

Impact of Remittances on Child Labor Exposure

Evidence From Nepal

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I use Nepal Living Standard Survey Dataset (2004) to estimate the effects of remittances on child labor exposure in Nepal. Using a two-stage IV Probit econometric strategy, I control for endogeneity arising from omitted variables. The findings suggest that remittances have an ambiguous effect on child labor supply.

1. Introduction

The last fifteen years have witnessed labor migration as an increasingly popular livelihood strategy in Nepal. Over the period, Nepal experienced a steady increase in remittances-- expressed as a share of GDP as well as in total amount (MOF, Appendix Table 7). While there is a clear consensus among observers that such a consistently strong increase in financial transfers from migrant workers helps to improve troublesome income accounts at both national and household levels, the jury is still out on their long-term impact, specifically when it comes to their potential role in influencing human capital accumulation (Ratha, 2007). At the helm lies the global debate on “brain drain” versus “brain gain”, which portrays an ambiguous picture of the impact that migration and remittances have on child labor supply. On the one hand, theoretical evidence in the literature speaks volumes to the context of a rural agricultural economy with imperfect markets and missing opportunities whereby the migration of adults in the family encourages child labor; while, on the other hand, there are many studies that suggest that remittances-- either directly or indirectly-- reduce child labor supply in terms of both incidences and hours worked.

In the premise of such equivocal nature of the topic, it is imperative to find out- in the context of rural Nepal- if households that receive remittances do really make decisions that reflect allocation of household labor supply away from child labor. This paper addresses such issue by posing the following questions--“What is the impact of remittance on child labor-schooling decision in rural Nepal, in particular its impact on ‘children’s exposure to labor-force’? Do internal remittances have different effect than external remittances? Are the effects different between various external sources?” While addressing this matter, the paper attempts to identify the determinants of remittances and the subsequent effects of them on household’s child labor-force exposure.

Assessing the impact of remittance is generally problematic and the fundamental problem lies in the fact that the decision to migrate-- and thus receiving remittances-- and household child labor decision could very well be jointly decided. It is plausible that there are inherent difficulties brought about by self-selection induced by non-random characteristics of households that receive remittances and the endogeneity issues pertaining to omitted variable bias as well as reverse causality are considerable econometric challenges to estimating these relationships. Migrant

households may have specific characteristics such as better ability and favorable risk preferences that would increase the probability of migration (Chiswick, 1999). Thus, comparison of remittance receiving households to the non-receivers ignoring the selection bias of migrants may yield biased estimates of their labor market behavior. Moreover, endogeneity issues pertaining to unobserved characteristics and reverse causality may also pose estimation problems (Joseph and Plaza, 2010). Unobserved characteristics such as motivation to work might not only have an effect on the likelihood of being in a remittance receiving household but also influence the household's decision to send the children to work; similarly, one could envisage a possible reverse causality between migration and remittance: migration today may increase remittances tomorrow, and likewise, remittances received tomorrow may finance migration in the following period.

This paper employs data from Nepal Living Standard Survey 2004 (NLSS II) to examine the impact of remittances and migration on the remittance-receiving households' child labor supply decision. The NLSS II has a cross-sectional data for 2003/04 covering 3912 households and a panel data sample that followed up 1160 households from NLSS I, 1995. For the purposes of this paper, a two stage cross-sectional empirical framework is applied in order to test the hypothesis that emigration, through remittance transfers, has a positive effect on eliminating child labor supply. Results from a two stage IV probit model correcting for endogeneity actually doesn't support the hypothesis that remittances reduce child labor in rural Nepal. Future work in this study is planned for a fixed effects panel data analysis. That would help in controlling for unobserved invariants at household and regional levels. This study builds on and contributes to the migration, remittance and child labor literature by providing a wider understanding of child labor supply decisions in rural households in Nepal.

The structure of the paper is as follows: firstly, a review of literature in this area is presented in section 2. Section 3 presents an economic model based on migration and remittances. Section 4 reveals basic characteristics of the household data samples provided by the Nepalese Living Standards Survey II, published in 2005 by the Nepalese Central Bureau of Statistics in collaboration with the World Bank. . Section 5 discusses the empirical methodology by forming the econometric framework and estimation procedure for this study followed by the discussion of results in section 6. Section 7 concludes.

2. Literature Review

Empirical evidence in the literature related to association of migration and remittances on child school-labor decision can be divided into two views: (i) positive and (ii) mixed/negative.

View	Authors	Country	Quick note
Positive	Acosta (2006)	El Salvador	Using migration networks and household migration history as instruments for remittances, the author finds that girls and boys under 14-years-old from recipient families are more likely to attend school than those from non-recipient households.
Positive	Cox & Ureta (2003)	El Salvador	Find that remittances reduce school dropout hazard rates.
Positive	Hanson and Woodruff (2002)	Mexico	Use migration patterns to instrument migration and find that having a migrated family member has a positive effect on educational outcomes for girls aged 10-15 whose mothers have a very low level of education.
Positive	Mansuri (2006)	Pakistan	Finds strong positive effects on temporary economic migration on investments in children's schooling in Pakistan, especially for girls.
Mixed	Acosta, Fajnzylber, and Lopez (2007)	Latin America	Also use migration networks as an instrument and find that remittances are associated with increased educational attainment in only six countries, the effect being larger for children whose mothers have a low level of education.
Mixed	Mckenzie and Rappaport (2006)	Rural Mexico	Find a negative effect of migration on schooling attendance and education attainment among 16-18 year old girls and 12-18 year old boys, but a positive effect for younger girls with uneducated mothers.
Mixed	Lopez-Cordova (2005)	Mexico	Relying on rainfall data as instrument for remittances, the author shows that these effects are especially relevant for secondary school age children as receiving remittances positively affect school attendance for children aged 6-14, but negatively for boys and girls aged 15-17

In terms of determinants of remittances, the theoretical literature sheds light to coping with poverty as the main driver of migration and remittances (Epstein and Khanna, 2007). More recently, empirical work has been directing to the fact that migration is used as a coping mechanism to shocks. Yang and Choi (2007), in the case of Philippines, show that variation in rainfall leads to migration with insurance as a motive. Halliday (2006) shows that agricultural shocks to animal-stock and harvest output shock result in remittances received by households in El Salvador to increase. Similarly, Miller and Paulson (2007) give evidence to suggest that

remittances are used as a risk management strategy in Thailand. For an extensive literature review on the determinants and role of remittances, see Rapoport and Docqueir (2006).

A review of child labor literature highlights three main reasons why child labor exists (Edmonds, 2008, Joseph and Plaza, 2010) and can be summarized as follows:

- (i) Poverty and lacking availability of economic opportunities tend to aggravate child labor. (Basu and Van, 1998, Basu, 1999, Bhalotra and Heady, 2003, Ersado, 2005)
- (ii) Decisions made by households are a function of cost benefit analysis based on the relative return to child in schooling. (Bacolod and Ranjan, 2006) When times are tough and you have a binding resource constraints such as those arising from credit inaccessibility, households are more likely to under-invest in formal education and instead direct children to the labor market.
- (iii) Parents' preferences come into play in children's time allocations. (Basu and Van, 1998) Parents who are not educated themselves are less inclined to send their children to school and even more so when it comes to girls. In the case of girls, the effect is multiplied by traditional social norms and values that do not encourage girls' schooling.

The main contribution of this study will be to assess the link between remittances and household's exposure to child labor in rural Nepal. It will add on to the relevant literature pertaining to Nepal that has one study from Milgan and Bohara (2007) analyzing the effects of international remittance and non remittance income on educational achievement (educational attainment) and the amount of child labor (the number of hours the child works) using Heckman's two-step procedure for Nepal. Their model estimates the effects of different kinds of income on both child labor and educational attainment using data from 2003/04 Nepal Living Standards Survey. They find that remittance from international sources and non-remittance income contribute positively and significantly to child welfare in Nepal, but the effect of remittances is small when compared to other sources of income. While their study focuses on differences in the impact of remittance versus non-remittance income, this study focuses only on remittance income, and in addition, the impact differences brought about by remittance types divided into donor host regions of "domestic", "neighboring" (bus/train accessibility) and "others" (flying distance). Moreover, this study is different in its definition of the outcome variable of interest, which is the "exposure to child labor-force". This is different from schooling

and labor hours worked. The difference lies in the fact that I include participation in the labor force, which by definition includes employed as well as unemployed children (actively searching for jobs). Additionally, I also control for aggregate shock generated by conflict in the country during the period in question. Justification of adding these indicators is that by not employing children's exposure to "labor-force", one would be missing the true essence of children's welfare while, by not including the conflict variable, one would miss the most important shock factor during the time period of interest in Nepal. In fact, it has been well documented that the conflict had a significant impact on both migration and child labor. Controlling for this is, hence, important.

Theoretical Premise

Basu and Van (1998), in their seminal theoretical paper, consider a two period model to show that (i) household makes the decision for a child to work to ensure the overall survival of the household and (ii) in the premise of perfect substitutability between adult and child labor, there exists multiple equilibrium—one where children tend to work to support the household if the wages are low (bad equilibrium) and another where the children do not work when wages are high (good equilibrium).

Following Basu and Van (1998), Epstein and Khanna (2007) more recently show in their theoretical model that the remittances sent by emigrating parents may enable the children and other members of the households and community to stop working altogether. All of this is based on the movement of labor supply to the left i.e. reduction of excess labor supply due to temporary emigration. There needs to be enough emigration so that decrease in excess labor supply is larger than a certain level in order to eliminate the bad equilibrium. Since emigration is temporary (parents return after a certain period of time), the labor supply curve will shift back to its original position upon return of the parents and thus the economy will move back to the initial child labor equilibrium. As Dimova, Epstein and Gang (2008) put it: *"In order to prevent this, it is necessary that either (a) the parents do not return until the children grow up; or (b) a new wave of temporary emigrants substitutes for those who have returned. In any case, if the equilibrium, without child labor, can be sustained until the children grow up to be more productive worker-parents, which is equivalent to a reduction in the productivity of the new*

generation of children in terms of their parents then in this second generation child labor may be partially or even fully eliminated.”

A complement to the Epstein and Khanna theory, Gonzale-Koning and Wodon (2007) develop a similar outcome model, only they do it with a Stackelberg-type model wherein “...*the family members who remain at home develop gratitude towards the migrant when receiving remittances and reciprocate by choosing to invest more in children because the education acquired by the children will benefit the migrant upon his/her return*”. The authors tested this model using data from the Republic of Congo and showed that remittances had a statistically significant and positive impact on schooling of girls.

