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ABSTRACT

Internal vs. International Migration: Impacts of Remittances on Child Well-Being in Vietnam*

This paper focuses on the effects of domestic and international remittances on children's well-being. Using data from the 1992/93 and 1997/98 Vietnam Living Standards Surveys, we investigate average school attendance and child labour in remittance recipient and non-recipient households. The results of our cross-section and panel 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 analysis, the panel analysis reverses this result, showing that the only significant impact stems from domestic remittances.

JEL Classification: F22, I39, J13, O15

Keywords: migration, remittances, schooling, child labour, panel data, Vietnam

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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. According to Adams and Cuecuecha (2010) there are at least three distinct views: 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.

As far as the effects on school enrolment and child labor 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)¹ – 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. Under the same line of reasoning, Fallon and Tzannatos (1998) argue that if schooling and leisure are identified as normal goods, they will jointly increase as income rises, leading to a reduction in child labour. In this sense, remittance inflows can play a role as extra income, with beneficial effects for children.

¹ 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 drop very low.” (Basu and Van, 1998, p. 416).

We analyse the impact of remittances in the context of Vietnam in the 1990s, using the information gathered in the 1992/93 and 1997/98 Vietnam Living Standards Surveys (VLSS). During the crucial decade of the Nineties, 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). We test the potential correlation between these improvements and the simultaneous presence of remittances by undertaking both a cross-sectional and a longitudinal analysis based on the VLSS panel data, whose quality has been certified by previous research.

2 Conceptual framework

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; whereas, his results show a strong reduction in child wage labour in remittance recipient households. 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. Dimova *et al.* (2011), using Living Standards Measurement Survey (LSMS) data on the Kagera region in Tanzania, find empirical support for the hypothesis that both emigration and remittances reduce child labor. In their research on Moldova, Görlich *et al.* (2007) provide some indication that the boom in university enrolment rates, which has been observed in Moldova in recent years, might partly be explained by the sharp rise in migration and remittance flows. With respect to the distinction between domestic and international remittances, the few comparative studies undertaken so far show that international remittances tend to have a stronger impact than domestic remittances. Adams (2008) finds

that, in Ghana, there are more households receiving domestic remittances; though, these are of lower value, on average, than international remittances. Joseph and Plaza (2010), also focusing on Ghana, find that international remittances unambiguously reduce child labour, while domestic remittances appear to have no statistically significant effect on the decision to send children to work. Using the two VLSS (2002 and 2004) subsequent to those employed in our analysis, Nguyen (2009) undertakes a fixed effects panel analysis on the impacts of international and domestic remittances on Vietnamese households' welfare, showing different results depending on the type of remittances. In particular, whilst a large proportion of international remittances are found to be used for saving and investment purposes, most domestic remittances are found to be channeled towards consumption expenditures.

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. In their paper on Albania, Giannelli and Mangiavacchi (2010) show 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. McKenzie and Rapoport (2011) reach similar conclusions in their study on school girls and boys in rural Mexico.

So far, much of the literature has either focused on remittances as a whole (without any geographical distinction) or separately analysed international or domestic remittance flows. By specifically investigating the difference between domestic and international remittances, we aim at furthering the understanding of the negative side-effects caused by a lack of parental care for migrants' children left behind. 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.

As mentioned above, the overall evidence that has emerged from several case studies, mainly from cross sectional data, has pointed to a positive effect of remittances on children's welfare. In fact, anticipating our own results, also the cross-sectional analysis in this paper confirms the previous evidence, since international remittances appear to have a positive and significant impact on children's welfare. However, this result is likely to be biased by specific unobserved factors associated with international migration, which are especially relevant in the case of Vietnam, where migration has political roots. Indeed, our fixed effects panel analysis, enabling us to control for time-invariant unobserved characteristics, highlights the greater importance of domestic remittances for children's well-being, thus giving support to our hypothesis.

