Internal vs. International Migration:

Impacts of Remittances on Child Well-Being in Vietnam

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Abstract

This paper focuses on the effects of domestic and international remittances on children's well-being. Using data from the 1992-1993 and 1997-1998 Vietnam Living Standards Surveys, we investigate average school attendance and child labour in remittance recipient and non-recipient households. The results of our binomial logit and two-sided censored regression analyses indicate that remittances increase schooling and reduce child labour. Although international remittances are found to have a stronger beneficial impact than domestic remittances in the cross-section, the panel analysis, taking account of fixed effects, reverses this result, showing that the only significant impact stems from domestic remittances.

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1 Introduction

This paper investigates whether a significant positive association between remittances and child well-being exists, by examining the incidence of school attendance and child labour in remittance recipient households, as compared to households where this income source is absent. In addition, since internal and international migratory experiences may be the outcome of different decision processes and the source of different effects, the paper aims at disentangling the impacts of domestic and international remittances on children's well-being.

The literature on the effects of remittances on household decisions is large and continuously growing. There are at least three distinct views on the use of remittances in a household: the most widespread one is that remittances are spent at the margin like income from any other source; a second view maintains that remittances tend to be spent on consumption rather than investment goods; finally, a more recent one claims that, since remittances are a transitory type of income, households tend to spend them at the margin more on investment goods − human and physical capital investments − than on consumption goods (Adams and Cuecuecha, 2010).

As far as the effects on child labor and school enrolment in developing countries are concerned, if remittances have a positive effect on education, they may also contribute to reduce child labour. From a theoretical point of view, the simplest

way to incorporate remittances in a household model is to treat them as an additional income source. In this case, if parents' decision to rely on child labour is due to the necessity of meeting the most basic household needs and is not the result of a selfish attitude – namely, if the 'luxury axiom' holds (Basu and Van, 1998)[i] – an increase in income due to remittances is likely to release parents from the necessity of employing their children in family farm and/or business activities and/or of sending them to work in the labour market. As for the effect on schooling, in a simple theory of allocation of child time, schooling and leisure are normal goods that jointly increase as income rises, leading to a reduction in child labour. In this sense, even if the relationship between child labour and schooling might become more complex,[ii] remittance inflows can play a role as extra income, with beneficial effects for children.

On the applied side, there is an increasing number of empirical findings that seem to confirm the beneficial effects produced by remittances. For instance, Edwards and Ureta (2003) examine the effects of remittances from abroad on households' schooling decisions using data from El Salvador and find that remittances have a large significant effect on school retention. However, in another recent study on El Salvador, Acosta (2011) does not find a significant overall impact of remittances on schooling, when controlling for endogeneity. Yang (2008) finds that increased receipt of overseas remittances due to favorable exchange rate movements in the Philippines increases child schooling and educational expenditure, whilst reducing child labour. With respect to the distinction between domestic and international remittances, the few studies undertaken so far show that international remittances tend to have a stronger impact than domestic remittances. Joseph and Plaza (2010), for Ghana, finds that

international remittances unambiguously reduce child labour, and Antman (2012), for Mexico, finds that international remittances increase girls' schooling. In both studies, domestic remittances appear to have no statistically significant effect.

At variance with these findings, a number of applied studies present less positive evidence on the relationship between migration and child well-being, highlighting the negative side-effects of international migration. Giannelli and Mangiavacchi (2010), for Albania, shows that parents' migration can have a negative effect on school attendance in the long term, mainly because of a lack of parental care for children left behind. For Mexico, the evidence is mixed. McKenzie and Rapoport (2011) reaches conclusions similar to the preceding paper for schooling of girls and boys in rural areas, while Antman (2012) finds a differential effect of father's absence, with no effect on boys, and a positive effect on girls.

In this paper we analyse the impact of remittances on schooling and child labour in Vietnam, using the panel data gathered in 1992-1993 and 1997-1998 Vietnam Living Standards Surveys (VLSS). We define child labour and schooling as the proportion of children aged six to fifteen in the household who do at least some work (paid or unpaid, for the family or for the market), and the proportion of children who is only engaged in schooling, respectively. We specifically investigate the difference between domestic and international remittances, with the aim of furthering the understanding of the potentially negative side-effects caused by a lack of care for children living in those household where some members have left to migrate. We therefore embrace the assumption, typical of the most part of the literature, that parents care about their children's education,

spending some of their income and time favouring their children's school attendance and trying to avoid or limit child labour. Income and time become complementary factors in a child's well-being, with parents devoting time on looking after their children and considering how to spend money for them. Income from international remittances, instead, is hardly a complement of parental time for children left behind. Since parents who have migrated abroad normally have fewer opportunities to visit their families as compared to parents who have migrated internally, international migrants are likely to have less control on the use of remittances at home. As a consequence, international remittances may turn out to be less effective than domestic remittances in improving the well-being of children left behind. Hence, the distinction between domestic and international remittances may reveal that the positive effect of remittances on child well-being is counterbalanced by the negative effect of having distant parents who have migrated abroad. In this regard, Vietnam is a particularly suitable country for our analysis, since foreign migration is mostly directed towards the United States, quite a distant country in terms of both geographical location and culture.