Empirical Strategy

Since the theoretical premise above establishes that remittances are important in eliminating child labor supply, I formulate the core equation for my outcome model estimating a child's exposure to labor-force as follows:

$$(1) \text{CLE}_{ji} = A_0 + A_2R_i + C_j\text{Chld}_j + B_j\text{HHD}_{ji} + D_j\text{HH}_{ji} + G_j\text{N}_{jk} + T_l\text{Sh}_{jl} + \text{error}_{ji}$$

Where CLE is child j in household i labor exposure¹ (binary); R is per capita remittance received by the household in the past year; CHLD is individual child characteristics in household i; HHD is vector of Household Head's Characteristics; HH is vector of household characteristics and living conditions; N is vector of regional characteristics; Sh is the aggregate shock that a household faces in the regional market-place in the form of conflict indicator; i is the household identifier, j is the child identifier, k is the region identifier and l is district level conflict shock.

The null hypothesis is that remittances have a negative impact on child labor exposure ($A_2 < 0$).

The purpose of this study-- simply put-- is to understand if there is any systematic difference between remittance receiving and non-receiving households in their child labor market behavior. With that in mind, assessing remittance impact is generally problematic due to the inherent difficulty brought about by non-randomness and endogeneity. Most examples in the literature

¹ I include participation in the labor force, which by definition includes employed as well as unemployed children (actively searching for jobs). Included are anybody between the age of 6 and 15 → not going to school and in the labor force and/or going to school and in the labor-force. It must also be noted that children with chronic diseases have not been included in the labor force even if they were not going to school. To summarize the idea, it is that if you are not going to school and it is not because you have a chronic disease, you are by default being exposed to the labor-force.

point to omitted variable problem. The household level characteristics which explain the probability of the household to be poor supply child labor are correlated with the ability of the household to produce migrants and the need to receive remittance. Likewise, a remittance receiving household may be mitigating child labor exposure better than a non-receiving household not because it received the financial transfer but because it lives in a better socio-economic environment, or an area with easier network to the outside world, or may be it has a culture of valuing schooling more. It is quite possible that such differences could be due to shocks affecting remittance transfers and labor market behavior alike (example would be a conflict affected region where transfer channel as well as labor market is disrupted) or could be a reflection of the differences in observable and unobservable characteristics between remittance receiving and non receiving households (Calero, Bedi, and Sparrow, 2009). Moreover, unobserved characteristics (example would be ability, social skills or motivation to work) might not only have an effect on the likelihood of being in a remittance receiving household but also influence household's decision to send the children to work (Joseph and Plaza, 2010).

According to Chiswick (1999), migrants self-select because they tend to have better education skills and labor market participation. So, there is a need to test for self-selection bias and to corrected for if there is any evidence of it. Also an econometric problem often cited in the literature is that remittance receiving status is potentially endogenous due to reverse causality such that a household member might have migrated and have send remittances just because there are children in the household who needs to be sent to school.

Thus, in order to correctly find the estimates of the impact of remittances on child labor, it is crucial to first identify the factors that determine remittance receipt and measure the accessibility to remittance. In this paper, I do not address the migrating decision itself due to data constraints and take remittance receipt as existing migration outcome. I do not separately identify the effects of migration and remittances.

Two-Stage Instrumental Variable Probit Framework

As noted earlier, estimating the impact of remittances requires addressing endogeneity problem. The decision to migrate so as to be able to receive remittance could be non-random. Consider the equation:

$$(2) \text{CLE}_{ji} = A_0 + A_2R_i + C_j\text{Chld}_j + B_j\text{HHD}_j + D_j\text{HH}_{ji} + G_jN_{jk} + T_i\text{Sh}_{ji} + S_i\text{UO}_i + \text{error}_{ji}$$

UO is the unobserved household level or community level characteristics. A_2 would determine the impact of remittance without bias if all variables were observable; however, since UO is not observable, if the receipt of remittances serves as an indicator of these unobserved variables, this would result in biased estimates of the equation (2). The presence of unobserved factors could simultaneously affect remittance receipt and child labor decisions. Therefore, the basic challenge to the empirical estimation is to control such unobserved factors and selectivity.

In order to account for endogeneity and selection issues, I use a 2-stage IV Probit specification:

$$(3.1) \text{CLE}_i = A_0 + A_2R_i + B_i\text{HHD}_i + D_i\text{HH}_i + G_iN_i + T_i\text{Sh}_i + \text{error}_{1i}$$

$$(3.2) R_i = K_0 + K_2Z_i + B_i\text{HHD}_i + D_i\text{HH}_i + G_iN_i + T_i\text{Sh}_i + \text{error}_{2i}$$

Here, observed CLE takes a value of 1 if the underlying latent variable CLE^* is greater than zero and 0 otherwise. In the specification, Z denotes the instruments used to identify remittance receiving households. Milgan and Bohara (2007) use incidence of borrowing as their instrument. They cite that most households in Nepal take out a loan to buy tickets/visas/commissions to migrate for work. There are two problems with this. First, data on credit is not specific enough to know the reason behind the loan. Second, borrowing could very well indicate poverty that is the root of child labor and hence the instruments could be weak. I use indicators for remittance and migration networks as the instrument². I take proportion of remittance transfer receipt in the community (no. of incidence/no. of households in the community) as the instrument. Anecdotal evidence from Nepal suggests that migrants generally get information about host regions through neighbors and community people. More often than not, it is the experience in the community that drives the migration trend. While the economic intuition satisfies the suitability criteria of the

² There is significant amount of evidence suggesting that migration and remittance decisions are highly correlated with migration and remittance networks but uncorrelated with the individual decision not to work or the household level decision to send their children to work (Woodruff and Zenteno (2003), McKenzie and Rapoport (2006), Mansuri (2006), Munshi (2003)).

chosen instrument-- i.e. it has to be correlated with remittance but uncorrelated with the child labor variable, I also do a separate IV specification test to see if the instruments are appropriate statistically³. I find the instrument to be indeed uncorrelated with the outcome variable CLE and correlated with remittance.⁴ One caveat regarding this choice of instrument though is that theoretically it is possible that the working age men leaving the community in droves could have a potential of creating a shortage in labor supply in the area which in turn could increase wages and lure children into the jobs. Although theoretically possible, there is no empirical evidence to suggest that for Nepal.

Equation 3.2 is estimated to obtain predicted value of R in the first stage and then is substituted to obtain consistent estimates of A_2 . At this point, it must be noted that the determinants of remittances (in eqn 3.2) are modeled as demand side effects only. Freund and Spatafora (2006) shed light on the supply side determinants of remittances. This would include the transfer fees, exchange rates, stock of migrants in OECD countries and the financial sector development of home country as the main determinants of formal remittances. This paper has yet to incorporate a possibility of a shock⁵, negative or positive, in the supply side that could possibly lower the amount of money sent back home, if at all being sent⁶.

In equation 3.2, I use STATA's 'ivprobit' (MLE) command to jointly estimate log amount of remittance per capita received for both 'All Nepal' and 'Rural Nepal' samples. In all cases, I check for Wald test for exogeneity to make sure that the two stage IV method is actually appropriate in comparison to one stage probit. I also use heckman selection procedure on my first stage equation in order to see if the results are any significant and valid for selection bias discussed earlier in the paper. Heckman allows to take into account the mechanism that determines the censoring of cases where one might think households are selecting into a

³ I run first stage ols with eqn 3.2; get the predicted \ln_amount of remittances. Then I use the predicted remittances in eqn 3.1; I then get the predicted residuals from this run and regress them with the instruments and other explanatory variables from eqn 3.2. To be statistically suitable instrument, there should be no statistically significant relation between the residuals from eqn 3.1 and the IV. I find this true in the case of the instrument chosen here.

⁴ I also try adding "previous migration experience within the household" as a second instrument and do the joint test. This however fails the test of exogeneity.

⁵ The literature suggest that positive shocks to the migrants working conditions don't necessarily lead to increase in money sent home; they could be using the monetary gain either for themselves in the form of immediate consumption or saving it for the rainy day fund so that they can continue sending money when labor market condition at the host country is bad.

⁶ (Although, I do plan to use the data for macro variables and work environment of the host country along with dollar exchange rates as work in the future.)

remittance receiving group non-randomly by censoring the other group. The sample of result in table 6 shows the Wald statistics (test $\rho=0$) that does not reject the case that there is no selection in my data. I thus chose to use OLS as my first stage estimator. I present rural sample in my discussion, since it is the main sample of interest. Theoretically, the marginal effect of remittance amount should be much higher in rural poor households than in urban areas.

Data and Descriptive Statistics

The primary dataset used in this analysis is from the Nepal Living Standards Survey (NLSS) carried out by the World Bank and the Central Bureau of Statistics (CBS) of Nepal in 2003/04 (NLSS II). NLSS II is a follow up to the first NLSS of 1995/96 (NLSS I), and the sample sizes are representative of the population of the country. The survey follows the World Bank's Living Standards Measurement Survey (LSMS) methodology and uses a two-stage stratified sampling scheme. NLSS II enumerated 3912 households from 326 Primary Sampling Units (PSU) of the country and interviewed 1160 households from 1995/96 panel PSU's (962 out of 1160 households were panel households that were also interviewed in NLSS I)⁷.

Although NLSS II was taken during the peak time of “people’s war”⁸ and might have thus compromised the effectiveness of surveyors, I chose this sample frame over NLSS I simply because it is based on the most recent Population Census of Nepal i.e. in 2001 and allows me to measure the effect of conflict. Since the survey provides detailed information on household characteristics, consumption, education, labor market activities, migration and remittances, NLSS II is particularly appropriate for the purposes of this study.

I focus on sample of children that are between the ages 6 and 15. The upper limit of age⁹ reflects the Nepalese law that says “a child is a person who has not completed 16 years of age”, while the lower limit is generally understood as the age by which a child should be exposed to schooling¹⁰. Moreover, I exclude children that are not immediate family members of the household in play. This way I filter out child servants, children of servants, far-flung relatives and non-relatives,

⁷ See Appendix 1, tables 1.3 and 1.4 for enumeration breakdowns and summary.

⁸ Maoist underground movement lasted between 1996 and 2006. It is known to have started from the western hills moving east as it gathered steam.

⁹ International labor Organization (ILO)’s upper limit on age is at 14. However, the international child labor law also states that the upper limit used should be the higher of the two between ILO’s and respective nation.

