

IMPACTS OF REMITTANCES ON CHILD HUMAN CAPITAL
INVESTMENT, EDUCATIONAL EXPENDITURE, AND LIVING
CONDITIONS OF HOUSEHOLDS:
EVIDENCE FROM TURKEY

by

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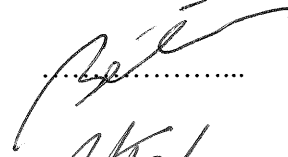
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ABSTRACT

This paper examines the impacts of international remittances on child human capital investment, educational expenditure, and living conditions of households. Remittances can increase family income and reduce resource constraint problems, allowing more consumption and investment. On the other hand, migration which is the main driving force behind remittances may have a disrupting effect on family structure and may result in adverse outcomes. After controlling for household wealth- the main observable selection dimension on remitting, average estimates suggest that 6-14 years old girls from recipient households are more likely to attend school and 6-14 years old boys from recipient households are less likely to be illiterate. 15-19 years old girls and boys from recipient households are less likely to work as wage earners and as unpaid family workers, respectively. Remittances improve living conditions of households by reducing the probability of suffering from poverty. Lastly, recipient households spend more on secondary school expenses and on any sort of educational purposes.

When it comes to heterogeneity of impacts of remittances which is derived by estimating specifications separately for households with one parent absent due to migration, and for households where both parents are present at home, 15-19 years old girls from households with both parents present at home seem to benefit the most from remittances. Girls from recipient households where both parents are present at home have higher school attendance and lower participation in wage labor. For boys from remittance receiving households with both parents present at home, there is no advantage in school attendance and wage labor implying the presence of gender differences in the use of remittances across households and possibly within households. Girls and boys from recipient households with both parents present at home, seem to be more literate. Households are less likely to live in poverty or extreme poverty if both of the parents are at home and they receive remittances. For households where both parents are present at home, remittances work in the direction of obtaining the favored outcomes, whereas for households where one of the parents is absent migration's disrupting effect on family structure neutralizes positive impacts of remittances on outcomes of interest implying that remittances act like extra income for households where both parents are present at home which is free from the disrupting effect of migration on family structure and mimic the impacts of family income on outcomes of interest.

ÖZET

Bu çalışma uluslararası para transferlerinin çocuk beşeri sermaye yatırımları, eğitim harcamaları, ve hanehalklarının yaşam koşulları üzerindeki etkisini araştırmaktadır. Para transferleri aile gelirini artırabilir ve kaynak kısıt problemlerini azaltabilir, böylece daha fazla tüketim ve yatırıma olanak sağlayabilir. Diğer taraftan, para transferlerinin arkasındaki itici güç olan göçün aile yapısı üzerindeki yıkıcı etkileri nedeniyle para transferleri olumsuz neticeler doğurabilir. Para transferi almanın başlıca gözlenebilir belirleyicisi olan hanehalkı varlıkları kontrol edildikten sonra, ortalama ölçümlerden çıkan sonuçlara göre, para transferi alan hanehalkı üyesi 6-14 yaş grubu kızlar okula gitmeye daha yatkındırlar ve para transferi alan hanehalkı üyesi 6-14 yaş grubu erkekler okur-yazar olmaya daha meyillidirler. Para transferi alan hanehalkı üyesi 15-19 yaş grubu kızların gelir getiren işlerde çalışma ihtimalleri daha azdır. Para transferi alan hanehalkı üyesi 15-19 yaş grubu erkeklerin ücretsiz aile işçisi olarak çalışma ihtimalleri daha azdır. Para transferi almak hanehalklarının yoksulluk sınırının altında yaşama ihtimallerini azaltarak yaşam koşullarını iyileştirici bir etki göstermektedir. Son olarak, para transferi alan hanehalklarının lise eğitimi ile ilgili harcamalarında ve tüm eğitim hizmetleri ile ilgili harcamalarında artış görülmüştür.

Göçten dolayı anne babadan sadece birinin bulunduğu hanehalklarıyla, anne ve babanın ikisinin de evde olduğu hanehalkları için ayrı ayrı yapılan ölçümler, anne ve babanın birlikte yer aldığı hanehalkı üyesi 15-19 yaş grubu kızların para transferlerinden en çok yararlanan grup olduğunu göstermiştir. Para transferi alan anne ve babanın birlikte yer aldığı hanehalkı üyesi kızların okula devam etme ihtimalleri daha yüksektir ve ücret karşılığı işlerde çalışma ihtimalleri daha azdır. Anne ve babanın birlikte yer aldığı hanehalkı üyesi erkeklerde para transferi almanın okula devam ve ücret karşılığı işlerde çalışma ihtimallerine bir etkisi olmadığı görülmüştür. Bu da para transferlerinin hanehalkları arasında ve muhtemelen hanehalkları içerisindeki kullanımında cinsiyet ayrımcılığının gözetildiğini ima etmektedir. Para transferi alan anne ve babanın birlikte yer aldığı hanehalkı üyesi kız ve erkeklerin okur-yazar olma ihtimalleri daha yüksektir. Para transferi almak anne ve babanın birlikte yer aldığı hanehalklarının yoksulluk ve açlık sınırının altında yaşama ihtimallerini azaltmaktadır. Anne ve babanın birlikte yer aldığı hanehalkları için para transferi almak arzu edilen yönde sonuçlar doğurmaktadır. Halbuki anne veya babadan birinin hanehalkında yer almadığı ailelerde göçün aile yapısı üzerindeki yıkıcı etkileri, para transferi almanın sağladığı olumlu etkileri ortadan kaldırmaktadır. Bu sonuçlar da, para transferlerinin anne ve babanın birlikte yer aldığı hanehalklarında göçün etkilerinden arındırılmış diğer gelir kategorileri gibi bir etkiye sahip olduğunu göstermektedir.

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1. Introduction

“Remittances are household income received from abroad, resulting mainly from the international migration of workers” (Yang, 2011). Remittances may be in the form of cash or in-kind, and may be sent through formal or informal channels. Technological advancements and competition among financial institutions that lead to reduction in money transfer costs made it desirable for migrants to use dedicated money transfer operators such as Western Union and MoneyGram to send remittances to their home families (Yang, 2011). Banks which have branches present in both sending and receiving areas constitute another formal channel to send remittances. Those banks often cooperate with money transfer operators (Yang, 2011). PTT Bank of Turkey can be considered as an example. This institution provides remittance sending services in two ways; first, through its own money order transactions services and second, through collaboration with money transfer operator, Western Union. A variety of informal channels include the migrants bringing the remittance with them which bears no transfer costs, and using systems such as *hawala* and *hundi* in South Asia and *padala* in the Philippines which require physical presence of operators of the systems in areas in the host country of migrants and areas in the home country of migrants (Yang, 2011).

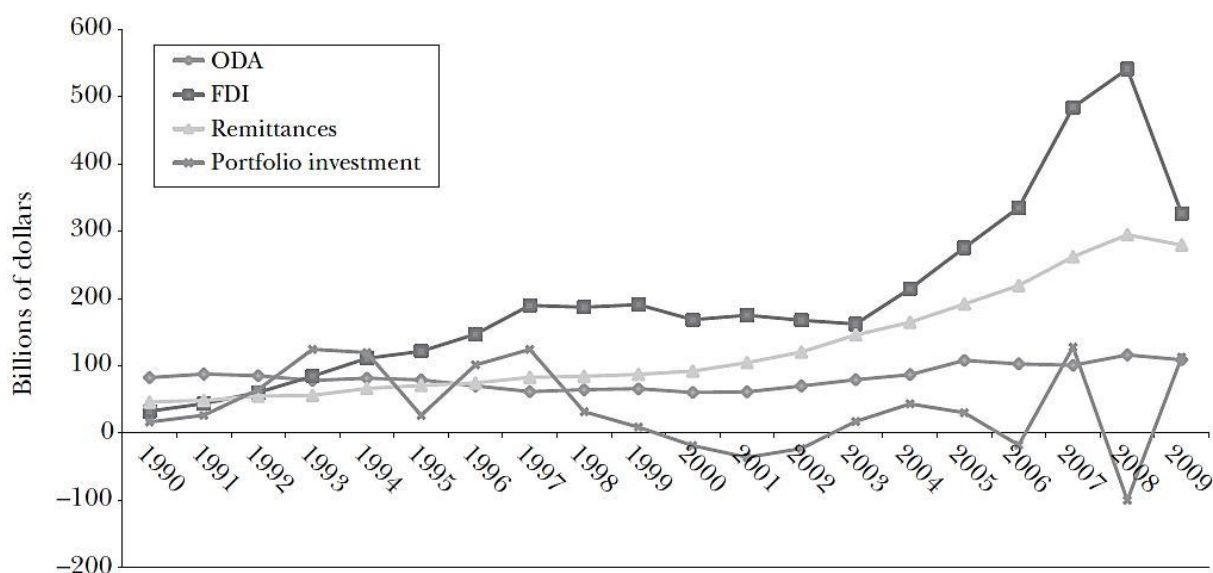
When international financial flows to developing countries are considered, those that occur through firms, financial institutions, and governments; in other words, foreign direct investment, portfolio investment, and official development assistance stand out from the rest (Yang, 2011). With the increase in international migration all over the world, another economic actor makes its appearance as an important international financial flow to developing countries-namely, remittances. The beginning of the 1990s witnessed remittances gaining power over other international financial flows to developing countries. Since the late 1990s, international migrants’ remittances have thrown official development assistance and portfolio investment into the shade, and in the beginning of the 2000s, remittances have come very close to the total amount of foreign direct investment flows (Yang, 2011). In 2004, the estimated value of workers’ remittances to developing countries was \$160 billion, with \$40 billion going to Latin America (Acosta, 2006). In 2009 and 2010, remittances to developing countries were \$325 billion and \$307 billion in nominal terms, respectively (Yang, 2011). Figure 1 compares these four categories of international financial flows to developing countries from 1990 to 2009 in constant 2005 U.S. dollars.

The average annual real growth rate of remittances in the period 1999-2008; the decade preceding the 2008 financial crisis, is worthwhile mentioning. While foreign direct investment and official development assistance had average annual real growth rates of 11.0 percent and 5.8 percent respectively in the corresponding period, remittances exceeded both with an average annual real growth rate of 12.9 percent (Yang, 2011).

To emphasize the role of remittances for developing countries, it will be beneficial to look at individual countries and the amount of remittances received and the corresponding remittance share of GDP.

Figure 1

Remittances vs. Other International Financial Flows to Developing Countries (1990–2009)
(in billions of constant 2005 U.S. dollars)



Notes: Data are in billions of constant (2005) US\$, in total across developing countries (low and middle income as classified by World Bank). Variables displayed are: “Net official development assistance and official aid received (current US\$)”, “Foreign direct investment, net inflows (BoP, current US\$)”, “Workers’ remittances and compensation of employees, received (current US\$)”, and “Portfolio investment, excluding LCFAR (BoP, current US\$)”.

Adapted from “Migrant Remittances”, by D. Yang, 2011, *Journal of Economic Perspectives*, 25(3), p.130

In table 1, 30 largest remittance receiving countries are presented, ranked accordingly by amount of remittance received (column 1) and the remittance share of GDP (column 2). The largest remittance receiving countries in 2010 ranked by the total amount of remittances received are China and India which accumulated an amount of \$55.0 billion and \$51.0 billion respectively. Mexico and Philippines received very close amounts of remittances with Mexico accumulating more, and they ranked 3rd and 4th respectively. When it comes to remittances as a share of 2009 GDP, it is evident that countries with small populations but with high migrant flows changed the ranking based

on the amount of remittances received, entirely (Yang, 2011). Tajikistan where remittances account for 35 percent of GDP obtained the first rank, and this country is followed respectively by Tonga (28 percent), Lesotho (25 percent), Moldova (23 percent), and Nepal (23 percent). Seven countries, where the large amounts of received remittances also account for a substantial share of GDP, take place in both of the lists. These are Philippines, Bangladesh, Lebanon, Serbia, Guatemala, Jordan, and El Salvador (Yang, 2011). Turkey, with its impressive migration history and huge migrant population, surprisingly does not take place in any of the lists. This may be due to the fact that those migrants and their families are settled citizens in the destination countries and there are no left behind family members in the home country that remittances could be sent to.

Besides being large at aggregate magnitudes for developing countries, remittances account for a substantial fraction of the earnings of migrant workers (Yang, 2011). Table 2 reports the remittance share of earnings of migrant workers using data taken from a variety of surveys conducted in a sample of destination countries. For some migrant populations, the share of earnings sent as remittances is substantial. For Mexican migrants (surveyed by Mexican Migration Project in 2000-2009 upon return to Mexico) average remittance share of earnings is 31.12 percent. Migrants from El Salvador report remitting 37.72 percent of their earnings. Senegalese in Spain remit on average 49.91 percent of their earnings. For some other migrant populations, however, the remittance share of earnings is not that high: Moroccan migrants in France remit 10.4 percent of earnings; Algerians in France remit 7.7 percent; Turks in Germany remit 2.1 percent; Chinese in Australia remit 6.1 percent; Filipinos in U.S. remit 5.8 percent; and Cubans in U.S. remit just over 2 percent of their earnings. Average annual amount of remittances sent per migrant is also worth mentioning. For Mexican workers mean annual remittances amount \$4.125, for immigrants from El Salvador the corresponding figure is \$5314, Senegalese immigrants send on average \$3304 per year.

As international migration become widespread all over the world, remittances gain more and more importance due to its potential to affect both host and home countries and remittance receiving households. Some questions arise that need to be answered in order to fully grasp the meaning of remittances to a country and to a household. Firstly, how do remittances affect recipient households and recipient countries? Do they facilitate investment, or are they used to increase consumption? Do they provide insurance, responding countercyclically to economic conditions in migrant home areas?

(Yang, 2011) How do remittances take part in the calculation of net benefits of migration for migrant families?