From the methodological point of view, since our dependent variables are proportions, we use econometric specifications that take account of two-sided censoring. The results of our cross-sectional binomial logit analysis confirm the evidence that international remittances appear to have a positive and significant impact on children's welfare. However, this result is likely to be biased by the issue of the endogeneity of the migration decision, namely, by specific unobserved factors associated with international migration, which are especially relevant in the case of Vietnam, where migration has political roots. To tackle the

problem of endogeneity, we use the panel to apply two-sided censoring regression with fixed effects. This appears to be a sensible strategy, since the findings turn out to be reversed. In fact, controlling for time-invariant unobserved characteristics, highlights the greater importance of domestic remittances for children's well-being, while international remittances become insignificant.

The paper is structured as follows. Section 2 discusses the case of Vietnam. Section 3 describes the data and the empirical strategy and Section 4 presents the results. Section 5 offers some concluding remarks.

2 The case of Vietnam

During the crucial decade of the 1990s, Vietnam experienced a sharp increase in economic growth rates and a dramatic drop in overall poverty (Glewwe *et al.*, 2004) which yielded significant welfare gains for Vietnamese children (Edmonds and Turk, 2004). At the same time, Vietnam's migration and remittance patterns reshaped and expanded, both internally and internationally (Nguyen, 2009).

The beginning of this economic transformation can be roughly associated with the introduction of the Doi Moi policy in 1986, a plan of comprehensive economic innovations and liberalisations. Although these achievements varied significantly across households and regions, there were overall improvements in many economic and social indicators. The proportion of people living under the poverty line fell from over 50 per cent in the early 1990s to 37 per cent at the end of the decade, the prevalence of underweight children declined on average

by 1.1 per cent every year, child labour declined and school enrolment rates increased (Glewwe *et al.*, 2004; Khan *et al.*, 2007; Nguyen, 2009).

Evidence shows that migration patterns played a central role in Vietnam's development, with the flow of remittances increasing in quantity and changing in terms of provenance. After the collapse of the Soviet Union, different areas of the world were chosen by Vietnamese emigrants as new destinations, including Asia, the Middle East and especially the United States. The large flow of migrants towards the United States has its roots in the effective migration network created by a large community of Vietnamese immigrants, who started to settle down there in 1975, when, at the end of the Vietnam War, many people who had worked closely to the Americans fled the new Socialist regime for fears of reprisals. For these reasons, even if international migration in the 1990s was substantially driven by economic pull factors, its origins were mainly political.

Remittances from North America increased from around 40 per cent of the total at the beginning of the 1990s to almost 60 per cent in 1998. The expansion of the flow of Vietnamese emigrants to Arab and Asian non-traditional market also reflected the new Vietnamese "open-door" approach, which led to the creation of the Department for Overseas Labour Management in order to facilitate, implement and supervise labour export agreements with overseas markets.

Evidence shows that the remittance inflows became also more stable and outstripped the Official Development Assistance (ODA) and almost paired the Foreign Direct Investment (FDI) flows as the main and most reliable source of foreign financial inflow for the country. However, as it will be shown in the next

section, in the same decade also the flow of domestic remittances increased considerably.

One of the most positive outcomes of the socio-economic transition undertaken by Vietnam in the 1990s was an impressive reduction in the participation of children in the national labour force, coupled with a dramatic increase in their school enrolment rates. Although in that decade the improvements were particularly impressive, universal primary education has always been one of the main concerns of the Socialist Republic of Vietnam, since the very first years of independence. The political and ideological commitment of the Socialist government enabled the country to reach a proportion of 86 per cent of the children officially attending primary school in 1990 (Government of Vietnam, National Literacy Committee). In 1991, the government also issued a new law, specifically aimed at reinforcing this positive trend, the Law on the Universalisation of Education. Besides, in the revised Constitution of 1992, a strong emphasis was placed on primary education, defined as "both free and compulsory".