¹⁰ Although education is not compulsory, the government provides free primary education for all children between the ages of 6 and 12.

tenants and relations of in-laws that comprise of about 3% of children. This leaves me with 5,271 children out of 21,540 individuals that NLSS II covers and 29% of these children live in remittance receiving households. This yields a sample of the total number of households of 2,505 of which 30% receive remittance. The average number of children per households in the sample is 2.64; 60% are between the ages 10 and 15.

The variable of interest-- “child labor exposure”—puts the spotlight on children in the sample, who are (i) currently not attending school, (ii) actively searching for work, (iii) available for work but not actively searching, (iv) economically active, or (v) currently in school but also ii, iii or iv, all conditional on the child not having any chronic illness. Simply stated, children with labor-force exposure (CLE) is defined as healthy children between the ages of 6 and 15 who are not going to school and are in the labor force and/or going to school and are in the labor force. When I ignore household/domestic work as an exposure to child labor, this represents 38.8% of children in my sample¹¹, of which 39% are girls. When I include household/domestic work, 51% of the sample is exposed to laborforce, of which 57% are girls. Out of the 2,627 households represented in the sample, 1770 households have multiple children.

I use indicators for i) laborforce (42% of sample), ii) laborforce and domestic work (55% of sample), iii) laborforce along with no laborforce-no school (52% of sample), and iv) laborforce and domestic work along with no school at all (59% of sample) indicators as my dependent variables.

Pattern of Migration and Remittances

More than one million Nepalese were working abroad in 2003-04. Most of these migrants work in India, but an increasing number now go to the Persian Gulf or East Asia, where they earn much more than in South Asia. Migrant workers remitted \$794 million in 2003-04, up from \$203 million in 1995-96, an equivalent of 12 percent of Nepal’s GDP. Additionally, the conflict coupled with “urbanization” moved workers from low-productivity jobs in rural areas to higher

¹¹ According to the 2001 census, about 29 per cent of the children within the age group 10-14 are economically active.
Source: <http://www.cbs.gov.np/Population/Monograph/Chapter%2020%20Status%20of%20Children%20in%20Nepal.pdf>

productivity activities in urban areas. Another \$250 million of remittances are attributed to internal transfers¹².

Work migration is highest in rural Western Hills, engaging 45 percent of men. Regional migration patterns reflect conditions in local markets. Kathmandu and other urban areas, as the most developed areas of the country, attract migrants from other parts of Nepal. In the poor areas of rural Western Hills and rural Eastern Tarai jobs are scarce, inducing a large proportion of the population to migrate for work. Among rural areas Eastern Hills has the lowest proportion of migrants. Migration by men has increased in all rural areas and other urban areas. The picture is mixed for women. Most remittances senders (72 percent) are the sons or husbands of household members, and almost all migrants abroad (97 percent) are men 15-44 years old. Brothers and fathers of remittance recipients are the next largest group, at about 10 percent (table in Appendix). Husbands and sons constitute the largest share of migrants working abroad, and sons make up the largest share of internal migrants, followed by husbands and fathers. While the proportion of female migrants abroad is small (2-3 percent), 18 percent of all migrants working in Nepal are daughters, mothers, sisters, and wives of remittance recipients.

There have been large shifts in the destination of migrant workers. While internal migration still represented the largest share of all long-term migrant workers in 2003-04, the share of migrants within Nepal and to India had declined since 1995-96 (table in Appendix). For the poorest 20 percent of the population, the proportion of migrants to rural Nepal declined as well, but India remains the most popular destination for this group of migrants, with the share rising from 49 percent to 57 percent. For the richest households the proportion of migrants working in India declined by almost half. The proportion of migrants working in foreign countries other than India rose from 3 percent to 16 percent.

In the sample I use, households with migrants are identified as the ones that receive remittances. This could potentially lead to a bias from misclassification of households receiving remittances and households with migrants as not all remittances are sent by household members that are absent. Also, not all household members that are absent send remittances. Lokshin, Bonch-Osmolovskiy and Glinskaya (2007) show these biases are relatively small for Nepal.

¹² All remittance numbers, both internal and external, are official. The unofficial is thought to be at least another 50% of the official numbers.

In the Table 1A and 1B, I provide some descriptive statistics for the sample used. 40% of the rural sample has some form of child labor exposure in the household. The same is true for 33% of the household if all Nepal is taken together. It can be thus inferred that incidence of child labor is more prevalent in rural Nepal. Percentages of remittance receiving households are a bit higher in rural sample irrespective of the household with child labor-force exposure. In both samples, the incidence of remittance receipt and total amount received are a bit higher in non-exposure households.

It is also important to identify the advantages and disadvantages of using household survey data such as NLSS to compute the impact of remittances. Since most households receive remittances through informal channels such as through hawla/hundi, friends' network etc, the survey data are most likely to give the most accurate estimates of informal remittances received as a share of total remittances since these surveys ask respondents both how much they have received and by what channel. (Freund and Spatafora, 2006) Since Nepal doesn't have strong taxation on remittances, and informal channels are not illegal, there is no incentive to direct concealment for the respondents either. The prevalence of informal channel as the primary form of remittance transfer is true for Nepal. More than 75% of the transfers are done informally. The household survey's direct approach helps capture this, which otherwise wouldn't have been possible by looking through national income accounts indirect approach.

In terms of disadvantage, the literature cites one important problem with using household survey data on remittances. Individuals receiving remittances, and especially those receiving large amounts, are likely to be under-sampled: concerns about confidentiality may induce them not to answer survey questions (Ravallion, 2003). This is partly true in the case of Nepal, especially in the presence of Maoist conflict, representing the indirect concealment incentive. The incidences of revolutionary soldiers harassing households that they know of having big enough income in the form of remittance or non-remittance income likewise have been well documented. This dataset besits at the peak of conflict time in Nepal and I use the conflict density indicator from 2001 data source presented by the institute of conflict management in South Asia. I use ArcGIS application to create the conflict map in the appendix (Figure 1). The conflict variable should be taken as a covariate shock that the households may be exposed to in their districts. This indicator should be able to capture the labor market conditions as well, especially for child labor since

child soldiers were found commonly during this time period. This aggregate shock in particular is expected to affect human capital decisions as both as market based and informal coping mechanisms may break down under such pressure (Calero, Bedi, Sparrow, 2009). It is here that remittances would play as an informal safety valve. Again using ArcGIS, in figures 2 and 3 respectively, I show the income-based poverty in Nepal from 1996 (beginning of conflict) and the percentage of remittance receiving households in 2004. Notice that districts that were poor in 1996 have now the highest percentage in receiving remittance. It is most plausible that poverty and conflict accelerated migration and as a result more remittance inflow in the western mountain and hill regions in comparison to other parts of Nepal.

Exogenous Variables used

I divide up the right-hand side variables in to child characteristics, household head characteristics, household characteristics, regional characteristics, aggregate shock in the form of conflict, time to facilities and ethnicity. Children of older ages are expected to be more involved in child labor across the board. In terms of dissection of the kind of work, girls are thought of being more involved in household/domestic work while boys are more in economically active wage earning work. Boys are given first preference in terms of schooling. Likewise, any household's decision is made by the head of the household; so I include the education factor, age and sex of the household. Female driven households are more likely to be receiving remittances since it is the male who generally go away to work, and education should have negative effect on both child labor and remittances.

In the household factors, I do not include household expenditures or income as these have the potential to be endogenous with the outcome variable. Schooling and work decisions directly affect household spending, while unobserved heterogeneity is likely to introduce additional problems. I treat household characteristics and living conditions as proxies for the socio-economic status of the household.

I include conflict variables as aggregate shock. This is important as these kinds of aggregate shocks are expected to affect human capital decisions as both market based and informal insurance and coping mechanisms may break down under such circumstances (Calero, Bedi, Sparrow, 2009). Likewise, I add time to facilities such as bank and school since these are vital in terms of remittance receipt (although not so much banks in rural Nepal since most monies are

sent home informally and credit is taken out from informal lenders) and as substitute for child labor, respectively. I also add regional dummies to capture any region specific labor-market conditions and economic characteristics. Ethnicity is also included since it is well known that the rai/gurung/limbu and magar/thakali have had history of remittance sending jobs as a group, either as Gurkha soldier recruits in the international arena and seasonal migrants respectively.

Tables 1a and 1b in the appendix show basic statistics of covariates of interest by childlabor indicators. Likewise, table 2 shows the statistics by remittance receiving status of households.

Results and Discussion

Tables 3, 4, and 5 provide the results.

Table 3— The impact of household head's characteristics on remittance income is as expected. Those households with male household heads have lesser amount of remittance receipt than those with female heads. Female led households generally have the male as the remittance sender and normally it is the men that migrate for short term work and send back home money. Also, the wage disparity between male and female migrant workers can also explain the possible effect of being a male –led household (female sender) having lesser remittance amount in comparison to female led households (male sender). Likewise, education of the household head does matter. Those who are more educated are possibly finding jobs at home and do not migrate looking for jobs; hence, the negative effect on remittance income. This also can be said of self-employed pattern in households. Basically, they have no reason to migrate or there is no reason for the ones that have migrated to send home money as education and self-employment might already make you above average poverty level. Age has a positive effect on amount received. This could be due to the fact that as you get older, it is the younger working age men that go away and send money home. In the ethnic group, only Newar has significant result. It is being referenced against Brahmins/Chettris. The fact that Newars are ethnic businessman class, they don't seem necessary to even migrate to send back money—thus the negative effect. They generally have their own businesses and again would fall in the same realm as the self-employed households. Conflict with moderate intensity is also positively correlated with remittance amount while the high conflict variable is insignificant. This difference is plausible since the high conflict areas

were being taxed and harassed by the revolutionaries; so, the migrant could possibly choose to save the money with oneself rather than sending back home.

There are a couple of confounders. Dependency ratio has a negative impact on remittance receipt. This could be because of the way I constructed the dependent variable i.e. in per capita terms. Also, net wealth has a positive effect on amount received.

The instruments used, proportionate community remittance receipt, has as expected sign and is highly significant.

Table 4-- Receipt of Remittance Income has negative impact on child labor exposure in models 1 to 3 but all of them are insignificant. Also, it is noteworthy that model without IV correction in fact gives the opposite sign of what the Probit model gives. Looking at model 4, we see that a 1% increase in remittance amount increases the probability of child labor-force exposure by .02 in rural Nepal. This is significant and against our hypothesis that remittance income would decrease child labor exposure. Economic argument could be made that although the marginal effect of remittance is actually higher and significant for the poor households as represented by rural Nepal, child schooling is yet to be considered a basic necessity. Poor people must fulfill other basic needs with the remittance income first before allocating funds towards the child's education. This argument, however, might not hold much water in the case of rural Nepal since most schools cost negligible. This can lead to one suggestion that maybe there aren't enough schools around for kids to go to school. Another plausible reasoning could be that the conflict really destroyed the public infrastructure such as schools and kids were in fact left to travel a longer time to get to school. The time to school variable is significant and shows that the longer it takes time to get to school the higher the chances of child labor exposure.