Table 1

Top Remittance Receiving Countries

	<i>Remittances received (in 2010; U.S.\$ billions)</i>		<i>Remittances received as % of GDP, 2009</i>
India	55.0	Tajikistan	35
China	51.0	Tonga	28
Mexico	22.6	Lesotho	25
Philippines	21.3	Moldova	23
France	15.9	Nepal	23
Germany	11.6	Lebanon	22
Bangladesh	11.1	Samoa	22
Belgium	10.4	Honduras	19
Spain	10.2	Guyana	17
Nigeria	10.0	El Salvador	16
Pakistan	9.4	Jordan	16
Poland	9.1	Kyrgyz Republic	15
Lebanon	8.2	Haiti	15
Egypt	7.7	Jamaica	14
United Kingdom	7.4	Bosnia and Herzegovina	13
Vietnam	7.2	Serbia	13
Indonesia	7.1	Bangladesh	12
Morocco	6.4	Philippines	12
Russian Federation	5.6	Albania	11
Serbia	5.6	Togo	10
Ukraine	5.3	Nicaragua	10
Romania	4.5	Guatemala	10
Australia	4.3	Cape Verde	9
Brazil	4.3	Guinea-Bissau	9
Guatemala	4.3	Senegal	9
Netherlands	4.1	Armenia	9
Colombia	3.9	Grenada	9
Jordan	3.8	Sri Lanka	8
Portugal	3.7	Gambia	8
El Salvador	3.6	Dominican Republic	7

Notes: Data on the dollar value of remittances received are from 2010, and data on remittances received as a portion of GDP are from 2009.

Adapted from "Migrant Remittances", by D. Yang, 2011, *Journal of Economic Perspectives*, 25(3), p.134

This study is dealing with the micro level impacts of remittances on migrant families, trying to answer questions such as: are remittances used by households in order to invest in human capital of children? Do remittances increase households' expenditures on their children's education via its potential to relax household budget constraint? Do remittances decrease child wage labor for migrant families? Besides these questions, the role of remittances in the calculation of net benefits of migration is tried to be assessed.

The rest of the paper is organized as follows: Section 2 reviews the literature focusing on motivations to remit and uses of remittances. Section 3 describes the case of Turkey in terms of migration and remittance behavior. Section 4 reviews the

methodology most widely used in the literature. Section 5 states the empirical model used in this study. Section 6 describes the data and the sample. Section 7 presents some descriptive statistics. Section 8 presents the results of the paper. Finally, section 9 concludes.

Table 2

Remittance Activity in Selected Migrant Origin–Destination Country Pairs

<i>Origin country</i>	<i>Migrant destination country</i>	<i>Average remittances as a percentage of earnings</i>	<i>Average annual remittances (\$ value)</i>	<i>Data source</i>	<i>N</i>
China	Australia	6.09%	\$552	Australia LSIA	65
Morocco	France	10.37%	\$1,283	France 2MO	128
Algeria	France	7.67%	\$1,079	France 2MO	121
Senegal	France	11.23%	\$1,517	France 2MO	40
Turkey	Germany	2.14%	\$512	Germany SOEP	334
Ghana	Italy	23.28%	\$2,528	Italy NIDI	497
Morocco	Spain	30.80%	\$2,947	Spain NIDI	461
Senegal	Spain	49.91%	\$3,304	Spain NIDI	399
Mexico	United States	31.12%	\$4,125	MMP	1268
Mexico	United States	1.91%	\$312	US NIS	790
Mexico	United States	10.80%	\$1,769	US Pew	321
El Salvador	United States	37.72%	\$5,314	ESSMF	877
China	United States	3.60%	\$568	US NIS	291
Philippines	United States	5.84%	\$958	US NIS	344
India	United States	1.39%	\$728	US NIS	526
Vietnam	United States	3.39%	\$297	US NIS	101
Cuba	United States	2.12%	\$230	US NIS	98
Cuba	United States	2.32%	\$398	US Pew	111
Dominican Republic	United States	9.14%	\$381	US Pew	95

Sources: **China–Australia:** 1997 Longitudinal Survey of Immigrants to Australia (Australia LSIA), (<http://www.immi.gov.au/media/research/Isia/>) ; **Morocco–France, Algeria–France, Senegal–France:** Survey of Households’ Transfer of Funds to their Countries of Origin (France 2MO), Miotti, Mouhoud, and Oudinet (2009); **Turkey–Germany:** 2000 German Socio-Economic Panel (Germany SOEP), (http://www.diw.de/english/soep_overview/33899.html) ; **Morocco–Spain, Senegal–Spain:** Netherlands Interdisciplinary Demographic Institute International Migration Survey (Spain NIDI), Groenewold and Bilsborrow (2004); **Mexico–United States:** Mexican Migration Project (MMP), (<http://mmp.opr.princeton.edu/>) ; **Mexico–United States, China–United States, Philippines–United States, India–United States, Vietnam–United States, Cuba–United States:** New Immigrant Survey (US NIS), (<http://nis.princeton.edu/>) ; **Mexico–United States, Cuba–United States, Dominican Republic–United States:** Pew National Survey of Latinos (US Pew), (<http://pewhispanic.org/datasets/signup.php?DatasetID=7>) ; **El Salvador–United States:** El Salvador Survey of Migrant Families (ESSMF), Ashraf, Aycinena, Martinez, and Yang (2011). Adapted from “Migrant Remittances”, by D. Yang, 2011, *Journal of Economic Perspectives*, 25(3), p.135

2. Previous Literature

Two broad areas of literature on remittances exist: motivation to remit and uses of remittances. The results of the studies focusing on the former one suggest a number of motives to send remittances. Docquier and Rapoport (2006) come up with a model that explains the motivations to remit, including altruism, exchange for the services provided

to the migrant by recipients, insurance, loan repayment, and investment. Stark (1995) states that altruistically motivated remittances may be sent to increase consumption levels of recipients. On the other hand, remittances may be sent to fund productive investments of recipients; investments which may be on human capital or physical capital.

Another set of papers studies the uses of remittances and simply ask how remittances affect recipient households or countries. Studies trying to find causal linkages between remittances and economic performance at the country level are inconclusive. Faini (2007) finds a positive relationship between remittances and economic growth; however, others find no or a negative relationship (Chami, Fullenkamp, and Jajah, 2003; Giuliano and Ruiz-Arranz, 2005).

Studies using micro level data are partly motivated by the desire to understand remittance impacts in greater detail and by the desire to achieve better causal identification. While reviewing studies using micro level data, it is common to observe a distinction made by remittance receiving households between consumption and investment expenditures. However, there is no widely accepted view on which one is desirable. Yang (2011) states that it could be optimal to use remittances on consumption where households suffer from low income levels; however, it could be optimal to use remittances on productive investments where households enjoy a sufficient or a higher wealth level and where productive investments would not have been achieved due to the budget constraints without the extra income derived from remittances.

Brown and Ahlburg (1999) conclude that increased income derived from remittances is used to allow higher levels of consumption. However, other research finds that migration and remittance receipts are positively correlated with some productive investment activities. Yang (2008) shows that international migrants' favorable exchange rate shocks lead to increased entry to capital intensive enterprises such as transportation and manufacturing by the migrants' origin households in Philippines.

Investing in the human capital of children is stressed in the literature as an important aspect of investments on the side of remittance receiving households. A significant number of studies focus on the impacts of migration and remittances on educational attainment of children. Cox-Edwards and Ureta (2003) find that remittances reduce the school dropout hazard rates of 6 to 24 years old boys and girls in El Salvador using data from the 1997 wave of household surveys conducted in El Salvador. Acosta

(2006) using data from the same wave of household surveys conducted in El Salvador but from another year-1998, finds that girls between 11 and 17, and boys less than 15 years of age from remittance recipient households are more likely to attend school than girls between 11 and 17, and boys less than 15 years of age from non-recipient households. He concludes that remittances help children from remittance receiving households to finish primary education but this benefit is no more present when it comes to secondary education. Yang (2008), in the case of Philippines, states that positive exchange rate shocks for international migrants lead to enhanced human capital accumulation in origin households. His results support the claim that remittances increase child school attendance and educational expenditure. He concludes that a positive exchange rate shock for international migrants is associated with an increase in school attendance rates of 10 to 17 years old girls. However, there is no such a causal relationship between positive exchange rate shocks and 10 to 17 years old boys' school attendance rates. Bansak and Chezum (2009) show that, in Nepal, remittances increase school attendance of young children (5 to 10 years old males and females) with the effect being larger for males. They also show that receiving remittances do not change the likelihood of school attendance of old children (11 to 16 years old males and females). Lopez Cordova (2005), in the case of Mexico, provides evidence that remittances decrease illiteracy of children aged six to fourteen, and increase school attendance of five year old children. However, the impact on school attendance is insignificant for six to fourteen years old children and becomes negative for children between fifteen and seventeen. Instead of investigating the impacts of remittances on school attendance and illiteracy by accounting for gender differences, he prefers to examine the impacts of remittances on school attendance and illiteracy for a mixed sample of girls and boys. Hanson and Woodruff (2003) tried to identify a causal linkage between child schooling and having a household member living abroad for the case of Mexico. Their results imply that 10 to 15 years old girls whose mothers have less than 3 years of schooling benefit the most from remittances in increasing their accumulated years of schooling. They also show that remittances increase accumulated years of schooling of 10 to 12 years old boys whose mothers have less than 3 years of schooling. Finally, there is no advantage of receiving remittances in increasing the accumulated years of schooling for 13 to 15 years old boys whose mothers have less than 3 years of schooling. In their study, years of schooling of the mother is used as a proxy for the wealth level of household. Hence, they argue that remittances, via relaxing the

household budget constraint, increase years of schooling attained for girls living in households with low income levels. McKenzie and Rapoport (2011) investigate the overall impact of migration on school attendance and the number of grade years completed for children aged twelve to eighteen in rural Mexico. They find evidence of a negative significant effect that migration has on school attendance and attainment. Their results show that living in a migrant household lowers the chances of boys completing junior high school and of boys and girls completing high school.

Outcomes related to child human capital accumulation is not restricted to child schooling only. Child labor is as important as child schooling regarding investment in child human capital. Labor force participation of a child reduces the time available to spend on education. Keeping this in mind, there is a consensus in the literature regarding the negative correlation between child schooling and child labor. On the other hand, in poor countries, while deciding on the schooling of the child, the main cost for the household is not the tuition, books, or uniforms but the foregone earnings of the child (Hanson and Woodruff, 2003). Households which do not rely on their children's wage labor are those that maintain a satisfactory wealth level. Therefore, increasing educational attainment of children is through decreasing their participation in labor force and this can be achieved by increasing the income level of households. As a priori guess, remittances by increasing household budget and relaxing liquidity constraints of households may serve this function. There is a large literature on how remittances affect child labor. Yang (2008) makes use of an exogenous variation in origin household's income which results from exchange rate shocks to Filipino migrants and concludes that an increase in the size of the exchange rate shock is associated with a decline in total hours worked by 10 to 17 years old males, whereas there is not an association between positive exchange rate shocks and total hours worked by 10 to 17 years old girls. McKenzie and Rapoport (2011), in the case of Mexico, investigate the reason of lower levels of school attendance and years of schooling accumulated for migrant families' children and find as an explanation doing housework for girls between ages 16 and 18 and migrating themselves for boys at all age cohorts (12 to 15, and 16 to 18 years old). There is not a significant effect of having a migrant household member on 12 to 18 years old boys' likelihood of working as unpaid family workers or wage earners. Their study reveals that girls between ages 16 and 18 lose on both dimensions of human capital accumulation; schooling and work. In other words, 16 to 18 years old girls from recipient households have lower rates of school attendance and less work experience

compared to 16 to 18 years old girls from non-recipient households. Giannelli (2012), using Vietnam Living Standard Surveys for 1993 and 1998, divides remittances into two categories; domestic remittances and international remittances, and investigates their impacts on child labor and school attendance separately. Her OLS results show that for 1998, international remittances decrease the probability of children working for wage regardless of gender. Acosta (2006), in El Salvador, finds that remittances decrease the likelihood of both girls and boys between ages 11 and 17 working for wage with the impact being stronger for girls.

While a large fraction of the literature on the impacts of remittances is dedicated to human capital accumulation outcomes, some focus on the impacts on household well-being. Adams (1998), in the case of rural Pakistan, is unable to find any significant impact of remittances on no-farm asset accumulations. Lopez Cordova (2005) shows that, in Mexico, receiving remittances decreases the chance of households suffering from poverty where poverty is defined as the household income being at most two times of the minimum wage. However, remittances do not have a significant impact on extreme poverty where extreme poverty is defined as the household income being equivalent to the minimum wage or less. It is expected not to find an alleviating impact of remittances on extreme poverty, since migration is a costly action and households suffering from extreme poverty cannot afford to migrate and send remittances back home. His findings signal that there is a lower boundary of income for a household to benefit from migration and remittances.

3. The Case of Turkey

In the beginning of 1960s, Turkey was experiencing an unemployment rate of 10 percent and an additional underemployment over 15 percent (Icduygu, 2009). Turkish government borrowed heavily from other countries and had difficulties in paying its import bills due to the foreign currency bottlenecks (Icduygu, 2009). At the same time, industrialized European countries were in serious need of manpower. In the light of these developments, Turkey signed bilateral agreement with Federal Republic of Germany in 1961 that allowed emigration of workers from Turkey to Germany (Koc and Onan, 2004). This was the leading step in front of the mass emigration of Turkish workers to European countries. The main motivations for the Turkish government in

promoting emigration were to reduce unemployment and to gain foreign currency through remittances (Icduygu, 2009).