Our analysis intends to contribute to the existing literature in an attempt to assess the effects of remittances on a twofold concept of child well-being. In particular, while previous literature has often analysed schooling and child labour prevalence separately, we focus on the impact of remittances on these two different aspects altogether. In addition, in order to assess the impact of remittances on children belonging to a recipient household, we use the characteristics of the 'average' child in the household, that is, we average at the household level the individual attributes of all children belonging to it. This approach, which is in fact dictated by the structure of the data, can also be theoretically justified by the assumption that parents, recognizing the

impossibility to treat their children equally (for example if children's abilities differ) try to maximize the well-being of the average child in the household.

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.

3 The case of Vietnam

In the last decade of the 20th century, Vietnam experienced a sharp increase in economic growth rates and a dramatic drop in poverty. The beginning of this economic transformation can be roughly associated with the introduction of the Doi Moi policy in 1986, a plan of economic innovations and liberalisations. Although these achievements varied significantly across households and regions, there were overall improvements in many social indicators, including child labour and school enrolment rates for both boys and girls (Arpino and Aassve 2006). The proportion of people living under the poverty line fell from over 50 percent in the early 1990s to 37 percent at the end of the decade and the prevalence of underweight children declined on average by 1.1 percent every year (Nguyen 2009, Khan et al. 2007, Glewwe et al. 2004).

The two Vietnam Living Standard Surveys undertaken during the 1990s document this pervasive but unequal transformation and have been used in several studies to examine the trends and incidence of different factors, including migration and remittances. 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 inflows of international remittances eventually outstripped the Official Development Assistance (ODA) and other capital flows as the main and most reliable source of foreign financial inflow for the country (Pfau 2008).

One of the most positive outcomes of this socio-economic transformation was an impressive reduction in the participation of children in the labour force. There was a decrease in both the number of children working, as well as the amount of hours supplied. Most of the children working by the end of the decade were located in rural areas and worked predominantly within the household unit. With the 1992 revised Constitution emphasising the importance of primary education, defined as both free and compulsory, education levels markedly increased over the 1990s, while gender differences in enrolment rates declined. All these elements seem to indicate a general improvement of children's welfare.

4 Data and descriptive statistics

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. The two surveys also form a panel dataset, from which we have extracted 2,054 households, those with at least one child aged 6 to 15. For comparability purposes, we use the same household sample in both the cross section and the panel analyses. We present here some descriptive statistics about remittances, child labour and schooling for the two rounds of the survey.

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

Source of remittances	Percent. 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: Authors' calculations on VLSS 1993 and 1998

Table 1 shows, for both years, an increase in the percentage of households receiving remittances. These figures also point towards the relative importance of international remittance inflows, which reached only a small proportion of families, but represented most of the total monetary value of all remittances.

Table 2. Child activities 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: Authors' calculations on VLSS 1993 and 1998

From Table 2 it is possible to appreciate 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 3. Enrolment rates (%) of children by expenditure quintile

Enrolment rates	Primary		Lower Sec.		Upper Sec.		Post Sec.	
	1993	1998	1993	1998	1993	1998	1993	1998
Total	87	91	30	62	7	29	3	9
Poorest quintile	72	82	12	34	1	5	0	0
Richest quintile	96	96	55	91	21	64	9	29

Source: Authors' calculations on VLSS 1993 and 1998

The 1998 net enrolment rates of 91 percent in primary education and 62 percent in lower secondary school, shown in Table 3, are the expected outcome of the general rise of enrolment rates in all levels of schooling in Vietnam, during the course of the decade. However, Table 3 also shows that children belonging to poor families did not perform as well as rich children, at all levels of schooling. In addition, a large number of children attended primary school whilst they were engaged in labour activities and this was likely to be the case for the poorest children especially. Through the use of suitable control variables and fitting

estimation procedures in our empirical model, we are attempting to account for this inequality in children's educational attainments, focusing on households' economic status and geographical rural/urban differences across the country.