Other significant results include the "girl" child variable. Across all forms of dependent indicator, a child who is a girl is more likely to be exposed to child labor than a boy. This speaks of the boy preference that I had mentioned earlier. The culture is such that girls are seen as someone who leaves the family in the long run; so, boys get first digs on human capital investment.

Again, the household head with education is shown to have a negative effect on child labor while being a male household head leads to a higher chance of exposure to child labor. One interesting

outcome is related to the age of the household head. Age has a negative effect on child labor. Recall that from table 3, age has a positive effect on receiving remittance. This is one sure channel that can be seen to link remittance with decrease in child labor exposure. This goes very well with the Gonzale-Koning and Wodon (2007) outcome model, where they do a Stackelberg-type model wherein “...*the family members who remain at home develop gratitude towards the migrant when receiving remittances and reciprocate by choosing to invest more in children because the education acquired by the children will benefit the migrant upon his/her return*”.

Rural East Mtn/hill seems to have more child labor exposure in comparison to the West. Also, being wealthier will have negative impact on child labor, as expected.

Table 5-- Here we see the impact of various host region remittances on child labor. The amount of remittances sent from OECD countries is generally believed to be higher than any other. The negative effect of external remittance from OECD on child labor category might just be coming from that. We can also see the amount of remittances coming from Middle East and Malaysia are helping in decreasing exposure to child labor. This is important since most recent migrant workers, especially in the last decade, have flocked to the Middle East and Malaysia where the boom time has provided so many with unskilled labor.

Internal remittance, on the other hand, is showing the opposite effect than what one would expect. It could be that it is not enough transfer of money to sufficiently fulfill even the basic needs of the family at home so that the child can be sent to school.

Conclusion

During the last fifteen years, Nepal has seen significant increase in migration and remittance inflow. At the same time, due to internal conflict, children have been displaced, made to work as child soldiers or forced to mend their village farms in the absence of one of the parents, particularly the father. Under such circumstances, remittance income has proven to bring relief to the household in terms of monetary means. This new found monetary means, however, as found in this paper’s analysis has not translated into longer term human capital investment.

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Table 1a: Descriptive Statistics of Variables of Interest

<i>Sample includes all children aged 6-15</i> Child Labor Exposure 1 (Excludes Domestic Work)	ALL NEPAL SAMPLE Child Labor Exposure=1		ALL NEPAL SAMPLE Child Labor Exposure=0		RURAL NEPAL SAMPLE Child Labor Exposure=1		RURAL NEPAL SAMPLE Child Labor Exposure=0	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
-								
Child's Characteristics								
Age	11.254	2.785	9.480	2.630	11.182	2.789	9.164	2.515
Age Squared	134.409	60.529	96.785	53.296	132.817	60.519	90.307	50.124
Girl	0.506	0.500	0.455	0.498	0.501	0.500	0.452	0.498
Head of Household (HHH) Characteristics								
HHH Male	0.838	0.368	0.825	0.380	0.832	0.374	0.832	0.374
HHH Age	44.838	11.443	43.591	12.055	44.807	11.444	43.555	11.816
HHH Education	2.125	3.481	3.999	4.478	1.861	3.243	3.091	3.945
HHH Illiterate	0.399	0.490	0.571	0.495	0.365	0.482	0.491	0.500
Household (HH) Characteristics, Living Conditions & Durable Assets								
HH Size	6.501	2.809	6.562	2.897	6.535	2.852	6.818	3.111
HH Dependency Ratio (Dependents Ages: <16 and >59)	0.563	0.148	0.549	0.140	0.569	0.146	0.566	0.137
Own Dwelling? (Yes=1)	0.969	0.174	0.876	0.330	0.982	0.133	0.954	0.210
Own Agricultural Land? (Yes=1)	0.846	0.361	0.714	0.452	0.866	0.341	0.866	0.341
Own Any Livestock? (Yes=1)	0.903	0.295	0.710	0.454	0.934	0.249	0.883	0.322
Own Equipment? (Yes=1)	0.932	0.251	0.761	0.427	0.957	0.203	0.911	0.285
Anybody in HH Self-Employed? (Yes=1)	0.250	0.433	0.311	0.463	0.222	0.415	0.256	0.436
Nominal Per Capita Consumption (in NRs.)	12,168	21,411	21,042	33,239	10,577	10,002	12,315	9,702
Net Monetary Wealth (in NRs.)	566,760	1,741,661	1,077,162	2,340,795	466,287	629,791	668,623	1,041,100
Ethnicity								
Brahmin/Chettri	0.260	0.439	0.300	0.458	0.262	0.440	0.311	0.463
Newar	0.048	0.214	0.106	0.308	0.041	0.199	0.042	0.200
Magar/Tharu/Tamang	0.221	0.415	0.169	0.375	0.234	0.423	0.194	0.395
Rai/Gurung/Limbu	0.075	0.264	0.071	0.257	0.081	0.273	0.066	0.249
Other Minorities	0.396	0.489	0.354	0.478	0.382	0.486	0.387	0.487

	ALL NEPAL SAMPLE Child Labor Exposure=1		ALL NEPAL SAMPLE Child Labor Exposure=0		RURAL NEPAL SAMPLE Child Labor Exposure=1		RURAL NEPAL SAMPLE Child Labor Exposure=0	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Regional								
Urban Kathmandu	0.116	0.320	0.342	0.474	0.000	0.000	0.000	0.000
Rural West Mountain/Hill	0.217	0.412	0.175	0.380	0.246	0.431	0.266	0.442
Rural East Mountain/Hill	0.280	0.449	0.140	0.347	0.317	0.466	0.212	0.409
Rural West Tarai	0.131	0.338	0.130	0.336	0.149	0.356	0.197	0.398
Rural East Tarai	0.255	0.436	0.214	0.410	0.288	0.453	0.325	0.468
Share of Migrant Households in the Commune/Ward	0.316	0.199	0.299	0.188	0.317	0.200	0.327	0.190
Access to Facility in Minutes								
Distance to Bank	326.196	741.572	232.402	743.308	364.217	780.786	342.528	896.553
Distance to School	20.772	32.234	13.899	15.201	21.780	33.737	16.492	17.116
Distance to Market	240.889	712.410	160.470	516.382	267.868	753.560	233.610	623.922
Aggregate Shock (District Level)								
High Conflict	0.137	0.343	0.128	0.335	0.138	0.345	0.147	0.354
Moderate Conflict	0.353	0.478	0.298	0.457	0.372	0.483	0.386	0.487
Low Conflict	0.510	0.500	0.574	0.495	0.491	0.500	0.467	0.499
Remittance								
Received Remittance?(Y=1)	0.303	0.459	0.283	0.451	0.307	0.461	0.305	0.461
If Remittance Received:								
Sender within Nepal?(Y=1)	0.460	0.499	0.428	0.495	0.447	0.498	0.379	0.486
Sender outside Nepal?(Y=1)	0.540	0.499	0.572	0.495	0.553	0.498	0.621	0.486
Total Remittance Received by Household (in NRs.)	4,702	12,368	10,042	18,768	4,219	6,287	7,305	12,115
Amt from external	3,303	6,519	7,733	18,578	3,342	6,409	5,503	11,068
Amt from internal	1,399	10,941	2,309	6,545	877	2,080	1,803	6,645
Number of Observations	2,746	2,746	2,525	2,525	2,427	2,427	1,662	1,662
Proportion of childlabor to non-childlabor by sample	1.088				1.460			

Table 1b: Descriptive Statistics of Variables of Interest

<i>Sample includes all children aged 6-15</i> Child Labor Exposure (Includes Domestic Work)	ALL NEPAL SAMPLE Child Labor Exposure=1		ALL NEPAL SAMPLE Child Labor Exposure=0		RURAL NEPAL SAMPLE Child Labor Exposure=1		RURAL NEPAL SAMPLE Child Labor Exposure=0	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Child's Characteristics								
Age	11.199	2.771	9.253	2.562	11.097	2.777	8.932	2.444
Age Squared	133.105	60.163	92.173	51.341	130.844	60.134	85.755	48.134
Girl	0.539	0.499	0.399	0.490	0.527	0.499	0.392	0.488
Head of Household (HHH) Characteristics								
HHH Male	0.836	0.371	0.826	0.379	0.831	0.375	0.834	0.373
HHH Age	44.428	11.381	43.970	12.276	44.512	11.391	43.883	12.022
HHH Education	2.342	3.621	4.009	4.527	2.020	3.345	3.024	3.957
HHH Illiterate	0.413	0.492	0.580	0.494	0.374	0.484	0.500	0.500
Household (HH) Characteristics, Living Conditions & Durable Assets								
HH Size	6.469	2.778	6.620	2.953	6.526	2.841	6.892	3.174
HH Dependency Ratio (Dependents Ages: <16 and >59)	0.564	0.147	0.546	0.139	0.570	0.146	0.565	0.136
Own Dwelling? (Yes=1)	0.957	0.202	0.876	0.330	0.978	0.146	0.955	0.207
Own Agricultural Land? (Yes=1)	0.836	0.370	0.706	0.456	0.866	0.341	0.865	0.342
Own Any Livestock? (Yes=1)	0.889	0.314	0.698	0.459	0.931	0.253	0.878	0.328
Own Equipment? (Yes=1)	0.919	0.273	0.751	0.433	0.954	0.209	0.907	0.290
Anybody in HH Self-Employed? (Yes=1)	0.253	0.435	0.317	0.465	0.223	0.417	0.259	0.438
Nominal Per Capita Consumption (in NRs.)	12,682	21,006	21,832	35,213	10,685	9,831	12,449	9,982
Net Monetary Wealth (in NRs.)	589,616	1,674,483	1,132,250	2,493,894	479,283	640,666	683,275	1,092,872
Ethnicity								
Brahmin/Chettri	0.272	0.445	0.289	0.453	0.274	0.446	0.297	0.457
Newar	0.053	0.223	0.110	0.312	0.041	0.199	0.042	0.200
Magar/Tharu/Tamang	0.215	0.411	0.169	0.374	0.228	0.419	0.197	0.398
Rai/Gurung/Limbu	0.077	0.267	0.068	0.251	0.082	0.275	0.061	0.240
Other Minorities	0.383	0.486	0.365	0.482	0.375	0.484	0.403	0.491
ALL NEPAL SAMPLE			ALL NEPAL SAMPLE		RURAL NEPAL SAMPLE		RURAL NEPAL SAMPLE	

