128)**	0.118 (0.036)***	0.074 (0.019)***
LODAN	-	0.782 (0.106)***	0.167 (0.099)
LDCP	-	0.668 (0.108)***	0.154 (0.089)
LGCN	-	-	0.482 (0.065)***
Number of observations	24	24	24
Prob>F	0.015	0.000	0.000
R-squared	0.240	0.954	0.9881

Note: Robust standard errors in parentheses. *** significant at 1%, ** significant at 5%.

Source: Authors' computations.

The diagnostic tests are also performed to avoid meaningless results.

Table 2: Diagnostic tests

Diagnostic tests	Model 1	Model 2	Model 3
Multicollinearity (Mean VIF)	1.00	1.89	7.68
Serial Correlation	20.57 (0.000)*	0.591 (0.442)	2.385 (0.122)
Heteroscedasticity	0.68 (0.410)	2.95 (0.085)	2.28 (0.13)
Normality	1.99 (0.369)	0.836	1.22 (0.543)

Note: value in parenthesis is *p*-value; * rejection of null hypothesis at 1% significant level

Source: Author's computations.

Discussion

The outcomes in Table 1 show remittances as percentage of GDP in all models have a positive significant impact on Cambodia's GDP growth. In model 1, the coefficient of LREMP is 0.338, meaning that an increase as percentage in GDP in 1% of remittances will lead to an increase economic growth by 0.338%. The outcome is consistent with Fagerheim (2015), which found a positive and significant coefficient of 0.307. However, the outcomes show similar results when the models are extended by adding more controlled variables into model 2 and model 3. The outcomes from model 2 after adding variables LODAN and LDCP show similar results with remittances still having a positive and significant effect on economic growth. As for model 3, the results seem to be consistent with Ronald (2013), who used similar independent variables (LREMP, LODAN, LGCN and LDCP) and 28 observations from 1982 to 2010. He further found positive significant impact of remittances and capital formation on Guyana's economy with coefficient of 0.03 and 0.689 respectively, and found negative impact of official development aid and domestic credit to private sector, but they were insignificant at 5% significant level. Our findings is in line with Ronald (2013) in the sense that it was found remittances and capital have a positive and significant effect on growth while official development aid and domestic credit to private sector have an insignificant effect on growth.

Although the estimations from all models provide desirable outcomes, the models appear not to fully pass the diagnostic test. Among all models, model 2 is found to be free from all diagnostic problems with *p*-value at more than 5% significant level, meaning it has failed to reject the null hypothesis of no serial correlation, constant variance and normally distribution; with VIF less than 2, the model 2 is free from multicollinearity. It is suggested that VIF shouldn't be more than 2.5 to be free from multicollinearity (Williams, 2015). However, model 1 passes all diagnostic problems, except for serial correlation with *p*-value less than 5% significant level, while model 3 is free from all problems, except for multicollinearity with a high VIF of 7.68. Model 3 suffers from multicollinearity because of high correlation between LGCN and LODAN and LDCP. Based on the diagnostic tests, model 2 has been proven to be the best model to capture the effect of remittances since it uses more independent variables. Additionally, model 2 doesn't suffer from multicollinearity as model 3, and it will keep the number of degree of freedom high in the model, while model 3 will shorten it.

The findings of this study look to contradict those that examined Cambodia's Migration Policy 2010-15 and Deelen and Vasuprasat (2010). In 2010, the government adopted the Policy on Labor Migration for Cambodia, highlighting three main objectives: governance of migration, promoting and protecting migrant workers, and harnessing migration for development. However, results of the policy showed only 21% reached the target, 43% were showing signs of progress, and the rest showed no signs of reaching their target. The objective of "harnessing

labor migration for development” only reached 7% of its target, while 41% of the activities showed signs of progress while the rest didn’t reach their target. Deelen and Vasuprasat (2010) found that recipient households in Cambodia lacked opportunity and capacity to invest their remittances productively. Large sums of remitted money were spent on daily needs rather than on education, agriculture or business which added to only 16% of the total remitted money. Their study also found that 14% of remittances were spent on health care, while 10% were spent on paying debt. However, results from multiple regression models of the present study suggest remittances have a significant positive impact on economic growth. Although these outcomes appear to contradict the results of evaluation of policy and the study of Deelen and Vasuprasat (2010), it should be noted that majority of those whose family members work in other countries, are indebted to financial institutions, such as banks and MFIs. Therefore, not all remittances have been used for personal consumption and for starting small businesses as a big portion of those went to the financial institutions for repayment. Those repayments will be, in turn, used by others for productive activities. Those remittances otherwise would have been unproductive as rural Cambodians are still keeping their savings under their pillows or mattresses, which is their usual practice.

Policy recommendations and Conclusion

Cambodia’s labor migration is an important national issue as millions of Cambodians work in high-income countries, contributing hundreds of millions of USD in remittances, accounting for 3% of the country’s GDP. Hence, the country needs an effective migration management in order to promote and protect the rights of its migrant workers, and to harness migration and remittances effectively. The Policy on Labor Migration for Cambodia 2010-15 had three main objectives: governance of migration, promoting and protecting migrant workers, and harnessing migration for development, which had 79 activities in its action plan. However, the overall evaluation results of the policy showed only 21% of its activities attained its target. Individually, the third objective “Harnessing labor migration for development” achieved only 7% of its target. The government has prioritized its third objective by adopting another labor migration policy called Policy on Labor Migration for Cambodia for 2015-18. Empirical results from the study’s multiple regression models indicate positive effect of remittances on economic growth. As discussed, being in debt is a primary reason for Cambodian migrant workers to migrate. Therefore, not all remittances are being used for personal consumption and in starting small business by family members in country of origin. A portion of it is also repayment to financial institutions which are channeled into productive activities. The outcomes of this study and its policy evaluations suggest the government should prioritize labor migration and harness its potential as the remittances are important for domestic development whereby recipient family members are encouraged to invest their money in productive activities. Additionally, the Cambodian central bank should encourage its financial institutions to offer low interest rate for people who want to borrow and invest in business and education.

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