

Impact of Migrants' Remittances on Poverty and Inequality in Nepal

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Abstract

Large numbers of people are migrating from the countryside to cities and abroad for work in Nepal. Migrants' remittances play an important role in improving household welfare. Using the latest household survey data from 2010, this study observes the probability of receiving remittances at the household level. Since remittances are a potential substitute for domestic income, the impact of remittances on poverty and inequality is examined using counterfactual scenarios. Results show that the probability of receiving remittances is higher in richer households than poorer households. Remittances contribute twenty percentages of total poverty headcount ratio reduction in Nepal. The role of international remittance is greater than that of internal remittance in decreasing the poverty headcount, the poverty gap and the squared poverty gap. However, remittances widen inequality in Nepal.

Key Words: migrants' remittances, counterfactuals, poverty, inequality, Nepal.

1. Introduction

Remittances are the money and goods sent from urban areas or abroad to households by migrant workers working outside their communities of origin. The international migratory population accounts three percent of the world population, while official remittance flow was \$440 USD billion in 2010. A significant portion (\$325 billion USD) is received by developing countries, a volume which is quite larger than official aid flows (World Bank, 2011). No doubt remittance represents important resources for developing countries. It has recently been more prominent in scholarly research.

Nepalese international migrants reached three million in 2010, where there were only ten thousand in the early 1990s (Department of Foreign Employment [DOFE], 2011). Remittance has increased rapidly in the last fifteen years. Officially recorded remittance stood at \$2.7 billion in 2009, that is, 22% of the total GDP.

If the unrecorded amount from India to Nepal is added, then the contribution of remittances could be

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as high as 30 percent of GDP (World Bank, 2009). Remittance can contribute in the capital formation, hydro electricity production, banking sector, government revenue and microfinance.

Nepalese rupee has been continuously depreciating against US dollar since October 2011. As a result remittance inflow and inflation is increasing but banks are lowering interest rates in deposits and lendings.

In 2010, remittance receiving households reached 55.8 percent, whereas it was only 23.4 percent in 1995. Nominal average remittances per household also jumped to 80,436 NRS (Nepalese Rupee) in 2010, while it was 15,160 NRS in 1995 (CBS, 2011). The large-scale migration and remittance inflow over the last two decades have shown Nepal to be “a remittance economy”, presenting challenges for policy makers. Over the last fifteen years, the poverty head count decreased appreciably in Nepal, from 42 percent in 1995 to 31 percent in 2004 and to 25 percent in 2010. On the other hand, inequality increased from 35 to 44 percent between 1995 and 2004, before decreasing to 33 percent in 2010 (CBS, 2011).

Here, the first issue is that, although remittance is explicitly recognized as the backbone of the economy and its effect on poverty reduction can be significant, there is no empirical study using the latest Nepal Living Standard Survey, (2010, hereafter NLSS III). If remittances flow to the relatively poor households, it would accelerate poverty reduction and achieve equity. However, the reality is that subsistence farmers cannot easily manage money to obtain passports and afford international airfare. In addition, there are lengthy administrative procedures for international migration from Nepal. Financial institutions provide loans based on the borrower’s economic status; however, poorer households have little or no wealth. There is a Nepalese saying: “Sheep with sheep and goat with goat”. This means rich people’s friends and relatives are rich whereas poor people’s network is poor. Author argues that households in the upper quintiles have more chances to migrate to well-paid destinations, whereas youths from lower quintiles move to low-wage areas. Therefore, the second issue is that relatively poorer households receive less remittance amount than richer households. Obviously, the third issue is that remittances increase inequality in the Nepalese economy. Under these circumstances, the research questions are: do poorer households receive remittance as the richer households? What is the impact of migrants’ remittances on poverty and inequality in Nepal?

As a null hypothesis, first we argue that poorer households are not likely to get remittance as do richer households. Second, we reason that migrants’ remittances do not decrease inequality in Nepal.

The rest of the paper is organized as follows. Section 2 explains the reasons for the rapid growth of migration in Nepal; Section 3 presents a selective review of literature; Section 4 explains the data; Section 5 explains methodology; Section 6 analyses the estimated results; and Section 7 concludes the study.