	Child Labor Exposure=1		Child Labor Exposure=0		Child Labor Exposure=1		Child Labor Exposure=0	
	<u>Mean</u>	<u>Std. Dev.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Mean</u>	<u>Std. Dev.</u>
-								
Regional								
Urban Kathmandu	0.134	0.340	0.355	0.479	0.000	0.000	0.000	0.000
Rural West Mountain/Hill	0.210	0.407	0.178	0.383	0.243	0.429	0.276	0.447
Rural East Mountain/Hill	0.274	0.446	0.125	0.331	0.316	0.465	0.194	0.395
Rural West Tarai	0.132	0.339	0.128	0.334	0.153	0.360	0.199	0.399
Rural East Tarai	0.250	0.433	0.214	0.410	0.289	0.453	0.331	0.471
Share of Migrant Households in the Commune/Ward	0.314	0.196	0.299	0.190	0.317	0.199	0.329	0.191
Access to Facility in Minutes								
Distance to Bank	314.217	732.022	233.543	758.196	357.452	777.467	351.410	923.333
Distance to School	20.091	30.703	13.699	15.351	21.345	32.368	16.295	17.467
Distance to Market	228.994	689.489	163.801	522.485	259.259	736.076	243.599	636.690
Aggregate Shock (District Level)								
High Conflict	0.133	0.339	0.132	0.339	0.136	0.343	0.151	0.358
Moderate Conflict	0.346	0.476	0.299	0.458	0.371	0.483	0.390	0.488
Low Conflict	0.521	0.500	0.569	0.495	0.492	0.500	0.459	0.498
Remittance								
Received Remittance?(Y=1)	0.301	0.459	0.282	0.450	0.307	0.461	0.305	0.461
If Remittance Received:								
Sender within Nepal?(Y=1)	0.463	0.499	0.418	0.494	0.449	0.498	0.361	0.481
Sender outside Nepal?(Y=1)	0.537	0.499	0.582	0.494	0.551	0.498	0.639	0.481
Total Remittance Received by Household (in NRs.)	5,490	14,755	9,767	17,156	4,508	6,810	7,345	12,486
Amt from external	4,018	10,982	7,411	16,834	3,590	6,944	5,441	11,204
Amt from internal	1,472	10,438	2,356	6,778	918	2,180	1,903	7,149
Number of Observations	3,118	31,118	2,153	2,153	2,701	2,701	1,388	1,388
Proportion of childlabor to non-childlabor by sample	1.448				1.946			

Table 2: Descriptive Statistics of Variables used

<i>Sample includes all children aged 6-15</i>	ALL NEPAL SAMPLE		ALL NEPAL SAMPLE		RURAL NEPAL SAMPLE		RURAL NEPAL SAMPLE	
	Received Remittance?=Yes		Received Remittance?=No		Received Remittance?=Yes		Received Remittance?=No	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Head of Household (HHH) Characteristics								
HHH Male	0.606	0.489	0.913	0.281	0.609	0.488	0.921	0.270
HHH Age	44.836	13.595	43.948	11.751	45.623	13.389	43.737	11.641
HHH Education	2.275	3.735	3.518	4.363	1.609	3.130	2.699	3.799
HHH Illiterate	0.455	0.498	0.511	0.500	0.391	0.488	0.441	0.497
Household (HH) Characteristics, Living Conditions & Durable Assets								
HH Size	5.628	2.489	6.082	2.440	5.788	2.555	6.161	2.501
HH Dependency Ratio (Dependents Ages: <17 and >59)	0.526	0.162	0.519	0.154	0.529	0.165	0.535	0.152
Own Dwelling? (Yes=1)	0.916	0.277	0.914	0.281	0.975	0.157	0.962	0.192
Own Agricultural Land? (Yes=1)	0.790	0.408	0.753	0.432	0.864	0.343	0.853	0.354
Own Any Livestock? (Yes=1)	0.822	0.383	0.774	0.418	0.911	0.285	0.901	0.299
Own Equipment? (Yes=1)	0.863	0.344	0.822	0.383	0.939	0.239	0.932	0.251
Anybody in HH Self-Employed? (Yes=1)	0.184	0.388	0.323	0.468	0.165	0.371	0.267	0.443
Nominal Per Capita Consumption (in NRs.)	16,712	19,327	19,364	37,897	12,213	8,268	11,548	10,296
Net Monetary Wealth (in NRs.)	732,964	1,237,045	937,124	2,793,515	529,239	642,049	527,813	867,648
Ethnicity								
Brahmin/Chettri	0.312	0.463	0.277	0.447	0.293	0.455	0.281	0.450

Newar	0.048	0.214	0.101	0.302	0.040	0.197	0.043	0.203
Magar/Tharu/Tamang	0.154	0.362	0.192	0.394	0.165	0.371	0.219	0.414
Rai/Gurung/Limbu	0.092	0.289	0.068	0.252	0.082	0.275	0.078	0.268
Other Minorities	0.394	0.489	0.362	0.481	0.419	0.494	0.379	0.485

	ALL NEPAL SAMPLE		ALL NEPAL SAMPLE		RURAL NEPAL SAMPLE		RURAL NEPAL SAMPLE	
	Received Remittance?=Yes		Received Remittance?=No		Received Remittance?=Yes		Received Remittance?=No	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Regional								
Urban Kathmandu	0.209	0.407	0.258	0.438	0.000	0.000	0.000	0.000
Rural West Mountain/Hill	0.249	0.433	0.181	0.385	0.315	0.465	0.244	0.430
Rural East Mountain/Hill	0.161	0.368	0.215	0.411	0.204	0.403	0.290	0.454
Rural West Tarai	0.121	0.327	0.119	0.324	0.153	0.360	0.161	0.367
Rural East Tarai	0.260	0.439	0.226	0.419	0.328	0.470	0.305	0.461
Share of Migrant Households in the Commune/Ward	0.434	0.185	0.258	0.173	0.446	0.189	0.273	0.174
Access to Facility in Minutes								
Distance to Bank	266.264	685.773	309.537	867.252	329.209	758.685	409.567	987.525
Distance to School	16.296	19.105	17.673	34.339	17.933	20.730	20.603	38.863
Distance to Market	203.834	756.146	223.086	660.382	250.623	844.071	293.278	754.161

Aggregate Shock (District Level)									
High Conflict	0.120	0.325	0.132	0.338	0.128	0.334	0.145	0.352	
Moderate Conflict	0.318	0.466	0.310	0.463	0.377	0.485	0.368	0.482	
Low Conflict	0.562	0.496	0.558	0.497	0.495	0.500	0.487	0.500	
Remittance									
Sender within Nepal?(Y=1)	0.442	0.497	0.000	0.000	0.416	0.493	0.000	0.000	
Sender outside Nepal?(Y=1)	0.558	0.497	0.000	0.000	0.584	0.493	0.000	0.000	
Total Remittance Received by Household (in NRs.)	8,231	18,369	-	-	5,925	10,000	-	-	
If external:									
Amt from Middle East and Malaysia	4,081	10,620	-	-	4,138	10,823	-	-	
Amt from OECD and others	3,109	15,857	-	-	129	1,676	-	-	
Amt from India, Tibet and other Neighboring	3,451	6,676	-	-	3,470	6,722	-	-	
Number of Children in Household	2.727	1.263	2.786	1.249	2.787	1.288	2.863	1.282	
Proportion of Children Exposed to Laborforce excluding Hhwork	0.528	0.436	0.498	0.435	0.592	0.420	0.585	0.417	
Proportion of Children Exposed to Laborforce including Hhwork	0.598	0.422	0.569	0.427	0.663	0.399	0.653	0.401	
Number of Observations	1,685	1,685	4,061	4,061	1,364	1,364	3,063	3,063	

Table 3: Determinants of Remittance (First Stage Linear Estimates)

Model No. Sample Group	(1) <i>All Nepal</i>	(2) <i>Rural Nepal</i>
Head of Household (HHH) Characteristics		
HHH Male	-3.533** (0.234)	-3.781** (0.267)
HHH Age	0.0205** (0.00677)	0.0249** (0.00768)
HHH Education	-0.0444* (0.0199)	-0.0573* (0.0237)
Household (HH) Characteristics, Living Conditions & Durable Assets		
HH Dependency Ratio (Dependents Ages: <17 and >59)	-1.106* (0.477)	-1.848** (0.524)
Own Dwelling? (Yes=1)	-0.721* (0.302)	0.339 (0.429)
Own Agricultural Land? (Yes=1)	-0.313 (0.207)	-0.340 (0.266)
Anybody in HH Self-Employed? (Yes=1)	-0.649** (0.151)	-0.545** (0.178)
Net Monetary Wealth (in NRs.)	0.308** (0.0745)	0.302** (0.0876)
Ethnicity (Reference Category: Brahmin/Chhetri)		
Newar	-0.623* (0.273)	-0.205 (0.418)
Magar/Tharu/Tamang	0.174 (0.213)	0.263 (0.232)
Rai/Gurung/Limbu	0.406 (0.315)	0.338 (0.343)
Other Minorities	0.0924 (0.192)	0.168 (0.221)
Regional (Reference Category: Rural West Mountain/Hill)		
Urban Kathmandu	0.567+ (0.295)	- -
Rural East Mountain/Hill	0.319 (0.228)	0.230 (0.234)
Rural West Tarai	0.194 (0.290)	0.177 (0.305)
Rural East Tarai	0.602* (0.257)	0.513+ (0.273)
Aggregate Shock (District Level) (Reference Category: Low Conflict)		
High Conflict	0.256 (0.225)	0.123 (0.249)
Moderate Conflict	0.333* (0.161)	0.335+ (0.175)
Share of Migrant Households in the Commune/Ward		
	6.556** (0.367)	6.255** (0.415)
Constant	-0.586 (1.216)	-0.752 (1.373)
N	5271	4089
adj. R-sq	0.321	0.336

, (Child Characteristics and Log of Time to Facilities were all insignificant, and hence, omitted from reporting)

+ p<0.10, * p<0.05, ** p<0.01, Standard errors in parentheses, adjusted for 1895 clusters of Households

