

Effects of Remittances on Household Poverty and Inequality in Cambodia

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Abstract

We use representative national data from the Cambodia Socio-Economic Survey in 2014 to investigate the impact of remittances on poverty and inequality. Unlike other studies that use income to measure poverty, we employ monthly per capita consumption data. We also consider remittances as a substitute income rather than an exogenous transfer. Therefore, imputing counterfactual expenditure in a scenario of no migration and no-remittances is necessary. To test for selection, a Heckman Two-Step estimation is required under the null hypothesis that non-recipient households are randomly drawn from the population. However, we find no significant effect of selection bias but strong evidence that remittances reduce the poverty rate by 0.6 on the national level or 1.6 percent for recipient households. In addition, remittances decrease the poverty gap by 6.8 percent or 17 percent for a sub-sample of recipient households, but they also increase inequality by 2 percent, as measured by the GINI coefficient. Although remittances-recipient households tend to be better-off, the finding reinforces our idea that remittances may exacerbate inequality between households from different social groups in the long run if such a circumstance prevails.

keywords: Impact, Family, Consumption, Expenditure, Income Distribution.

1. Introduction

Following a period of stagnation during the recent Global Financial Crisis, there has been a significant growth in the absolute number of migration phenomena worldwide and thereby an increase in funds remitted to countries in the developing world, especially in Asia (United Nations, 2017). Decisions to migrate and the subsequent inflow of remittances have the potential to play a crucial role in the development of low- and middle-income countries on both macro and micro levels, even if such remittances are merely used for consumption purposes (Acosta et al., 2007; Brown & Jimenez-Soto, 2015). In relation to remittances, the immediate direct benefit is to increase household income and consumption, but remittances also have an indirect influence on household income risk (Lucas & Stark, 1985) and household production/investment decisions (Stark & Levhari, 1982). Remittances may, moreover, act as an insurance and reduce risk-

averseness for low-income households who are then more willing to resort to riskier investments or agricultural activities with higher potential returns (Brown & Jimenez, 2008; Stark & Bloom, 1985).

Remittances generally constitute between 30 to 40 percent of household income in the Global South (Adams, 2011). It is in this context that the economic advantages of such money have increasingly caught the attention of governments of countries of origin of migration. Findings from the empirical literature on the impact of remittances on households suggest that in most contexts remittances contribute to poverty alleviation. Using macroeconomic data from 71 developing countries, Adams & Page (2005) found that a 10% increase in per capita international remittances leads to a 3.5% decline in the share of people living in poverty. In Nepal, it is estimated that one-fifth of the poverty reduction that occurred between 1995-2004 was attributed to labor migration and remittances inflow (Lokshin et al., 2010). However, in some instances, remittances are also found to have negatively impacted poverty and inequality (Adams, 2011; Brown & Jimenez-Soto, 2015 and references therein). It is worth noting that among the aforementioned studies, some, particularly those conducted during earlier migration waves, such as Barham & Boucher (1998), Brown & Jimenez (2008), and Rodriguez (1998), do not attempt to account for selection bias and/or opportunity cost of migration – that is, what household income would have been like had migrants decided to stay instead of migrating. These challenges may affect their estimations, so their findings have to be interpreted with caution.

When remittances are considered as purely exogenous extra household income, it is assumed that there can be no negative impacts on various household indicators. However, if we treat remittances as a substitute for the missing migrants and their pre-migration income contribution, a household can actually be in a more disadvantageous position if remittances are less than what migrants would have earned had migration not occurred. Cases like this are not rare and have been observed in some Latin American countries (Acosta et al., 2008; Brown & Jimenez-Soto, 2015). In addition, it is arguable whether remittances help reduce poverty, for a migration journey, especially an international one, is generally expensive and hence affordable only by those from relatively well-off families rather than really impoverished peasants. Therefore, remittances may not flow toward the poorest. On the contrary, they may increase inequality since richer households tend to have better access to migration. Nevertheless, some research suggests that inequality may fade away over time as a larger portion of the population is able to migrate due to lower costs (McKenzie & Rapoport, 2007), and others also argue that the indirect influence of remittances on other household earnings and agricultural activities will redistribute income in migrant-sending areas in the long term (Taylor, 1992).

This paper investigates the impact of remittances on household poverty headcount, the poverty gap, and income distribution in one developing country,

Cambodia. It represents a good case study on account of a few key factors. Cambodia has been an example of a post-conflict (1970-99) economic success, with annual growth rate of more than 7 percent for over two decades (World Bank, 2014). Following the end of a civil war, three quarters of the Cambodian population lived without basic consumption, yet since then extreme poverty has dramatically decreased, and in 2014, only 13 percent are still impoverished (World Bank, 2019). The country has also experienced one of highest rural-urban migration rates, which has resulted in a population boom within the capital city, Phnom Penh (Zimmer & Van Natta, 2018). Furthermore, international migration to neighboring Thailand is increasing at a remarkable pace despite the fact that Cambodia is a relative newcomer to experiencing this global phenomenon (Ministry of Labour & ILO, 2014).

It is thus fascinating to evaluate the causal relationship between remittances from both origins (internal and international) and poverty to understand to what extent migration has played a role in poverty reduction. To do so, we use the Cambodia Socio-Economic Survey in 2014, which allows us to distinguish between internal/domestic and international remittances, so that in turn we can delve deeper to learn the impact of remittances on a sub-sample of households instead of only on the national level. The survey is nationally representative, comprising a large sample of 12,000 households selected from both urban and rural areas across all 25 provinces. Our choice of using a household rather than an individual as unit of analysis follows Stark & Bloom's (1985) seminal work, famously known as the New Economics of Labor Migration, which argues that individual selection into migration and the decision to earn remittances is made collectively at the household level because such income is used by the household to improve all of its members' general well-being, directly and indirectly, rather than just benefiting migrants themselves.

Besides focusing on a sub-sample of households, another important contribution of this paper is that we employ monthly per capita consumption to measure poverty rather than using income, as has been done conventionally by other studies. In addition, we recognize two challenges in our estimation. First, remittances are the substitute for migrants' pre-migration income, in which case a hypothetical counterfactual scenario of no migration and no remittances needs to be imputed and compared with the actual scenario. Second, there can be a self-selection that has to be addressed in our empirical model. That is, the probability of receiving remittances can be biased toward richer families or households with better-educated members, as they have more possibilities to afford migration costs compared to their poorer counterparts. And as the human capital model in migration suggests, those who have higher education and skills and therefore expect to earn higher income at the destination, tend to be selected as the ones to migrate (De Vreyer et al., 2009; Kaestner & Malamud, 2013; Todaro, 1969). Consequently, remittances may increase existing inequality rather than reducing it as we would have expected..