Table 4. Distribution of remittance inflows by area of residence

<i>Region</i>	Share of total remittances (%)	
	1993	1998
Hanoi	30.9	15.8
Ho Chi Minh City	42.6	49.1
Centre-North regions	4.4	10
Centre-South regions	22.1	25.1
<i>Urban/Rural</i>		
Rural	20.9	25.2
Urban	79.1	74.8

Source: Authors' calculations from VLSS 1993 and 1998

In this regard, Table 4 shows that remittances inflows were directed towards the two main cities in Vietnam, namely Hanoi and Ho Chi Minh City. Accordingly, urban areas received a higher share of remittances than rural areas, in both 1993 and 1998. These figures seem to suggest that remittances did not have a positive impact on urban/rural differentials.

5 Empirical analysis

The econometric analysis attempts to verify whether domestic and international remittances have contributed to the improvement in Vietnamese children's living conditions in terms of education and child labour incidence. We focus on the rates of school attendance and on the incidence of child labour among children aged 6 to 15. In the first part of our analysis we separately use the 1993 and 1998 VLSS cross-sectional datasets and undertake two sets of Ordinary Least Squares (OLS) regressions for each year. In the second part we carry out a panel data analysis applying a conditional fixed effect linear model to the panel households in 1993 and 1998. Since we conduct our analysis at the household level, our dependent variables are the household average rates of children's school attendance and child labor. 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.

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 :

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

where the j index refers to the j th 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:

- $Child\ Labour = 1$ if $y_{ij} = 1$ for all j
- $0 < Child\ Labour < 1$ if $y_{ij} = 1$ for at least one j
- $Child\ Labour = 0$ if $y_{ij} = 0$ for all j

According to our definition, therefore, *Child Labour* is the probability of child labour within the household, which may also be intended as a measure of child labour intensity in the i th household.

The other dependent variable, *Schooling*, is calculated in an analogous way. and takes the following values:

- $Schooling = 1$ if $y_{ij} = 1$ for all j , where 1 applies to a child who goes to school and does not perform any type of work
- $0 < Schooling < 1$ if $y_{ij} = 1$ for at least one j (i.e. even if only one child is attending school without working)
- $Schooling = 0$ if $y_{ij} = 0$ for all j , when no child is only going to school without being engaged in some form of labor.

According to our definition, therefore, *Schooling* is the probability of school attendance within the household, which may also be intended as a measure of schooling intensity in the i th family.

Obviously, these two measures of children's well-being are not perfectly complementary. Our notion of child labour encompasses any child who is spending at least some of their time working (namely, they might also attend school), with potentially detrimental effects on their personal welfare. A reduction in child labour due to remittances may thus be seen as a first step to increase child well-being. Schooling, as defined in our empirical model, is a more

restrictive concept, entailing that the child is only attending school without doing any work, apart from unobservable domestic chores. Hence, for coefficients of the same magnitude, the well-being effect of remittances would be greater for schooling as compared to child labour.

The specification of the cross-section analyses is therefore 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 a fixed effects model.

In this case the specification for Child Labour becomes:

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

Analogously, the specification for Schooling becomes

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

where t denotes time, θ_i the unobservable household fixed effect and χ_{it} the remainder disturbance.

Whilst children's characteristics are averaged at the household level to create the average child's profile, some important features of the household are captured by variables that refer to the household head's characteristics as well as the household's urban or rural location and expenditure quintile. In the preliminary phase of our analysis, we have employed a number of other household variables to test out their significance, including the average level of education of all

household members and of adults members only, the share of female members and the ratio of children to adults in the family. Finally, we have chosen to present the results for the subset of household variables that turned out to be the most significant.

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 by members who have left the household to migrate. Remittances are defined 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'. These remittance variables incorporate two crucial aspects for the analysis, namely the geographical origin of the remittances, which roughly accounts for the proximity of the remitters' place of immigration to their household of origin, and the amount of money sent. As we will discuss more in depth during the interpretation of our panel results, the amount of money and the distance of the migrants from their place of origin are two key factors that interact with each other in determining the impact of remittances on migrants' children left behind.