With the opening of the corridor of emigration in 1961, the number of workers going to Europe increased dramatically and peaked at 66,000 people in 1964 (Icduygu, 2009). Till the oil crisis of 1974, mass emigration to Europe continued. 1975 is the last year of observed mass emigration to Europe (Icduygu, 2009). The European countries were deeply affected from the oil crisis and they stopped accepting immigrant workers. Turkish government, then, tried to find new destination routes for its excess supply of labor. The new destination was set to be oil rich Arab countries. Immigrant workers at Arab countries were hired for a specified amount of time-till the project ends- and they were not allowed to bring their families with them (Icduygu, 2005). In the period of 1975-1980, more than 75,000 contracted workers had gone to the oil-exporting countries (Icduygu, 2009). However, by the mid-1990s, due to the completion of large-scale infrastructural projects most of the immigrant workers had to turn back to Turkey.

With the collapse of USSR in the 1990s, newly emerging countries started reconstruction programs and demanded labor. The mid-1990s experienced mass emigration to CIS countries which are former Soviet Republic countries with a total of 65,000 emigrants (Icduygu, 2009).

In the early 2000s, while Turkey's population was around 70 million, the emigrants had a total of 3.5 million. The largest share of emigrants was residing in Europe, a total of 3 million, followed by 300,000 emigrants in Australia, Canada and U.S. The next largest emigrant receiving region is CIS countries with a total of 150,000. Lastly, around 100,000 emigrants were present in Arab countries (Icduygu, 2005). International migrants constituted 5 percent of Turkey's population.

30 to 40 percent of past emigrants permanently returned back to Turkey (Icduygu, 2005). Besides having 5 percent of the population as current emigrants, this implies that a large portion of the population in Turkey has direct migration experience. In addition, emigrants don't lose their contacts with the families left behind. They send letters, have phone calls and most importantly send remittances. A huge migration experience of this sort could potentially have some effects on home country's economy.

The most striking impact of emigration on Turkey's economy is through remittances. From 1960s to 2000s, accumulated value of remittances is \$75 billion. In 1967, remittances amounted \$93 million. In 1974, the corresponding figure was \$1.4 billion and, in 1978 remittances amounted \$893 million. Between 1978 and 1988

average annual remittances amounted to 1.5-2 billion dollars. In 1980s, remittances amounted 65 percent of trade deficit and 2.5 percent of GNP. During late 1980s and early 1990s, average annual remittance receipt was about \$3 billion with a peak of \$3.4 billion in 1995. In 1990s remittances amounted one third of the trade deficit and less than 2 percent of GNP. However, it cannot be suggested that the decrease of remittance share of trade deficit and GNP is due to the decrease in annual remittance amounts. The decrease in the share of trade deficit and GNP could be explained with the growth of Turkish economy and lower contribution of remittances in the corresponding shares compared to the contributions from tourism, exporting and other income sources (Icduygu, 2005). It is an undeniable fact that remittances played a major role in financing the import bill of Turkey since 1960s. On the other hand, Turkey had experienced an unemployment rate of 16.7% in 1986. It is argued that the unemployment rate would have reached 23.2% in 1986, instead of 16.7%, in the absence of labor emigration (Barisik et al., 1990). Therefore, emigration was beneficial in reducing the unemployment rates in Turkey. Thus, it can be argued that a successful policy was run in Turkey to overcome the foreign currency bottlenecks and to reduce unemployment.

Even though Turkey has an impressive migration history and accumulates significant amounts of remittances each year, there are very few studies regarding the impacts of international migration and remittances.

There is a well-known migration study in Turkey; 1996 Turkish International Migration Survey (TIMS-96). Data was collected from 28 selected districts in 8 provinces of Turkey in 1996 and was not representative at the national level. According to TIMS-96, 12 percent of households receive remittances and 80 percent of remittance receiving households used remittances to improve their standard of living. In TIMS-96, there is also evidence for regional differences in the amount of remittances received. It is found that households located in less developed regions are more likely to receive remittances than households in developed regions. Koc and Onan (2004), by using data from TIMS-96, find that remittances are basically used to satisfy consumption needs of origin households. This is a conflicting result with findings of Yang (2008) who shows that increased remittance income deriving from international migrants' exchange rate shocks is not associated with any change in consumption of origin households in Philippines. Koc and Onan (2004) also show that remittance receiving households are better off than non-remittance recipient households. This implies that remittances have a

positive impact on household welfare. Day and Icduygu (1999) use data gathered from 234 individuals in Turkey during 1992-1993 and show that return migrants and their close relatives have higher consumption levels than non-migrants. Keles (1985) conclude that remittances do not work in the direction of reducing imbalances between regions of Turkey, but benefit the remittance receiving households via improving their standards of living. Atalik and Beeley (1993) find that remittances are used for investment in physical capital such as acquisition of land, and cars.

In the case of Turkey, there is a large literature on the determinants of remittances, but to the best of our knowledge, impacts of remittances on different aspects of child human capital accumulation outcomes were not studied at all. This study will fill this gap and contribute to the literature by making use of micro level data to study the impacts of remittances on child schooling, child illiteracy, and child labor. It also tries to explain whether being a remittance receiving household lowers the chance of living in poverty or not. However, this study will add to the literature basically by investigating the impacts of remittances on child human capital accumulation outcomes separately for the cases where both parents of the child are present at home and where one of the parents or both are missing due to migration. The data used lets us separate households which receive remittances into two categories; households which receive remittances because of sending one of the parents abroad to work, and households which receive remittances from friends and relatives who are international migrants. The first category of households has a missing parent; however, the second category of households has both parents present at home. The importance of investigating the impacts of remittances separately for these two groups comes from the opposing effects of migration. As McKenzie and Rapoport (2011) states, the impact of migration on educational attainment is devised as a sum of three effects. First, increased remittances have a positive effect on educational attainment of children living in households where liquidity constraints are binding. Second, having a migrant parent reduces parental input into children's education and increases the responsibilities of older children to take care of the family left behind. Older children may be required to substitute for the out of home or in-home responsibilities of the absent parent. Lastly, future prospect of migration is a significant determinant in deciding the amount of schooling desired. The second factor has a negative impact on educational attainment of children. In the case of Mexico, the third factor has a negative impact on educational attainment of children because the return to education is higher in Mexico than it is in U.S. Children with an

intention to migrate know that they will work in jobs demanding low levels of education; thus, reduce their desired level of schooling. Nevertheless, this impact may vary in sign and magnitude for different contexts. All of the studies reviewed make use of data where households embrace a member who is missing due to international migration. In such contexts, separating these different impacts is difficult. In this study, remittances form an exogenous variation in income for households where both parents are present at home and the impacts of remittances are purged from the impacts of migration. Furthermore, comparisons of the results between households with both parents present at home and households with one of the parents being absent may signal the impacts of migration on the outcome of interest.

4. Methodology

Hoddinott (1994) states that migration decision is an outcome of a utility maximization problem solved jointly by the prospective migrant and the other household members. In the light of this statement, the main problem encountered in consistently estimating the impacts of remittances is non-random allocation of migrants and migrant earnings across households. The literature stresses that remittance receiving families are systematically different than non-remitting families in observable and non-observable characteristics and this complicates the identification of the effects of remittances using standard OLS techniques. In the case of school attendance, Hanson and Woodruff (2003) note that migration and schooling both involve fixed costs, and in a context of capital market imperfections, only wealthy families can afford both migration and children's schooling. So, if all facets of household wealth cannot be observed, there would be omitted variables correlated with both remittances and school attendance of children. In this example, the impact of the omitted variables on school attendance would be attributed to remittances, leading to upward bias in the OLS estimate of the coefficient of remittances. As pointed out by Acosta (2006), selection into being remittance recipients on characteristics like per capita income, expenditure, or wealth is an important problem that could bias OLS estimates of the impact of remittances on child human capital accumulation outcomes. This requires good controls for these factors or, in absence of good controls, sample selection correction techniques are needed in order to avoid inferring wrong impacts of remittances.

There are a number of measurement issues in studies investigating the effects of remittances. First, the household wealth prior to migration needs to be observed in order to assess the economic situation of the household correctly at the time of the migration decision (Acosta, 2006). Controlling for per capita pre-remittance income in the regression equation is one of the methods used to achieve this goal. However, such info is not available in the data used for this study that makes it inapplicable. Second, ignoring the migrant's income in calculating the non-remittance household income implies a zero income for the migrant if he/she had stayed at home. This assumption is far from being realistic, and there is no way to calculate the counterfactual household income without having information on migrant's characteristics and, in our data, there is no information about household members who were not present at home when the survey was conducted. If the income of migrant households consists of just remittances, calculating the non-remittance income would imply zero income for those households, but this would not be a realistic estimation of the household wealth prior to the migration of the household member. Given these difficulties for assessing the economic situation of the household at the time of migration, some studies suggest alternative measures. Deaton (1997) favors using expenditure for measuring long run well-being, especially if households can smooth consumption. Using per capita expenditure to control for household wealth requires the migrant to consume the average current household basket if she/he had stayed at home. This assumption is less restrictive than the one set for non-remittance income. Nevertheless, expenditure levels are more likely to be affected by current remittance flows; therefore, may not be very useful in controlling for selection into being a remittance recipient. An alternative approach is to examine ownership status of different household assets, which are less likely to be affected from the current remittance flows (Acosta, 2006). Since, in most data sets there is no information on the date when the household member has migrated or when the household assets were acquired, the recipient families might have used the money transfers in order to purchase some of the observed assets, which then would not properly reflect the household wealth prior to migration. Hanson and Woodruff (2003) take into consideration the problems explained about selection in income, expenditure, or wealth, and come up with a new method to control for household resource constraints which is using age and education of parents as household earnings potential and home ownership as household wealth. According to them, these controls do not suffer from omitted variables problem.

This study makes use of all of the four approaches to control for the household wealth prior to migration and compares the results. Each specification is estimated separately by using per capita pre-remittance income, per capita expenditure, the method suggested by Hanson and Woodruff (2003), and ownership status of different household assets as a means of household wealth control. The household assets controlled for include: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

Even after controlling for selection on observables, care must be taken because remittances can be correlated with unobserved determinants of the outcome of interest. For example, parents who care more strongly about their children may migrate just to earn income to cover educational expenses of their children and also devote more attention and nonincome resources to improve the educational outcomes of their children. A comparison between remittance receiving families and nonremitting families then overestimates the impacts of remittances on education. As a second example, consider labor market shocks. A negative income shock may be illustrated with a parent losing his job. The negative income shock which is unobserved for the econometrician may have induced the father to migrate and send remittances back home. However, there will be some time span between the departure of the father and the arrival of remittances to the household of origin. Due to the shortage in household income in this time period, children may need to work to compensate for the lost income of their parent and devote less time to school. In this example, the decrease in child schooling will be associated with receiving remittances, leading to a negative bias in the coefficient estimates of the impact of remittances on schooling. These two examples suggest that it is difficult in principle to sign the expected OLS bias.

To address the endogeneity of remittances some methods are introduced in the literature. Acosta (2006) uses propensity score matching to overcome the selection problem. Propensity score matching assumes that selection into being remittance recipients is due to observable characteristics. However, unobserved characteristics of households may affect their likelihood of being remittance recipients. So, this method is still vulnerable to the omitted variables problem.

Another method used in the literature to overcome endogeneity problem is fixed effects estimation. This method lets us to net out any observed and unobserved variation that is common within families or to individuals only if the omitted variable is thought

to be constant at the family or individual level and not expected to vary over time (Antman, 2012). As a counter example, think about a household experiencing a positive income shock. That leads the household to cover fixed costs of both migration and education. A researcher investigating the impacts of remittances on schooling that decides to use fixed effects estimation to net out any unobserved effects will falsely conclude that the increased education level of the child is due to receiving remittances. The variation in schooling outcome is partly explained by the positive income shock that the household has experienced, but fixed effects model cannot account for time varying unobserved determinants.

To the best of our knowledge, instrumental variables approach is the most widely used method to address the endogeneity of remittances. Instead of using the whole variation in the endogenous variable, instrumental variables approach tries to identify an exogenous variation in the endogenous variable and uses this exogenous variation to estimate the impact of the independent variable consistently. Historical migration patterns at the village, municipality, or state level are generally used as instruments by studies examining the impacts of migration or remittances. It is argued that migration rates are an indicator of the strength of migration networks present in the village, municipality, or state (Hanson and Woodruff, 2003). Access to migration networks helps lowering the costs of migration by giving information to the individual who has an intention to migrate about ways to enter to the host country, obtaining jobs, finding housing, attitudes towards immigrants, and living conditions in the destination area. Households with better access to migration networks should be more likely to send migrants, and hence more likely to receive remittances. The identifying assumption for historical migration rates to be a valid instrument is that historical migration rates should not have a direct impact on outcomes of interest, apart from its influence through current remittances. The presence of positive correlation between historical migration rates and remittances is justified via the cost lowering impact of migration networks on migration. To ensure that migration rates do not capture current economic conditions of the state, which may directly affect outcomes of interest, early or mid-20th century migration rates are used. Using long lags helps ensure that there is no correlation between migration rates and unobserved determinants of outcomes of interest. McKenzie and Rapoport (2011), and Acosta (2006) capture the exogenous variation in remittances through using historical state migration rates. Hanson and Woodruff (2003) instrument for whether a household receives remittances using the interaction between

historical state migration rates and household characteristics. As opposed to McKenzie and Rapoport (2011), and Acosta (2006), Hanson and Woodruff (2003) achieved to obtain household level variation in estimating the impacts of remittances by using the interaction between historical state migration rates and household characteristics. Lopez Cordova (2005), in rural Mexico, instruments receiving remittances using state level variation in rainfall. His justification for using this instrument is that, states with high variation in rainfall earns agricultural income for a short time period- generally in summer-, instead states with low variation in rainfall earns agricultural income across the year. So, households in states with high variation in rainfall send household members abroad to work in order to earn additional income which may compensate for the agricultural income that could not be earned during the year. However, this instrument may suffer from exclusion restriction and lose its validity because there may be a significant correlation between variation in rainfall and income levels of states, where state income is an unobserved determinant of outcome of interest.

5. The Model

Concerning children's school attendance, at a given age some children attend the school and some others do not. This variation results from households' perception of the return and cost of their children's schooling.