2. *New Economics of Labor Migration*

Most empirical studies in remittances research are more or less based on a theory called the New Economics of Labor Migration (NELM), which extensively investigates the determinants and consequences of migration in less developed countries, where the vast majority of migrants come from rural agricultural households. It was pioneered in the 1980s by Lucas & Stark (1985) and Stark & Bloom (1985) to challenge the main assumptions of neoclassical economic concept that migration choice is made by isolated individuals. In contrast, NELM argues that the household or family rather than a single person is the main actor in migration decision-making and that remittances are the most obvious, central, and direct outcome of an implicit contract between households and migrants. To put it another way, the decisions to migrate and determining who is to migrate are made collectively within a household that wants to diversify sources of income to minimize agricultural hazards (ibid). Thus, migration is not necessarily a method to maximize household earnings but rather a risk-sharing approach, and thus wage differential is not always a motive for migration, and migration does not necessarily stop even when the wage gap is eliminated.

In many developing countries (imperfect market), where poor families are mainly those in rural areas practicing cultivation as a main source of income, migration is seen as a strategy to guarantee household survival and smooth consumption over time. The crucial insight is that households can maintain the same level of their utilities only as long as their income is steady, but the risk of income shock for rural households is high in agrarian countries, where banking and insurance systems are underdeveloped and usually impose a limit on the amount farmers can borrow. To cope with natural calamities and liquidity constraints, households have to carve out a backup plan to sustain their level of consumption and manage risks. One such plan is to allocate family labor to pursue different income-generating activities. While some members may be assigned to local economic activities such as harvesting or running a small family business, others may be chosen and financed to migrate. But migration is costly, so a household tends to wisely select members with the highest human capital (education, skills, or experience) since they are more likely to succeed in what can be a risky venture, which in turn will allow the household to gain the most from its investment (Stark & Taylor, 1989).

In developed countries, risks to household income such as harvest failure or crop price fluctuation are normally kept at a minimum by governmental programs or affordable insurance policies that insure against future loss of crops, a new technology backfire, or a sudden drop of market price (Massey et al., 1993). But when these guarantees are not available or accessible due to high cost, households need to resort to self-insurance through international migration. Consequently, a flow of remittances can also reduce risk-averseness for very

poor families and motivate them to adopt a riskier agricultural investment or new production technology with higher potential returns, which they would not have done if they had not had access to migration (or insurance) (Brown & Jimenez, 2008). For example, some Mexican farmers who own a large amount of land but lack the money to invest in it migrate to the United States just to generate capital for their economic activities, which in turn improves their agricultural income and household welfare (Castles et al., 2014).

Some households may also want to increase their assets, improve consumption, or make additional investment in their children's education due to perceived higher returns to schooling, but, given budget constraints, they cannot simply increase a particular kind of consumption and hold the others constant unless there is a surge in family earning. A possible and attractive way for households to positively alter their income in the absence of banking and a credit loan system would be to send members away for higher-paying employment in another place (Stark & Bloom, 1985). Mutual assistance and support within households and decisions to allocate resources and secure subsistence for all members make households themselves the most relevant unit of analysis. However, the NELM entirely ignores intra-household differences such as age and gender of individuals and generational conflicts of interest.

Another important proposition of NELM is that households have significant motivation to send members away to not only increase their absolute income but to also improve their relative income in comparison with other households in the community and thus reduce relative deprivation and inequality (Stark & Taylor, 1989, 1991). To put it another way, internal and international migration is motivated by a household's desire to improve its comparative economic position with respect to relevant reference-group income distribution, say, that of other households in the village. But NELM also suggests that the role of relative deprivation may work quite differently for internal and international migration due to continuities of social and cultural homogeneity within and across national borders. However, it generally acknowledges that the propensity for sending migrants and receiving remittances is higher for more relatively deprived households (those at the bottom of income distribution) than their less relatively deprived counterparts, as the former have a stronger feeling of relative deprivation in the community.

As a result of households' intention to improve their social rank through migration, remittances are said to favorably affect income distribution and increase demand for consumption of goods and services by poor families. Nevertheless, in two Mexican villages it was found that the impact of remittances on rural inequality depends critically on the return to migrants' human capital and that it is the middle-income groups and not the poorest ones in the village that possess better schooling/skills and ability to afford migration (Stark et al., 1988). In another study using Mexican data, Stark et al. (1986) assert that

internal remittances are largely a result of the return to education, rather than other components that lead to migration or characteristics of migrants, which is also highly associated with household income (the positive correlation between education and income is intuitive and can be seen in daily life). Therefore, the impact of migrant remittances on income distribution and inequality among households in the village stems mostly from the distribution of human capital across households (ibid). In short, human capital mainly explains inequality, and hence its importance is highlighted.

3. Poverty Measurement in Cambodia

Before going further into a description of the data and the econometric method used in this paper, it is necessary to understand how poverty is defined and computed in Cambodia because this indicator and its measurement are also used in our empirical analysis. But it is worth noting that although the poverty headcount ratio in Cambodia was first estimated in 1997, it was not until 2004 that a more reliable and standardized methodology was employed. The civil war and Pol Pot's genocidal regime (1975-79), which left millions of people dead and the country's socioeconomic infrastructure completely in ruins, are the main reasons why the poverty level had never been measured.

"Extreme poverty" is officially measured as a lack of enough money to spend per day on food that provides 2,200 kilocalories (defined by the Reference Food Basket) and non-food items in order to attain basic necessities regardless of age and gender. The latest method to calculate the poverty line was updated in 2011 and was used by the Ministry of Planning to carry out work in parallel with the World Bank in order to compare results. The outcomes from both studies are very similar, so this paper will use the latest 2011 World Bank poverty line for Cambodia (World Bank, 2014). Cambodia's poverty line is not, however, internationally comparable, as it is not measured at Purchasing Power Parity values. Table 1 shows the national poverty line and poverty rate for three different areas in Cambodia in 2009 and 2011. As will be seen, Phnom Penh had a different poverty line and a much smaller poverty headcount in 2011 than did other urban regions in the country, which justifies its exclusion from the data analysis discussed in section 4.