2. The Political Economy of Migration and Remittance in Nepal

There has been political instability in Nepal over past two decades. It has had 20 governments from 1990 to 2010. When multiparty democracy was restored in 1991, one segment of the population that was especially inclined to politics prospered dramatically, enough to move up in economic status from the lower to middle-income class and from the middle to high-income level. There was extensive abuse of democracy from the ward level up to the level of government policy. Politicians thought that public resources and top-level positions were for their parties and supporters rather than for the overall development of the country. There was democratic government on surface, but all government institutions became weaker due to political intervention. A large portion of the population, especially from lower castes and who own little or no land were excluded from economic and political opportunities and joined the Maoist Party, which is the main source of conflict in Nepal (Draniyagala, 2006; Macours, 2011). Communist Party of Nepal (Maoist) gradually became stronger and launched the People's War in 1996 for social and economical transformation¹.

China and India have double digit economic growth; however, Nepal's domestic as well as international investment was curtailed by insecurity, corruption and power shortages. Many industries were closed, and thus overall economic indicators signaled a downturn. Educational institutions and transportation service were badly affected by frequent strikes. A peace agreement was made in 2006 between the former Maoist rebels and the state to write a new constitution, but this process recently experienced a setback as the Constituent Assembly failed to deliver it by the deadline of May 27, 2012. Nobody loves unemployment. Nepalese peoples main internal migration destinations are Terai region (flat land) and Kathmandu while international migration destinations are India, the Gulf countries, Malaysia, Australia, Japan, United Kingdom, and the United States.

Geographical structure is heterogeneous in Nepal. Mountain region is cold and land is infertile. Hilly regions' land is also infertile in comparison to the Terai region (flat land) and transportation is risky. Schools, Hospitals and security situation are also better in the Terai region. Therefore people migrate from mountain and hilly regions to the Terai region. Less job and business opportunities in the rural sector than urban sector is also important reason of internal migration in Nepal. Wage rate is significantly higher in Gulf and developed countries than Nepal. The unique open boarder between Nepal and India, the Gulf States' boom and globalization are other reasons of cross-border migration from Nepal including women and talented university graduates. Economic activities, government policies, bureaucracy and social services are directly linked with politics. Thus, political instability is the main reason of both internal and international migration in Nepal.

Literacy rate is less in the rural sector than the urban sector but more qualified teachers migrate to urban areas to earn and learn more. External migration is also stimulating internal migration in Nepal. Husband migrates abroad for work and wife migrate to city areas to search good schools for their children. Education quality is better in urban-private schools than rural-government schools. Currently big cities like Kathmandu, Pokhara and Chitwan are getting crowded due to rapid domestic migration while most of the old aged parents in the village area are engaging in the agriculture sector. Developed countries such as Australia, Canada and USA easily provide visa to doctors and nurses. This is why external migration is creating scarcity of medical persons even in the capital city. Now a days, European styles houses are build rapidly, people prefer to go shopping in the supermarket, internet users are increasing. However, in the recent years divorce rate between husband and wife is increasing due to long time separation. Nepalese workers' death rate is also increasing especially in the Gulf countries due to risky work and high temperature.

3. Review of Literature

As we see indications of increase in international migration and remittances flow, the literature on migration and remittances at the world, regional, country and community level has been expanding enormously. Economists associate poverty level with income; therefore remittance income can play a vital role in poverty reduction from the point of view of developing economies. Most of the studies found that when remittance income increases, poverty level decreases. Using household survey data from 71 developing countries, Adams and Page (2005) noted that a one percent increase in per capita international remittances in developing countries leads to a 0.35 percent decrease in poverty headcount ratio. Similarly, Acosta et al. (2007) postulated a moderate impact of remittances on poverty reduction in Latin American economies. That is, one percentage point increase in remittances to Gross Domestic Product (GDP) ratio causes only a 0.4 percentage decline in poverty headcount ratio. Gupta et al. (2009) also agreed that remittance is an important resource for African regions' well-being through financial sector development.

Using country level household survey data, empirical works show that both internal and international remittances are vital for poverty alleviation. For instance, Adams (2004) found that in Guatemala internal and external remittances reduce the poverty headcount ratio by 3.18 percent, the poverty gap by 8.05 percent and the squared poverty gap by 16.86 percent. Also, Lokshin et al. (2007) argued that the role of remittance to bring down the poverty head count rate from 42 percent to 31 percent points between 1995 and 2003 in Nepal is 20 percent. Adams (2006) also identified that internal and external remittances in Ghana reduced the poverty headcount ratio by 2 percentage points, the poverty gap by 2.62 percent and squared poverty gap by 4.29 percent. Further, Taylor et al. (2005) agree that role of international remittances is greater than internal remittances in poverty

decline in rural Mexico. The impact of remittances on inequality has mixed findings. Some studies identified that migration and remittances reduced inequalities in Hubei province of China and in Vietnam (Zhu and Luo, 2010; Pfau and Giang, 2011). Conversely, other works reveal that migration and remittance increased income inequality in Ghana and rural Egypt (Adams, 1991; Adams et al., 2008).

