Migration, Remittances and Poverty Reduction: Evidence from Cambodia[1]

This study utilises the national representative household survey data, Cambodia Socio-Economic Survey (CSES) 2007, to examine the impact of internal and international remittances on poverty, measured by the poverty ratio, poverty gap and squared poverty gap. The result shows that both internal and international remittances reduce the amount, depth and severity of poverty. Remittances have a larger effect on the severity of poverty than on the poverty rate. Our findings also suggest that remittances from international migrants are more effective at reducing poverty than those from internal migrants.

Introduction

Both push and pull factors contribute to migration. For least developed countries, the reasons for migration are based on push factors more than pull factors (Maltoni 2007).

Migration in Cambodia is mostly internal. According to the National Institute of Statistics (2004), 35 percent of the total population are internal migrants—4 percentage points higher than in 1998. Young people (aged 15–25) are 30 percent of migrants, while only 18 percent of the population.

The main foreign destination for Cambodian migrant workers is Thailand. Approximately 90 percent of the migrants to Thailand are irregular (undocumented). Despite a memorandum of understanding on migrant workers signed by the Thai and Cambodia governments in 2003, the number of undocumented migrants is unlikely to decline, because of the high cost of recruitment agencies, visas and registration (Chan 2009a). Malaysia and the Republic of Korea are also major destinations. Migration to those two countries is organised by private recruitment agencies. The majority of Cambodian migrant workers in Malaysia arrive with proper documentation, but many become irregular later. All Cambodian migrant workers employed in the Republic of Korea are documented (Maltoni 2007). There are also Cambodian migrant workers in Hong Kong, Taiwan, Saudi Arabia and Qatar. However, the total Cambodian population living and working abroad is unknown.

According to Ratha and Mohapatra (2009), official international remittances amounted to USD325 million in 2008, which was approximately three-fold higher than 10 years earlier. Despite the increasing size of official international remittances, little attention has been paid to the economic impact of these transfers on households. This study measures the effects of international and internal remittances on poverty.

Data and Empirical Results

The empirical analysis uses the CSES 2007 collected by National Institute of Statistics during July–September. The survey is nationally representative, consisting of 3593 households, of which 2228 are rural. The survey provides detailed information over a wide range, including household characteristics, food and non-food consumption, durable assets, livestock, household farm production, non-timber forest collection, other non-agricultural production, wage work and remittances, which makes it possible to estimate total income for each household in the sample.

However, this survey was not designed as a migration or remittance survey. It collected no information on migrants' characteristics, such as age, education or income earned away from home. Regarding remittances, the survey asked only two questions: (1) How much did your household receive in domestic remittances from relatives or others during the last 12 months? (2) How much did your household receive in international remittances from relatives or others during the last 12 months? However, the information on household income and consumption allows us to examine the impact of remittances on poverty.

Table 1 shows that 2743 households (76.3 percent of the total) received no remittances, 714 households (19.9 percent) received internal remittances, and

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Table 1: Income Sources for Households Receiving and Not Receiving Remittances (riels per capita per day)

Sources	Receive no remittance	Receive domestic remittances	Receive international remittances
Livestock	328.47 (2101.15)	591.92 (2077.98)	240.33 (684.80)
Fishing	113.21 (539.31)	90.89 (579.86)	60.43 (199.48)
Forestry	136.06 (372.37)	146.60 (207.08)	92.83 (247.66)
Non-agricultural production	2197.09 (19,762.08)	1852.08 (26,091.79)	2820.01 (8029.68)
Domestic remittance	0	619.48 (1366.47)	86.06 (373.34)
International remittance	0	23.438 (254.82)	1938.62 (3167.31)
Wages	1807.89 (6009.99)	1686.81 (4229.51)	3775.56 (14,941.30)
Own production for consumption	52.81 (69.74)	66.13 (75.39)	59.22 (121.76)
Other	336.08 (3225.52)	566.55 (10711.07)	426.39 (1947.11)
Total income	4971.61 (21,116.23)	5643.93 (28,543.99)	9499.50 (17,364.90)
Sample	2743	714	153

Note: Standard deviations are in parentheses. Source: Author's calculations

153 households (4.3 percent) received international remittances. Of remittance-receiving households, only 17 households received both internal and international remittances.

