Education outcomes from migration and remittances in Albania and Macedonia

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9 August 2013, Skopje/Tirana[1]

CONTENT

1 Prepared in the framework of the Regional Research Promotion Programme in the Western Balkans (RRPP), which is run by the University of Fribourg upon a mandate of the Swiss Agency for Development and Cooperation SDC, Federal Department of Foreign Affairs. The views expressed in this report are those of the authors representing the implementing organisations ACSER (http://www.acser-albania.org/) and Analytica (http://analyticamk.org/) and do not necessarily represent opinions of the SDC and the University of Fribourg or views of other organisations with which the authors are affiliated. Please address any correspondence to: Ana Stojilovska, Analytica think tank, e-mail: astojilovska@analyticamk.org.

Abstract

This study looks at the impact of migration and remittances on the educational outcomes of the children left behind. The paper analyses this impact by examining the cases of Albania and Macedonia, countries that have experienced substantial outward migration. The paper tests the hypothesis of whether migration and remittances have a positive effect on the children's education. To test this hypothesis and the mechanism by which migration and remittances affect children's schooling, empirical specifications were used, including a fixed effect model and an ordered probit model, which analysed the effect of parental remittances and migration experience on the educational level of children generally and for girls' and boys' education levels separately. The study uses the most recent empirical surveys conducted in Albania and Macedonia that gathered information on the socio-demographic characteristics of children, migration by household members, household income and expenditures, as well as remittances and their allocation to household consumption. The paper shows that parental experiences of migration have an important effect on the educational attainment of children in both Albania and Macedonia, whereas remittances only have a significant effect on the education status of children in Albania. The results of this study demonstrate that, in the case of Albania, having a migrant parent and remittances more positively affect the education of girls than of boys. This difference in the case of Macedonia is insignificant. The main message for policy makers is that providing a more gender balanced education supply would reduce gender inequalities in terms of years of schooling and educational attainment.

Keywords: *migration, education, remittances, Albania, Macedonia*
JEL classification: O15, D13, J13, F22, F24, H52, I25

1. Introduction

Migration from poor to rich countries has dramatically increased in recent years, a trend that is predicted to increase further in the foreseeable future. This large increase in the number of international migrants worldwide has triggered considerable attention in policy circles and led to renewed research attention on the development impacts of migration and of remittances. The World Bank's 2006 Global Economic Prospects were fully dedicated to exploring the "Economic Implications of Remittances and Migration" (World Bank, 2006). For many countries, including Albania and Macedonia, remittances are among the most important sources of external financing in addition to exports and foreign direct investment. Remittances are one of the largest sources of outside income and have served as a cushion against the economic and political turbulence brought about by the transition to a free-market economy. Migration and remittances have exerted a positive impact on economic growth and represented an important source of economic and social stability in these countries. An important aspect of the debate over migration and remittances concerns their effect on educational attainment in the migrants' countries of origin.

It is well documented that the western Balkan countries of Albania and Macedonia are characterised by a high degree of dependency on migration and remittances, and a substantial number of children are left behind when parents migrate and benefit from remittances sent from abroad. The limited number of studies on the impact of remittances on education and health outcomes in Albania and Macedonia demonstrate the need for further research in this area. Thus far, researchers have exhibited an increased interest in the general impact of migration or remittances on migrant-sending countries such as Albania and Macedonia but less on the effects of migration and remittances on human capital investments, such as the educational attainment of the children left behind. Ambiguity regarding the positive and negative effects on education that have been observed at the international level is also the case for Macedonia and Albania. The effect of remittances on consumption is well documented, but its effect on children's education is not adequately examined, particularly in the cases of Albania and Macedonia. Empirical studies that focus on the link between migration/remittances and education are absent. The aim of this study is to bridge this gap. Therefore, the information obtained through this research is important not only at the national or regional level but also for its contribution to the international literature in the field.

The migration of a family member may have a deleterious impact on the household's well-being. The absence of a family member may deprive the household of the migrant's market and non-market production, possibly making the household worse off. However, remittances may play an important role in providing relief during difficult economic times, ensuring complimentary social protection and compensating for limited government policy interventions. Remittances can benefit households by lifting liquidity constraints. It is important to inquire as to the extent to which the losses sustained from family migration can be offset by the gains from remittances. In this light, the impact of international migration on the migrants' households and communities of origin has recently received increasing attention in view of the potential role that migration may play in children's welfare, particularly with respect to improving the educational attainment of the children left behind.

In examining the interactions between migration and remittances on the one hand, and education on the other, this study reflects on the following questions: what is the effect of migration and remittances on children's education performance in the countries of origin? To answer this question, the study tested the hypothesis of whether migration and remittances have a positive effect on children's education in Albania and Macedonia due to relaxed liquidity constraints. In addition, the paper concentrates on the implications for and changes to children's educational attainment and levels as a result of the migration of one or both parents and the effect of remittances on children's schooling.