4. Data

We use the third and latest round of the Nepal Living Standard Survey cross section data (henceforth NLSS III). This survey was conducted by the Central Bureau of Statistics (CBS), Nepal in 2010–11 following the Living Standard Measurement Survey (LSMS) methodology, developed by the World Bank. In addition, the first and second round surveys, which were conducted in 1995–96 and 2003–04, are also used for some descriptive analysis.

NLSS III is a representative survey of Nepal, enumerating 5,988 sample households from 499 Primary Sampling Units (PSUs), covering all three economic belts, five development regions and 75 districts. The statistical unit of this study is the household². This data's main focus is poverty analysis with 20 multi-topic headings³. Moreover, it has separate sections and a detailed questionnaire on migration and remittances that enables us to work on various social and economic issues connected to migrants' remittances. The 'Out migration' section has 11 questions, 'absentee information' consists of 19, and 'remittances and transfer income received' gathers 10 pieces of information. The questions cover place of migration, the amount received and in kinds. It also brackets demographic variables such as remittance sender and receiver. In NLSS III, remittance value is given at an individual level that is converted to the household level. A total for remittance is obtained by adding cash and goods sent by an absentee household member plus that sent by others⁴.

We use annual per capita consumption expenditure to measure households' welfare. The poverty line was 19,261 NRS based on 2010–11 average prices. Measuring living standards based on consumption is more advantageous as an income measure in less developed countries like Nepal. Respondents often cannot remember a whole year's income clearly in a single interview, and they are reluctant to disclose total income or illegal income due to tax evasion, while some value added income is difficult to evaluate (Haughton and Khandker, 2009).

5. Methodology

A. Endogeneity and Selection Control

When working on migrants' remittances impact on poverty and inequality, some problems arise because of the nature of migration and remittances. The migration decision depends on both

observable and unobservable characteristics, such as education, experience, and training for the former and ability, ambition, skill, and physical strength for the latter. Household members compare their potential wages based on their observable and unobservable human capital in their locality with those in migration destination regions. Therefore, remittances are not exogenous but substitute for the earnings that migrants would have had if they had not decided to work abroad. When migration is also an endogenous outcome, remittance incomes are inconsistent unless some corrective measures are taken. Correction is possible by applying counterfactual measurements⁵. For this task, households should first be split into two groups, remittance-receiving and non-receiving. First, per capita expenditure is estimated only with remittance not receiving households. Second, these parameters are used for internal remittance receiving households. Finally the same parameters are also used for external remittance receiving households. If remittance-receiving and non-receiving households differ systematically in their unobservable characteristics, there arise problems of selection bias and endogeneity (Mckenzie and Sasin, 2007; Adams, 2011; Chukwuone et al., 2012). The Heckman estimation is better than OLS regression to correct endogeneity (Andrew and Kenneth, 2012). Selection bias can be minimized with the help of Heckman two-stage method. In the first stage Probit model is applied to find the remittance receiving probability and in the second stage per capita expenditure is regressed to observe poverty and inequality by counterfactual method. This method was used by Adams (2004). We are incorporating some new variables, such as disaggregated geographical regions.

B. The Heckman Two-Stage Model

In the first stage, we employ the Probit Model as migration and remittance choice function to observe probability of receiving remittances:

$$\text{Prob. (Y = migration and receiving remittances)} = f(\text{HS, HHAGE, HSSHARE, HHEDU, CASTE/ETHEN, LANV, DIST RANK, QG, AD}) \quad (1)$$

Here, the migration and receiving remittance outcome variable is coded as $y=1$ if households receive remittances, and $y=0$ if households receive no remittance. Independent variables are household size (HS), household head age (HHAGE), share of different age groups in a household (HSSHARE), household heads' education (HHEDU), castes and ethnicity (CASTE/ETHEN), land value of the households (LANV), type of district as per development stage level (DISTRANK), quintile groups (QG), and AD (analytical domains/geographical locations).

In the second stage, we regress household per capita expenditure (PCEX) as the dependent variable but the independent variables are the same as the first-stage. This is necessary in the counterfactual analysis because remittance receiving households' poverty level and inequality is predicted based on

the coefficients of households without remittances. This is given as:

$$PCEX = f(HS, HHAGE, HSSHARE, HHEDU, CASTE/ETHEN, LANV, DIST RANK, QG, AD) \quad (2)$$

Household size can be meaningful as an independent variable to affect the likelihood of migration and receiving remittances. The industrial base in Nepal is very weak and there is no guarantee of a job even after university graduation. There is no way to employment without migration. Hence, we expect that migration or the chances of receiving remittances are greater in larger households than in smaller ones. The household head's age influences migration choice and remittances but does not influence personal income or expenditure. That is because the higher the household head's age, the greater the chance for household members to be in the working age group. Conversely, if the household head is over 65 years old, there is no or less chance to receive personal income or expenditure (Adams, 2006).