Table 1 - National Poverty Line and the Poverty Rate in 2009 and 2011

Region	Poverty Line (KHR)		Food Poverty Rate (%)		Total Poverty Rate (%)	
	2009	2011	2009	2011	2009	2011
Phnom Penh (capital)	6,347	6,014	0.3	0	12.8	1.53
Other Urban Areas	4,352	4,828	2.0	3.75	19.3	16.1
Rural Areas	3,503	4,422	5.1	4.38	24.6	23.72

Source: Ministry of Planning, 2013; World Bank, 2014.

It should be emphasized that rather than employing per capita income to determine who is living below the poverty line, which is generally done by other research studies, the Cambodian government (and our paper) use monthly per capita household expenditure for certain types of goods and services that are considered as basic consumption items. Thus, some expenditures, particularly those for purchasing durable goods, are for the most part not taken into account when calculating poverty headcount because they are deemed not “basic.” But there are reasons why using expenditure is better than using income. First, income fluctuates frequently especially in developing countries, where many people still earn a living through agriculture and small family businesses, hence the variance in income is often quite larger than that of expenditure. Second, income is more difficult to measure due to challenges in calculating some types of income deriving from agriculture and self-employment. Third, people are more likely to use saving to smooth their consumption over time when they face financial problems. Therefore, expenditure is more accurate in providing a picture of household welfare. Fourth, expenditure is less susceptible to classic measurement error and bias because people tend to underreport their income for various reasons.

To calculate household expenditure per capita, we follow official procedure by summing up the value of three different types of basic household consumption and dividing it by the number of household members. Basic consumption comprises food expenditure (22 food groupings) and non-food expenditure (medical care, education, transportation, communication, personal care products, clothing, recreation, gambling, etc. but excluding durable goods) as well as housing expenditure (water, sanitation, garbage disposal, energy, house rent if an actual expense incurred, and house maintenance and minor repairs,

excluding major construction). For those who own a house, imputed depreciation values of consumer durables are not taken into account, as the method was deemed unsuitable for Cambodia, where there is a large non-monetized sector, and many items are not fungible (Ministry of Planning, 2013).

All types of consumption of goods, both purchased and self-produced, are represented in Khmer Riel (KHR), the local currency. However, some types of expenditure are reported for different time periods, namely, the previous 7 days (food and beverage), the previous month (transport, communication, health, etc.), or the previous 12 months (recreation, education, gambling, etc.). Therefore, we need to convert the data into one-month units by considering that a month has 30.4375 days, which is the Cambodian standard. In addition, we assume that, on average, households spend the same amount of money on food over time. In other words, to calculate food expenditure in a month, we divide the amount of food consumption in the last 7 days by 7 and multiply by 30.4375. For expenses that are recorded for the previous 12 months, we simply divide the result by 12 to get monthly average consumption. Housing expense is reported for the previous month, so a simple addition is sufficient.

4. Data and Sample Description

Data used in this study derives from the nationally representative Cambodia Socio-Economic Survey (CSES) conducted by the National Institute of Statistics from January to December 2014. This timeframe was designed to ensure that the survey would be implemented during the whole year, so as to provide a full picture of annual living conditions of Cambodians, particularly those in rural areas practicing seasonal agriculture. The government uses this information to monitor the National Strategic Development Plan and the country's progression toward the UN's Sustainable Development Goals. The CSES contains rich and comprehensive data covering a wide range of information on individuals and households, including current members' general characteristics, household size and structure, household sources of income and expenses in the previous 12 months, and household assets. Statistics are also collected on the recent economic situation of the village, which is the smallest administrative unit in the country.

It should be emphasized that the 2014 CSES collects no data on individual migrants (whether they are remitters or non-remitters) such as age, gender, education, or their current whereabouts. Instead, the total remittances from local sources or from abroad are recorded at the household level. Therefore, we are

unable to learn who has sent what. In other words, we do not know whether migrants are distant relatives or just friends, whether the amounts of remittances differ greatly among migrants with different characteristics, or how many migrants the household has. Ignoring migrant characteristics is the main weakness of the survey and of the NELM, which considers household a more important and relevant entity as well as a unit of analysis. In-kind transfers (given as imputed value) are also excluded from data analysis due to lack of information in the survey on what types of goods are sent and why or how households obtained them. It is possible that migrants send back remittances in the form of in-kind transfers because such goods may not be available domestically for consumption. But it is quite impossible to determine if such transfers are really remittances in-kind sent by migrants or merely gifts sent to households by random people for other purposes. Moreover, certain types of goods are not officially considered as basic consumption items for the purposes of poverty calculation.

The original CSES dataset comprises a sample of roughly 12,000 households in both rural and urban regions across all 25 provinces of Cambodia, including the capital, but some households do not provide the complete information that we need, while others are extreme outliers in terms of consumption or receiving remittances. As a result, we have to remove them from the analysis. As mentioned before, we also exclude samples from the capital city of Phnom Penh since it is not a receiving point for migrant remittances but rather a destination for rural-urban sojourners. In addition, the standard of living in Phnom Penh is very different from the rest of Cambodia, so incorporating it would unnecessarily influence our estimation. Ultimately, our study uses sample of 9,791 households, of which 3,611 or 36.9 percent received some kind of remittances in the previous 12 months (2,961 received internal remittances, 486 received international remittances, and 164 received remittances from both sources).

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Table 1 - Summary Data on Non-Recipient and Recipient Households

VARIABLES	Non-Recipient Household (N=6,180)		Recipient Household (N=3,611)		Mean Test
	Mean	SD	Mean	SD	
Total Household Expenditure (USD)	310.7	192.7	280.6	181.2	***
Expenditure Per capita (USD)	72.59	43.42	71.70	41.93	-
Domestic Remittances (USD)	-	-	230.3	435.5	-
International Remittances (USD)	-	-	1,276	2,063	-
Household Head Age	43.64	12.72	53.96	13.86	***
Household Head is Male	0.833	0.373	0.685	0.465	***
Household Head is Married	0.847	0.360	0.666	0.472	***
Household Head Education	5.106	3.926	4.006	3.565	***
# of Children Under 6 Years Old	0.553	0.710	0.416	0.647	***
# of Adolescent (6-14 Years Old)	0.912	0.993	0.673	0.895	***
# of Adult without Education	0.597	0.886	0.731	0.883	***
# of Adult with Primary Education	1.195	1.094	1.278	1.104	***
# of Adult with Secondary Education	1.182	1.218	1.052	1.192	***
# of Adult with Tertiary Education	0.128	0.455	0.107	0.417	**
Distance to District Headquarter (km)	12.08	13.39	12.25	14.52	-
Distance to Provincial Headquarter (km)	36.14	29.83	34.57	26.92	***
Village Agricultural Land (ha)	384.2	658.9	381.1	623.4	-
Urban	0.192	0.394	0.181	0.385	-
% of Out-Migrants	25.66	12.04	27.57	12.47	***

Note: *** significant at 1%; ** significant at 5%; "-" not significant

Source: Author.