3 Data and Empirical strategy

We use the first two waves of the VLSS, conducted by the General Statistics Office of Vietnam, in the framework of the World Bank's Household Living Standards Measurement Surveys. The data for the first VLSS was collected from October 1992 to October 1993 and covered 4,800 households, while the second round was undertaken from December 1997 to December 1998 with a sample of 6,002 households (World Bank, 2000; World Bank 2001). We focus on the rates of

school attendance and on the incidence of child labour among children aged 6 to 15 and perform both cross-section and panel analyses

We select, for our purposes, the households with at least one child aged 6 to 15, 2,937 and 3,427 households in 1993 and 1998 respectively. The two surveys also form a panel dataset, from which we have extracted 2,054 households, those with children in the chosen age range. We have conducted the cross section analysis on both samples, and for comparability purposes, we present the cross-section analysis conducted on the panel-households. The results, anyway, are consistent in both the complete and restricted samples. [iii]

Table 1 shows an increase in the percentage of households receiving remittances over the 1990s. Domestic remittances reach a much larger number of families, compared to international remittances, but the value of international remittance inflows is by far higher. However, the share of the value of domestic remittances increases by 10 percentage points from 1993 to 1998.

Table 1. Percentage of households receiving remittances and distribution of total value between domestic and international remittances

Source of remittances	Per cent of households		Percent. of total value	
	1993	1998	1993	1998
No remittances	77	73	-	-
Domestic remittances	18	21	30	40
International remittances	5	6	70	60

Source: VLSS 1993 and 1998. Note: Calculated on the 2054 panel households.

Table 2 shows the sharp rise in the proportion of children only going to school, coupled with a decline in the proportion of children only working. In addition, there is a noticeable reduction in gender differences, especially in total enrolment rates and among children only working.

Table 2. Activities of children aged 6-15 by gender (%)

Child activities	Boys		Girls	
	1993	1998	1993	1998
School only	58	74	55	73
Work and school	22	16	19	14
Work only	11	6	16	8
Neither	9	4	10	5

Source: VLSS 1993 and 1998. Note: calculated on the 4659 and 4395 children of the panel households of the 1993 and 1998 surveys.

These facts seem to indicate a general improvement of children's welfare. The aim of our analysis is to test the potential positive correlation between these improvements and the simultaneous presence of remittances.

Our dependent variables are the household average rates of children's school attendance and child labor, since we have chosen to conduct our analysis at the household level. This choice, while on the one hand has the disadvantage of leading to a loss of child-specific information, on the other hand has the advantage of allowing us to sample all panel households with children in the selected school-age range. If we had chosen to conduct a child specific analysis, given the time distance between the two surveys, our sample would have been constrained by the limited number of panel-children who remain in the school-age range in both rounds of the survey.[iv]

Our definitions of *Child Labour* and *Schooling* are taken from the sections dedicated to employment and education respectively in the 1993 and 1998 VLSS questionnaires. We consider a child as engaging in labour if they answered 'yes' to at least one of the three questions related to 'employment during the past 7 days', specifically: 'have you worked for a pay for someone not a member of your household'; 'did you work in a field […] or raise livestock […] or process home-

produced crops for your household'; 'have you worked in a business managed by yourself or by your household'. As far as schooling is concerned, we consider a child as only going to school if they answered 'yes' to the question 'are you currently attending school' (including those on summer breaks) and 'no' to all of the above questions on employment.

More precisely, in our econometric model for each household *i*:

$$ChildLabour_i = \sum_{j=1}^{J} y_{ij} / J$$

where the *j* index refers to the *jth* child in the household, *J* is the total number of children aged 6 to 15 in household *i*, and y_{ij}= 1 if child *j* does any form of work in agriculture, in the household business, or in the labour market for a wage, notwithstanding the fact that she/he might also be attending school. It follows that $0 \leq Child\ Labour \leq 1$ for each family *i*. The other dependent variable, *Schooling*, is calculated in an analogous way. It equals one when all children in the household go to school and do not perform any kind of work and zero when no child is only going to school without being engaged in some form of labor. Finally, $0 < Schooling < 1$ if at least one child is attending school without working

According to our definition, therefore, *Child Labour /Schooling* are the probabilities of child labour/school attendance within the household.

The econometric specification for the cross-section is the following:

$$ChildLabour_i = \alpha + \beta X_i + \gamma(\sum_j z_{ij} / J) + \varepsilon_i$$

$$Schooling_i = \delta + \eta X_i + \phi(\sum_j z_{ij} / J) + \eta_i$$

where X_i are household's characteristics and z_{ij} are household *i* children's characteristics, ε and η are random error terms.

In the panel analysis, we take advantage of the longitudinal nature of the data by estimating the following fixed effects models:

$$ChildLabour_{it} = \alpha + \theta_i + \beta X_{it} + \gamma(\sum_j z_{ijt} / J) + \chi_{it}$$

and

$$Schooling_{it} = \delta + \omega_i + \eta X_{it} + \phi(\sum_j z_{ijt} / J) + \xi_{it}$$

where *t* denotes time, θ_i and ω_i are the unobservable household fixed effects and χ_{it} and ξ_{it} are the remainder disturbance terms.