The range of different age groups in a household also influences migration and reception of remittances. This variable is split into six groups. Our expectation is that households with more members between the ages of 0-3, 4-7, 8-15 and more than 65 years old have less chance to migrate and receive remittances compared to the 16-65 year old age group.

Following human capital theory, education level is split into five sections: illiterate, literate, primary level, secondary level and more than secondary level. More educated people enjoy greater employment and hence more chances to get high wage in the destination countries (Schultz, 1982; Todaro, 1970). Therefore we suppose that if the household head is educated, then other members will have more chance to be educated and get more remittances.

Caste and ethnicity is also a suitable variable for Nepal. This is classified into six groups: high caste, Newar, middle caste, low caste (untouchables), Muslim and others. High castes own more wealth and have good networks to migrate better places. The expectation is that low caste, Muslim and other castes receive lesser remittances than high castes.

Household wealth is categorized into four sections: no land, small landholding, medium landholding and large landholding. Out of 75 districts, district rank is categorized in three groups: highly developed districts (rank I), medium level developed districts (rank II) and least developed districts (rank III). We believe that households with less land value and living in less developed districts migrate more but get lesser remittances. Analytical domain variable consists mainly of two wings, rural and urban sectors, but 12 disaggregated locations provide sufficient room to analyze migration and remittances structure of particular areas. Author argues that urban sectors get more remittance than rural sectors. Finally,

quintile groups are also included in the study.

C. Counterfactual Measures

In the third stage, poverty types are calculated under a counterfactual scenario using the Foster–Greer–Thorbecke (FGT) index. This enables us to analyze the poverty head count, the depth of poverty and the severity of poverty in remittance including and excluding scenario⁶. Finally, we also use the Gini coefficient, a widely-used index to explore the impacts of remittances on inequality.

6. Results

First, descriptive statistics are exhibited in Table 1. The first column shows explanatory variables. They include household's demographic characteristics, human capital, caste and ethnicity, wealth status, types of districts, geographical regions and quintile groups. Household head age, household size and share of different age group member are continuous variable where as other variables are categorical variable. Total households are categorized into three groups as internal remittance receiving households, international remittance receiving households and non-remittance receiving households. Out of 5,988 households, 2,035 household units (34%) are getting internal remittances, 1,864 (31%) are receiving international remittances and 2,089 (35%) get no remittances⁷. Based on NLSS III, remittance appears as the main household income because 65% of households are getting it. The first, third and fifth column shows mean values. For example mean value of household size shows that bigger household size (5.03) does not receive remittance, relatively smaller household size (4.77) gets external remittance and the smallest size (4.46) receives internal remittance. Similarly, second, fourth and the sixth columns show standard deviation.

Appendix 1 presents the Heckman first stage migration and remittance choice results based on remittance receiving households. Most of the outcomes are as expected and highly significant. Household size is significant at 1% level in remittance reception. Here the coefficient is negative, indicating that there is a negative relationship between household size and the chance of receiving remittances. This is reasonable in the Nepalese context because poorer rural households have large family sizes. Such households get minimum wages because of less education. Therefore there is no chance to send remittances back home. Age of the household head, is positive and significant in remittance reception. This means if the household head is of retirement age, then his/her son/daughter or even grandchildren have more chances to migrate and that he/she has more chances to receive remittances.

Naturally parents are more responsible to care for their children. In Nepal, child care services are insignificant, so parents with more small children will have less chance to go far distances for work and to earn money. Households with more small children, especially younger than 15 years old, have