Table 2 presents in more detail summary data on non-remittance-recipient and remittance-recipient households from the 2014 CSES. For the sake of international comparison, we turn all monetary values from local currency into United States Dollar (USD) equivalents at an exchange rate of 4,000 KHR/USD. We also perform the mean-comparison t-test, which offers an interesting insight. It statistically reveals that recipient and non-recipient households systematically differ in terms of their socioeconomic characteristics, indicating that remittances are not allocated randomly to households. But a substantial degree of selectivity may be observable and accounted for if the assumptions of the NELM and the human capital theory hold, in which case controlling for education will significantly capture selection bias. This supposition is our main motivation to include several variables for educational level of household members and household heads.

As for the comparison between recipient and non-recipient households, heads of the former tend to be non-married older females and to be less educated than their peers from non-recipient households. In addition, the latter have more members with higher education and have a greater number of children or adolescents in the family compared to recipient households, who have more less-educated members. These statistics are consistent with the literature on Cambodian migration showing that most migrants are low-skilled, as they mainly come from poor households in rural areas (Jampaklay & Kittisuksathit, 2009; Ministry of Planning, 2012). Borjas (1987) calls this negative selection into migration, but the phenomenon contradicts human capital theory, which asserts that well-educated people are more likely to migrate since they expect higher return to their education at the destination. Nevertheless, migration among the lower skilled supports the NELM assumption that migrants do not necessarily migrate due to expectations of higher income and that highly educated people are unlikely to migrate, for they have more ability to access capital or insurance, unlike those in non-elite groups. It is worth noting that there can also be a case in which recipient households have more low-educated members because their well-educated members have all left, but this is rare due to homogeneity among household members, who tend to have similar socioeconomic characteristics. For example, education levels of husbands and wives and their children are positively correlated since highly educated parents tend to earn a lot and most likely want their children to receive better education.

As for the amounts of expenditure and remittances, generally per capita expenditures of recipient and non-recipient households are not significantly different, and neither is the standard deviation. The smaller total expenditure of remittance-receiving households compared to that of their non-receiving counterparts is more likely a result of bigger average household size of the latter (4.6 vs. 4.3). Nonetheless, if we compare only the amounts from remittances among recipient households, international remittances are 5.5 times larger than those from internal sources, which can be attributed to the relatively much

higher salaries earned by Cambodian migrants who go to countries such as Japan and South Korea. Nevertheless, only 650 households actually received such money, compared to 3,125 households that received internal remittances.

5. Empirical Method

There are a few challenges in estimating the impact of remittances on poverty and inequality since a migration decision and subsequent inflow of remittances can have both direct and indirect effects on household income. A direct effect can be a result of a loss of a certain number of household members who would have contributed some positive income and expenditure to the family had they stayed, while indirect effects are the influence of migrants' absence on other remaining household members' income generating activities and earnings, as suggested by NELM. As a result, remittances cannot be simply treated as exogenous transfers, and we will entirely disregard their substantial influence. Thus, we will consider remittances as a substitute rather than a completely extra income of a recipient household, which would cause us to overestimate their effect, since it is possible that total household income excluding remittances and consumption would be lower relative to that of the pre-migration situation.

To remove both direct and indirect effects of remittances, we will adopt the counterfactual method in the scenario of no migration and no remittances that was initially developed by Adams (1989) in his paper on the impact of remittances in rural Egypt. To determine recipient household expenditure, we can use a simple linear regression based on information of non-recipient households that share similar characteristics. But employing such a method requires some necessary assumptions (Acosta et al., 2007; Rodriguez, 1998). First, in the absence of information on characteristics of migrants, we will suppose that remittances were sent by an adult member whether a household received remittances from either an internal or international source, but we will assume remittances were sent by two adults if a household received such money from both sources. We also need to approximate a migrant's level of education. Based on the conventional assumption made by other studies such as those by Acosta et al. (2008) and Barham & Boucher (1998), we will assume that migrants generally have years of education equal to the average of that observed by their adult household members. A shortcoming of this assumption is that a counterfactual additional adult member will linearly increase expenditure regardless of the initial household size. Second, we have to assume that labor market conditions remain unaffected with or without migration. But in reality, local wages or income may be influenced by the outflow of migrants and the

inflow of remittances (Brown & Jimenez, 2008). For example, employers may increase local wages to attract labors because it is harder to find employees due to out-migration.

The counterfactual method will, however, suffer from selection bias if recipient and non-recipient households significantly differ. Empirically, table 2 also provides evidence that there is a certain degree of selection between non-remittance-receiving and remittance-receiving households. Reviewing recent literature, Adams (2011) suggests that self-selection into migration can be driven by education, ability, or determination of individuals or households, which explain most of the differences in both migration decisions and the earning of remittances. As a result, we will make every attempt to take into account these effects. But a simple comparison between these two types of households still lead to an inconsistent estimation if unobservable characteristics that drive migration and remittances are statistically significant, meaning that a substantial bias cannot be reduced or captured by observed variables. To make sure OLS is effective in predicting counterfactual consumption, first we need to resort to an auxiliary regression to test for self-selection, which will also allow us to correct for bias in the process if there is any.