For all households, internal remittances were 2.3 percent and international remittances 1.6 percent of net household income. For the 714 households receiving internal remittances, these remittances amounted to 10.9 percent of total net income, while international remittances were 0.4 percent. For the 153 households that received international remittances, these were 20.4 percent of total net income, and the share of internal remittances was 0.9 percent. On average, households receiving remittances had 620 riels (internal remittances) and 1940 riels (international remittances) per capita per day in 2007. These figures are not surprising, since workers abroad can easily earn more than in Cambodia.

Table 1 also reveals that households receiving no remittances have lower incomes than households receiving internal and/or international remittances. But this simple comparison is potentially misleading because it is not known what the income of the remittance-receiving households would have been if those migrants had chosen to stay and work at home. To overcome this methodological problem, we followed the procedure suggested by Adams (2004), who argued that it is necessary to estimate the counterfactual situation. The result can be used as a baseline for evaluating the impact of remittances on poverty. First, the parameters predicting per capita income were estimated from the 2743 households that do not receive remittances. Second, these parameters were applied to the 867 households receiving remittances.

The equation used to estimate the parameters was: $Y_i = aX + \varepsilon_i$ (1)

where Y_i is the per capita income of household i, X_i is a vector of characteristics of household i, a a vector of coefficients to be estimated and ε_i an error term.

However, as noted by Adams (2004), specifying variables that are truly exogenous to household income (consumption) is difficult and complex. Therefore, the main econometric problem for estimating equation (1) lies in selecting variables. We hypothesised that per capita income (consumption) can be predicted as the function of household head characteristics (education, age, gender) and household characteristics (agricultural land, housing condition, regional and ethnic variables):

$$Y_i = \alpha_0 + \alpha_1 HHHAge_i + \alpha_2 HHHGender_i + \alpha_3 HHSize_i + \alpha_4 EDUMale_i + \alpha_5 EDUFemale_i + \alpha_6 Room_i + \alpha_7 Light_i + \alpha_8 Water_i + \alpha_9 Agr\_Land_i + \alpha_{10} Rural_i + \alpha_{11} Urban_i + \varepsilon_i \quad (2)$$

where *Y* is per capita household income (consumption), *HHHAge* is the household head's age, *HHHGender* is equal to 1 if the household head is male and zero otherwise, *HHSize* is household size, *EDUMale* is the average educational level of male household members over 18 years, *EDUFemale* is the average education of female household members over 18 years, *Room* is the number of rooms in the household, *Light* is equal to 1 if the household has electricity and zero otherwise, *Agr_Land* is equal to 1 if the household has agricultural land and zero otherwise and *Rural* and *Urban* are regional dummies. The subscript *i* indexes household. We use ordinary least squares to estimate equation (2). Because the purpose of the study is to estimate the impact of remittances on poverty, and all poverty analysis documents in Cambodia use consumption as an indicator to measure the poverty headcount ratio, poverty gap and squared poverty gap, consumption per capita is used as the dependent variable of equation (2).

As shown in Table 2, some selected explanatory variables are statistically different between households receiving and not receiving remittances, while some are similar. Households receiving remittances tend to have more female and older household heads, smaller household size, more rooms and less electricity and are more likely to live in rural areas. There is no difference between the two groups in terms of male and female educational level, source of drinking water or agricultural land holding. To verify our empirical result, we estimate the predicted per capita household consumption for the two groups in two cases: (a) selected explanatory variables with no statistical difference between two groups and (b) all selected explanatory variables. However, we focus on the latter model for further interpretation.