Reporting: First Stage of IVProbit, Dependent: Ln_RemittanceAmtpercapita

Table 4: Effect on Child Laborforce Exposure Variables (Probit Marginal Effects for Rural Sample)

Model No. ('a' denotes models from IV Probit)	(1)	(2)	(3)	(4)	(1a)	(2a)	(3a)	(4a)
Dependent Variable	laborforce	domesticwork or laborforce	child labor exposure1	child labor exposure2	laborforce	domesticwork or laborforce	child labor exposure1	child labor exposure2
Pred Ln of HH Amount of Remittance per Capita	-0.00335 (0.00335)	-0.00408 (0.00314)	-0.00110 (0.00332)	0.000224 (0.00313)	0.0246** (0.00864)	0.0143+ (0.00842)	0.00896 (0.00901)	0.00567 (0.00829)
Child Characteristics								
Age	0.221** (0.0258)	0.0555* (0.0229)	-0.0102 (0.0232)	0.0190 (0.0222)	0.225** (0.0258)	0.0575* (0.0229)	-0.00910 (0.0233)	0.0196 (0.0222)
Age Squared	-0.00625** (0.00120)	0.000398 (0.00110)	0.00391** (0.00113)	0.00254* (0.00108)	-0.00636** (0.00121)	0.000341 (0.00110)	0.00388** (0.00113)	0.00252* (0.00108)
Girl	0.0486** (0.0175)	0.163** (0.0161)	0.0579** (0.0167)	0.145** (0.0156)	0.0494** (0.0175)	0.164** (0.0161)	0.0582** (0.0167)	0.145** (0.0156)
Head of Household (HHH) Characteristics								
HHH Male	0.0144 (0.0319)	0.0499 (0.0320)	0.0275 (0.0338)	0.0284 (0.0327)	0.136** (0.0444)	0.135** (0.0481)	0.0730 (0.0518)	0.0533 (0.0489)
HHH Age	-0.00323** (0.000940)	-0.00308** (0.000911)	0.0000803 (0.000948)	-0.00113 (0.000896)	-0.00415** (0.000968)	-0.00370** (0.000937)	-0.000408 (0.000993)	-0.00131 (0.000925)
HHH Education	-0.0125** (0.00364)	-0.0107** (0.00323)	-0.0136** (0.00347)	-0.00899** (0.00320)	-0.0112** (0.00368)	-0.00982** (0.00326)	-0.0131** (0.00351)	-0.00871** (0.00324)
Household (HH) Characteristics, Living Conditions & Durable Assets								
HH Dependency Ratio (Dependents Ages: <17 and >59)	-0.0309 (0.0736)	0.0744 (0.0699)	0.133+ (0.0725)	0.134* (0.0676)	0.0184 (0.0740)	0.107 (0.0709)	0.151* (0.0733)	0.143* (0.0687)
Own Dwelling? (Yes=1)	0.190* (0.0797)	0.189* (0.0736)	0.226** (0.0769)	0.152* (0.0678)	0.181* (0.0815)	0.182* (0.0743)	0.222** (0.0773)	0.150* (0.0679)
Own Agricultural Land? (Yes=1)	0.0759+ (0.0416)	0.0436 (0.0399)	0.0274 (0.0422)	0.0315 (0.0393)	0.0806+ (0.0417)	0.0470 (0.0399)	0.0290 (0.0423)	0.0323 (0.0394)
Anybody in HH Self-Employed? (Yes=1)	-0.0405 (0.0270)	-0.0486+ (0.0254)	-0.0277 (0.0263)	-0.0300 (0.0245)	-0.0213 (0.0277)	-0.0352 (0.0260)	-0.0205 (0.0273)	-0.0260 (0.0253)
Net Monetary Wealth (in NRs.)	-0.0367** (0.0136)	-0.0589** (0.0123)	-0.0602** (0.0128)	-0.0590** (0.0118)	-0.0430** (0.0139)	-0.0631** (0.0126)	-0.0625** (0.0132)	-0.0603** (0.0121)

Ethnicity								
(Reference Category: Brahmin/Chhetri)								
Newar	0.0361 (0.0547)	-0.0263 (0.0498)	0.0246 (0.0521)	-0.00537 (0.0472)	0.0357 (0.0546)	-0.0267 (0.0499)	0.0245 (0.0522)	-0.00549 (0.0473)
Magar/Tharu/Tamang	0.0571+ (0.0326)	0.0183 (0.0306)	0.0609* (0.0304)	0.0222 (0.0295)	0.0559+ (0.0326)	0.0176 (0.0307)	0.0606* (0.0304)	0.0222 (0.0295)
Rai/Gurung/Limbu	0.00850 (0.0450)	-0.0103 (0.0413)	-0.00640 (0.0430)	-0.00358 (0.0404)	-0.00668 (0.0451)	-0.0192 (0.0416)	-0.0117 (0.0436)	-0.00612 (0.0409)
Other Minorities	0.0149 (0.0316)	0.0111 (0.0300)	0.0482 (0.0307)	0.00812 (0.0291)	0.0127 (0.0318)	0.0102 (0.0302)	0.0475 (0.0307)	0.00790 (0.0291)
Regional								
(Reference Category: Rural West Mountain/Hill)								
Rural East Mountain/Hill	0.0742* (0.0316)	0.130** (0.0279)	0.117** (0.0296)	0.137** (0.0264)	0.0919** (0.0322)	0.140** (0.0284)	0.123** (0.0304)	0.140** (0.0272)
Rural West Tarai	-0.0777* (0.0393)	0.0139 (0.0372)	0.0143 (0.0398)	0.0503 (0.0343)	-0.0748+ (0.0394)	0.0159 (0.0373)	0.0152 (0.0399)	0.0508 (0.0344)
Rural East Tarai	-0.0452 (0.0349)	0.0376 (0.0336)	0.0337 (0.0356)	0.0603+ (0.0323)	-0.0486 (0.0351)	0.0348 (0.0337)	0.0323 (0.0357)	0.0593+ (0.0324)
Access to Facility in Minutes								
Log Distance to Bank	0.0207 (0.0133)	0.0273* (0.0123)	0.0276* (0.0130)	0.0301* (0.0120)	0.0196 (0.0133)	0.0262* (0.0123)	0.0271* (0.0130)	0.0298* (0.0120)
Log Distance to School	-0.00362 (0.0129)	0.0195 (0.0121)	0.0240+ (0.0126)	0.0218+ (0.0117)	-0.00140 (0.0129)	0.0209+ (0.0121)	0.0247+ (0.0126)	0.0222+ (0.0117)
Log Distance to Market	0.00144 (0.0128)	-0.00476 (0.0115)	0.000191 (0.0117)	-0.00548 (0.0110)	0.00313 (0.0127)	-0.00358 (0.0115)	0.000924 (0.0116)	-0.00507 (0.0109)
Aggregate Shock (District Level)								
(Reference Category: Low Conflict)								
High Conflict	0.00691 (0.0394)	-0.0301 (0.0361)	0.000455 (0.0370)	-0.0189 (0.0353)	0.0145 (0.0397)	-0.0255 (0.0363)	0.00320 (0.0372)	-0.0176 (0.0355)
Moderate Conflict	0.0166 (0.0245)	-0.00370 (0.0228)	-0.0150 (0.0239)	-0.0231 (0.0224)	0.0119 (0.0246)	-0.00721 (0.0229)	-0.0169 (0.0240)	-0.0242 (0.0224)

	(1)	(2)	(3)	(4)		(1a)	(2a)	(3a)	(4a)
N	4089	4089	4089	4089		4089	4089	4089	4089
adj. R-sq	0.1884	0.1476	0.1514	0.1733		0.190	0.1478	0.1516	0.1734
	-	-	-	-		-	-	-	-
log pseudo-likelihood	2297.9986	-2313.4787	2344.1293	2165.6902		12506.869	-12526.151	12559.537	12381.838
Wald chi2	766.28	562.21	559.04	607.09		774.38	544.41	551.7	601.89
Obs. P	0.482	0.621	0.594	0.661		0.482	0.621	0.594	0.661
Pred. P	0.470	0.641	0.614	0.696		0.470	0.641	0.614	0.696
Correctly Classified	71.12%	71.44%	69.53%	73.44%		70.43%	71.00%	69.65%	73.37%
Wald test of exogeneity ($\theta = 0$): Prob > chi2						0.0009	0.0219	0.2261	0.4787

Marginal effects; Standard errors in parentheses, adjusted for 1895 clusters of Households

+ p<0.10 * p<0.05 ** p<0.01

Data Source: NLSSII Year 2004

Reporting: Second Stage Probit Marginal Estimates of IV Probit Model

Table 5: Marginal Estimates of Remittances divided into Sender's Host Regions (Interaction Terms)

Dependents	laborforce		domesticwork or laborforce		childlaborexposure1		childlaborexposure2	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pred Ln of HH Amount of Remittance per Capita	0.00172	0.00181	0.00187	0.00203	0.0163+	0.0167+	0.0173*	0.0176*
X Internal Remittance	(0.00843)	(0.00842)	(0.00824)	(0.00823)	(0.00885)	(0.00884)	(0.00828)	(0.00827)
Pred Ln of HH Amount of Remittance per Capita	0.00586		0.00702		0.00184		0.00492	
X External Remittance	(0.00620)		(0.00602)		(0.00685)		(0.00638)	
<u>External Remittance Host Regions</u>								
Neighboring Countries in the South Asian Region		0.00857		0.0113+		0.00942		0.0114
		(0.00683)		(0.00679)		(0.00751)		(0.00708)
OECD and Others		-0.00270		-0.0378		0.0543		0.0244
		(0.0302)		(0.0261)		(0.0587)		(0.0530)
Middle East and Malaysia		0.000579		-0.000595		-0.0132		-0.00699
		(0.00983)		(0.00878)		(0.0102)		(0.00903)
No. of Observations	4089	4089	4089	4089	4089	4089	4089	4089

All other covariates used but not reported same as in table 4

Marginal effects; Standard errors in parentheses, adjusted for 1895 clusters of Households

Reporting: Second Stage Probit Marginal Estimates of IV Probit Model

+ p<0.10 * p<0.05 ** p<0.01 Data Source: NLSSII Year 2004

Table 6: Heckman Selection Model

Iteration 2: log likelihood = -5034.685

Heckman selection model
(regression model with sample selection)Number of obs = 5271
Censored obs = 3725
Uncensored obs = 1546