Table 1 Summary Statistics of Remittances Receiving and Not Receiving Households

Variables	Households receiving internal remittances		Households receiving external remittances		Households receiving no external remittances	
	Mean	Std.	Mean	Std.	Mean	Std.
Household Demographics						
Household size	4.46	2.29	4.77	2.45	5.03	2.15
Household head age	46.43	14.61	46.90	14.24	44.80	13.47
Share of children 0-3	0.06	0.11	0.08	0.12	0.07	0.11
Share of children 4-7	0.07	0.12	0.09	0.14	0.08	0.12
Share of children 8-15	0.18	0.20	0.20	0.21	0.19	0.19
Share of men 16-64	0.26	0.21	0.20	0.20	0.30	0.19
Share of women 16-64	0.35	0.21	0.37	0.18	0.30	0.17
Share of elderly 64 >	0.08	0.20	0.07	0.15	0.07	0.17
Human Capital						
Illiterate	0.62	0.49	0.67	0.47	0.65	0.48
Literate	0.24	0.43	0.21	0.41	0.22	0.42
Primary school	0.04	0.20	0.05	0.22	0.05	0.21
High school	0.08	0.27	0.05	0.22	0.06	0.24
More than high school	0.02	0.14	0.02	0.14	0.02	0.14
Caste and Ethnicity						
High caste	0.40	0.49	0.31	0.46	0.32	0.47
Low caste	0.06	0.24	0.13	0.34	0.08	0.28
Newar	0.07	0.25	0.06	0.25	0.15	0.36
Middle caste	0.28	0.45	0.27	0.44	0.24	0.43
Muslim	0.02	0.14	0.05	0.21	0.03	0.17
Other castes	0.17	0.38	0.18	0.38	0.17	0.38
Wealth Variable: Land Value (in NRS)						
No land (land value=0)	0.24	0.43	0.24	0.43	0.37	0.48
Small land (1-1,000,000)	0.53	0.50	0.57	0.50	0.45	0.50
Moderate land (1,000,001-5,000,000)	0.17	0.38	0.15	0.35	0.13	0.33
Large land (> 5,000,000)	0.58	0.23	0.04	0.20	0.05	0.21
District Rank						
Rank I	0.46	0.50	0.50	0.50	0.55	0.50
Rank II	0.34	0.48	0.28	0.45	0.34	0.26
Rank III	0.20	0.48	0.22	0.42	0.11	0.39
Geography						
Mountain	0.09	0.29	0.05	0.22	0.06	0.23
Urban-Hill	0.08	0.27	0.11	0.32	0.23	0.42
Urban-Other Hills	0.08	0.27	0.07	0.26	0.09	0.29
Urban- Terai	0.12	0.33	0.10	0.30	0.11	0.32
Rural Hills- Eastern	0.07	0.25	0.06	0.23	0.07	0.25
Rural Hills- Central	0.09	0.29	0.04	0.20	0.10	0.30
Rural Hills- Western	0.07	0.26	0.13	0.33	0.05	0.21
Rural Hills- Mid & Far Western	0.08	0.27	0.10	0.30	0.08	0.27
Rural Terai- Eastern	0.09	0.29	0.09	0.28	0.06	0.24
Rural Terai-Central	0.05	0.29	0.08	0.27	0.06	0.25
Rural Terai-Western	0.06	0.23	0.09	0.29	0.03	0.18
Rural Terai-Mid & Far Western	0.08	0.26	0.08	0.27	0.05	0.21
Consumption Quintile						
Poorest	0.10	0.30	0.15	0.36	0.16	0.36
Second	0.15	0.35	0.16	0.37	0.16	0.36
Third	0.18	0.39	0.18	0.39	0.16	0.36
Forth	0.24	0.42	0.21	0.41	0.20	0.40
Richest	0.34	0.47	0.30	0.46	0.34	0.47
N = 5988	2035		1864		2089	

Source: Author's calculation based on Nepal Living Standard Survey (NLSS III, 2010/11).

an insignificant or negative chance to receive remittances. People of more than 64 years of age show the same result. The life cycle consumption theory postulates that people earn more money in the working age span for future savings and to repay past debt. Our result supports this theory. For instance, households with a large share of men and women between the ages 16–64 have a higher probability of receiving remittances than other groups.

In comparison to the illiterate group, secondary and tertiary education group shows positive and significant results. The point to note here is that the coefficient is highest for the group with tertiary education among all other groups, proving that more educated households have a higher likelihood of receiving remittances. This is consistent with our hypothesis that richer people are more educated and so acquire more remittances than less educated households.

All landholding groups exhibit statistically significant outcomes to get remittances compared with the reference group, landless households. Households with more land value show the highest coefficient, signifying that more landholding households easily obtain loans from relatives and financial institutions to migrate to developed countries.

When compared to high castes, only the Newar caste is significant in remittance reception but the result is negative. The reason is that most of the Newar caste lives in the Kathmandu valley. They prefer to work and do business in Nepal than go abroad. This result is similar to Lokshin et al. (2007).

All quintile groups are highly significant with positive coefficient. However, it is noteworthy that coefficient value is lowest in the poorest quintile, increases in the successive quintiles and shows the highest value in the richest quintile. This finding also supports our hypothesis that richer groups receive more remittance than poorer ones.