As for the estimation technique, with proportions as dependent variables we need to estimate the model with non-linear techniques.[v]

For the cross-section, a suitable model is the binomial logit, where, for each household, the number of "trials" corresponds to the number of children 6 to 15 in the household, and the number of "successes" corresponds to the number of children who work/attend school. [vi] With panel data, we apply a two-sided censored regression with fixed effects (Alan et al., 2011). This estimation technique starts with a comparison of two-observations for a given individual in a panel, and then constructs re-censored residuals on which moment conditions are based to identify the parameters of interest (Honoré and Powell 1994).[vii]

The vector X_i of household variables contains the two explanatory variables of interest, namely, the logarithm of the value of domestic remittances and the logarithm of the value of international remittances, both of them measured at the household level *i*. They are the logarithm of the amount of money (in Vietnamese

Dongs) received by each household from members who have left the household to migrate. Remittances are defined in a special section[viii] on "income from remittances" in both the 1993 and 1998 VLSS questionnaires as 'the amount of money and monetary value of in-kind benefits received by a household from people not living in the household, including family and friends, which do not require repayment'. A question about the place of residence of the remitter (either "province in Vietnam" or "abroad") allows us to distinguish between internal and international remittances. The summary statistics of our two dependent variables and of all explanatory variables are presented in Table 3.

Table 3. Summary statistics: child labour, schooling, remittances, individual and household variables

Variables	Mean		Standard Deviation	
	1993	1998	1993	1998
Child Labour	0.25	0.25	0.34	0.37
Schooling	0.64	0.58	0.39	0.48
Log of the value of domestic remittances[ix]	- 8.17	- 7.99	2.69	3.07
Log of the value of international remittances	- 8.87	- 8.77	1.77	2.10
Gender of the child (1 is male)	0.51	0.52	0.38	0.38
Age of the child	9.57	11.67	2.01	1.95
Age of the child squared	98.95	140.04	40.47	44.82
Recipient is migrant's parent or grandparent	0.03	0.05	0.16	0.21
Gender of the household head (1 is male)	0.81	0.80	0.39	0.40
Household head: low level of education	0.37	0.26	0.48	0.44
Household head: medium level of education	0.10	0.48	0.30	0.50
Household head: high level of education	0.06	0.20	0.24	0.40
Household head: age 30 to 50 years	0.37	0.73	0.48	0.44
Household head: age over 50 years	0.08	0.26	0.27	0.44
Size of the household	5.97	5.70	1.96	1.81
Number of children in the household	2.27	2.14	1.07	1.05
Urban household	0.17	0.19	0.37	0.39
Expenditure quintile 2	0.23	0.21	0.42	0.41

Expenditure quintile 3	0.20	0.21	0.40	0.41
Expenditure quintile 4	0.18	0.20	0.38	0.40
Expenditure quintile 5 (top)	0.16	0.17	0.37	0.38
Number of Observations:	2054		2054	

The first two figures in Table 3 show the average household incidence of child labour and school attendance. In 1993, in each household on average 64 per cent of children were only going to school whilst 25 per cent of them were either studying and working or only working. In 1998, the proportion of children engaged in some form of labour is practically the same, but the average proportion of children only going to school declines to 58 per cent. This could be due to the fact that, in our 1998 sample, there were fewer children of primary school age (who are generally more likely to only go to school) compared to the 1993 sample. In fact, the age of the average child increases from 9.57 years in 1993 to 11.67 years in 1998, thus overcoming the threshold at which Vietnamese children finish primary school.[x] This detectable effect of the increase in children's average age highlights the substantial length of time, five years, that passed between these two rounds of the VLSS.

The rest of the summary statistics associated with children show the figures emerging from our choice of averaging the child's profile. In particular, since we are employing the household average values of children's characteristics, the binary variables concerning children at the individual level are converted into continuous variables once computed as averages across all household's child members. As a result, the only dummy variables that maintain a binary form are the ones associated with the characteristics of the household head[xi] and the ones defining the urban/rural location of the household and its expenditure quintile

category. With respect to the latter, we are employing the VLSS expenditure data, sorted into five quintile ranks, through the use of four dummy variables (first poorest quintile as reference).[xii]

Also at variance with other studies, the data allows us to control for whether or not the people who received the remittances were the migrants' parents or grandparents, thus relatively older members of the household. The presence of this variable enriches the pool of information on remittances in our model.[xiii]

Taking advantage of the information on the place of residence, we also control for clustered standard errors at the village level.

4 Results

In this section we present the results of the cross-section and panel analysis.