The supplementary approach is called Heckman's (1979) Two-Step Estimator, in which the first step (1) is to estimate the probability of not receiving remittances using all samples and obtain an inverse Mill's ratio (conventional notation is λ). The second step (2) is a linear model conditional on households that do not receive remittances, but we also include a variable, (λ_i) , in the regression to allow the error term to be independent and identically distributed; hence our estimation will be consistent. The null hypothesis for λ is that non-recipient households are randomly drawn from a population, and if we fail to reject it, we do not need to correct for selection bias, as such bias will be small and therefore negligible. Thus, imputing expenditure for remittance-receiving households under the condition that migration had not occurred can be done using just OLS. Otherwise, controlling for λ is indispensable. Heckman's Two-Step method can be best understood using the econometric specifications as follows:

$$\text{Prob(NoRem)} = \delta_0 + \gamma_1 X_i + \gamma_2 H_i + \gamma_3 C_i + \gamma_3 Z + u_i, \quad u \sim N(0, 1) \quad (1)$$

$$Y = \alpha_0 + \beta_1 X_i + \beta_2 H_i + \beta_3 C_i + \beta_\lambda \lambda_i + \varepsilon_i, \quad \varepsilon \sim N(0, \sigma) \quad (2)$$

Where subscript i indexes individual household; Y is monthly per capita household expenditure excluding remittances; X is a vector of household head general characteristics such as age, gender, marital status, and education; H is a set of household characteristics, namely, household asset-based wealth quintile

that is calculated using Principal Component Analysis, number of children under 6 years old, number of adolescent (6-14 years old) and number of adults (15+ years old) with primary, secondary, tertiary, and no education, the rationales for including which lie in the NELM; C is a vector of village characteristics including distance to district and provincial capital, a dummy variable for urban region, a dummy for each province, and a log amount of agricultural land in village. These variables capture the structure of the village economy. For example, if a village has large amount of agricultural land in use, its economy depends mainly on cultivation, signifying that it is a poor area. Distance to the district and provincial capital also indicates the remoteness of a village and its development level, which are associated with income, consumption, and migration. λ is the selection inverse Mill's ratio that we obtain from equation (1) using formula

$$\lambda_i = \frac{\phi(\delta_0 + \gamma_1 X_i + \gamma_2 H_i + \gamma_3 C_i + \gamma_3 Z_c)}{1 - \Phi(\delta_0 + \gamma_1 X_i + \gamma_2 H_i + \gamma_3 C_i + \gamma_3 Z_c)}$$

u and ε are error terms and may be correlated with one another.

Identification of equation (1) requires imposing an exclusion restriction (Cameron & Trivedi, 2005), denoted by Z . That is to say, we need to have at least a variable that will only appear in equation (1) and that is strongly correlated with remittances but that has no significant direct relationship with consumption of non-receiving households in equation (2). Our choice of variable is the percentage of out-migrants to the total population of the district in 2008. It is computed using information from the 2008 Cambodia census, which was also collected by the National Institute of Statistics. In the literature, the percentage of out-migrants generally represents a migration network that plays a crucial role in the likelihood of future migration and of receiving remittances. This variable has also been used by many other studies on impacts of remittances (Acosta et al., 2007; Hanson & Woodruff, 2003; McKenzie & Rapoport, 2011). Our assumption is that it does not have any significant direct effect on expenditure of non-remittance-receiving households. The percentage of out-migrants in our data varies a lot, ranging from 3.7 percent to as high as 73 percent, indicating a wide range of variation.

Table 3 demonstrates results from the Heckman Two-Step estimation of per capita consumption of non-remittance-recipient households. We also provide a regression outcome deriving from OLS without correction for bias in model (3). Apparently, most coefficients in model (3) are not largely different from those in model (2), in which we control for self-selection into migration and receiving remittances (λ). The lambda coefficient itself is not statistically significant either,

indicating that selection bias is small and not substantial, probably because we manage to include several educational variables that tend to capture the effects of selectivity. This is not, however, surprising. Some other studies such as Adams (2006) in Guatemala and Barham & Boucher (1998) in Nicaragua have also reached a similar conclusion, namely, that education can be an important factor explaining self-selection. In addition, because most employment populated by Cambodian migrant workers in Phnom Penh and in Thailand are low-skilled jobs (Ministry of Planning, 2012), they are not attractive to members of wealthy families and those who have a high education. Therefore, migration and education are strongly associated. Adams (2006) also finds that including remittances from all kinds of migrants (domestic or international and legal or undocumented), like in our case, will reduce the likelihood that migration is selective with respect to consumption, education, or skills. Consequently, including lambda in the regression is unnecessary since estimated coefficients are still consistent without such correction.

We will now begin to discuss regression outcome by first paying close attention to probit model (1). In practice, we can only observe the direction of a relationship between dependent and independent variables, as the coefficients estimated by probit are not directly interpretable without calculating marginal effect. Most variables have the sign we anticipated, including the percentage of out-migrants to total population in the district, which as the literature has suggested, is strongly correlated with the probability of (not) receiving remittances.

Effects of Remittances on Household Poverty and Inequality in Cambodia

Table 3 - Heckman Two-Step Estimation of Non-Remittances-Recipient Household Per Capita Expenditure

Variables	Heckman Selection Model		OLS (3)
	(1)	(2)	
Household Head is Male	0.0545	2.590	2.043
Household Head Age	-0.0408***	0.747***	0.934***
Household Head Age Squared	0.0000859	-0.0108***	-0.00934***
Household Head is Married	0.233***	3.158	0.515
Household Head Year of Education	-0.000417	0.865***	0.875***
Number of Children Under 6 Years Old	-0.0140	-11.80***	-11.65***
Number of Adolescent (6-14 Years Old)	0.0608***	-8.693***	-9.252***
Number of Adults without Education	0.0112	-7.007***	-7.156***
Number of Adults with Primary Education	0.0224	-6.862***	-7.125***
Number of Adults with Secondary Education	0.0700***	-6.966***	-7.697***
Number of Adults with Tertiary Education	0.0954***	3.784***	2.779**
Household Wealth: Poorest is baseline			
Poorer	-0.000445	8.503***	8.614***
Middle	0.0233	13.96***	13.84***
Richer	0.0234	26.64***	26.50***
Richest	0.203***	54.65***	52.93***
Distance to District Headquarter	-0.00292**	0.0185	0.0441
Distance to Provincial Headquarter	0.00191***	0.0828***	0.0633***
Dummy for Urban	-0.0119	0.792	0.977
Log Village Land	-0.00663	-0.652**	-0.612**
Dummy for Each Province	Yes	Yes	Yes
% of Out-Migrants	-0.00326**	(0.00141)	-
Constant	1.572***	(0.205)	54.05***
Lambda	-	18.73	-
N	9,791	6,180	6,180

Note: Dependent variable in model (1) is the probability of not receiving remittances while it is the monthly per capita household expenditure excluding remittances in model (2) and (3). Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

An examination of the ages of household heads indicates that households with older heads are more likely to earn remittances. A simple reason is that these households tend to have more members of working age, such as children of the head, who can possibly migrate, compared to households that have younger household heads. Also, contrary to the notion hypothesized by human capital theory, education tends to be negatively correlated with migration and thereby receipt of remittances. The number of household members with secondary or tertiary education variable directly suggests that households with additional highly educated members have a higher propensity not to receive remittances. This relationship can simply be attributed to the fact that those with high education tend to earn high income and also come from wealthy households or have advantageous backgrounds. And as mentioned before, most employment taken up by migrant workers is for unskilled positions. Our finding is also similar to that found in many Latin American countries, as documented by Adams (2006) and Acosta et al. (2007).