Individual heterogeneity can account for some part of the variation in perceived returns to education. The return to education for more able children is higher and it is optimal to have higher education for more able children. However, child ability is not observed in the data. Parental education (highest level of finished schooling) is used to proxy for child ability. The justification of using this proxy comes from the argument that parents who obtained high levels of schooling may be more likely to have more able children for whom it is also optimal to obtain high levels of schooling. For households where one of the parents is missing due to migration or other reasons, the education level of the parent who is present at home is used. For households where both of the parents are present at home, the education level of the parent who obtained a higher level of education is used to proxy child's ability. Besides being a proxy for child ability, parental education may have some other impacts on schooling outcomes of children. Parents' attitudes towards education may affect the child's perception of schooling. For example, parents with high education may place a high value on

schooling and may be more willing to invest in educating their children. In addition, more educated parents may be seen as positive role models on the side of the children while deciding on the amount of schooling to obtain.

The variation in households' perceived costs of education mainly results from the differences in household resource constraints. In a context of imperfect credit markets, low income families can invest less in their children's schooling compared to wealthier families. This study uses each one of per capita income, per capita expenditure, household assets ownership, and household earnings potential method suggested by Hanson and Woodruff (2003) to control for household resource constraints.

Differences in productivity of child labor also cause variation in households' perceived costs of education. In rural areas, there may be many productive activities in which children could participate, resulting in a decline in the amount of time devoted to education. Since rural communities mainly earn income from agriculture and livestock, and these activities demand high physical power, rural communities may place a low value on education. To control for these impacts a rural dummy is introduced in regression equations.

Differences in states' investment levels on education may account for some part of the variation in children's school attendance. If there are not enough schools in the neighborhood and the distance to the school is large, households may decide on not to send their children to school. Wealthier states may have more schools and may give children more incentive to further their study. In addition, they may invest more heavily in infrastructure. So, children living in wealthier states may be more likely to attend school. To identify state level impacts on schooling outcomes of children local infrastructural controls are included. Ownership of electricity, water delivery infrastructure, and natural gas pipeline are the subcategories of infrastructural controls.

Family structure is another source of variation in schooling outcomes of children. As McKenzie and Rapoport (2011) argue, migration disrupts family structure. Emigration removes the adult role models from the household, lowers the parental input into children's education, and may increase the responsibilities of older children. Hanson and Woodruff (2003) note that children may face social and economic difficulties in single-parent households. There are a number of controls for family composition in the regression equations.

In the light of these explanations, I estimate equations of the form:

$$Y_{ij} = \alpha + \text{Remittance}_j \beta + X'_{ij}\gamma + Z'_{ij}\delta + W'_j\theta + \varepsilon_{ij}$$

where Y_{ij} represents an outcome of interest (for example, child school attendance) for individual i in household j . Remittance_j is a dummy taking the value of 1 if the household receives remittances and 0 otherwise. X_{ij} is a vector of characteristics describing household resource constraints and potential returns to education for the child, including education of parent, whether the child has a mental or physical disability, household wealth, and a rural dummy. Z_{ij} is a vector of characteristics describing family structure, including whether the household head is female, whether the household head is married, the age category the household head belongs to, number of children, and size of household. W_j is a vector of characteristics describing the quality of infrastructure where household j resides.

6. Data and Sample Definition

This paper uses data from cross-sectional household budget surveys, “Hanehalkı Bütçe Anketi” conducted by Turkey’s national statistical agency (Türkiye İstatistik Kurumu). Four years of data from the same wave of household budget surveys is pooled together including the years 2007, 2008, 2009, and 2010 in order to increase variation. Each survey is representative at urban, rural and national levels. The surveys contain information on demographic characteristics including the last finished schooling level, current and previous employment status, earnings both in cash and in-kind, expenditures, and transfers received from abroad (remittances). The surveys conducted in 2007 and 2008 contain information on approximately 8,500 households whereas surveys conducted in 2009 and 2010 contain information on approximately 10,000 households, summing up to 37,225 households in total.

Concerning remittances, the survey questions include the amount of remittances received by households in the last 12 months. As pointed out by Cox-Edwards and Ureta (2003), the reliability of the information given by households about the amount of remittances received is questionable because households pool remittances and other sources of income when the expenditure decisions are made. Although the cash value of remittances is observed, using a dummy in the estimations indicating whether the household receives remittances is preferred.

The analysis regarding child human capital accumulation outcomes focuses on children between ages 6 and 19. The analyses are carried out separately for boys and girls. In addition, the age range is divided into two categories, ages between 6 and 14, and ages between 15 and 19. The particular selection of age groups is important because in Turkey, primary and lower secondary education is mandatory which covers the ages 6 and 14. In principal, education services for primary and lower secondary education (grades 1 through 8) are provided for free by the Ministry of National Education. It is expected to observe high rates of school attendance for both boys and girls between ages 6 and 14. Therefore, remittances may not be a significant determinant of school attendance due to the free of charge provision of education services and its mandatory feature. Finding a contrary result, may have important implications. Child labor which is an important aspect of human capital accumulation is observed in the data from the beginning of age 15. Below this age, there is no information about whether a child is in labor force or not. Since labor force participation of a child reduces the time available for schooling, child labor adversely affects school attendance. Moreover, it is expected for children between ages 15 and 19 to be in high school and upper secondary education is not obligatory in Turkey. Children have the freedom to leave school and take part in other activities, such as labor. For this specific age group, remittances may play an important role in keeping children in school and out of work force, especially for children in low income families.

The sample is restricted to children who are sons or daughters of the household head. This helps ensure that investigation of the impacts of remittances is on children for whom the parents and not someone else make decisions regarding schooling.

7. Descriptive Statistics

Transfers from abroad to any household member consist of 3 categories; in-kind income, pension benefit, and cash receipts from husband-wife, friends, or relatives. These are all reported for the last 12 months. Remittance receipts for households are calculated in two steps. First, for each household member the sum of amounts in each of the transfers from abroad categories is taken. Second, the total amounts of transfers from abroad to each household member are summed up to find the amount of remittances that the household received. Remittances are sent without any intention of remuneration which lets households decide where to use the additional income.

Households which report receiving a nonzero value of remittances are identified as remittance receiving households. The ones which report receiving zero amount of remittance are identified as non-recipient households.

There are 714 households out of 37,225 that report receiving remittances. This corresponds to a share of 0,019. Out of every 100 households, 2 of them receive remittances. On the contrary to our result, TIMS-96 suggests that 12% of all households receive remittances, however, TIMS-96 is not representative at the national level whereas the data used in this study is nationally representative.

A substantial share of remittance receiving households consists of families where both parents are present at home. In the data, 482 households where both parents are present at home report receiving remittances. The first question that comes to mind is the possibility of the parents being return migrants which may imply that those households may suffer from the migration's negative impacts on child human capital accumulation outcomes. They may receive pension benefits and this may be the explanation why households with both parents being at home receive remittances. However, only 155 of the households receive just pension benefits as remittances. In addition, 4 families receive both pension benefits and other kinds of transfers from abroad. This leads us to the conclusion that out of 482 households where both parents are present at home, 323 just receive remittances from friends, or relatives. They do not obtain transfers from abroad in the form of pension benefits. Even though previous migration experience is not observed for individuals-the dates and the duration of migration, the estimated impact of remittances will be purged from negative impacts of having a household member absent due to migration.

Out of 232 households with a missing parent, 35 households report receiving remittances in the form of pension benefits, plus 1 household report receiving remittances in the form of pensions and in other kinds of transfers from abroad. For the remaining 196 households, the absent parent is the source of the remittances.

For remittance receiving households, mean remittance shares of cash receipts, in-kind income, and pension benefits are 61, 27, and 12 percent respectively.

Table 3 shows average characteristics categorized by recipient status. Non-recipient households are more likely to have parents with high school or above education compared to recipient households. Recipient household heads are older than non-recipient household heads. Not surprisingly, recipient households have a higher proportion of female heads compared to non-recipient households. Non-recipient

households have a higher proportion of married heads compared to recipient households. The chances of having disabled children between ages 6 and 14 are almost the same for recipient households and non-recipient households. However, non-recipient households appear to be more likely to have disabled children between ages 15 and 19. Remittance receiving households are more likely to be located in rural areas. Remittance receiving families on average have slightly fewer children below age 6, fewer children below age 19, and slightly smaller size of household. Recipient households have on average higher income and higher expenditure levels. A higher proportion of recipient households have access to running water whereas the reverse is true for access to natural gas. This is plausible because a higher proportion of recipient households have settled in rural areas where natural gas pipeline system is not very common. Recipient households are more likely to own their homes.

Regarding the outcome variables of interest in the paper, recipient households are less likely to suffer from poverty and extreme poverty. Young girls (between ages 6 and 14) and old girls (between ages 15 and 19) in remittance receiving households are more likely to attend school compared to young girls and old girls living in non-recipient households, respectively. Young boys from recipient households are less likely to attend school, whereas old boys from recipient households are more likely to attend school. Boys and girls between ages 6 and 14 in recipient households are more likely to be literate compared to young boys and young girls from non-recipient households, respectively.

Old girls from recipient and non-recipient households are not different in their likelihood of working for wage or nonwage. Recipient households appear to have a lower proportion of old boys who work for wage or nonwage. Old girls are less likely to work for wage if they are from recipient households. The reverse is true for old boys. Old boys are less likely to work for wage if they are from non-recipient households. Girls from recipient households are more likely to be unpaid family workers compared to girls from non-recipient households. Boys from recipient households are less likely to be unpaid family workers. Total working hours are slightly less for children in remittance receiving households. Concerning educational expenditures, recipient households on average seem to spend more on high school expenses whereas non-recipient households on average appear to spend more on primary school and lower secondary school expenses and educational expenses at all.

Table 3
Descriptive Statistics

Variables	Remittances	
	Non-recipients	Recipients
Households (total number)	36510	714
Max Household Education (high school or above)	0.314	0.193
Age of Household Head	47.191	50.774
Female Head	0.125	0.301
Married Household Head	0.888	0.846
Has Disabled Children		
between ages 6 and 14	0.020	0.027
between ages 15 and 19	0.023	0.005
Rural Area	0.311	0.395
Number of Children Under 6	0.376	0.274
Number of Children (19 or less years old)	1.428	1.161
Size of Household	3.896	3.468
Log of per Capita Income	8.441	8.522
Log of per Capita Expenditure	5.910	6.007
Access to Running Water	0.978	0.980
Access to Natural Gas	0.212	0.186
Home Ownership	0.647	0.680
School Attendance between ages 6 and 14		
Girls	0.933	0.969
Boys	0.949	0.938
School Attendance between ages 15 and 19		
Girls	0.480	0.534
Boys	0.576	0.635
Child Illiteracy (6-14 years old)		
Girls	0.084	0.051
Boys	0.079	0.063
Child Labor in General (15-19 years old)		
Girls	0.162	0.163
Boys	0.308	0.280
Child Labor for Wage (15-19 years old)		
Girls	0.088	0.051
Boys	0.219	0.242
Nonwage Child Labor (15-19 years old)		
Girls	0.074	0.112
Boys	0.088	0.037
Working hours (wage and nonwage work)		
Girls	7.276	5.258
Boys	16.194	15.887
Educational expenditures (in logs)		
on Primary and Lower Secondary School	0.549	0.485
on High School	0.436	0.599
on all levels	0.991	0.967
Poverty	0.776	0.760
Extreme Poverty	0.163	0.156

8. Results

8.1. Child School Attendance

Marginal effects after probit estimation of remittances on school attendance of girls between ages 6 and 14 are presented in Table 4. The dependent variable is whether a young girl is currently enrolled in school. In addition to remittances, the independent variables include indicators for the maximum household education attained by the parents, indicators for age group that the household head belongs to, whether the household head is female, whether the household head is married, whether the child has disability, whether the household is located in rural area, the number of children under six in the household, the number of children under 19 in the household, total number of members of the household, three year dummies, household wealth controls which are log of per capita pre-remittance income, log of per capita expenditure, and household assets ownership, lastly local infrastructure controls- access to running water and access to natural gas.

The first column of Table 4 considers only the impacts of remittances on young girls' school attendance. It is evident that receiving remittances increases the likelihood of staying in school for young girls of recipient households. This result is consistent with the Cox-Edwards and Ureta (2003), and Lopez Cordova (2005) findings of a positive relationship between remittances and school attendance. Receiving remittances increases the chances of young girls from recipient households attending school by 4.4% from a base likelihood of 93.5%. This is a significant increase in school attendance even after taking into account the free of costs nature of education for this age group.