The summary statistics of our two dependent variables and of all explanatory variables are presented in Table 5.

Table 5. Summary statistics: child labour, schooling, remittances, individual and household variables²

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	- 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 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
Level of education of the household head:				
Low level of education	0.37	0.26	0.48	0.44
Medium level of education	0.10	0.48	0.30	0.50
High level of education	0.06	0.20	0.24	0.40
Age group of the household head:				
Age 30 to 50 years	0.37	0.73	0.48	0.44
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 (Rural as reference)	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	2054	2054

Source: Authors' calculations on VLSS 1993 and 1998

² 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 5 were obtained including both recipients and non-recipient households and this explains their negative values.

The first two figures in Table 5 show the average household incidence of child labour and school attendance. In 1993, in each household on average 64 percent of children were only going to school whilst 25 percent 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 percent. 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.³ 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 head⁴ 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).⁵

³ In Vietnam primary school starts at six years of age and lasts five years (Art. 22, Education Law)

⁴ 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.

⁵ 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 e.g. 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.

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 in our model and the results associated with it, though not statistically significant, give rise to an interesting interpretation, as we shall see in the next section.

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.

5.1 Cross-sectional analysis

In the cross-sectional estimations, OLS regressions are applied to model our two child well-being outcome variables, *ChildLabour* for child labour and *Schooling* for school attendance. In order to guarantee comparability, we are using the same sample of observations for both the cross-section and the panel estimation. Taking advantage of the information on the province, district and village of residence, we also control for clustered standard errors at the village level.

Table 6, which shows the results of the OLS regressions separately for 1993 and 1998, suggests that remittances played some part in reducing child labour, in both 1993 and 1998. 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.

Table 6. Household child labour in 1993 and 1998, OLS

	1993	1998
	Coeff. (se)	Coeff. (se)
Log of the value of domestic remittances	- 0.004 (0.0029)	- 0.002 (0.0029)
Log of the value of international remittances	- 0.002 (0.0030)	- 0.005** (0.0025)
Gender of the child	- 0.032* (0.0177)	- 0.022 (0.0233)
Age of the child	0.021 (0.0297)	0.010 (0.0393)
Age of the child squared	0.002 (0.0015)	0.002 (0.0018)
Recipient is parent or grandparent	0.024 (0.0422)	- 0.019 (0.0445)
Gender of the household head	0.011 (0.0198)	0.014 (0.0241)
Level of education of the household head:		
Low level of education	- 0.002 (0.0173)	- 0.025 (0.0399)
Medium level of education	0.068*** (0.0255)	- 0.003 (0.0430)
High level of education	- 0.003 (0.0259)	0.008 (0.0460)
Age group of the household head:		
Age 30 to 50 years	- 0.009 (0.0160)	- 0.064 (0.0718)
Age over 50 years	0.006 (0.0302)	- 0.071 (0.0735)
Size of the household	- 0.015*** (0.0047)	- 0.013** (0.0055)
Number of children in the household	0.025*** (0.0086)	0.013 (0.0090)
Urban household (Rural as reference)	- 0.111*** (0.0246)	- 0.151*** (0.0266)
Expenditure quintile 2	- 0.009 (0.0240)	- 0.086*** (0.0278)
Expenditure quintile 3	- 0.058** (0.0234)	- 0.132*** (0.0299)
Expenditure quintile 4	- 0.128*** (0.0229)	- 0.198*** (0.0315)
Expenditure quintile 5 (TOP)	- 0.165*** (0.0254)	- 0.269*** (0.0323)
Number of Observations	2054	2054
R-squared	0.228	0.167
Significance levels = *** (p<0.01), ** (p<0.05), * (p<0.1)		
Cluster-Robust Standard Errors in brackets		

However, the level of statistical significance is very low for all coefficients apart from the international remittance one in 1998. This cross-sectional analysis seems to indicate two key elements: first, in 1993 the negative effect of remittances on child labour was not strong enough to appear statistically significant; secondly, in 1998 international remittances stand out for their notable and statistically significant impact. If we needed to put forward a

preliminary interpretation of the latter result, we would be led to argue that receiving international remittances, which are generally associated with larger sums of money when compared to domestic remittances, became increasingly important from 1993 to 1998 for reducing child labour. Conversely, domestic remittances do not seem to play a substantial role, being non-significant in both years.