4.1 Cross-section results

Table 4, which shows the results of the binomial logit regressions separately for 1993 and 1998, suggests that remittances played some part in reducing child labour, in both 1993 and 1998.

Table 4. Household child labour in 1993 and 1998. Binomial logit estimates.

	(1) 1993	(2) 1998	(3) Pooled sample
	Coefficients (se)	Coefficients (se)	Coefficients (se)
Log of the value of domestic remittances	- 0.0175 (0.0198)	- 0.0103 (0.018)	- 0138 (0137)
Log of the value of international remittances	- 0.0308 (0.0286)	- 0.0896*** (0.0317)	- 0.0642*** (0.210)
Gender of the child	- 0.2834** (0.1296)	- 0.1585 (0.1423)	- 0.2169** (0.0999
Age of the child	0.9642*** (0.2135)	0.9949*** (0.3166)	0.9525*** (0.1514)

Age of the child squared	- 0.0273*** (0.0102)	- 0.0270** (0.0136)	- 0.0260*** (0.0068)
Recipient is migrant's parent or grandparent	0.0385 (0.3469)	- 0.0863 (0.2749)	- 0.0188 (0.02166)
Gender of the household head	- 0.0303 (0.1316)	0.0143 (0.1503)	- 0.0191 (0.1098)
Household head: low level of education	0.0529 (0.0976)	- 0.0844 (0.1732)	0.0311 (0.8734)
Household head: medium level of education	0.4503*** (0.1403)	0.0284 (0.1931)	0.1916* (0.1159)
Household head: high level of education	- 0.0186 (0.2040)	0.1733 (0.2180)	0.1800 (0.1451)
Household head: age 30 to 50 years	- 0.0257 (0.0849)	- 0.4145 (0.4461)	- 0.0595 (0.0849
Household head: age over 50 years	-0.0297 (0.2082)	- 0.4913 (0.4543)	- 0.0944 (0.1342)
Size of the household	- 0.0836*** (0.0305)	- 0.0716** (0.0366)	-0.0771*** (0.0255)
Number of children in the household	0.1293** (0.0585)	0.0957** (0.0497)	0.1091*** (0.0396)
Urban household	- 0.9111*** (0.2253)	-1.2340*** (0.2708)	- 1.0593*** (0.2053)
Expenditure quintile 2	- 0.0736 (0.1170)	- 0.4078*** (0.1249)	- 0.2351*** (0.0883)
Expenditure quintile 3	- 0.3470*** (0.1260)	- 0.6124*** (0.1499)	- 0.4720*** (0.1000)
Expenditure quintile 4	- 0.8192*** (0.1297)	-1.1035*** (0.1611)	- 0.9534*** (0.1080)
Expenditure quintile 5 (top)	- 1.1508*** (0.1700)	-1.8281*** (0.2476)	- 1.4320*** (0.1498)
Year (1998 = 1)	-	-	- 0.8719*** (0.1173)
Number of Observations : 2054 households	4659 children	4395 children	9054 children
R-squared	0.1064	0.1108	0.1064

Significance levels = *** (p<0.01), **(p<0.05), *(p<0.1)
Cluster-Robust Standard Errors in brackets

In col. (1) and (2) the coefficients of the logarithms have a negative sign, as expected: children are less likely to be engaged in labour activities if their household is a recipient of remittances. However, the level of statistical significance is very low for all coefficients apart from the international remittance one in 1998. Domestic remittances do not seem to play a substantial role, being insignificant in both years. Also note that our additional remittance

variable, that controls for the migrant's relationship with the recipient of remittances in the household, is insignificant.

From the examination of the other explanatory variables we notice that, in both years, older children and children living in rural areas were more likely to work. We also notice that while an increasing overall size of the household reduced the child's probability to work, with older members available to work, a higher number of children in the household caused a rise in child labour, especially in 1993.[xiv] We have also estimated the model pooling the two cross-sections. The coefficient of the dummy *Year* in col. (3), capturing the effect of some fixed determinants that are unspecified in the model, shows that in 1998 it was significantly less probable that children were engaged in child labour. To test for equality of specific coefficients between 1993 and 1998, we have estimated the pooled model also including all interactions with the dummy *Year*.[xv] The only fully significant (and negative) coefficients that reject the hypothesis of equality of coefficients in the two years are those of the interactions with the bottom and top quintiles of expenditure.[xvi] This evidence shows that, while moving from lower to higher expenditure quintiles reduced the probability of working in the two years, in 1993 the passage from the bottom quintile to the second does not have a significant impact. We have shown that people in the lowest quintile were poorer in 1993 than in 1998 and this is confirmed by our results, which seem to highlight a general improvement of the economic situation.