Column 2 introduces individual and family characteristics into the estimation. The significant positive impact of remittances still stays the same but the magnitude decreases with the introduction of new variables, indicating that some part of the positive impact of remittances captures other effects correlated with both remittance recipient status and school attendance. For example, household education is likely to be correlated with both remittances and schooling in a way that higher educated families may afford fixed costs of migration and may be more likely to send remittances, in addition, higher educated families may afford more schooling for their children. The results show that young girls with more educated parents are more likely to attend school compared to young girls whose parents have no education. This result is

Table 4

6-14 years old girls' school attendance

VARIABLES	1	2	3	4	5	6	7	8
HH Receive Remittances	0.0440*** (0.0125)	0.0349*** (0.0112)	0.0346*** (0.0112)	0.0358*** (0.0104)	0.0341*** (0.0112)	0.0315*** (0.0114)	0.0337*** (0.0111)	0.0344*** (0.0111)
Low educated parent		0.0187* (0.0101)	0.0146 (0.00991)	0.0129 (0.00979)	0.0115 (0.00971)	0.00974 (0.00941)	0.0124 (0.00962)	0.0169* (0.00982)
Medium educated parent		0.0364*** (0.00721)	0.0331*** (0.00748)	0.0296*** (0.00791)	0.0272*** (0.00818)	0.0222*** (0.00846)	0.0266*** (0.00804)	0.0339*** (0.00725)
High educated parent		0.0355*** (0.00676)	0.0326*** (0.00720)	0.0273*** (0.00829)	0.0244*** (0.00886)	0.0171* (0.0102)	0.0246*** (0.00865)	0.0329*** (0.00702)
HH head age between 30 and 50		0.0313* (0.0174)	0.0292* (0.0172)	0.0259 (0.0168)	0.0246 (0.0166)	0.0231 (0.0161)	0.0249 (0.0165)	0.0250** (0.0101)
HH head age over 50		0.00424 (0.0137)	0.00388 (0.0138)	0.00189 (0.0141)	0.000683 (0.0143)	0.00285 (0.0136)	2.57e-05 (0.0143)	-0.0118 (0.0120)
Female HH Head		0.0117 (0.00874)	0.0112 (0.00878)	0.0123 (0.00858)	0.0129 (0.00849)	0.0122 (0.00832)	0.0120 (0.00854)	0.0112 (0.00861)
Married HH Head		0.00451 (0.0182)	0.00555 (0.0183)	0.00742 (0.0187)	0.00724 (0.0186)	0.00754 (0.0184)	0.00706 (0.0184)	0.00411 (0.0179)
Disabled		-0.0949** (0.0376)	-0.0928** (0.0369)	-0.0912** (0.0366)	-0.0918** (0.0367)	-0.0869** (0.0353)	-0.0903** (0.0364)	-0.0927** (0.0370)
Rural		-0.0290*** (0.00501)	-0.0235*** (0.00522)	-0.0221*** (0.00523)	-0.0204*** (0.00520)	-0.0127** (0.00556)	-0.0208*** (0.00515)	-0.0226*** (0.00531)
Number of children under 6		0.00284 (0.00315)	0.00347 (0.00314)	0.00358 (0.00314)	0.00388 (0.00314)	0.00316 (0.00307)	0.00341 (0.00310)	0.00408 (0.00318)
Number of children under 19		-0.00607** (0.00298)	-0.00565* (0.00298)	-0.00386 (0.00304)	-0.00364 (0.00302)	-0.00417 (0.00291)	-0.00385 (0.00297)	-0.00704** (0.00299)
HH Size		-0.00339 (0.00239)	-0.00314 (0.00239)	-0.00348 (0.00239)	-0.00307 (0.00237)	-0.00100 (0.00243)	-0.00293 (0.00236)	-0.00212 (0.00241)
Year 2008		-0.0834*** (0.00933)	-0.0871*** (0.00958)	-0.0874*** (0.00959)	-0.0896*** (0.00972)	-0.0869*** (0.00947)	-0.0893*** (0.00963)	-0.0864*** (0.00955)
Year 2009		-0.0165** (0.00718)	-0.0203*** (0.00745)	-0.0214*** (0.00751)	-0.0243*** (0.00769)	-0.0235*** (0.00748)	-0.0238*** (0.00757)	-0.0209*** (0.00746)
Year 2010		-0.00438 (0.00683)	-0.00786 (0.00709)	-0.00981 (0.00724)	-0.0126* (0.00748)	-0.0112 (0.00711)	-0.0120 (0.00732)	-0.00804 (0.00709)
Access to Running Water			0.0412*** (0.0135)	0.0396*** (0.0132)	0.0378*** (0.0131)	0.0224* (0.0132)	0.0405*** (0.0133)	0.0378*** (0.0131)
Access to Natural Gas			0.00702 (0.00610)	0.00399 (0.00637)	0.00192 (0.00661)	0.00436 (0.00856)	6.19e-05 (0.00680)	0.00712 (0.00605)
Log of per Capita Income				0.00799*** (0.00292)				
Log of per Capita Expenditure					0.0142*** (0.00402)			
Expenditure Quintile 2							0.0108** (0.00515)	
Expenditure Quintile 3							0.0221*** (0.00558)	
Expenditure Quintile 4							0.0291*** (0.00603)	
Expenditure Quintile 5 (Top)							0.0195** (0.00805)	
Household Earning Potential	no	no	no	no	no	no	no	yes
Household Assets Indicators	no	no	no	no	no	yes	no	no
Infrastructure Controls	no	no	yes	yes	yes	yes	yes	yes
Observations	10,729	10,729	10,729	10,729	10,729	10,729	10,729	10,729
Pseudo R-squared	0.00114	0.0813	0.0841	0.0853	0.0866	0.0952	0.0880	0.0868

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in parentheses

HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

consistent with high income generating families being more able to afford more schooling for their children, with it being optimal for children with higher ability parents to obtain more schooling, and with higher educated parents placing more value on education and being a positive role model for the child in deciding to continue to schooling. Young girls living in households where the head is between 30 and 50 have higher chances of attending school whereas there are no significant advantages for young girls from households with the head being over 50 compared to young girls living in households with the head being under 30. Young girls from households with female heads and married heads are not significantly different from young girls from households with male heads and single heads with respect to their probability of attending school. Not surprisingly, disabled young girls are less likely to attend school. Young girls from households located in rural areas are less likely to attend school compared to young girls from households located in urban areas, which may indicate that school attendance is lower for children where there are nearby employment options on the farm. Furthermore, in rural areas distance to school may play an important role for households to keep their girls at home. An increase in the number of children under 19 in the household lowers the chances of young girls to attend school. This is in line with the idea that resource constraints do not allow parents in larger families to invest in education as much as they desire, resulting in a decrease of investment in the schooling of each child in the household. Number of children under 6 and the household size do not have significant impacts on school attendance. In 2008, the likelihood of a girl attending school, on average, is significantly less than the corresponding figure in 2007. This may be a consequence of the 2008 financial crisis which affected Turkey as well. Households may have decided to take their girls from school in order to cut educational expenses. The negative impact on school attendance of young girls is carried on in 2009. However, the magnitude decreased significantly. In 2008, the probability of a young girl attending school decreases from a base likelihood of 94.8% by 8.34%. In 2009, the probability of a girl attending school decreases from the same base likelihood of 94.8% by 1.65%. In 2010, the negative impact seems to have disappeared.

Column 3 introduces infrastructural controls to the previous specification. Young girls living in households with access to running water are more likely to attend school, which may indicate that municipalities that invest more in infrastructure also do more to promote education; maybe give children more incentive to attend school or build more classrooms and schools, and in this way, decrease the time spent on getting to school by

children who had suffered before from insufficient school facilities in their neighborhoods. Remittances and the other independent variables are not affected significantly, both in their signs and in their magnitudes, by the introduction of infrastructural controls.

One important missing control is household wealth. Household wealth is most likely positively correlated with remittance receiving status and school attendance, if, as suggested in Table 3, remittance receiving households are located on the right tail of the income distribution. If this is the case, failing to properly control for household wealth may lead to upward biased estimates of the impact of remittances on school attendance. Columns 4 to 8 introduce different methods to control for household wealth. In column 4, log of per capita pre-remittance income is controlled to identify the impact of household wealth. The coefficient estimate of log per capita pre-remittance income indicates that a 1% increase in income, leads to a 0.7% increase in the likelihood of a young girl attending school. This is consistent with richer families being able to afford more schooling for their children. The point estimate of remittances decreased from 0.044 to 0.0358 with the introduction of household wealth control implying that failing to control for household wealth results in upward biased estimates of remittances. Other coefficient estimates are very similar to those in column 3 except for variables household head being between 30 and 50, and number of children under 19 in the household. The signs of the variables are preserved but they lose their significance with the introduction of household wealth control.

There is a problem in using log of per capita pre-remittance income to control for household wealth. Without having information on the migrant parent about his previous employment and earnings level, using log of per capita pre-remittance income would falsely identify the income level of the household prior to migration. Especially, for households for which remittances constitute a substantial share of their income, using pre-remittance income would lead us to conclude that low income families are more likely to send migrants whereas it is known that migration incurs fixed costs and wealthier families are more likely to afford these costs and send migrants.

Log of per capita expenditure is used as a means of household wealth control in column 5. The impact of remittances is still significantly positive but slightly less in magnitude compared to the impact of remittances in column 4. The results show that 1% increase in per capita expenditure increases young girls' chances of attending school by approximately 1.5%. Using log of per capita expenditure implies a stronger impact

of household wealth and a slightly smaller impact of remittances on young girls' school attendance. This may be due to the fact that log of per capita expenditure provides a better control for household wealth, or being affected from current remittance flows (being correlated with remittances), log of per capita expenditure captures some part of the positive impact of remittances on schooling. All of the coefficient estimates are similar to those in column 4, except for year 2010. The insignificant negative impact of year 2010 dummy becomes significant at 10% level.

In column 6, household assets indicators are used to control for household wealth. The main argument behind using ownership status of different household assets as an indicator of the economic situation of the household prior to receiving remittances is that acquisition of the set of household assets is less likely to be affected by current remittance flows and is more likely to be the outcome of past savings. The household assets included in the regression specification are: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop. Receiving remittances is associated with a 3.15 percent increase in the probability of young girls from recipient households attending school. All other coefficient estimates are very similar to those in column 5. Young girls from households with more educated parents have higher chances of attending school compared to young girls from households with parents having no education. For a young girl, having disability and living in a rural area is associated with a significant decrease in her likelihood of attending school. Year 2008 and the year following 2008 have significant negative impacts on the school attendance of young girls most probably due to the adverse effects of 2008 financial crisis on households' well-being. Young girls living in municipalities which spend more on infrastructure seem to have higher chances of attending school.

In column 7, controlling for household wealth is achieved by dividing households into 5 categories after ranking the households from poorest to richest with respect to their corresponding amounts of log of per capita expenditures. The results suggest that as households step on a higher stair on the ladder of expenditure quintile, young girls from these households have an increased chance of attending school. The remaining coefficient estimates are very similar to the ones from the specification with household wealth being controlled by means of log of per capita expenditure. Using expenditure

quintiles as means of household wealth controls embrace the same problems with the method of log of per capita expenditure since the former is created from the latter.

Lastly, column 8 introduces the method suggested by Hanson and Woodruff (2003) to control for household wealth. In their paper, age and education of parents and home ownership status of household head are used as means of household wealth control. Their purpose in implementing this method was to avoid from simultaneity of family income and child schooling. For example, a negative income shock to a parent (parent losing his job) reduces family income and induces children to work outside home to compensate for the lost income. Therefore, children have less time devoted to schooling and their chances of attending school decreases. Introducing age and education of parents and home ownership status as controls for household wealth solves the potential endogeneity problem of family income. However, there is a concern about the power of these controls in indicating the household wealth. In our data, the correlation between earnings level of a household and the maximum education attained by one of the parents in the household is only 0.34 which is not a significant correlation for education to proxy well enough the household wealth prior to migration. Some of the coefficient estimates are significantly different than corresponding estimates obtained from specifications where other household wealth controls are run into work. From columns 4 to 7, being in a household with parents having low levels of education has no advantage for young girls. However, in column 8, young girls from households with low educated parents have a significantly higher probability to attend school compared to young girls from households with parents having no education. Neither being in a household with a head between ages 30 and 50 nor being in a household with a head over 50 has a significantly different impact on school attendance of young girls than being in a household with a head under 30 in columns 4 to 7. In column 8, young girls from households with a head between ages 30 and 50 are more likely to attend school compared to girls from households with a head under 30. Number of children under 19 in a household does not play an important role in keeping children at school in columns 4 to 7, but in column 8, each additional child lowers the probability of young girls' school attendance by 0.7%.

To sum up, there is a positive correlation between receiving remittances and school attendance of young girls. This is consistent with the idea that remittances help relax household budget constraints or remittances are sent deliberately to fund child human

capital investments in households of origin and allow children to complete more schooling.

In the light of these arguments, from hereafter ownership status of specific household assets is going to be fixed as a means of household wealth control.

Table 5 presents marginal effects for the four samples of children. Except for young girls, receiving remittances is not associated with a significant change in the likelihood of school attendance of children. Although the direction of the impact of remittances is still towards increasing the chances of children's school attendance, the coefficients are statistically insignificant. This may be due to the negative impacts of migration on school attendance resulting mainly from the absence of the migrant parent neutralizing the positive impacts of remittances resulting from its power to increase family income, or may be due to the unobserved determinants of schooling downwardly biasing the coefficient estimates of remittances. Acosta (2006) finds a positive impact of receiving remittances on school attendance of children between ages 11 and 17. After instrumental variables approach is used to control for unobserved heterogeneity, the magnitude of the impact increases implying that the direction of the bias in the estimates of remittances is downward. Hanson and Woodruff (2003) has a similar conclusion for accumulated schooling of girls between ages 10 to 15, and boys between ages 10 to 12. After instrumenting for whether a household has a migrant member, the positive OLS estimates increased significantly, again implying a downward bias in the OLS estimates caused by the correlation between unobserved determinants of schooling and having a migrant household member.