From the examination of the other explanatory variables we notice that, in both years, children living in rural areas were more likely to work, albeit this difference was slightly stronger in 1998. In addition, 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 know 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, even though the rural/urban gap persisted. 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 1993.⁶ The significant impact of a medium level of education of the household head, which seems to increase the probability of working for the average child in 1993, is difficult to interpret and this result is in contrast with our panel results. Finally, the effect of the recipient's relationship with the sender (parent or grandparent) appears to be unclear (albeit insignificant), being positive in 1993 and negative in 1998. This point will be discussed in more depth in our panel analysis. Table 7 reinforces the argument that in 1993 receiving remittances was less influential on child activities than in 1998. At the end of the decade, after five years of increasing internal and international migration, the importance of the sum of money received appears to be heightened with respect to child schooling, possibly reflecting both the growing importance of remittance inflows as a substantial source of income and the easing of some socioeconomic constraints thanks to economic development.

⁶ Very similar results were obtained in a preliminary analysis by using a variable containing the children to adults ratio in the household.

Table 7. Household school attendance in 1993 and 1998, ordinary least squares

	1993	1998
	Coeff. (se)	Coeff. (se)
Log of the value of domestic remittances	0.004 (0.0032)	0.006* (0.0036)
Log of the value of international remittances	0.006 (0.0037)	0.011*** (0.0038)
Gender of the child	0.035* (0.0208)	0.0282 (0.0267)
Age of the child	0.163*** (0.0387)	- 0.010 (0.0509)
Age of the child squared	- 0.011*** (0.0019)	- 0.002 (0.0022)
Recipient is parent or grandparent	- 0.057 (0.0508)	0.005 (0.0576)
Gender of the household head	- 0.035* (0.0211)	- 0.017 (0.0287)
Level of education of the household head:		
Low level of education	0.023 (0.0193)	0.043 (0.0523)
Medium level of education	0.024 (0.0263)	0.077 (0.0540)
High level of education	0.081*** (0.0294)	0.082 (0.0578)
Age group of the household head:		
Age 30 to 50 years	0.020 (0.0181)	0.029 (0.0987)
Age over 50 years	0.023 (0.0334)	0.034 (0.0991)
Size of the household	0.006 (0.0052)	0.014* (0.0074)
Number of children in the household	- 0.028*** (0.0098)	- 0.102*** (0.0139)
Urban household (Rural as reference)	0.113*** (0.0260)	0.153*** (0.0351)
Expenditure quintile 2	0.117*** (0.0281)	0.113*** (0.0347)
Expenditure quintile 3	0.173*** (0.0278)	0.197*** (0.0379)
Expenditure quintile 4	0.268*** (0.0260)	0.266*** (0.0409)
Expenditure quintile 5 (TOP)	0.303*** (0.0296)	0.384*** (0.0424)
Number of Observations	2054	2054
R-squared	0.234	0.202
Significance levels = *** (p<0.01), ** (p<0.05), * (p<0.1)		
Cluster-Robust Standard Errors in brackets		

As a result, for 1998 the coefficients of both remittance logarithms are statistically significant. In addition, the descriptive evidence seems to be confirmed in that international remittances appear to have a stronger and more significant impact than domestic remittances.

From the analysis of the other control variables it emerges that boys were more likely than girls to go to school in 1993, though the gender gap seems to have narrowed by 1998. Similar gender dynamics can also be appreciated for child labour. Also 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. One interesting difference between the two years is the influence of the household head's education. While in 1993 household heads with a relatively high level of education had a positive and significant impact on child schooling, in 1998 the effect loses its statistical significance. It seems possible to argue that in 1993, given the more difficult economic situation, the level of education of the household head played a crucial role in promoting child schooling; in 1998, a larger percentage of children went to school thanks to an improved overall economic condition, so that other determinants became less relevant. The sign of the coefficient of our additional remittance variable concerning the recipient of remittances remains insignificant and presents also in this case diverging signs for the two 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.