Table 5. Household schooling in 1993 and 1998. Binomial logit estimates.

	(1) 1993	(2) 1998	(3) Pooled sample

	Coefficients (se)	Coefficients (se)	Coefficients (se)
Log of the value of domestic remittances	0.0167 (0.0175)	0.0245 (0.0211)	0.0194 (0.0146)
Log of the value of international remittances	0.0454 (0.0278)	0.0988*** (0.0338)	0.0740*** (0.0215)
Gender of the child	0.1965* (0.1187)	0.0334 (0.1634)	0.1352 (0.1030)
Age of the child	0.4596** (0.2077)	-1.1229** (0.4943)	- 0.2516 (0.1724)
Age of the child squared	- 0.0361*** (0.0102)	0.0343 (0.0212)	- 0.0008 (0.0078)
Recipient is migrant's parent or grandparent	-0.2278 (0.3121)	0.2473 (0.3602)	0.0787 (0.2499)
Gender of the household head	-0.0722 (0.1174)	- 0.02151 (0.1682)	- 0.0698 (0.1116)
Household head: low level of education	0.0397 (0.0878)	0.212 (0.2877)	0.0173 (0.0748)
Household head: medium level of education	0.0120 (0.1300)	0.4528 (0.2926)	0.2202 (0.1180)
Household head: high level of education	0.4915** (0.2055)	0.3960 (0.3158)	0.3037* (0.1464)
Household head: age 30 to 50 years	0.1144 (0.0855)	0.4853 (0.7518)	0.0716 (0.0812)
Household head: age over 50 years	0.1419 (0.1906)	0.5444 (0.7585)	0.1789 (0.1358)
Size of the household	0.0179 (0.0284)	0.0605 (0.0430)	0.0341 (0.0276)
Number of children in the household	- 0.08219 (0.0615)	- 0.4330*** (0.1059)	- 0.2313*** (0.0651)
Urban household	0.7318*** (0.1782)	0.9429*** (0.2389)	0.8188*** (0.1721)
Expenditure quintile 2	0.4840*** (0.1136)	0.5003*** (0.1728)	0.4814*** (0.1093)
Expenditure quintile 3	0.7781*** (0.1202)	0.8602*** (0.1928)	0.8241*** (0.1138)
Expenditure quintile 4	1.2640*** (0.1202)	1.2404*** (0.2104)	1.2657*** (0.1251)
Expenditure quintile 5 (top)	1.6384*** (0.1528)	2.0827*** (0.2771)	1.8289*** (0.1559)
Year (1998 = 1)			- 0.1592 (0.1145)
Number of Observations 2054 households	4659 children	4395 children	9054 children
R-squared	0.1065	0.1590	0.1250

Significance levels = *** (p<0.01), **(p<0.05), *(p<0.1)
Cluster-Robust Standard Errors in brackets

Table 5, col. (1) and (2), confirms the importance of the remittances for child schooling, possibly reflecting both the growing importance of remittance inflows

as a substantial source of income. As for child labour, only the coefficient of the logarithm of international remittances for 1998 is positive and statistically significant, indicating that only international remittances have an impact on children' s school attendance. Our additional remittance variable concerning the recipient of remittances is not significant.

From the analysis of the other control variables, it emerges that the urban/rural difference reflects the patterns noticed in the child labour estimation, with children in rural areas still clearly worse off in both years. Finally, as expected, belonging to a household in higher expenditure quintiles increased the children's probability to go to school in the two years observed.

The coefficient of the dummy *Year* in col. (3) is not significant. The test for equality of specific coefficients between 1993 and 1998 shows that, except for a difference in the coefficients of *Age* and *Number of children in the household*, the hypothesis of equality of all the other coefficients cannot be rejected.[xvii]

As explained above, we have estimated the model also on the sample of panel and non-panel household together, and the coefficients on remittances follow the same significance pattern. This evidence confirms that the sample selection due to the choice of panel-households is overall random.

4.2 Panel results

Table 6 presents the results of the two-sided censoring model with fixed effects estimated on the panel data.