Similar to what we have expected under the New Economics of Labor Migration, migration is more likely to be experienced by poorer households rather than by the elite. The coefficient for the richest group indicates that they are less likely to receive remittances compared to the baseline, which is entirely understandable, as the former have no need to migrate and earn remittances in order to diversify sources of income, minimize agricultural risks, or provide a risk-sharing approach. The propensity not to receive remittances for other groups is not significantly different from zero, revealing that there is no substantially different tendency to migrate between them and the poorest group. This finding is, however, inconsistent with general views that migration is a costly journey and thus only those from relatively well-off families can afford it. A possible explanation for the inconsistency is that migration in Cambodia is mainly a rural-urban phenomenon, as only a small number of households did receive international remittances (as indicated in the previous section). Therefore, generally, the cost of migration is unlikely to be a major constraint for most households, even for those at the bottom of Cambodian economic pyramid. McKenzie & Rapoport (2007) also assert that when migration is incipient, the journey cost is likely to be high, so migrants are likely to come from richer families. But over time, this cost will diminish due to migration networks, and migration itself becomes more affordable even by those who are relatively worse off.

Moving onto model (2) and (3) concurrently, we see that most of the coefficients have the sign we would normally expect, but some points are also worth mentioning. Different from the result is model (1), the age of household head is positively correlated with expenditure. There are two reasons for this. First, older people tend to spend a lot on healthcare routinely, and second, they tend to have more work experience and thus are in a higher position, all of which stimulate earnings and thereby expenditure. Having a greater number of

children and adolescents, on the other hand, reduces per capita expenditure, which is totally understandable since they do not consume as much as the average adult.

Households having a head or members with high education are more likely to have high consumption, particularly so if such members have a tertiary education, which is not surprising given the current body of literature, thus requiring no further explanation. But with respect to other human capital variables, the direction of the relationship is negative, signifying that the average per capita consumption is much lower than it is for households with university-educated members, probably due to return to education, and those with a university degree may actually earn very much more than those with only a high school diploma. Adams (2006) has also documented this unusual finding and attributed the result to return to education. Regardless of that, combining results from model (1) and (2) suggests that households with better-educated members have a lower probability of receiving remittances but are more likely to have higher consumption due to higher earning power, which in turn curtails the desire to migrate. This could be why the educational factor predominantly explains the differences between recipient and non-recipient households, making lambda insignificant.

6. Impact of Remittances on Poverty and Inequality

Now that we have performed the auxiliary Heckman regression, we are in a position to estimate the impact of remittances on poverty in Cambodia. To impute expenditure for recipient households in the scenario of no migration and no remittances, the estimated coefficients from model (3) are used under the assumptions stated in the previous section. Then, we can proceed to calculate the poverty rate and show what would have prevailed if these households had not had migrating members. Would the poverty level have been higher or lower relative to the actual situation now that they receive remittances? Three basic scenarios are considered. In the first scenario, we treat remittances as a completely exogenous transfer to households. That is to say, we use both observed total expenditure and actual household size (observed number of residents in the household) to calculate the poverty headcount. In the second scenario, we still use observed household size, but we will exclude the amount of remittances from household expenditure. The third scenario is the counterfactual poverty situation in which migrants stayed at home, making household size increase, but households would not receive remittances. In each scenario, sampling weight from the survey is taken into account. In addition, Acosta et al. (2007) suggest extending the analysis by estimating the impact of

remittances on poverty using only a sub-sample of recipient households. His point is that the effect prevailing among such families could be largely different from that on the national level. Their recommendation is also considered.

Table 2 - Impact of Remittances on Poverty Indicators in Three Different Scenarios

Type of Household	Poverty Headcount (%)			Poverty Gap (%)		
	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario
	1	2	3	1	2	3
All Households	8.6	12.4	9.2	16.8	40.4	23.6
Only Recipient Households	8.4	18.9	10.1	16.1	58.4	32.9
Only Recipient Household of Internal Remittances	8.2	15.4	7.7	15.4	35.7	31.8
Only Recipient Household of International Remittances	10.6	40.2	21.5	18.1	98.5	36.5

Source: Author.

Table 4 reports analysis results of the impact of remittances on the poverty headcount and poverty gap in three different scenarios. On the poverty headcount, if we consider remittances as purely exogenous, then remittances would reduce poverty from 12.4 to 8.6 percent, which means there is a poverty reduction of 3.8 percent. However, if we regard them as substitute income, they only lower the poverty headcount from 9.2 percent (a 0.6 percent reduction) – a small decrease. If we only consider recipient households that receive only some types of remittances, the drop is 1.7 percent, but the impact is particularly large for households receiving international remittances, the poverty headcount for which drops almost 11 percent. On the other hand, remittances slightly increase the poverty rate of internal-remittance-recipient families. But a study conducted in Cambodia by Roth & Tiberti (2017), using Propensity Score Matching, found that internal and international remittances in 2009 reduced the poverty rate of recipient households by 3-7 percent. This reduction is a bit larger than what we

found, but this is reasonable because the pace of poverty reduction and impact of remittances itself can possibly become smaller over time, as Cambodian economy grew 7 percent annually between 2009 and 2014.

In an empirical study, Adams (2006) shows that the poverty rate decreased by 1 percent on account of domestic remittances, but international remittances increased the poverty of recipient households by 1.6 percent. Lokshin et al. (2010) additionally assert that remittances reduced poverty in Nepal by 20 percent over a period of 10 years. In another very convincing study using natural experiment, Yang & Martínez (2006) found a 10-percent increase in international remittances would lead to a 2.8 percent decrease in the probability that households would live in poverty. Even though they do not attempt to control for selection bias, Brown & Jimenez (2008) and Jimenez-Soto & Brown (2012) estimate that 9 percent and 30 percent poverty reduction in Fiji and Tonga, respectively, can be attributed to the impact of remittances. The much higher effect in the latter is due to the fact that the Tongan economy relies very much on remittances. However, Acosta et al. (2008) empirically argue that remittances actually increase poverty in Mexico, the Dominican Republic, and Nicaragua. Reviewing empirical studies, however, Adams (2011) finds remittances to have generally decreased poverty by 3-5 percent in the developing world.