5.2 Panel Analysis

In the second stage of our analysis we undertake a panel data estimation, using 2,054 households that appeared in the 1993 survey and were re-interviewed in 1998. Out of the total 4,300 households that make up the VLSS panel dataset, we chose those with at least one child aged 6 to 15 years in both years. This means that, following Edmonds (Edmonds 2005),⁷ we do not take into account only the children who appeared in both rounds of the survey. 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.

⁷ Edmonds restricts his sample to the panel households suitable to examine the relationship between child labour and household economic status, using a non-parametric decomposition to predict the results through time and then compare them to the real 1998 observed outcomes.

Given the nature of our dependent variables, a linear probability model with fixed effects seemed to be the most appropriate estimation technique to be applied to our analysis. As explained before, we have calculated the average values of all the relevant characteristics of children belonging to the same household, thus generating an average observation for each household in each year that allows us to compare the average 1993 child with the average 1998 child in the same family. Since it is the household unit as a whole that receives the remittances and not each individual child, the use of this approach seemed to be a reasonable choice. Although we cannot observe specific differences or commonalities across children belonging to the same families, we believe that using mean values for children in the household may provide us with a better representation of the household's average response to receiving remittances.

The most striking result emerging from the estimated fixed-effects regression model presented in Table 8 is that domestic remittances appear to have a stronger and more significant positive effect for child well-being than international 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 relations with their family and 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 appear to outpace the benefits generated by receiving remittances. 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. Our fixed-effects model enables us to control for these time invariant unobserved characteristics and obtain more reliable results.

Table 8. Household Child Labour and Schooling, Fixed Effects Model

	Child Labour	Schooling
	Coeff. (se)	Coeff. (se)
Log of the value of domestic remittances	- 0.007** (0.0032)	0.008** (0.0040)
Log of the value of international remittances	- 0.002 (0.0032)	0.003 (0.0051)
Year (base year 1993)	- 0.046* (0.0268)	0.011 (0.0295)
Gender of the child	- 0.033 (0.0279)	0.097*** (0.0346)
Age of the child	0.017 (0.0245)	0.092*** (0.0293)
Age of the child squared	0.002 (0.0011)	- 0.007*** (0.0014)
Recipient is parent or grandparent	0.036 (0.0466)	- 0.062 (0.0612)
Gender of the household head	- 0.048 (0.0345)	0.075* (0.0455)
Level of education of the household head:		
Low level of education	- 0.036* (0.0211)	- 0.004 (0.0234)
Medium level of education	- 0.066** (0.0266)	0.003 (0.0311)
High level of education	- 0.111*** (0.0389)	0.031 (0.0471)
Age group of the household head:		
Age 30 to 50 years	- 0.008 (0.0216)	- 0.016 (0.0259)
Age over 50 years	- 0.033 (0.0364)	0.007 (0.0427)
Size of the household	0.003 (0.0069)	0.010 (0.0089)
Number of children in the household	0.029*** (0.0078)	- 0.066*** (0.0104)
Urban household (Rural as reference)	- 0.055 (0.0382)	0.109** (0.0526)
Expenditure quintile 2	- 0.028 (0.0265)	0.041 (0.0308)
Expenditure quintile 3	- 0.054* (0.0282)	0.090** (0.0371)
Expenditure quintile 4	- 0.041 (0.0332)	0.084** (0.0414)
Expenditure quintile 5 (TOP)	- 0.003 (0.0378)	0.042 (0.0521)
Number of Observations	4108	4108
Number of Groups	2054	2054
R-squared overall	0.112	0.123
Significance levels = *** (p<0.01), ** (p<0.05), * (p<0.1)		
Cluster-Robust Standard Errors in brackets		

In other words, the fixed-effects method allows us to control for the fact that 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.