Having a high educated parent is associated with an increase in the probability of school attendance of children regardless of age and gender. There are no significant advantages for girls from households with a head between 30 and 50, and from households with a head over 50 compared to girls from households with a head under 30. However, young boys (6-14 years old) benefit from living in households with heads over 30 compared to young boys from households with heads being under 30. This may imply significant differences in perceptions of schooling and in attitudes towards children between households with relatively younger and older heads. Older household heads are likely to be more experienced in child care, and are likely to know more about returns and costs of education compared to younger household heads, and thus, may be tempted to invest more in the schooling of their young boys. On the other hand, children between ages 6 and 14 are obliged to attend school. Older household heads may be

Table 5: Marginal Effects from Probit Models of Child School Attendance

VARIABLES	Girls		Boys	
	6 to 14	15 to 19	6 to 14	15 to 19
HH Receive Remittances	0.0315*** (0.0114)	0.0678 (0.0529)	0.00463 (0.0121)	0.0669 (0.0517)
Low educated parent	0.00974 (0.00941)	0.141*** (0.0317)	0.00447 (0.00716)	0.0365 (0.0291)
Medium educated parent	0.0222*** (0.00846)	0.242*** (0.0333)	0.00701 (0.00760)	0.180*** (0.0302)
High educated parent	0.0171* (0.0102)	0.263*** (0.0359)	0.0208*** (0.00649)	0.189*** (0.0333)
HH head age between 30 and 50	0.0231 (0.0161)	-0.159 (0.249)	0.0253* (0.0135)	-0.869*** (0.0131)
HH head age over 50	0.00285 (0.0136)	-0.257 (0.240)	0.0157** (0.00778)	-0.947*** (0.00827)
Female HH Head	0.0122 (0.00832)	0.0631** (0.0303)	-0.00590 (0.00825)	-0.0101 (0.0320)
Married HH Head	0.00754 (0.0184)	0.0589 (0.0401)	-0.00792 (0.0112)	0.0573 (0.0405)
Disabled	-0.0869*** (0.0353)	-0.195*** (0.0571)	-0.142*** (0.0312)	-0.355*** (0.0411)
Rural	-0.0127** (0.00556)	-0.0787*** (0.0186)	-0.00616 (0.00449)	-0.0516*** (0.0177)
Number of children under 6	0.00316 (0.00307)	-0.00401 (0.0148)	0.00558** (0.00270)	0.0128 (0.0144)
Number of children under 19	-0.00417 (0.00291)	-0.0138 (0.00915)	-0.000855 (0.00252)	0.00561 (0.00857)
HH Size	-0.00100 (0.00243)	-0.0196** (0.00816)	-0.00299 (0.00215)	-0.0179** (0.00745)
Year 2008	-0.0869*** (0.00947)	0.0618*** (0.0202)	-0.0726*** (0.00846)	-0.0241 (0.0197)
Year 2009	-0.0235*** (0.00748)	0.0545*** (0.0195)	-0.00141 (0.00567)	0.0446** (0.0188)
Year 2010	-0.0112 (0.00711)	0.102*** (0.0197)	-0.000386 (0.00568)	0.0813*** (0.0182)
Observations	10,729	5,884	10,922	5,976
Pseudo R-squared	0.0952	0.138	0.0997	0.0867

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in parenthesis

Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

more knowledgeable compared to relatively younger household heads about the consequences of taking their children from school when they are required to attend school which may be the reason of observed higher school attendance rate for young boys living in households with older heads. For boys between ages 15 and 19 living in households with older heads results in a significant decline in the probability of attending school. Children between ages 15 and 19 are supposed to attend high school and high school attendance is not compulsory in Turkey. Children are free in deciding to continue schooling or to leave school in order to take part in other activities such as

working. Older households heads with being more knowledgeable about the return and costs of education, may allow their children to leave school if they are convinced that the returns to extra schooling will be less than the costs of extra schooling. Old girls from households with female heads are more likely to attend school. Having disability and being a member of a household located in rural area is associated with a decrease in the likelihood of attending school for all four samples of children. Girls and boys between ages 15 and 19 living in larger households (with respect to number of household members) are less likely to attend school compared to old boys and old girls living in smaller households. This is consistent with the idea that the increase in the size of household is not due to the increase in adult members who earn wages but due to the increase in the number of members who do not earn wages (children, grandparents and relatives), and in larger families resource constraints may force parents to invest less in education of each child, and may require older children to work for wage and contribute to the family income. The year dummies seem to benefit older boys and girls with respect to school attendance rates which may result from increased efforts of the Ministry of National Education and the education society in general to keep children in school. Alternatively, year dummies may be capturing some other impacts changing from year to year that are important determinants of children's school attendance.

The results suggest that remittances do increase the probability of school attendance for young girls, but the significant positive impact do not seem to hold for the other samples of children. If, as suggested before, migration's negative impacts resulting mainly from the absence of the migrant parent, the lack of parental input into children's education, the increased responsibilities of children, and the children's future migration prospects neutralizes the positive impacts of remittances, then it is expected to observe an increase in the probability of children attending school for households with both parents being present at home which receive remittances from other sources. Children from these households are supposed to be unaffected by migration's negative impacts on school attendance since none of these households have current migrant parents.

Table 6 presents marginal effects for two different samples. The first one includes children between ages 6 and 19 from households where one of the parents is not present at home due to migration or other purposes. The second sample includes children between ages 6 and 19 from households where both of the parents are present at home. This specification lets us to compare the impacts of remittances on school attendance for these two groups. In the first four columns, the impact of remittances is not purged

Table 6: Child School Attendance and Presence Status of Parents in the Household

VARIABLES	HH has Absent Parent				HH does not have Absent Parent			
	Girls		Boys		Girls		Boys	
	6 to 14	15 to 19	6 to 14	15 to 19	6 to 14	15 to 19	6 to 14	15 to 19
HH Receive Remittances	0.0333* (0.0185)	-0.0518 (0.107)	-0.0350 (0.0299)	0.0432 (0.113)	0.0364*** (0.00985)	0.103* (0.0608)	0.0183 (0.0114)	0.0708 (0.0599)
Low educated parent	0.0107 (0.0215)	0.118** (0.0577)	0.0304* (0.0181)	0.0624 (0.0639)	0.0117 (0.0107)	0.168*** (0.0413)	0.00116 (0.00828)	0.0223 (0.0348)
Medium educated parent	0.0254 (0.0236)	0.295*** (0.0890)		0.245*** (0.0932)	0.0236*** (0.00903)	0.263*** (0.0406)	0.00252 (0.00920)	0.167*** (0.0351)
High educated parent				0.0630 (0.171)	0.0179* (0.0106)	0.279*** (0.0417)	0.0180** (0.00765)	0.182*** (0.0373)
HH head age between 30 and 50	-0.0153 (0.0263)	0.813*** (0.0450)	0.0525 (0.0389)	-0.840*** (0.0301)	0.0351* (0.0191)	-0.888*** (0.0168)	0.0241 (0.0154)	0.0316* (0.0169)
HH head age over 50	-0.0109 (0.0550)	0.811*** (0.0420)	-0.0466 (0.0623)	-0.916*** (0.0175)	0.0106 (0.0128)	-0.913*** (0.0124)	0.0175** (0.00818)	
Female HH Head	0.0858 (0.0636)	0.134* (0.0779)	-0.0244* (0.0143)	-0.0629 (0.0832)	0.0117 (0.0182)	0.0551 (0.0637)	0.00321 (0.0156)	-0.0389 (0.0683)
Married HH Head	-0.00546 (0.0187)	0.00306 (0.0507)	-0.00160 (0.0199)	0.0191 (0.0542)				
Disabled		-0.0768 (0.159)	-0.211 (0.158)		-0.0998*** (0.0383)	-0.228*** (0.0581)	-0.144*** (0.0325)	-0.342*** (0.0438)
Rural	0.0390* (0.0214)	-0.0579 (0.0631)	0.0152 (0.0137)	-0.0774 (0.0646)	-0.0170*** (0.00580)	-0.0805*** (0.0195)	-0.00832* (0.00471)	-0.0482*** (0.0185)
Number of children under 6	0.00481 (0.0115)	-0.0331 (0.0514)	-0.0133 (0.0109)	-0.133** (0.0588)	0.00331 (0.00317)	-0.00229 (0.0156)	0.00708** (0.00278)	0.0183 (0.0149)
Number of children under 19	0.00322 (0.0112)	-0.0203 (0.0288)	-0.0132 (0.0109)	0.000200 (0.0311)	-0.00445 (0.00300)	-0.0138 (0.00975)	-0.000247 (0.00260)	0.00463 (0.00900)
HH Size	-0.00823 (0.00977)	0.00483 (0.0256)	0.00845 (0.0110)	-0.00803 (0.0272)	-0.000393 (0.00251)	-0.0215** (0.00871)	-0.00366* (0.00220)	-0.0177** (0.00785)
Year 2008	-0.0434 (0.0290)	0.166** (0.0704)	-0.111** (0.0453)	0.129* (0.0720)	-0.0908*** (0.0100)	0.0572*** (0.0212)	-0.0715*** (0.00871)	-0.0327 (0.0205)
Year 2009	-0.0242 (0.0244)	-0.0355 (0.0651)	0.00574 (0.0237)	0.167** (0.0665)	-0.0226*** (0.00773)	0.0654*** (0.0206)	-0.00231 (0.00584)	0.0355* (0.0197)
Year 2010	0.0289 (0.0186)	0.0268 (0.0660)	-0.00630 (0.0251)	0.107 (0.0671)	-0.0145* (0.00754)	0.112*** (0.0207)	-0.000800 (0.00587)	0.0818*** (0.0190)
Observations	648	559	585	524	9,996	5,304	10,185	5,442
Pseudo R-squared	0.126	0.155	0.238	0.115	0.101	0.139	0.0978	0.0883

Notes: * Significant at 10% level, ** Significant at 5% level, *** Significant at 1% level. Heteroskedasticity robust standard errors are in parenthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop. Sata does not include variables in the estimation if they predict success or failure perfectly. Indicators for education level of parent, for whether child has disability, for whether hh head is married, for hh head age group are dropped in some specifications for that reason.

from the impacts of migration since remittance receiving households are most probably securing this benefit from the absent parent. The results suggest that only for young girls receiving remittances make a positive difference when one of the parents is missing. For other samples of children from households with an absent parent, receiving remittances is not associated with a significant change in the probability of attending school.

Columns 5 to 8 estimate the impacts of remittances for children living in households where both parents are present. Using this specification in order to estimate the impacts of remittances is crucial since the estimated impacts of remittances would be purged from the impacts of migration. As expected, the results suggest that young girls and old girls from recipient households are more likely to attend school compared to young girls and old girls from non-recipient households. This result is consistent with the view that remittances increase family income and allow households to invest more in schooling. The coefficient estimates of remittances for boys are positive but insignificant. It is evident from the results that households with absent parents benefit less from remittances in increasing the probability of children's school attendance compared to non-migrant households.

8.2. Child Illiteracy

Child illiteracy is an important indicator of national well-being. As known, developed countries have child illiteracy rates very close to zero. Therefore, investigating ways to improve child illiteracy rates is crucial to sustain development. Table 7 presents marginal effects of remittances on child illiteracy status. The dependent variable is whether a boy or a girl between ages 6 and 14 is illiterate. The results suggest that, on average, boys from recipient households are less likely to be illiterate compared to boys from non-recipient households. Receiving remittances decreases the chances of boys being illiterate by 3.4% from a base likelihood of 6.7%. This is in line with the view that remittances by relaxing household resource constraints allow parents to invest more in their children's schooling. However, there are no significant advantages for girls from recipient households. This result may seem to contradict with one of our previous results which states that remittances increase the likelihood of school attendance of young girls. However, in order to estimate the impacts of remittances on school attendance of young girls one looks at whether a 6 to 14 years old girl is currently enrolled to school or not. Similarly, to estimate the impacts

Table 7: Marginal Effects from Probit Models of Child Illiteracy

VARIABLES	Girls	Boys
HH Receive Remittances	-0.00947 (0.0211)	-0.0345*** (0.0123)
Low educated parent	-0.0443*** (0.0123)	-0.0149 (0.0113)
Medium educated parent	-0.0279*** (0.0101)	0.000186 (0.0124)
High educated parent	-0.0281*** (0.0107)	0.00183 (0.0147)
HH head age between 30 and 50	-0.126*** (0.0223)	-0.143*** (0.0225)
HH head age over 50	-0.0691*** (0.00540)	-0.0753*** (0.00415)
Female HH Head	-0.0299*** (0.00840)	-0.00849 (0.0100)
Married HH Head	0.00757 (0.0183)	0.0164 (0.0150)
Disabled	0.356*** (0.0440)	0.365*** (0.0388)
Rural	-0.00586 (0.00608)	-0.00818 (0.00583)
Number of children under 6	0.00891** (0.00362)	-0.00550 (0.00400)
Number of children under 19	-0.000484 (0.00373)	0.00189 (0.00405)
HH Size	0.00193 (0.00313)	0.00300 (0.00328)
Year 2008	-0.00999 (0.00633)	-0.00191 (0.00642)
Year 2009	-0.0183*** (0.00612)	-0.0116* (0.00617)
Year 2010	-0.0112* (0.00632)	-0.00950 (0.00629)
Observations	11,431	11,585
Pseudo R-squared	0.0613	0.0622

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in paranthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

of remittances on illiteracy status of young girls one looks at whether a 6 to 14 years old girl can read and write. Young girls from recipient households may have dropped out of

school at some point in their education lives but at the same time may have learned how to read and write. Receiving remittances by relaxing household budget constraints may have allowed families to send their young girls back to school. So, remittances increase the chances of young girls attending school but do not have a positive impact on literacy status of young girls because they already are literate. Since the focus is on two different aspects of investment in child human capital, it is possible to end up with such seemingly contradicting results whereas the results do not contradict each other. Girls with educated parents are less likely to be illiterate compared to girls with parents having no education. Living in a female headed household benefits girls in reducing the probability of being illiterate.

In order to obtain estimates of remittances purged from impacts of migration, we use the specification which separates households into two; households with one of the parents being absent, and households with both parents being at home. Table 8 presents marginal effects of remittances estimated separately for these samples.

Children from remittance receiving migrant households do not seem to differ with respect to the probability of being illiterate from children from households where one of the parents is absent. However, children from non-migrant households are more likely to be literate if households receive remittances. The results may suggest why, on average, there are no advantages for girls from recipient households. Girls from recipient households may suffer more from the negative impacts of migration, or there may be unobserved determinants of illiteracy which are correlated with remittance receiving status that biases the estimates.

8.3. Educational Expenditure

In this section, the impacts of remittances on households' educational expenditure decisions are examined. The investigated educational expenditures of households are on: primary school, secondary school, and all levels of schooling (from primary school to university, and on uncategorized levels such as computer training, swimming lessons, etc.). The sample is restricted to households in which there is at least one primary school age child for the specification where the impacts of remittances on households' primary school expenditure decisions are investigated. Households including at least one secondary school age child constitute the sample for the specification where the impacts of remittances on households' secondary school expenditure decisions are investigated. Lastly, there is no sample restriction for the specification where the

impacts of remittances on households' all levels of schooling expenditure decisions are investigated. The dependent variable is the logarithm of the amount of corresponding educational expenditure. Households which did not spend in the last month on the corresponding education level are identified as having a log expenditure value of zero. Household level variation is used in order to estimate the impacts of remittances.