In our study, remittances are also found to help reduce the poverty gap, which measures the depth of poverty, or simply how far, on average, the poor are from the poverty line. We find evidence that on the national level, both types of remittances reduce the poverty gap by 6.8 percent (from 23.6 to 16.8). Therefore, the poverty rate has not only decreased, but the poor are also living in a better condition relative to the scenario in which they had not received remittances. The effect is also much higher (roughly 17 percent) if we consider only a sub-sample of recipient households. This number is much larger than that found in Roth & Tiberti (2017), who observe a poverty reduction of only 2 percent on the national level. In Fiji and Tonga, Brown & Jimenez (2008) reveal that the poverty gap declines by 3 and 16 percent, respectively. In Guatemala, the poverty gap is found to drop by 3.6-12.6 percent (Adams, 2006). While most previous studies seem to reach a consensus that remittances reduce the poverty rate and the poverty gap in developing countries, the impact of such money on inequality is less agreed upon.

Table 3 - Impact of Remittances on GINI Coefficient

Type of Household	GINI Coefficient (%)	Type of Household	GINI Coefficient (%)
All Households	27.9 (27.1–28.8)	29 (28.2–30)	25.8 (25–26.6)
Only Recipient Household	27.3 (26.1–28.6)	29.9 (28.7–31.3)	20.2 (19.3–21.1)
Only Recipient Household of Internal Remittances	27 (25.8–28.2)	29 (27.6–30.4)	18.9 (18–19.8)
Only Recipient Household of International Remittances	29.1 (26.9–32)	36 (33.2–39.1)	24.7 (22.8–26.9)

Source: Author.

Table 5 shows the impact of remittances on the GINI coefficient for different scenarios. We also present a bias-corrected confidence interval (at 95 percent) that is computed using a bootstrap procedure that replicates the estimation 1,000 times. In all sample groups, the GINI coefficient indicates that remittances actually worsen inequality. On the national level, inequality increased from 25.8 to 27.9 percent. It is worth noting that the latter number, which is computed using observed consumption figures, is also very close to the World Bank's 2011 estimation of 28.2 percent (World Bank, 2014). But even though there is only a 2 percent rise, among recipient households, the situation is actually worse, as the increase is 7 percent. The finding reinforces our idea that remittances may exacerbate inequality between households from different social groups in the long run if such a circumstance prevails.

However, as observed by Barham & Boucher (1998) and Rodriguez (1998), an increase in inequality may also be caused by artificially reduced variance of expected expenditure of remittance-receiving households, which is based on only observed characteristics of the non-recipient households. In other words, the predicted values are conditional and hence disregard other unobserved attributes that explain the variation in consumption. Therefore, observed

expenditure of non-recipient households is more likely to have higher variability whereas that of the receiving households has lower variability, which may influence our indicators. Nevertheless, some research papers (Adams & Cuecuecha, 2010; Barham & Boucher, 1998; Brown & Jimenez, 2008; Rodriguez, 1998) have reported a similar finding, namely, that remittances severely aggravate inequality. But there are also studies that challenge this conclusion. For example, Adams (2006) finds that remittances have almost no impact while Acosta et al. (2008) discover that remittances reduce inequality.

7. Concluding Remarks

This paper investigates the impact of remittances on poverty and inequality in Cambodia using monthly per capita consumption to measure household welfare and a counterfactual method to impute it in a scenario of no migration, no remittances. We also test for selection bias, and the result shows that non-remittance-recipient households are randomly drawn from the population, thus, such bias is not substantial and negligible. Then, we simply proceed to predict per capita expenditure of remittance-receiving households using OLS. Comparing between households that do or do not receive remittances, we find strong evidence that in 2014 remittances reduced poverty by about 0.6 percent on the national level, but the impact is quite larger (1.6 percent) if we only consider recipient households instead of all households, and it is very large for international remittance-receiving households. But the implication is that these households rely very much on international funds and thus will fall back below the poverty line almost immediately if such money is transferred irregularly. In addition, we discovered that the poverty rate has not only decreased but that the poor are also living in a better condition compared to a scenario in which they received no remittances. Both types of remittances generally decrease the poverty gap by 6.8 or 17 percent for a sub-sample of recipient households. However, they also increase inequality by 2 percent, as measured by the GINI coefficient. This situation may be exacerbated in the long term due to increasing amount of remittances flowing into Cambodia, especially to households that can afford to have migrant workers in South Korea and Japan, as such funds tend to flow toward the middle-income families rather than the poor.

References

- Acosta, P., Calderón, C., Fajnzylber, P., & Lopez, H. (2008). "What is the Impact of International Remittances on Poverty and Inequality in Latin America?", *World Development*, V. 36, N. 1, pp. 89–114.
- Acosta, P., Fajnzylber, P., & Lopez, H. (2007). "The Impact of Remittances on Poverty and Human Capital: Evidence from Latin American Household Surveys.", In C. Özden & M. Schiff (Eds.), *International Migration, Economic Development and Policy*, the World Bank and Palgrave Macmillan, Washington D.C, pp. 59–98.
- Adams Jr, R. H., & Page, J. (2005). "Do international migration and remittances reduce poverty in developing countries?", *World Development*, V. 33, N. 10, pp. 1645–1669.
- Adams, R. H. (1989). "Worker Remittances and Inequality in Rural Egypt.", *Economic Development and Cultural Change*, V. 38, N. 1, pp. 45–71.
- Adams, R. H. (2006). "Remittances, Poverty, and Investment in Guatemala.", In Çaglar Özden & M. Schiff (Eds.), *International Migration, Remittances, and the Brain Drain*, The World Bank and Palgrave Macmillan, Washington D.C, pp. 53–80.
- Adams, R. H. (2011). "Evaluating the Economic Impact of International Remittances On Developing Countries Using Household Surveys: A Literature Review.", *The Journal of Development Studies*, V. 47, N. 6, pp. 809–828.
- Adams, R. H., & Cuecuecha, A. (2010). "Remittances, Household Expenditure and Investment in Guatemala.", *World Development*, V. 38, N. 11, pp. 1626–1641.
- Barham, B., & Boucher, S. (1998). "Migration, Remittances, and Inequality: Estimating the Net Effects of Migration on Income Distribution.", *Journal of Development Economics*, V. 55, N. 2, pp. 307–331.
- Borjas, G. J. (1987). "Self-Selection and the Earnings of Immigrants.", *The American Economic Review*, V. 77, N. 4, pp. 531–553.
- Brown, R., & Jimenez-Soto, E. (2015). "Chapter 20: Migration and Remittances.", In B.