The interpretation of the coefficients of the control variables coefficients follow some of the considerations put forward in the previous section. Children belonging to urban and wealthier households have a greater probability of attending school. However, when it comes to child labour, the urban/rural coefficient, though bearing the expected sign, is not statistically significant. Part of its influence might have been captured by our domestic remittances variable, given the significance of rural to urban internal migration. Besides, the specific importance of living in an urban area for schooling can also be explained by the shortage of schools in rural areas. Unlike the overall number of household members, an increasingly large number of children in the household appears to produce a significant detrimental effect on both our measures of child well-being. As mentioned in the cross-section analysis, also when using a ratio of children to adults variable, we obtain similar results, which suggests that children are better off if there are more adults who can take care of them and earn an income for the family. 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. Interestingly, if the household is headed by a man, the average child is more likely to be attending school. Rather than being related to paternal affection, this result reflects the fact that female headed households are normally poorer than male headed ones and have fewer resources to sustain the costs of education. Gender does not appear to have a significant impact on child labour, with girls and boys likely to be engaged in gender specific work tasks. However, despite the reduction in the gender gap between 1993 and 1998, girls are still found to be significantly less likely to attend school. Since this gender variable is averaged at the household level, it could also be interpreted as representing the share of male-to-female children in the household. Hence, the larger the number of boys, the greater the probability that families will invest in their offspring's education.

Although all the coefficients associated with the household expenditure quintiles bear the expected signs, only the coefficient of the third quintile shows a significant negative impact on child labour, whilst the third and fourth quintiles have a significant positive impact on schooling. In both cases, the top quintile variables present unexpectedly small and insignificant coefficients. This inconsistency may be partially explained by the shortcomings of expenditure as a comprehensive indicator of household economic status. In this respect, information on household total income would have been a valuable addition. Nonetheless, the fact that a better economic condition appears to have a more detectable impact on schooling than on child labour seems to confirm the discussed difference between our two dependent variables. Indeed, the decision to send children only to school and not to work requires a particularly strong financial effort and commitment on the part of the household, with schooling emerging as a better indicator of well-being than child labour in our model.

Finally, although the remittance variable concerning the receiver of remittances is not significant, it does raise an interesting point. The sign of the coefficient seems to suggest that remittances sent to relatively older members of the household are not used for the average child's benefit; a fact that raises the question whether a considerable part of the money sent by the migrants to their parents or grandparents is devoted to expenditure on adults' needs or elderly care.

6 Conclusions

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 descriptive and 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.

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Appendix

Descriptive statistics of the panel : child labour, schooling, remittances, individual and household variables

Variables	Mean	Standard Deviation
Child Labour	0.25	- 0.36
Schooling	0.61	- 0.44
Log of the value of domestic remittances	- 8.08	- 2.89
Log of the value of international remittances	- 8.82	- 1.94
Gender of the child	0.52	- 0.38
Age of the child	10.62	- 2.24
Age of the child squared	119.50	- 47.38
Recipient is parent or grandparent	0.04	- 0.19
Gender of the household head	0.81	- 0.40
Level of education of the household head:		
Low level of education	0.31	- 0.46
Medium level of education	0.29	- 0.45
High level of education	0.13	- 0.33
Age group of the household head:		
Age 30 to 50 years	0.55	- 0.50
Age over 50 years	0.17	- 0.37
Size of the household	5.83	- 1.89
Number of children in the household	2.20	- 1.06
Urban household (Rural as reference)	0.18	- 0.38
Expenditure quintile 2	0.22	- 0.42
Expenditure quintile 3	0.21	- 0.41
Expenditure quintile 4	0.19	- 0.39
Expenditure quintile 5 (TOP)	0.17	- 0.37
Number of Observations	4108	4108

Source: Authors' calculations on panel sample taken from VLSS 1993 and 1998