Table 3 summarises the result obtained by using equation (2) to predict per capita household consumption excluding remittances. All of the coefficients are statistically significant at the 1 percent level, except one variable measuring household head gender. These coefficients can be used to predict per capita household consumption in a situation excluding remittances for households receiving no remittances, households receiving internal remittances and households receiving international remittances. When the per capita household consumption excluding remittances has been estimated, per capita household consumption

Table 2: Summary Data on Households Receiving and Not Receiving Remittances

Variables	Receive no remittance	Receive remittances	t-test
Household head sex (1=male, 0=female)	0.80 (0.39)	0.65 (0.47)	9.09***
Household head age (years)	43.83 (12.73)	52.31 (13.89)	-16.47***
Household size (person)	4.93 (1.97)	4.58 (2.05)	4.47***
Mean adult male educational level (years)	5.90 (4.10)	5.65 (4.18)	1.55
Mean adult female educational level (years)	4.36 (3.42)	4.16 (3.42)	1.44
Number of rooms	1.48 (0.94)	1.58 (1.11)	-2.50**
Lighting (1=electricity, 0=otherwise)	0.36 (0.48)	0.32 (0.47)	2.01**
Drinking water (1=piped, 0=otherwise)	0.25 (0.43)	0.24 (0.43)	0.12
Agricultural land (1=agricultural land, 0=otherwise)	0.60 (0.48)	0.64 (0.47)	-1.88
Rural (1=rural, 0=otherwise)	0.61 (0.48)	0.65 (0.47)	-2.09**

Standard deviations are in parentheses. * Significant at the 0.1 level. ** Significant at the 0.05 level.*** Significant at the 0.01 level.
Source: Author's calculations

Table 3: Regression to Estimate Predicted Per Capita Household Consumption (Excluding Remittances)

	Model 1	Model 2
Mean adult male educational level	0.006***	0.006***
Mean adult female educational level	0.004***	0.004***
Drinking water (1=piped, 0=otherwise)	0.122***	0.100***
Agricultural land (1=agricultural land, 0=otherwise)	-0.007	0.001
Rural dummy	-1.125***	-1.059***
Urban dummy	-0.719***	-0.683***
Household head sex (1=male, 0=female)		0.005
Household head age (years)		0.001***
Household size		-0.019***
Number of rooms		0.041***
Lighting (1=electricity, 0=otherwise)		0.063***
Quintile 2	0.408***	0.391***
Quintile 3	0.688***	0.662***
Quintile 4	0.992***	0.948***
Quintile 5	1.573***	1.493***
Constant	8.409***	8.351***
Adjusted R-squared	0.915	0.918
Sample size	2743	2743

* Significant at the 0.1 level. ** Significant at the 0.05 level. *** Significant at the 0.01 level.
Source: Author's calculations

Table 4: Predicted per Capita Consumption for Households Receiving and Not Receiving Remittances (in riels per capita per day)

	Receive no remittance	Receive domestic remittances	Receive international remittances
Model 1			
Predicted mean consumption excluding remittances	5961.05 (5548.86)	5700.90 (5256.05)	9503.96 (7707.83)
Predicted mean consumption including remittances	5961.05 (5548.86)	6193.46 (5653.87)	11150.28 (9572.14)
Model 2			
Predicted mean consumption excluding remittances	5975.17 (5614.18)	5828.61 (5485.17)	9708.99 (8050.53)
Predicted mean consumption including remittances	5975.17 (5614.18)	6321.17 (5867.83)	11355.30 (9885.59)
Sample	2743	697	136

Note: Standard deviations are in parentheses.
Source: Author's calculations

including remittances can be calculated by adding 80 percent of actual amounts of per capita remittances.[2]

Table 4 reports the predicted per capita household consumption for the three groups of households in two situations: excluding and including remittances. When remittances are excluded, the average per capita consumption for households receiving internal remittances is 2–4 percent lower than for households not receiving remittances. Households receiving international remittances have higher per capita household consumption than the other two groups, implying that most households with international migration are generally wealthier than households of internal migration and non-migration. When remittances are included, the mean per capita consumption for households receiving internal

2 Chan (2009a) notes that 80-87 percent of remittances has been spent on consumption and while only 13-20 percent on production.

and international remittances is 6 percent and 80 percent higher, respectively, than for households not receiving remittances.