OLS estimates are presented in Table 9. The first column considers the impact of remittances on the amount of expenditure on primary school. The results suggest that recipient households do not spend more on primary school expenses compared to non-recipient households. The second column presents estimates for the amount of expenditure on secondary school. Recipient households seem to spend significantly more on secondary school expenses compared to non-recipient households. These remittance receiving households spend 17.5% more than non-recipient households on secondary school expenses. The last column considers the impacts of remittances on all schooling levels in general. It is evident that recipient households spend 14.3% more on educational purposes compared to non-recipient households. Recipient households including at least one secondary school age child may spend on private tutoring which may not be possible in the absence of the income derived from abroad. This may be the explanation why recipient households spend more on secondary school expenditures compared to non-recipient households.

Table 10 investigates the impacts of remittances on educational expenditures for households with one parent being absent and for households where both parents are present at home.

The results suggest that households with a parent missing spend more on all kinds of educational expenses if they receive remittances. Recipient single parented households spend 40% more on all sorts of educational expenditures than non-recipient single parented households. There is no statistically significant difference in the amount of primary school and secondary school expenditures between recipient single parented households and non-recipient single parented households.

When it comes to households with both parents being present at home, recipient households do not differ in the amount of primary school, secondary school expenditures and in the amount of any kind of educational purpose expenditures from non-recipient households. This may be due to the fact that recipient both parented households prefer to spend the extra income derived from remittances on other investment activities as buying house or land.

Table 8: Child Illiteracy and Presence Status of Parents in the Household

VARIABLES	HH has Absent Parent		HH does not have Absent Parent	
	Girls	Boys	Girls	Boys
HH Receive Remittances	0.0584 (0.0507)	-0.0201 (0.0231)	-0.0366* (0.0190)	-0.0444*** (0.0126)
Low educated parent	-0.00762 (0.0202)	0.0260 (0.0185)	-0.0585*** (0.0147)	-0.0255* (0.0135)
Medium educated parent	0.0435 (0.0460)	-0.0384 (0.0325)	-0.0384*** (0.0103)	-0.00802 (0.0130)
High educated parent		0.369** (0.168)	-0.0367*** (0.0105)	-0.0101 (0.0142)
HH head age between 30 and 50	-0.0480 (0.0366)	-0.119** (0.0493)	-0.137*** (0.0256)	-0.145*** (0.0250)
HH head age over 50	-0.0157 (0.0284)	-0.0501*** (0.0165)	-0.0731*** (0.00564)	-0.0762*** (0.00433)
Female HH Head	0.0385** (0.0185)	-0.0930 (0.0623)	-0.00451 (0.0228)	-0.0127 (0.0196)
Married HH Head	-0.00382 (0.0186)	0.0390** (0.0198)		-0.483 (0.317)
Disabled	0.457** (0.187)	0.337* (0.172)	0.352*** (0.0454)	0.365*** (0.0400)
Rural	-0.0162 (0.0199)	-0.0171 (0.0195)	-0.00487 (0.00636)	-0.00726 (0.00605)
Number of children under 6	0.0250** (0.0114)	-0.0153 (0.0154)	0.00783** (0.00379)	-0.00498 (0.00412)
Number of children under 19	0.00260 (0.0123)	0.0323** (0.0139)	0.000246 (0.00396)	0.000665 (0.00422)
HH Size	-0.000719 (0.00993)	-0.0296** (0.0135)	0.00130 (0.00335)	0.00415 (0.00339)
Year 2008	-0.00640 (0.0234)	-0.0135 (0.0207)	-0.00899 (0.00665)	-0.00160 (0.00665)
Year 2009	0.000648 (0.0220)	0.0160 (0.0252)	-0.0200*** (0.00635)	-0.0125* (0.00638)
Year 2010	-0.00137 (0.0218)	-0.0321 (0.0199)	-0.0125* (0.00658)	-0.00800 (0.00653)
Observations	714	711	10,660	10,803
Pseudo R-squared	0.132	0.159	0.0617	0.0617

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in paranthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summerhouse, land, and shop. Stata does not include variables in the estimation if they predict success or failure perfectly.

Table 9: Educational Expenditures

VARIABLES	Primary School	High School	All levels of schooling
HH Receive Remittances	0.00488 (0.0760)	0.175* (0.105)	0.143** (0.0604)
Low educated parent	-0.00376 (0.0262)	0.0874*** (0.0273)	0.109*** (0.0263)
Medium educated parent	0.125*** (0.0395)	0.301*** (0.0491)	0.483*** (0.0375)
High educated parent	0.517*** (0.0599)	0.454*** (0.0735)	0.664*** (0.0468)
HH head age between 30 and 50	0.0579 (0.0417)	0.323*** (0.0398)	0.230*** (0.0293)
HH head age over 50	-0.0247 (0.0470)	0.209*** (0.0426)	-0.0724** (0.0325)
Female HH Head	-0.0651* (0.0379)	-0.0557 (0.0472)	0.147*** (0.0327)
Married HH Head	0.0140 (0.0465)	0.00133 (0.0504)	0.0418 (0.0328)
Disabled	0.00571 (0.0386)	-0.0209 (0.0409)	-0.0925*** (0.0262)
Rural	-0.0945*** (0.0228)	-0.0589** (0.0297)	-0.131*** (0.0213)
Number of children under 6	0.0597*** (0.0144)	-0.105*** (0.0198)	-0.518*** (0.0152)
Number of children under 19	0.00814 (0.0122)	0.0829*** (0.0132)	0.210*** (0.0131)
HH Size	-0.0138 (0.00963)	-0.0217* (0.0112)	0.0405*** (0.0105)
Year 2008	0.0221 (0.0255)	0.196*** (0.0349)	0.195*** (0.0245)
Year 2009	0.215*** (0.0265)	0.169*** (0.0331)	0.290*** (0.0238)
Year 2010	0.377*** (0.0289)	0.146*** (0.0326)	0.351*** (0.0244)
Observations	15,626	10,105	37,219
R-squared	0.159	0.083	0.216

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in paranthesis.

Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

Table 10: Educational Expenditures and Presence Status of Parents in the Household

VARIABLES	HH has Absent Parent		HH does not have Absent Parent	
	Primary School	Secondary School	Primary School	Secondary School
			All levels of schooling	All levels of schooling
HH Receive Remittances	0.214 (0.139)	0.279 (0.190)	0.402*** (0.117)	0.117 (0.126)
Low educated parent	0.0744 (0.0514)	0.152*** (0.0521)	0.194*** (0.0398)	0.0252 (0.0311)
Medium educated parent	0.360*** (0.145)	0.310*** (0.146)	0.678*** (0.0900)	0.217*** (0.0531)
High educated parent	0.727*** (0.265)	0.775*** (0.296)	0.445*** (0.109)	0.298*** (0.0760)
HH head age between 30 and 50	0.00818 (0.0882)	0.250* (0.128)	-0.241*** (0.0858)	0.312*** (0.0336)
HH head age over 50	0.0834 (0.102)	0.137 (0.123)	-0.425*** (0.0860)	0.202*** (0.0382)
Female HH Head	0.0880 (0.0681)	-0.0595 (0.0866)	0.208*** (0.0461)	-0.192* (0.102)
Married HH Head	-0.0257 (0.0610)	0.0150 (0.0794)	0.0605 (0.0561)	-0.219** (0.106)
Disabled	-0.0601 (0.0856)	-0.0618 (0.0677)	-0.0568 (0.0417)	-0.00932 (0.0484)
Rural	0.0652 (0.0538)	-0.0385 (0.0691)	-0.0896* (0.0460)	-0.0111 (0.0238)
Number of children under 6	0.0423 (0.0309)	0.109*** (0.0310)	0.214*** (0.0325)	-0.107*** (0.0145)
Number of children under 19	-0.0282 (0.0240)	-0.0513** (0.0259)	0.0357 (0.0241)	0.0208 (0.0119)
HH Size	0.0688 (0.0693)	0.170* (0.103)	0.154** (0.0671)	0.197*** (0.0375)
Year 2008	0.204*** (0.0717)	0.109 (0.0884)	0.233*** (0.0540)	0.190*** (0.0370)
Year 2009	0.379*** (0.0785)	0.136 (0.0924)	0.314*** (0.0539)	0.170*** (0.0365)
Year 2010				
Observations	1,454	1,215	5,849	8,890
R-squared	0.193	0.172	0.188	0.090

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in parenthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summerhouse, land, and shop.

8.4. Child Labor

In many developing countries, child labor is viewed as a natural phenomenon. Working for wage and working as unpaid family worker constitute the types of child labor. Helping a household member or a relative in operating family business without the expectation of a monetary return is considered as unpaid family work. Child labor may be accompanied by schooling; however, children in labor force mostly drop out of school. Besides, the former case leaves children less time and energy available to spend on schooling. As a result, child labor disrupts the acquisition of human capital resulting in lower expected earnings levels for the child. It would be interesting to see whether remittances can help children stay out of work force. Table 11 presents marginal effects of remittances on the likelihood of children working for wage, working as unpaid family workers, and working for wage or as unpaid family workers in general. The dependent variable for each of the probit specifications is whether a girl or a boy between ages 15 and 19 works for wage or as unpaid family worker, whether a girl or a boy aged 15 to 19 works for wage, and whether a girl or a boy aged 15 to 19 works as unpaid family worker, respectively.

Receiving remittances is not associated with significant changes in the probability of children working. That is to say, in total, children from recipient households are not different from children from non-recipient households with respect to working status. In terms of work for wage, girls are less likely to work if they belong to recipient households. Receiving remittances is associated with 5% decrease in the likelihood of working for wage from a base likelihood of 7.4%. Boys from recipient households do not benefit from remittances in decreasing their chances of working for wage. The results for labor as unpaid family workers indicate that boys from recipient households are less likely to work compared to boys from non-recipient households. Other findings indicate that households with more educated parents depend less on their children's labor, both for wage and nonwage. This is consistent with the idea that higher educated families are wealthier and do not need their children's contribution to the household budget. In rural areas, children are less likely to work for wages and more likely to work as unpaid family workers. This is reasonable because there may be scarce employment opportunities for children to earn wage in rural areas compared to urban areas. In addition, a high proportion of families in rural areas may be engaged in agricultural activities and, thus, require children to help them in farm.

Table 11: Marginal Effects from Probit Models of Child Labor

VARIABLES	Labor in General		Labor for Wage		Labor as Unpaid Family Worker	
	Girls	Boys	Girls	Boys	Girls	Boys
HH Receive Remittances	-0.0313 (0.0290)	-0.0239 (0.0458)	-0.0504*** (0.0154)	0.0401 (0.0452)	0.0123 (0.0143)	-0.0379*** (0.0101)
Low educated parent	-0.0200 (0.0181)	-0.0154 (0.0251)	-0.0343** (0.0149)	-0.0137 (0.0219)	0.00573 (0.00448)	-0.00770 (0.0109)
Medium educated parent	-0.0740*** (0.0168)	-0.174*** (0.0227)	-0.0543*** (0.0102)	-0.130*** (0.0181)	-0.00804 (0.00595)	-0.0343*** (0.00920)
High educated parent	-0.110*** (0.0148)	-0.250*** (0.0178)	-0.0716*** (0.00747)	-0.187*** (0.0123)	-0.00554 (0.0101)	-0.0419*** (0.00840)
HH head age between 30 and 50	-0.270 (0.244)	0.727*** (0.0282)	0.309*** (0.0279)	0.603*** (0.0301)	-0.215* (0.129)	0.225*** (0.0251)
HH head age over 50	-0.173 (0.110)	0.955*** (0.0100)	0.802*** (0.0502)	0.953*** (0.0145)	-0.0582*** (0.0220)	0.685*** (0.0674)
Female HH Head	-0.00449 (0.0191)	-0.0711*** (0.0254)	-0.0107 (0.0133)	-0.0330 (0.0222)	0.00204 (0.00657)	-0.0327*** (0.00821)
Married HH Head	-0.00150 (0.0255)	-0.100** (0.0400)	-0.00581 (0.0195)	-0.0827** (0.0359)	0.000906 (0.00795)	-0.00419 (0.0189)
Disabled	-0.0566** (0.0275)	-0.255*** (0.0166)	-0.0159 (0.0237)	-0.183*** (0.0118)	-0.0144*** (0.00450)	-0.0453*** (0.00700)
Rural	0.0703*** (0.0127)	0.0462*** (0.0161)	-0.0231*** (0.00876)	-0.0306** (0.0136)	0.0705*** (0.00964)	0.0645*** (0.00938)
Number of children under 6	0.00762 (0.00887)	0.0140 (0.0128)	0.00712 (0.00693)	0.0148 (0.0112)	0.00152 (0.00253)	-0.00193 (0.00550)
Number of children under 19	-0.00792 (0.00549)	0.00380 (0.00760)	-0.000239 (0.00427)	0.00746 (0.00666)	-0.00272* (0.00157)	-0.00120 (0.00325)
HH Size	-0.00927* (0.00491)	-0.0173*** (0.00664)	-0.00939*** (0.00393)	-0.0171*** (0.00594)	-0.000706 (0.00134)	-0.000577 (0.00285)
Year 2008	-0.0182 (0.0125)	0.0245 (0.0181)	0.00806 (0.0103)	0.0214 (0.0160)	-0.0117*** (0.00341)	0.000675 (0.00820)
Year 2009	0.00609 (0.0124)	0.0390** (0.0178)	0.00158 (0.00964)	0.0291* (0.0158)	0.00297 (0.00386)	0.00475 (0.00799)
Year 2010	-0.00830 (0.0126)	0.0196 (0.0172)	0.0131 (0.0102)	0.0295* (0.0153)	-0.0107*** (0.00319)	-0.00804 (0.00737)
Observations	5,884	5,976	5,884	5,976	5,884	5,976
Pseudo R-squared	0.0960	0.0925	0.0711	0.0726	0.309	0.182

Notes: * Significant at 10% level, ** Significant at 5% level, *** Significant at 1% level. Heteroskedasticity robust standard errors are in parenthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

Investigating the impacts of remittances on child labor separately for single parented households and households with both parents present at home may be interesting in order to capture the heterogeneity of impacts of remittances. The only significant result is concerning girls and boys from households where both parents are present at home. Girls seem to work less for wage if the household where both parents are present receive remittances. Boys from recipient households seem to benefit from remittances in decreasing the likelihood of working in unpaid family businesses if none of the parents is missing in the household. These results are in line with being unaffected from migration's negative impacts such as being induced to substitute for the absent parent's labor activities, boys and girls enjoy from remittances' budget relaxing characteristic which diminishes the household's dependency on child labor.