Table 6. Household Child Labour and Schooling. Two-Sided Censoring Model with Fixed Effects

	Child Labour	Schooling
	Coefficients (se)	Coefficients (se)
Log of the value of domestic remittances	-0.0161**	0.0302*
	(0.0073)	(0.0173)
Log of the value of international remittances	-0.0099	0.0125
	(0.0143)	(0.0192)
Gender of the child	-0.0932	0.4797***
	(0.0781)	(0.1821)
Age of the child	0.2572***	0.0228
	(0.0906)	(0.2505)
Age of the child squared	-0.005	-0.0117
	(0.0041)	(0.0112)
Recipient is migrant's parent or grandparent	0.1339	-0.2941
	(0.1291)	(0.2067)
Gender of the household head	-0.1167	0.4079
	(0.0929)	(0.2840)
Household head: low level of education	-0.0811**	-0.0387
	(0.0382)	(0.1074)
Household head: medium level of education	-0.1367**	-0.0469
	(0.0576)	(0.1519)
Household head: high level of education	-0.2251	-0.0333
	(0.0875)	(0.2082)
Household head: age 30 to 50 years	-0.0699	0.003
	(0.0547)	(0.0968)
Household head: age over 50 years	-0.1258	-0.0074
	(0.0984)	(0.1629)
Size of the household	0.0056	0.0649
	(0.0211)	(0.0495)
Number of children in the household	0.068***	-0.3471***
	(0.0259)	(0.0702)
Urban household	-0.1661	0.6994
	(0.2989)	(0.5949)
Expenditure quintile 2	-0.0152	0.0570
	(0.0466)	(0.1130)
Expenditure quintile 3	-0.0598	0.1415
	(0.0589)	(0.1192)
Expenditure quintile 4	-0.077	0.3120*
	(0.0792)	(0.1767)
Expenditure quintile 5 (top)	0.078	-0.0373
	(0.1161)	(0.2377)
Year (1998 = 1)	-0.132**	-0.0018
	(0.0555)	(0.1172)

Number of Observations: 4108
Number of Groups: 2054
Child Labour: Frac. Cen. Above (Y_{it}=0): 0.60; Frac. Cen. Below (Y_{it}=1): 0.13

Schooling: Frac. Cen. Above (Y_{it}=0): 0.29; Frac. Cen. Below (Y_{it}=1): 0.51
Significance levels = *** (p<0.01), **(p<0.05), *(p<0.1)
Cluster-Robust Standard Errors in brackets

The most striking result is that only the domestic component of remittances appears to have significant positive effects for child well-being: children are less likely to work and more likely attend school if the household receives domestic remittances. This result is in contrast with our cross-section results and with much of previous research on the subject.

A possible interpretation of this result might be that international migrants find it more difficult to maintain close relationships with their families, since their visits to their countries of origin are infrequent. Hence, the negative side-effects determined by lack of parental care for the children left behind might outpace the benefits generated by receiving international remittances.

From the econometric point of view, the result emerging from the cross-sectional analysis may simply be due to the problem of omitted variables. International migrants and their families of origin are usually better-off and more educated than the average; thus the positive and significant impact of international remittances observed in the cross-section is likely to be the result of unobservable factors. In fact, receiving remittances may be endogenous: recipient households may have characteristics correlated to receiving remittances that make them more likely to send/not to send their children to school/to work. This may be more likely in households where some members have migrated abroad, and where overseas migration was mainly driven by political factors, as in the case of Vietnam. Our two-sided regression method with

fixed-effects enables us to control for the time invariant unobserved characteristics and to tackle the endogeneity problem of the migration decision.

As for the other significant coefficients, schooling appears to be more probable for males and work more probable for older children. Consistently with the cross-section results, an increasingly large number of children in the household appears to produce a significant detrimental effect on both our measures of child well-being. At the same time, the more educated the household head, the lower probability of the average child of going to work, but increasing education levels of the household head have no significant impact on children's probability to attend school. At variance with the cross-section results, although the coefficients associated with the household expenditure quintiles bear the expected signs, only the coefficient of the fourth quintile shows a significant positive impact on child schooling. Also in this case, controlling for the fixed effects, has significantly changed the results, confirming household expenditure to be a poorer indicator of household economic status with respect to household total income.

5 Concluding remarks

In the large body of literature dealing with the increasing importance of remittance flows for developing countries, the number of studies that investigate the specific impact of domestic and international remittances on child well-being remains limited. We have attempted to explore this crucial relationship by separately taking into account the effects of remittances on child labour and on school attendance. The analysis of the difference between the effects of domestic

and international remittances, separating their respective values, has highlighted the greater importance of internal flows of remittances for child well-being.

The most part of the existing literature on this subject is based on cross-section data. The evidence emerging from the majority of these analyses seems to indicate that remittances matter for child well-being, but international remittances matter more than domestic remittances. Therefore our main objective was to ascertain if this result is confirmed when unobservable fixed effects are taken into account.

Using panel data from the 1993 and 1998 VLSS, we have compared the results derived from our cross-section analysis with those of our panel analysis. We have employed an estimation procedure that focuses on the average characteristics of all children belonging to each household, thus generating an average representative child at the household level. Our findings show, in line with the literature, that children belonging to recipient households are less likely to be sent to work and more likely to attend school than children who live in households where this source of income is absent.