All 12 geographical locations are statistically significant with positive coefficients at one percent. This means all regions are likely to get remittances. However, the coefficient values vary in different regions. For example the rural west Terai records the highest coefficient, followed by other Terai regions. This fact is rational with the geographical condition of Nepal. The Terai area has better transportation facilities to move within the country. This region is closer to the Indian border and there is more chance to find employment in India than Nepal. In comparison to other regions, the rural-hill regions of the mid and far west also show bigger coefficient. This area's economic development is lower than other regions. The Maoist party started its revolution from these regions and industries closed down. There are fewer job opportunities, so people are more likely to engage in work-related migration to urban areas or abroad. Similarly, the mountain region also shows a greater coefficient because people move to warmer regions to escape from the cold and sell Tibetan and Himalayan herbal products. Relying on this evidence, we can infer that the chance of remittance reception is relatively more likely in richer, more educated households than the opposite case. Our first null hypothesis is accepted.

The most important finding from the second stage is that nine variables are statistically significant

Table 2 Second Stage Regression (Non-Remittance Receiving Households) Household Per Capita Expenditure (PCEX): Dependent Variable

Variables	PCEX
Household size	-565.2 (-0.659)
Household head age	37.96 (0.298)
Household Composition (Share of children 0-3: reference group)	
Share of children 4-7 year	-6,628 (-0.816)
Share of children 8-15 year	2,314 (0.329)
Share of men 16-64 year	19,921 (1.193)
Share of women 16-64 year	-518.6 (-0.0484)
Share of elderly 64 > year	3,084 (0.283)
Human Capital (Illiterate: reference group)	
Literate	2,927 (0.785)
Primary education	344.2 (0.0710)
Secondary education	12,388 * (2.235)
Tertiary education	40,528 *** (4.527)
Land Value in NRS (No land: reference category)	
Small land (1-1,000,000)	-4,580 (-1.280)
Moderate land (1,000,001-5,000,000)	-3,583 (-1.083)
Large land (> 5,000,000)	4,185 (0.890)
Ethnicity (High caste: reference category)	
Low caste	-3,908 (-1.422)
Newar	99.23 (0.0204)
Middle caste	-4,594 * (-2.377)
Muslim	-429.4 (-0.110)
Others	-4,229 * (-1.903)
District Rank (Rank I: reference category)	
Rank II	-1,646 (-0.816)
Rank III	-622.1 (-0.253)
Quintiles (Poorest quintile: reference group)	
Second	4,709 * (1.678)
Third	8,151 * (2.049)
Fourth	15,945 *** (3.245)
Richest	53,296 *** (6.833)

Variables	PCEX
<i>Geographical Region (Kathmandu: reference category)</i>	
Mountain	-10,357 (-1.027)
Urban -Hills	-8,281 * (-1.727)
Urban-Terai	-11,466 (-1.500)
Rural-Hills East	-9,591 (-1.453)
Rural-Hills Central	-7,185 (-1.608)
Rural-Hills West	-12,141 (-0.896)
Rural -Hills Mid and Far West	-10,909 (-1.238)
Rural-Terai East	-11,055 (-0.955)
Rural- Terai Central	-10,829 (-0.915)
Rural-Terai West	-12,752 (-0.827)
Rural-Terai Mid and Far west	-10,147 (-0.811)
Mills ratio	7,514 * (0.353)
Constant	20,787 * (1.869)
R-squared	0.548
N	2,089

*** Significant at 1% level, ** Significant at 5%, and * level Significant at 10% level.
Source: Author's calculation based on Nepal Living Standard Survey 2010/11 (NLSS III).

for per capita household expenditure in no remittance receiving scenario. Moreover, constant term and Mills ratio are significant and positive (see Table 2). Therefore, this result can be applied to predict household per capita expenditure for remittance receiving scenario.

Table 3 reports FGT index and Gini coefficient results. Poverty types and inequality measures are shown in zero remittances, including internal remittance, international remittances, and internal plus international remittances scenarios. Both internal and international remittances are playing vital roles in reducing poverty in Nepal. For instance, in the non-remittance scenario, the poverty headcount is 26.10%. Internal remittance decreases this to 24.97% and external remittance brings it down to 22.13%. Moreover, total remittance contributes to the decline of the poverty headcount to 21.01%. External source seems more important (15.21%) than internal source (4.32%) to reduce the poverty level. Therefore, of the total poverty reduction, 19.50% is contributed by total remittances. This result is compatible with Lokshin et al. (2007). In addition, remittance income is important to bring down the poverty gap and squared poverty gap. Total remittances decrease the poverty gap from 7.59% to 5.9%. Here also the contribution of external remittance is more significant (17.65%) than internal remittance (5.27%). Similarly, the squared poverty gap is 3.2% percent in the case of non-remittance, whereas it declines to 2.4% due to total remittances. The role of external remittance