Log likelihood = -5034.685

wald chi2(20) = 473.37
Prob > chi2 = 0.0000

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ln_HHamtrec						
HHHMale	-1.312485	.1131003	-11.60	0.000	-1.534157	-1.090812
HHHAGE	.0152634	.0033128	4.61	0.000	.0087704	.0217563
HHEDUC	.0245776	.0116258	2.11	0.035	.0017916	.0473637
dependency~o	-.5843489	.2424925	-2.41	0.016	-1.059626	-.1090723
dwellingow~y	-.6801108	.1670941	-4.07	0.000	-1.007609	-.3526124
ownanyagri~l	-.0856097	.1129634	-0.76	0.449	-.3070139	.1357945
anyselfemp~l	-.5594095	.0964345	-5.80	0.000	-.7484175	-.3704014
ln_netwealth	.2884195	.0366305	7.87	0.000	.2166251	.3602139
newar	-.4516045	.1782508	-2.53	0.011	-.8009697	-.1022393
magartharu~g	-.1414757	.1102589	-1.28	0.199	-.3575792	.0746278
raigurungl~u	.7913771	.1407134	5.62	0.000	.5155839	1.06717
otherethni~s	-.233953	.1005301	-2.33	0.020	-.4309884	-.0369175
urban_Kath~u	.1399189	.1519269	0.92	0.357	-.1578523	.4376901
rural_east~l	-.7169396	.1188261	-6.03	0.000	-.9498345	-.4840447
rural_west~i	-.1068687	.1398332	-0.76	0.445	-.3809368	.1671994
rural_east~i	-.0286713	.1270965	-0.23	0.822	-.2777759	.2204333
ln_timetob~k	-.0977848	.0473806	-2.06	0.039	-.1906491	-.0049206
ln_timetom~t	.0606324	.0428032	1.42	0.157	-.0232603	.1445251
conflict_h~h	-.1969648	.1183309	-1.66	0.096	-.4288891	.0349595
conflict_m~e	.3904498	.0859335	4.54	0.000	.2220233	.5588764
_cons	5.604909	.5093474	11.00	0.000	4.606606	6.603211
recei~ttance						
R_proporti~e	3.161744	.1245564	25.38	0.000	2.917618	3.40587
HHHMale	-1.187753	.0572036	-20.76	0.000	-1.29987	-1.075636
HHHAGE	.0090853	.0019292	4.71	0.000	.0053041	.0128665
HHEDUC	-.0244001	.0065299	-3.74	0.000	-.0371984	-.0116017
dependency~o	-.5936403	.1476695	-4.02	0.000	-.8830673	-.3042134
dwellingow~y	-.3119055	.0946679	-3.29	0.001	-.4974511	-.1263598
ownanyagri~l	-.1734822	.0668323	-2.60	0.009	-.3044711	-.0424933
anyselfemp~l	-.254731	.0505261	-5.04	0.000	-.3537603	-.1557016
ln_netwealth	.1074784	.0216696	4.96	0.000	.0650068	.1499499
newar	-.2721131	.0976726	-2.79	0.005	-.4635478	-.0806783
magartharu~g	.1083814	.065521	1.65	0.098	-.0200374	.2368002
raigurungl~u	.0944088	.0868013	1.09	0.277	-.0757185	.2645362
otherethni~s	.10675	.0612421	1.74	0.081	-.0132822	.2267823
urban_Kath~u	.2540598	.0914862	2.78	0.005	.0747502	.4333695
rural_east~l	.2546439	.0710143	3.59	0.000	.1154584	.3938295
rural_west~i	.1152241	.0882564	1.31	0.192	-.0577552	.2882035
rural_east~i	.3252692	.07765	4.19	0.000	.1730781	.4774603
ln_timetob~k	.0306873	.0268018	1.14	0.252	-.0218433	.0832178
ln_timetom~t	.0376766	.0248407	1.52	0.129	-.0110102	.0863634
conflict_h~h	.1243841	.069964	1.78	0.075	-.0127427	.261511
conflict_m~e	.0692131	.0512341	1.35	0.177	-.0312038	.1696301
_cons	-2.118694	.3125086	-6.78	0.000	-2.731199	-1.506188
/athrho	-.0408223	.0744134	-0.55	0.583	-.18667	.1050253
/lnsigma	.2996273	.0180629	16.59	0.000	.2642247	.3350298
rho	-.0407997	.0742896			-.1845316	.1046409
sigma	1.349356	.0243732			1.302421	1.397982
lambda	-.0550533	.1003414			-.2517188	.1416123

LR test of indep. eqns. (rho = 0): chi2(1) = 0.30 Prob > chi2 = 0.5816

Table 7: Macro Trend in Remittances

Heading	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Total remittances (in million NPR)	4,722	4,754	5,420	5,859	6,554	9,769	10,014	18,301
Share of remittances to current a/c receipts excluding grants (in %)	33.6	37.8	36.6	38.2	46.7	45.3	50.8	-
Ratio of remittances to GDP (in %)	10.3	11.0	10.9	11.1	14.9	13.8	17.4	19.1

Figures for FY 2008-09 are provisional.

Source: Ministry of Finance, July 2009.