However, although at the cross-sectional levels receiving international remittances appears to have a stronger effect than receiving domestic remittances, this difference is reversed in our panel analysis. After controlling for time-invariant unobservable characteristics with a fixed-effects model, domestic remittances are found to be the only significant inflow of migrants' money to reduce child labour and increase school attendance. In line with the evidence found in studies on the negative effects of parental absence on the well-being of children, we attribute the result of the insignificant effect of international

remittances to the lack of parental care for children left behind in migrants' households of origin. Internal migrants, unlike international migrants, are likely to preserve a relatively close relationship with their families of origin, thus maintaining control over their children's welfare and the way in which remittances are spent.

On the econometric side, the significant impacts of international remittances observed in the cross-section analyses were probably due to unobserved household factors. These factors were removed in the panel analysis which, we believe, achieves a better understanding of the complex relationship between receiving remittances and children's well-being.

The importance of facilitating labour movement, especially within national borders, appears to be the main policy implication stemming from our findings. When people are free to migrate between provinces, often from rural to urban areas, they can sustain the welfare of their children left behind by sending domestic remittances whilst continuing to have a good oversight of their activities. At the same time, the highlighted downsides related to international migration should be tackled with a set of policies aimed at providing care to children with migrant parents living abroad. This would make the impacts of international remittances more effective and beneficial for children's well-being.

Notes

[i] This axiom states that: 'A family will send the children to the labour market only if the family's income from non-child labour sources drops very low.' (Basu and Van, 1998, p. 416).

[ii] This relationship also depends on the definition of child labour (if it includes, for example, domestic chores or not). The literature on the allocation of time within the households provides many theoretical and empirical examples where these two activities might be complementary (see, for a survey, Edmonds, 2008).

[iii] These results are available on request.

[iv] In fact, in the five year span between the two surveys, the most part of children present in 1993 would have become older than fifteen, thus dropping out of our sample. Edmonds (2005) follows the same strategy.

[v] This is the case where the dependent variable Y_{it}^{*} is latent but we observe:

$$Y_{it} = \begin{cases} 0 \text{ if } Y_{it}^{*} < 0 \\ Y_{it}^{*} \quad 0 \le Y_{it}^{*} \le 1 \\ 1 \text{ if } Y_{it}^{*} > 1 \end{cases}$$

[vi] This amounts to estimate a maximum-likelihood logit model on "grouped" data. The estimation has been performed using the "blogit" command in the STATA software.

[vii] See p. 6-7 of Alan et al. 2011 for an intuition of this method. The estimation has been performed using the "two-side" STATA routine which calculates the estimator developed in Alan et al. 2011. (http://www.princeton.edu/~honore/stata/index.html#1._Pantob_version_0.6).

[viii] See Section 13, part a, of the questionnaire.

[ix] Through the transformation formula employed to generate the logarithms, all amounts equaling zero were replaced by a (very small) negative number. The means shown in Table 3 were obtained including both recipients and non-recipient households and this explains their negative values.

[x] In Vietnam primary school starts at six years of age and lasts five years (Art. 22, Education Law)

[xi] Beside the dummy variable associated with the gender of the household head, we are using 'level of education' and 'age group' of the household head, which are expressed by three dummies and two dummies respectively. The reference base for education is 'no qualification obtained' and the three levels represent primary school (low education), secondary school (medium) and college or university (high). For the age group, the reference base is 'under 30 years of age'. Using these age cohorts instead of a continuous age variable allows us to

distinguish between relatively younger and older households heads, which are likely to have specific attitudes towards children.

[xii] Although it would have been more valuable for our analysis to use a measure of total household income, given its influence on child labour and schooling (see for example De Carvalho Filho, 2012), there is no such information in the 1993 and 1998 VLSS datasets. A specific module concerning household income has been introduced in the surveys starting from the 2002 wave onwards.

[xiii] In a preliminary analysis, we have also tested out some alternative remittance variables, exploiting the wealth of data in the VLSS surveys, including other information on the remitters and the receivers of remittances. However, none of them appeared to add to the value of our model. For instance, in contrast to Kugler and Bui (2011), we find no significant impacts on child labour and schooling associated with women receiving larger shares of remittances. The two authors admit that the fraction of remittances going to women is likely to be related to unobservable factors and apply an instrumental variables strategy to their cross-section data. However, the availability of panel data, in our case, allows a more robust control at least of the fixed unobserved factors.

[xiv] Very similar results were obtained in a preliminary analysis by using a variable containing the children to adults ratio in the household.

[xv] These results are available on request.

[xvi] In the specification with all interaction terms, the coefficient of the dummy *Year*, becomes insignificant. The overall difference between the two years therefore is circumscribed to the expenditure variable.

[xvii] These results are available on request.

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