Table 3 Impact of Migrants' Remittances on Poverty and Inequality in Nepal (Counterfactual Scenario)

	Receive no remittances	Receive internal remittance	Receive external remittance	Receive total remittance	Percentage change		
					Internal remittance vs. no remittance	External remittance vs. no remittance	Total remittance vs. no remittance
Poverty Headcount (percent)	26.10	24.97	22.13	21.01	4.32	15.21	19.50
Poverty Gap (percent)	7.59	7.19	6.25	5.9	5.27	17.65	22.26
Squared Poverty gap (percent)	3.20	3.02	2.56	2.4	5.62	20	25
Gini Coefficient	34.52	35.65	39.72	40.26	3.27	15.06	16.62
N = 5988	2089	2035	1864				

Source: Author's calculation based on Nepal Living Standard Survey 2010/11 (NLSS III).

appears four times greater (20%) than internal source (5.62%) to bring down the squared poverty gap. Among three types of poverty, the biggest contribution of remittance is found in decreasing the squared poverty gap (25%). This implies that remittances are working as positive catalysts to decrease inequality among those who are below the poverty line. This finding is closer to Adams (2004). However, the Gini coefficient increases from 34.52% to 40.26% by total remittances. Here also greater percent increase is due to external remittances (15.06%) than internal remittances (3.27%). This is relevant because although numbers of migrants are significant from lower quintiles but received remittance amount is fairly less than upper quintiles. At this point our second null hypothesis is accepted because remittances are found to increase inequality.

7. Conclusion

This study used the 2010 Nepal Living Standard Survey cross section data to analyze the impact of remittances on FGT index and the Gini coefficient. We employed the Heckman two-stage model to correct for selection bias. For this purpose, total households are separated in three groups as non-remittance receiving households, internal remittance receiving households, and international remittance receiving households. The probability of receiving remittance is calculated using the Probit model, and poverty types and inequality is calculated using a counterfactual scenario. This paper has key three findings.

First, we found that 65 percent households are receiving remittances. Household characteristics, quintile groups and geographical location are also likely to predict migration and remittances. The chance of receiving remittances is relatively more in educated and upper quintile households than those who are less educated and poorer. This illustrates that less-educated and economically weak households cannot migrate to high wage destinations, making them less likely to receive remittances than the economically sound and educated households.

Second, our predicted result shows that, if there were no remittances, the poverty headcount level would be 26.10%. Internal remittance brings this down to 24.97%, while external remittance brings it down further to 22.13%. Finally, in the total remittances scenario, the poverty headcount comes down to 21.01%. This means total remittances contribute to 19.50% of the total poverty reduction in Nepal. Of the total poverty headcount reduction, international remittances contribute more (15.21%) than internal source (4.32%). Remittance is also important in decreasing the poverty gap and squared poverty gap. Total remittances decrease poverty gap from 7.59% to 5.9%, and the squared poverty gap from 3.2% to 2.4%. The largest role of remittances is to reduce the squared poverty gap among three types of poverty. This indicates that remittances are contributing to maintain equality among those who are below the poverty line.

Third, the Gini coefficient goes up by remittances. Calculation shows that inequality increases from 34.52% to 40.26% because of total remittances. Here also the impact of external remittances is found to be greater than internal remittances. Poor youths cannot afford expensive migration costs to developed countries.

We are grateful to Nepalese migrants who send large amounts of remittances to sustain the Nepalese economy. Currently there is surplus labour in Nepal. So, labour export seems like a suitable practice. But up to what point? The economy seems over-reliant on foreign remittances. If migration destination countries experience economic downturn, then the Nepalese economy will be badly affected. The current large volume of remittances should be reinvested into productive sectors. Proper government policy and private sector can play an important role regarding proper use of remittances in Nepal. For example government can impose minimum tax in remittance income and allocate it for road infrastructure, agriculture sector. Private sector should practice 'remittance collective investment' in the hydroelectricity project and small and medium scale agro-based industries in Nepal. In addition, the government should provide some quota in high wage pay destinations, especially to those who are below the poverty line so that the poverty reduction rate will be accelerated and there will be more egalitarian society in Nepal due to remittance. Analysis of the use of international remittance on a micro level would be a suitable topic for further research.