- Chiswick & P. Miller (Eds.), *Handbook of the Economics of International Migration*, North-Holland, Amsterdam, pp. 1077–1140.
- Brown, R., & Jimenez, E. (2008). "Estimating the Net Effects of Migration and Remittances on Poverty and Inequality: Comparison of Fiji and Tonga.", *Journal of International Development*, V. 20, N. 4, pp. 547–571.
- Cameron, C., & Trivedi, P. (2005). *Microeconometrics: Methods and Applications*, Cambridge University Press, Cambridge, UK.
- Castles, S., de Haas, H., & Miller, M. (2014). *The Age of Migration: International Population Movements in the Modern World* (5th ed.), Palgrave Macmillan, China.
- De Vreyer, P., Gubert, F., & Roubaud, F. (2009). "Migration, Self-selection and Returns to Education in the WAEMU.", *Journal of African Economies*, V. 19, N. 1, pp. 52–87.
- Hanson, G., & Woodruff, C. (2003). *Emigration and Educational Attainment in Mexico*. Working Paper: University of California, San Diego.
- Heckman, J. J. (1979). "Sample Selection Bias as a Specification Error.", *Econometrica*, V. 47, N. 1, pp. 153–161.
- Jampaklay, A., & Kittisuksathit, S. (2009). *Migrant Workers' Remittances: Cambodia, Lao PDR, and Myanmar*, ILO, Bangkok.
- Jimenez-Soto, E., & Brown, R. (2012). "Assessing the Poverty Impacts of Migrants' Remittances Using Propensity Score Matching: The Case of Tonga.", *Economic Record*, V. 88, N. 282, pp. 425–439.
- Kaestner, R., & Malamud, O. (2013). "Self-Selection and International Migration: New Evidence from Mexico." *The Review of Economics and Statistics*, V. 96, N. 1, pp. 78–91.
- Lokshin, M., Bontch-Osmolovski, M., & Glinskaya, E. (2010). "Work-Related Migration and Poverty Reduction in Nepal.", *Review of Development Economics*, V. 14, N. 2, pp. 323–332.
- Lucas, R., & Stark, O. (1985). "Motivations to Remit: Evidence from Botswana.",

Journal of Political Economy, V. 93, N. 5, pp. 901–918.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). "Theories of International Migration: A Review and Appraisal.", *Population and Development Review*, V. 19, N. 3, pp. 431–466.

McKenzie, D., & Rapoport, H. (2007). "Network Effects and the Dynamics of Migration and Inequality: Theory and Evidence from Mexico.", *Journal of Development Economics*, V. 84, N. 1, pp. 1–24.

McKenzie, D., & Rapoport, H. (2011). Can Migration Reduce Educational Attainment? Evidence from Mexico. *Journal of Population Economics*, 24(4), 1331–1358.

Ministry of Labour, & ILO. (2014). Policy on Labor Migration in Cambodia, Phnom Penh, Ministry of Labor.

Ministry of Planning. (2012). Cambodia Rural Urban Migration Project 2011, Ministry of Planning, Phnom Penh.

Ministry of Planning. (2013). Poverty in Cambodia - A New Approach. Ministry of Planning, Phnom Penh.

Rodriguez, E. R. (1998). "International Migration and Income Distribution in the Philippines.", *Economic Development and Cultural Change*, V. 46, N. 2, pp. 329–350.

Roth, V., & Tiberti, L. (2017). "Economic Effects of Migration on the Left-Behind in Cambodia.", *The Journal of Development Studies*, V. 53, N. 11, pp. 1787–1805.

Stark, O., & Bloom, D. (1985). "The New Economics of Labor Migration.", *The American Economic Review*, V. 75, N. 2, pp. 173–178.

Stark, O., & Levhari, D. (1982). "On Migration and Risk in LDCs.", *Economic Development and Cultural Change*, V. 31, N. 1, pp. 191–196.

Stark, O., & Taylor, J. E. (1989). "Relative Deprivation and International Migration.", *Demography*, V. 26, N. 1, pp. 1–14.

Stark, O., & Taylor, J. E. (1991). "Migration Incentives, Migration Types: The Role of Relative Deprivation.", *The Economic Journal*, V. 101, N. 408, pp. 1163–1178.

- Stark, O., Taylor, J. E., & Yitzhaki, S. (1986). "Remittances and Inequality.", *The Economic Journal*, V. 96, N. 383, pp. 722–740.
- Stark, O., Taylor, J. E., & Yitzhaki, S. (1988). "Migration, Remittances and Inequality: A Sensitivity Analysis Using the Extended Gini Index." *Journal of Development Economics*, V. 28, N. 3, pp. 309–322.
- Taylor, J. E. (1992). "Remittances and Inequality Reconsidered: Direct, Indirect, and Intertemporal effects.", *Journal of Policy Modeling*, V. 14, N. 2, pp. 187–208.
- Todaro, M. P. (1969). "A Model of Labor Migration and Urban Unemployment in Less Developed Countries.", *The American Economic Review*, V. 59, N. 1, pp. 138–148.
- United Nations. (2017). *International Migration Report*, United Nations, New York.
- World Bank. (2014). *Where Have All The Poor Gone? Cambodia Poverty Assessment 2013*, The World Bank, Washington D.C.
- World Bank. (2019). *Cambodia Economic Update: Recent Economic Developments and Outlook*, The World Bank Cambodia Country Office, Phnom Penh.
- Yang, D., & Martínez, C. A. (2006). "Remittances and Poverty in Migrants' Home Areas: Evidence from the Philippines." In Çag-İar Özden & M. Schiff (Eds.), *International Migration, Remittances, and the Brain Drain*, World Bank and Palgrave Macmillan, Washington D.C, pp. 81–122.
- Zimmer, Z., & Van Natta, M. (2018). "Migration and Left-Behind Parents and Children of Migrants in Cambodia: A Look at Household Composition and the Economic Situation.", *Asian Population Studies*, V. 14, N. 3, pp. 271–289.