Examining working hours of children may provide further evidence on the impacts of remittances on child labor. Table 12 presents OLS estimates for the working hours of children. The dependent variable is the number of hours worked as wage earner or as unpaid family worker by children between ages 15 and 19 in the week before the survey has been conducted. The results indicate that girls from remittance receiving households, on average, work 3 hours less than observationally similar girls from non-recipient households. This result is in line with girls from remittance receiving households being less likely to work for wage. The results for boys do not provide evidence for a significant impact of remittances on working hours. This is consistent with earlier results that remittances have no significant effects on boys' labor in general.

For the specifications in which the households are categorized in accordance with the presence of parents, the estimated results show that girls from remittance receiving single parented households are working less hours in wage employment and in family businesses compared to observationally similar girls from non-recipient single parented households.

Besides being affected negatively but insignificantly from remittances on the probability of school attendance, we suspect that girls between ages 15 and 19 from single parented recipient households are more likely to be engaged in other activities such as doing housework, or taking care of young siblings instead of attending school or participating in labor force. This is not surprising, since due to having a migrant parent, the spouse may have substituted the responsibilities of the absent parent, and older girls in the household may be required to take care of the housework. However, there is no information in the data which may be used to justify this argument.

Table 12: OLS Results for Working Hours in the Last Week

VARIABLES	Working hours	
	Girls	Boys
HH Receive Remittances	-2.948** (1.440)	0.204 (2.770)
Low educated parent	-0.331 (1.097)	-0.711 (1.485)
Medium educated parent	-3.326*** (1.242)	-10.19*** (1.696)
High educated parent	-3.918*** (1.272)	-13.74*** (1.746)
HH head age between 30 and 50	1.834 (3.440)	17.71*** (2.499)
HH head age over 50	1.744 (3.454)	16.88*** (2.541)
Female HH Head	-0.955 (1.050)	-4.294*** (1.588)
Married HH Head	-0.546 (1.397)	-5.408*** (2.050)
Disabled	-2.894* (1.725)	-15.46*** (1.227)
Rural	2.359*** (0.664)	1.052 (0.911)
Number of children under 6	0.462 (0.502)	0.672 (0.769)
Number of children under 19	-0.433 (0.330)	0.325 (0.442)
HH Size	-0.347 (0.297)	-0.772** (0.380)
Year 2008	-0.288 (0.685)	2.417** (0.972)
Year 2009	0.143 (0.673)	1.877** (0.939)
Year 2010	-0.503 (0.663)	1.539* (0.911)
Observations	5,884	5,976
R-squared	0.051	0.085

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in parenthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

8.5. Poverty

To assess whether remittances reduce poverty, I use as dependent variables whether a family lives below poverty limit, and whether a family lives below hunger limit. A household below the hunger limit is unable to earn enough income to cover their food

requirements satisfactorily, while a household below the poverty limit is unable to cover their needs regarding health, clothing, transportation, housing, and education, in addition to food. Poverty limits and hunger limits are calculated every month for a family consisting of 4 individuals by TÜRK-İŞ.¹ Firstly, the OECD scale is used to calculate the adult equivalent size of the household used by TÜRK-İŞ in calculating poverty and hunger limits. Secondly, for years 2007, 2008, 2009, and 2010 mean values of hunger and poverty limits are calculated. Thirdly, by using the adult equivalent household size, per capita per month hunger and poverty limits are calculated. Lastly, since in our data family income is in yearly basis, yearly per capita poverty and hunger limits are calculated by simply multiplying per capita per month hunger and poverty limits by 12. Then, by comparing per capita family income calculated according to the OECD scale with yearly per capita poverty and hunger limits, we assess whether a family lives below the poverty limit or below the hunger limit. From hereafter, poverty limits, and hunger limits will be referred as poverty and extreme poverty, respectively. In the data, 77 percent of the households live in poverty, while around 16 percent live in extreme poverty. For each of the two groups, approximately 1.8 percent of the households receive remittances.

Table 13 shows that remittances play an important role in reducing the likelihood of households living in poverty, whereas the significant impact vanishes when it comes to extreme poverty. This might reflect the fact that migration is costly and households at very low income levels might not be able to afford the costs. In other words, only households with income above a given level might send migrants and enjoy the benefits of remittances.

Table 14 which examines the heterogeneity impacts of remittances adds some details to the previous results. Receiving remittances is associated with a decrease in the probability of living in poverty and extreme poverty if both parents are present at home. For those households, parents' wage contribution resulting from labor force participation in the home country is supported with an extra income source, remittances. So, it is more likely for recipient households with both parents present at home to be above the poverty or extreme poverty line. Single parented households do not seem to benefit from remittances in reducing the likelihood of suffering from poverty. This result may be due to a positive correlation between remittances and unobserved negative income shocks to a household's poverty status.

1. Retrieved on May 25, 2012 from

<http://www.turkis.org.tr/source.cms.docs/turkis.org.tr.ce/docs/file/gidaharcama.pdf>

Table 13: Marginal Effects from Probit Models of Poverty and Extreme Poverty

VARIABLES	Poverty	Extreme Poverty
HH Receive Remittances	-0.0406** (0.0162)	-0.00854 (0.00709)
Low educated parent	-0.0984*** (0.0103)	-0.0605*** (0.00538)
Medium educated parent	-0.223*** (0.0195)	-0.0647*** (0.00329)
High educated parent	-0.458*** (0.0230)	-0.0694*** (0.00284)
HH head age between 30 and 50	-0.0367*** (0.00777)	-0.0105** (0.00439)
HH head age over 50	-0.0161* (0.00845)	-0.0153*** (0.00466)
Female HH Head	-0.0119 (0.00796)	0.0122** (0.00495)
Married HH Head	0.0553*** (0.00947)	0.0202*** (0.00378)
Disabled	0.0359*** (0.00681)	0.0415*** (0.00584)
Rural	0.0221*** (0.00513)	0.0491*** (0.00357)
Number of children under 6	-0.00585 (0.00444)	-0.00156 (0.00181)
Number of children under 19	0.0542*** (0.00327)	0.0323*** (0.00185)
HH Size	0.00486 (0.00299)	-0.00571*** (0.00130)
Year 2008	0.0364*** (0.00494)	0.0220*** (0.00375)
Year 2009	0.0293*** (0.00491)	0.0170*** (0.00349)
Year 2010	0.0506*** (0.00471)	0.0210*** (0.00363)
Observations	37,219	37,219
Pseudo R-squared	0.371	0.367

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in paranthesis. .Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summer house, land, and shop.

Table 14: Poverty and Presence Status of Parents in the Household

VARIABLES	HH has Absent Parent		HH does not have Absent Parent	
	Poverty	Extreme Poverty	Poverty	Extreme Poverty
HH Receive Remittances	-0.0431 (0.0291)	-0.00446 (0.0134)	-0.0450** (0.0204)	-0.0139* (0.00816)
Low educated parent	-0.0977*** (0.0144)	-0.0400*** (0.00754)	-0.0984*** (0.0212)	-0.0820*** (0.00815)
Medium educated parent	-0.288*** (0.0338)	-0.0527*** (0.00770)	-0.215*** (0.0391)	-0.0724*** (0.00397)
High educated parent	-0.561*** (0.0383)	-0.0745*** (0.00686)	-0.444*** (0.0462)	-0.0726*** (0.00321)
HH head age between 30 and 50	-0.00237 (0.0198)	0.00348 (0.0127)	-0.0509*** (0.00868)	-0.0113** (0.00479)
HH head age over 50	-0.0287 (0.0202)	-0.0197 (0.0135)	-0.0263*** (0.00987)	-0.0137*** (0.00504)
Female HH Head	0.0325** (0.0137)	0.00629 (0.00739)	-0.0571** (0.0228)	0.0450*** (0.0166)
Married HH Head	-0.00844 (0.0144)	0.0181** (0.00899)		0.00555 (0.0427)
Disabled	0.0151 (0.0141)	0.0283*** (0.0100)	0.0427*** (0.00790)	0.0469*** (0.00721)
Rural	0.0566*** (0.0126)	0.0657*** (0.00982)	0.0152*** (0.00559)	0.0469*** (0.00383)
Number of children under 6	-0.0123 (0.0228)	0.00280 (0.00618)	-0.00701 (0.00449)	-0.00105 (0.00190)
Number of children under 19	0.0812*** (0.00991)	0.0338*** (0.00485)	0.0521*** (0.00351)	0.0317*** (0.00200)
HH Size	0.0170** (0.00682)	-0.00297 (0.00333)	0.00283 (0.00329)	-0.00670*** (0.00143)
Year 2008	0.0470*** (0.0149)	0.0298** (0.0127)	0.0389*** (0.00516)	0.0211*** (0.00394)
Year 2009	0.0309** (0.0135)	0.0243** (0.00970)	0.0297*** (0.00524)	0.0148*** (0.00373)
Year 2010	0.0518*** (0.0128)	0.0165* (0.00958)	0.0508*** (0.00503)	0.0213*** (0.00392)
Observations	5,849	5,731	31,356	31,370
Pseudo R-squared	0.415	0.376	0.366	0.368

Notes: * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. Heteroskedasticity robust standard errors are in paranthesis. Infrastructural controls are included but not reported. HH assets included: number of rooms per adult equivalent, ownership of home, second home, computer, camera, dishwashing machine, microwave oven, washing machine, central heating unit, car, motorcycle, summerhouse, land, and shop. Stata does not include variables in the estimation if they predict success or failure perfectly.

For example, a parent by losing his job may decide to migrate and send remittances. In the meanwhile, the negative income shock will reduce the resources available for the household resulting in an increased probability of living in poverty. In this case, the increased probability of living in poverty will be attributed to receiving remittances whereas the true impact comes from the unobserved income shock. Failing to control for unobserved heterogeneity may be the reason why we observe insignificant impact of remittances for single parented households.

9. Conclusion

In this paper, the relationship between remittances and child human capital accumulation outcomes as well as educational expenditures and poverty status of

households is examined. In theory, the impact of remittances on child human capital accumulation outcomes is ambiguous. Receiving remittances is associated with sending a household member abroad to work, most likely the father or the mother. This results in reduced parental input into education acquisition, and higher responsibilities of children in maintaining the family. In addition, the absence of the migrant parent disrupts the family structure. All these have negative impacts on investment in the human capital of children. On the other hand, remittances relax household budget constraints and allow households to invest more in child human capital. Estimates of remittance impacts will not be purged from the impacts of migration. Luckily, the data lets us to differentiate households with respect to the presence status of parents in the household which allows us to investigate the impacts of remittances purged from the impacts of migration, since for households where both parents are present at home receiving remittances is not associated with current migration.

The main findings show that 6-14 years old girls from recipient households are more likely to attend school and 6-14 years old boys from recipient households are less likely to be illiterate. Concerning child labor, 15-19 years old girls from recipient households are less likely to work for wage and 15-19 years old boys from recipient households are less likely to work as unpaid family workers. Concerning working hours, 15-19 years old girls from recipient households work 3 hours less than observationally similar girls from non-recipient households.

Considering household level outcomes, households receiving remittances spend more on high school expenditures and on any kind of educational purposes. For households, receiving remittances is also associated with a decrease in the probability of living in poverty. These results suggest that 6-14 years old girls and 6-14 years old boys benefit from remittances in increasing acquisition of human capital. Remittances improve standards of living of households by moving them above the poverty line.

When it comes to heterogeneity of impacts of remittances, 6-14 years old girls from recipient single parented households, and girls regardless of age from recipient households where both parents are present, are more likely to attend school. 6-14 years old girls and 6-14 years old boys from recipient households with both parents being present are more likely to be literate. 15-19 years old girls and boys from recipient households where both parents are present are less likely to work as wage earners and as unpaid family workers, respectively. Recipient households with both parents present are less likely to be in poverty or in extreme poverty. Recipient single parented households

spend more on primary school, on secondary school and on any sort of educational expenditure. The results suggest that for 15-19 years old girls from households where both parents are present, remittances provide increased human capital accumulation both in increased school attendance and in decreased wage labor. The significant differences in estimates of remittances for single parented households and for households with both parents present at home indicate two important characteristics of remittances. Firstly, finding of an insignificant effect for single parented households but significant impacts for those with both parents present show the strength of migration's negative impacts on neutralizing the positive impacts of remittances. Secondly, the results present evidence that remittances act like extra income which is clear from effects of migration and mimic the impacts of family income on outcomes of interest for households where both parents are present at home.

There are two concerns about the consistency of the estimates. First, selection on observables may bias the coefficient estimates. To overcome this problem, a substantial number of controls are implemented in the analysis. Second, failing to control for unobserved heterogeneity may bias the coefficient estimates. Some studies in the literature use historical migration rates at province level as an instrument to address the endogeneity of remittances. However, in our data, it is not possible to observe the city in which surveyed households settled. Without this information, it is impossible to create the instrument. Studies by Hanson and Woddruff (2003) and Acosta (2006) show that unobserved heterogeneity causes downward bias in estimates of remittances for schooling. Acosta (2006) finds the impact of remittances biased towards zero on the probability of children working for wage. These results suggest that estimated positive impacts in this study are lower bounds of the true impacts.

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