Notes

- 1 Maoist People's War began on February 13, 1996. They attacked police outposts, banks, factories and private houses simultaneously. About 13,000 people were killed and more than 200,000 people were displaced in a 10-year period (1996–2006) (Nepal, M. et al., 2011).
- 2 A household may consist of one person or a group of two or more people. People in the group may pool their incomes, may have a common budget, may be related or unrelated or may constitute a combination of persons both related and unrelated (NLSS III, Statistical Report Volume-I, p.5, CBS, 2011).
- 3 The 20-heading questionnaire includes demography, housing, access to facilities, migration, consumer expenditure, education, health, marriage and maternity history, work and time use, employment and unemployment, wage and salary, agriculture, non-agricultural activities, credit and savings, absentee population, remittances and transfers, social assistance, adequacy of consumption and government services/facilities and anthropometry (NLSS III Questionnaire, CBS, 2011).
- 4 Remittance received in this survey is defined as a transfer in cash or goods by a household over the previous 12 months. In kind refers to the monetary value of received items such as TVs, computers, clothing and so on (NLSS III, Statistical Report Volume- II, p. 78 CBS, 2011).
- 5 A counterfactual scenario is to artificially construct what the status of a migrant household would have been if that household was not migrated (Adams, 2006).
- 6 Poverty head count means the share of the population living below the poverty line. Depth of poverty refers to how far below the poverty line the average poor households' income (expenditure) falls. Severity of poverty explains sensitivity to changes in the distribution of income among the poor (Foster and Greer, 1984, and Haughton and Kandker, 2009).
- 7 489 households receive both internal and international remittances. If the internal remittance is greater than international remittance, that household is counted as an internal remittance receiving household and vice versa. Two participant households receive the same amount of internal and external remittances and are counted as external remittance receiving households.

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**Appendix1 First Stage Remittances and Migration Choice: Probit Model
(Reference Category: Remittance not Receiving Households)**

Variables	Remittance Receiving Households
Household size	-0.0599 ^{***} (-5.974)
Household head age	0.00830 ^{***} (4.741)
<i>Household composition (Share of children 0-3: reference group)</i>	
Share of children 4-7 year	-0.103 (-0.449)
Share of children 8-15 year	-0.261 (-1.492)
Share of men 16-64 year	1.193 ^{***} (6.188)
Share of women 16-64 year	0.432 ^{**} (2.072)
Share of elderly 64 > year	-0.597 ^{***} (-2.639)
<i>Human capital (Illiterate: reference group)</i>	
Literate	0.107 ^{**} (2.232)
Primary education	0.127 (1.389)
Secondary education	0.229 ^{***} (2.842)
Tertiary education	0.448 ^{***} (3.343)
<i>Land value in NRS (No land: reference category)</i>	
Small land (1-1,000,000)	0.226 ^{***} (4.196)
Moderate land (1,000,001-5,000,000)	0.155 ^{**} (2.431)
Large land (>5,000,000)	0.310 ^{***} (3.200)
<i>Ethnicity (High caste: reference category)</i>	
Low caste	0.0438 (0.618)
Newar	-0.370 ^{***} (-5.290)
Middle caste	0.0280 (0.562)
Muslim	-0.0241 (-0.212)
Others	-0.0466 (-0.745)
<i>District rank (Rank I: reference category)</i>	
Rank II	0.0284 (0.556)
Rank III	0.0193 (0.296)
<i>Quintiles (Poorest quintile: reference group)</i>	
Second	0.133 ^{**} (1.995)
Third	0.207 ^{***} (3.029)
Fourth	0.292 ^{***} (4.181)
Richest	0.486 ^{***} (6.208)

Variables	Remittance Receiving Households
<i>Geographical region (Kathmandu: reference category)</i>	
Mountain	0.704 ^{***} (6.829)
Urban -Hills	0.312 ^{***} (3.705)
Urban-Terai	0.530 ^{***} (6.567)
Rural-Hills East	0.416 ^{***} (4.012)
Rural-Hills Central	0.285 ^{***} (3.200)
Rural-Hills West	0.871 ^{***} (8.669)
Rural -Hills Mid and Far West	0.592 ^{***} (5.549)
Rural-Terai East	0.806 ^{***} (8.310)
Rural- Terai Central	0.814 ^{***} (7.935)
Rural-Terai West	1.020 ^{***} (9.108)
Rural-Terai Mid and Far West	0.825 ^{***} (8.168)
Constant	-0.406 ^{**} (-2.062)
N	3,899

*** Significant at 1% level, ** Significant at 5%, and * level Significant at 10% level.
Source: Author's calculation based on Nepal Living Standard Survey 2010/11 (NLSS III).