Remittances and Poverty Reduction

To examine the impacts of internal and international remittances on poverty and inequality, we consider two scenarios. In one, we estimate the poverty headcount ratio, poverty gap, squared poverty gap and Gini coefficient excluding remittances. In the second scenario, we include remittances. At various poverty measures and poverty lines, the inclusion of remittances reduces the poverty ratio, poverty gap and squared poverty gap. The size of poverty reduction depends on the measures and lines. The poverty ratio in 3576 households relative to the national poverty line was 24.33 percent with remittances included and 25.53 percent with them excluded—an increase of 1.20 percentage points. In remittance-receiving households, including the remittances in household expenditure would reduce poverty more. Table 5 shows that internal and international remittances have lowered the level of poverty by 4.73 and 7.35 percentage points, respectively. However, poverty is reduced even more when measured by poverty gap and squared poverty gap. For example, the squared poverty gap measure shows that internal and international remittances could reduce poverty by 5.7 percent for the sample of 3576 households, by 26.9 percent for households receiving internal remittances and by 60.8 percent for household receiving international remittances. This implies that remittances reduce the severity of poverty more than they reduce the proportion of people living in poverty. Our result stands firm when the international poverty line is applied, although the size of poverty reduction is smaller.

Table 5 also indicates that internal or international remittances have less impact on consumption (income) inequality measured by the Gini coefficient. This reveals that the effects of remittances on poverty reduction are largely due to an increase in mean household income rather than to a change in income inequality.

Conclusion

This paper uses the nationally representative survey of 3593 households and predicted income functions to analyse the impact of internal and international remittances on poverty and inequality in Cambodia. We found that fewer than 24 percent of households receive remittances—of which 19.9 percent receive internal remittances and 4.3 percent

Table 5: Impact of Remittances on Poverty in Receiving and Non-Receiving Households

National poverty line

	All households		Household receiving internal remittances		Household receiving international remittances	
	Receive no remittance	Including Internal and international remittances	Receive no remittance	Including Internal remittances	Receive no remittance	Including Internal remittances
Model 1						
Poverty headcount (%)	27.27	25.76	28.69	22.38	13.24	5.88
Poverty gap (%)	5.60	5.30	5.36	4.10	2.62	1.11
Squared poverty gap (%)	1.79	1.67	1.67	1.20	0.84	0.31
Gini coefficient	0.43	0.44	0.42	0.43	0.43	0.44
Sample	3576	3576	697	697	136	136
Model 2						
Poverty headcount (%)	25.53	24.33	24.39	19.66	12.50	5.15
Poverty gap (%)	5.54	5.28	5.05	3.98	2.45	1.07
Squared poverty gap (%)	1.77	1.67	1.59	1.16	0.77	0.30
Gini coefficient	0.43	0.44	0.42	0.43	0.43	0.44
Sample	3576	3576	697	697	136	136

Note: Households receiving both domestic and international remittances are excluded.
Source: Author's calculations from CSES 2007

international remittances. Remittances account for 11 percent of total income for households receiving internal remittances and for 20 percent for households receiving international remittances. Both types of remittance reduce the level, depth and severity of poverty. The size of the reduction depends on poverty measures. Using the national poverty line, poverty is reduced about 1 percentage point by internal and international remittances. Internal and international remittances could reduce the poverty ratio by 4.73 and 7.35 percentage points, respectively. However, poverty is reduced even more when measured by poverty gap or squared poverty gap, indicating that remittances have a greater impact on the severity of poverty than on the number living in poverty. The study also shows that internal and international remittances have little impact on inequality, which means that poverty reduction is largely due to an increase in mean income.

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