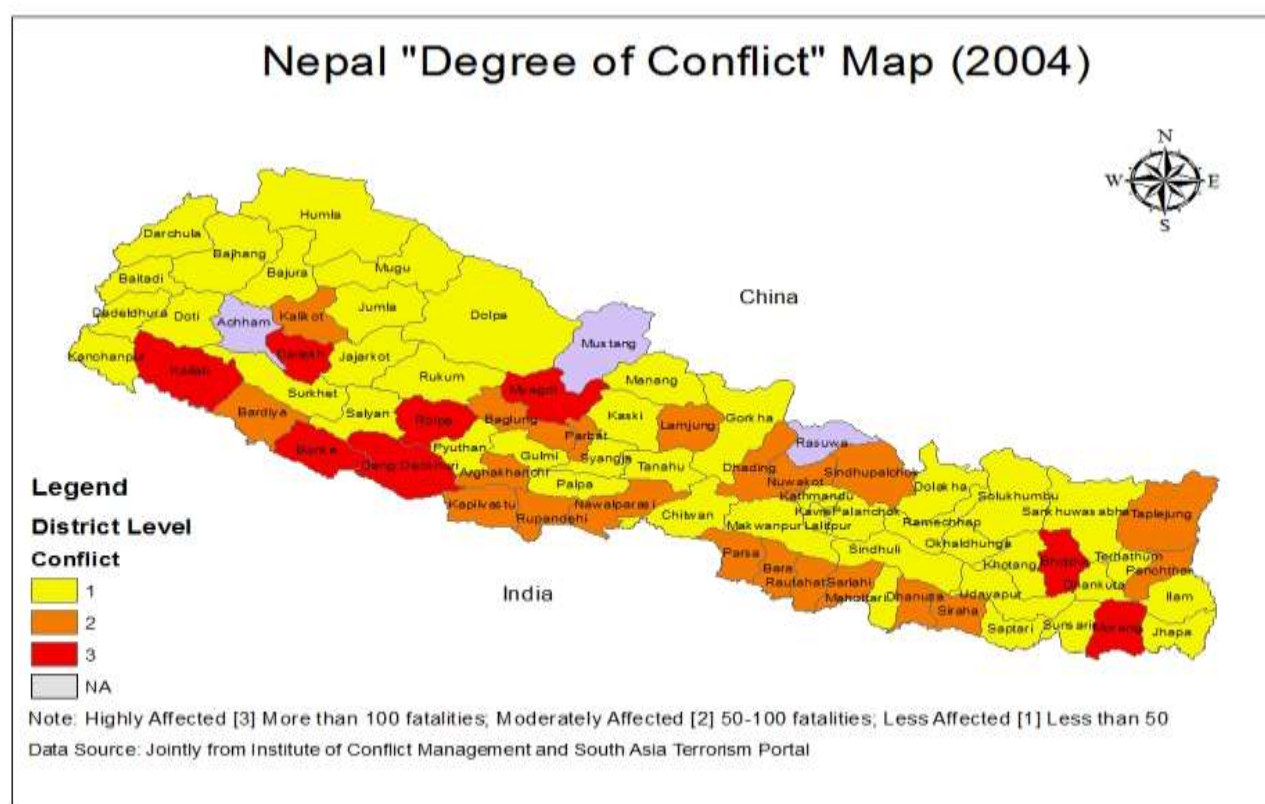
Figure 1: Conflict Map

Figure 2

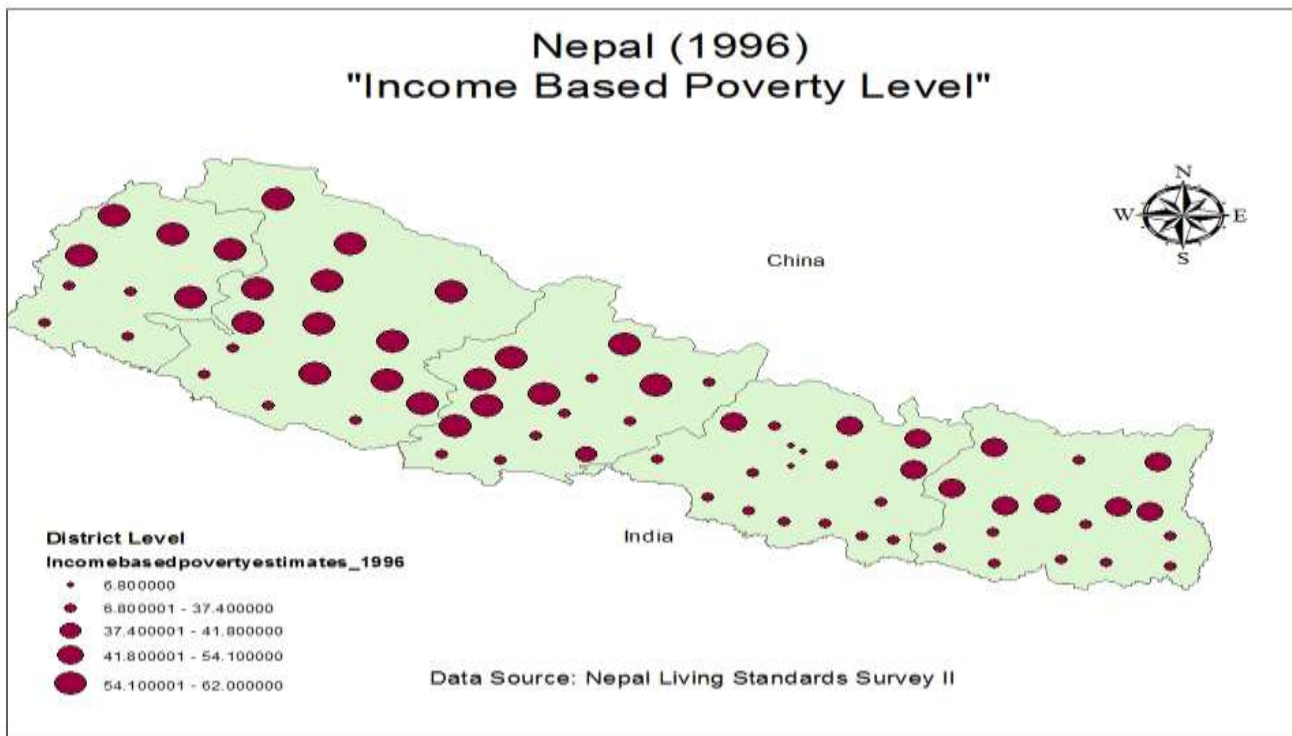
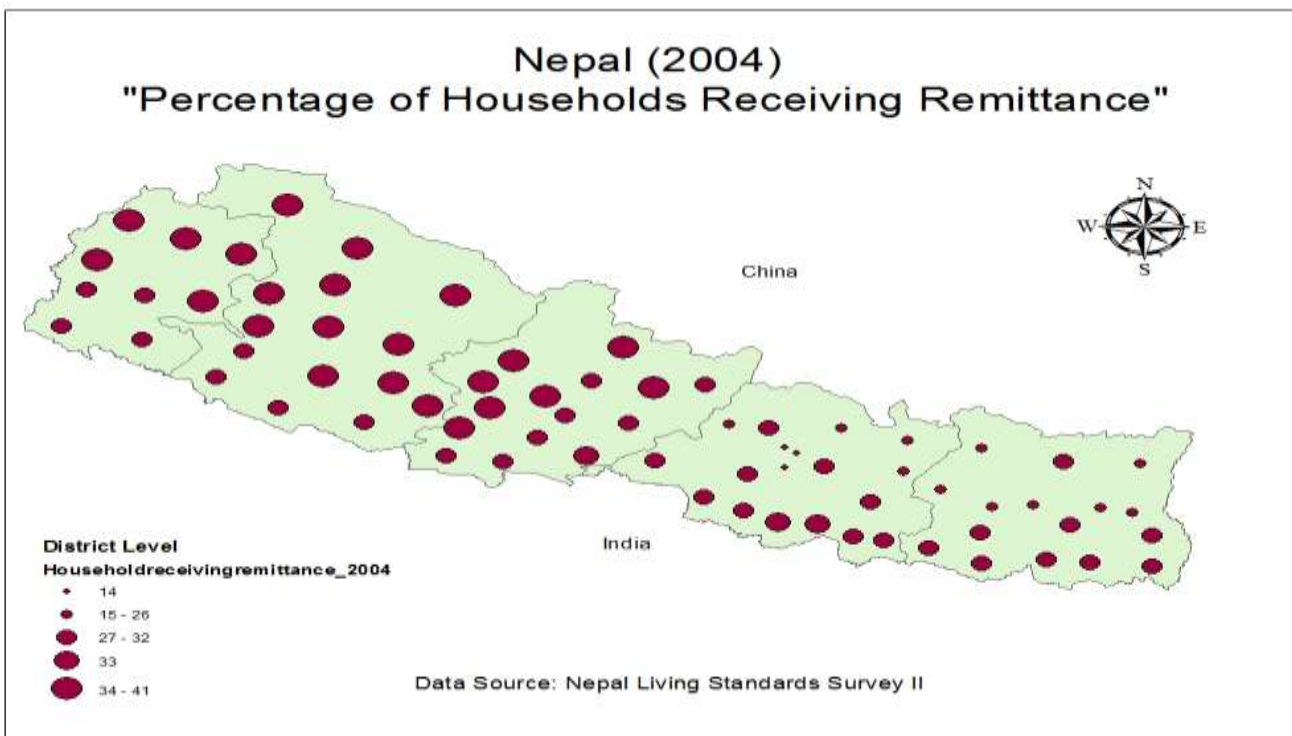


Figure 3



[THE FOLLOWING ARE FROM THE NLSS II REPORT]

Table 4.1 Number of sample households of the NLSS II by Region and Zone

Ecological Zone	Development Region					Total
	East	Central	West	Mid West	Far West	
Cross-section	900	1512	780	468	348	4008
Mountains	108	132	12	72	84	408
Hills	264	816	540	216	132	1968
Tarai	528	564	228	180	132	1632
Panel	276	468	228	132	128	1232
Mountains	36	48	0	24	48	156
Hills	84	276	144	72	48	624
Tarai	156	144	84	36	32	452
Combined	1176	1980	1008	600	476	5240
Mountains	144	180	12	96	132	564
Hills	348	1092	684	288	180	2592
Tarai	684	708	312	216	164	2084

Table 4.2 Distribution of sample households of NLSS II by Region, Zone & Urban/Rural

Ecological Zone	Development Region					Total
	East	Central	West	Mid West	Far West	
Mountains	108	132	12	72	84	408
Urban	12	--	--	--	--	12
Rural	96	132	12	72	84	396
Hills	264	816	540	216	132	1,968
Urban	48	480	168	24	24	744
Rural	216	336	372	192	108	1,224
Tarai	528	564	228	180	132	1,632
Urban	156	120	48	48	36	408
Rural	372	444	180	132	96	1,224
Total	900	1,512	780	468	348	4,008
Urban	216	600	216	72	60	1,164
Rural	684	912	564	396	288	2,844

Table 5.1 Enumeration Statistics of the Household Data

Sample	Sampled	Enumerated			Not Enumerated
		Originally Selected	Replaced	Total	
Cross-section	4008 (334)	3493	419	3912 (326)	96 (8)
Panel	1232 (100)	962	198	1160 (95)	72 (5)
Combined	5240 (434)	4455	617	5072 (421)	168 (13)

Note: Figures in parentheses represent the number of PSUs.

Table 5.2 Summary Statistics

Description	Nepal Living Standards Survey	
	1995/96	2003/04
Survey methodology followed	LSMS	LSMS
Sampling procedure used	Two-stage stratified	Two-stage stratified
Number of PSUs (and households) selected	275 (3388)	434 (5240)
Cross-section	275 (3388)	334 (4008)
Panel	-	100 (1232)
Number of PSUs (and households) enumerated	274 (3373)	421 (5072)
Cross-section	274 (3373)	326 (3912)
Panel	-	95 (1160)*
Urban PSUs (and households) enumerated	59 (716)	97 (1164)
Rural PSUs (and households) enumerated	215 (2657)	229 (2748)
Survey period	June 1995-June 1996	April 2003-April 2004

*Only 962 households were tracked from NLSS I. Remaining 198 households were new households from panel PSUs.

Remittance by Source

<u>Internal</u>	<u>48%</u>
<u>India</u>	<u>33%</u>
<u>Other</u>	<u>19%</u>

Remittance by Rural/Urb

<u>Urban</u>	<u>25%</u>
<u>Rural</u>	<u>75%</u>

Remittance By Ecological Zone

<u>Hill</u>	<u>47%</u>
<u>Mountains</u>	<u>10%</u>
<u>Tarai</u>	<u>43%</u>

Remittance by Development Region

<u>Eastern</u>	<u>25%</u>
<u>Central</u>	<u>30%</u>
<u>Midwestern</u>	<u>11%</u>
<u>Western</u>	<u>25%</u>
<u>Farwestern</u>	<u>9%</u>

Table 6.1 Shares of Household Income by Sectoral Source¹³

	Farm Income	Non-Farm Income	Remittance	Own housing consumption	(Percent) Others
Development Region					
East	53	26	11	7	4
Central	47	32	9	11	2
West	40	24	17	11	8
Mid West	52	30	8	9	2
Far West	54	21	11	12	2
Ecological Zone					
Mountain	59	19	9	10	3
Hill	45	28	11	12	5
Tarai	49	28	12	8	3
Urban	13	54	10	17	6
Kath. Valley	3	64	6	23	5
Other	19	48	12	14	6
Rural	55	23	11	8	3
East Mts./Hills	61	20	7	9	2
West Mts./Hills	49	22	14	10	6
East Tarai	56	24	12	6	2
West Tari	51	24	11	10	4
Consumption Quintile					
Poorest	62	23	8	6	1
Second	58	25	9	7	2
Third	56	24	10	8	2
Fourth	47	25	14	10	4
Richest	25	38	13	16	8
Nepal	48	28	11	10	4

Note: Shares may not sum upto 100 because of rounding.

¹³ Items omitted from income aggregate (from NLSS 2 report)

Net interest income: Flow of resources from interest earnings from money lent to others is difficult to calculate for three reasons: NLSS does not have separate questions to distinguish between interest payments and principal repayments; between outstanding principal amounts and interest amounts; rolled over or extended loans may not involve actual transfer of payments even when a household reports a positive interest rate on the amount

Farm machinery and housing property: Income from sales of farm machinery is not included in total income because they represent investment or disinvestment of assets rather than current income (household whose income source is trading of agriculture machinery would be included in enterprise section). Net proceeds from sale and purchase of housing or land-property are considered as changes in assets and not included in total income. Similarly, expenditure on improvement of land or building and repair and maintenance of agricultural equipment are also excluded because the reported values tend to denote investment flow and not income flow.

	<i>Urban</i>			<i>Rural</i>			<i>Nepal</i>		
	<i>1995-96</i>	<i>2003-04</i>	<i>Change (percent)</i>	<i>1995-96</i>	<i>2003-04</i>	<i>Change (percent)</i>	<i>1995-96</i>	<i>2003-04</i>	<i>Change (percent)</i>
Farm income	1,446	1,433	-1	3,246	3,252	0	3,122	2,983	-4
Agricultural wage income	151	121	-20	710	621	-13	672	547	-19
Nonagricultural wage income	3,543	5,234	48	829	1,298	57	1,016	1,880	85
Nonagricultural enterprises	3,688	4,778	30	649	917	41	859	1,489	73
Property income	300	493	64	36	44	22	55	111	103
Remittances income	499	1,944	290	548	1,306	139	544	1,401	157
Housing income	2,935	4,687	60	596	690	16	757	1,282	69
Other income	553	910	64	138	355	158	167	437	163
Total	13,115	19,601	49	6,753	8,484	26	7,191	10,129	41

Note: Outliers, 0.5 percentile at each tail of the distribution, excluded.

Source: NLSS-I and II.