Two model specifications were employed to test the hypothesis and the mechanism by which migration and remittances affect children's schooling. The first specification, a fixed effect model, separately assessed the migration experience of the mother, that of the father and the joint migration experience of the parents. This specification was intended to capture the effect of parental migration experience on the children's years of schooling generally and separately assess the effects on girls' and boys' years of schooling. In the second empirical specification, using an ordered probit model, it is assessed the effect of parental migration experience and receiving of remittances on children's educational levels in general and the separate effects for girls and boys.

The study uses the most recent empirical data collected in Albania and Macedonia, between June and September 2012. The surveys were funded by RRPP (Regional Research Promotion Programme | Western Balkans) that led to the collection of detailed information on

the children's socio-demographic characteristics, household members' migration, household income and expenditures, and remittances and their allocation to household consumption.

The main findings of the study are that parental migration experience has an important effect on the educational attainment of children in both Albania and Macedonia, whereas remittances only have a significant effect on the education status of children in Albania. The impact of remittances in the case of Macedonia is insignificant. In terms of gender differences, in Albania, having a migrant parent and receiving remittances have more positive effects on the schooling of girls than of boys. This difference in the case of Macedonia is insignificant.

The reminder of the paper is structured as follows: section two provides a brief contextual analysis of how migration and remittances operate and affect children left behind in the two countries considered; section three discusses the main theoretical and empirical studies that have addressed the issue of migration and remittances and their effects on the education of children left behind; section four discusses the data used in this analysis. Section five presents the main methodology and empirical strategy. Section six reports the main findings, and the last section presents the main conclusions and possible analytical interpretations.

2. Background information on Albania and Macedonia

a. Albania

Albania has experienced rapid social change, including internal migration from rural to urban areas and mass emigration by economically active citizens. Since 1990, nearly 1.5 million Albanians have left the country and are living abroad (World Bank, 2013). Migration has become the most common livelihood strategy in the country and served as an important escape from unemployment and other economic difficulties brought on by the transition to a market economy. Persistent poverty and high levels of unemployment and underemployment, particularly in rural areas, have served as push factors for migration. Pull factors have also been important in fomenting migration. Significant wage and wealth differentials between Albania and its European Union neighbours have been obvious attractions (Carletto et al., 2006).

Migration has been so widespread in Albania that all classes and categories of the population have been involved; both urban and rural households have been equally affected by the migration of one or more of their members, and migrants have come from all walks of life. Male migrants have outnumbered females. Most are young or early middle-aged (up to the mid-

40s) and married; females are slightly more likely to come from urban areas and less likely to be single (King, 2005). The most recent statistics (2011) confirm that the stock of migrants abroad is greater than 1.44 million, which is half of the population currently living in Albania (World Bank, 2013).

Because of such massive migration, remittances are an essential element of the Albanian economy, as the country is among the largest receivers of remittances in Southeast Europe. These are an important source of income, particularly for poor households. Remittance transfers are estimated to have reached US$ 1,156 million in 2010, constituting 11% of GDP (2010). Consequently, the large migration flows have contributed to the growing importance of remittances as a major source of income for many Albanian households and the national economy. Remittances have functioned as the main mechanism for alleviating poverty in Albania and increasing household incomes above extremely low levels (King, 2005).

While migration and the remittances undoubtedly affected the living conditions of migrant households in Albania, their impact on the education of family members left behind remains less straightforward and under-researched.

In Albania, children typically begin attending school at the age of 6, first primary school (9 years), then secondary school (3-4 years). Elementary education is compulsory (grades 1-9), but most students continue to enrol at least until secondary education (UNESCO, 2011). Albania's government, as a part of its efforts to meet the Millennium Development Goals, has pledged to achieve "Education for All" by 2015 and committed increased funding to achieve specific educational goals. As Albania entered the transition period, basic education was free of charge, and access levels and participation rates were very high. This was reflected by high literacy and enrolment rates across all education levels, including basic education. For example, the literacy rate for the individuals aged 15 and above in 2008 was 96%. Despite the high literacy rate, the average number of years of schooling is 11.2 years, below those of European and other Balkan countries (UNDP, 2010).

Through a duration analysis of school participation, Giannelli & Mangiavacchi (2010) show that past parental migration had a negative effect on school attendance in the long-term, with greater risk of dropping out of school among Albanian children left behind. Parental migration when the child remains in the sending country has longer-term implications for the child's development and future. These included, for example, changes in household structure and

responsibilities, leading to greater pressure on older children to help in the household or assist in agricultural duties and thus to neglect their schooling. Moreover, the absence of parents may entail psychological costs and change the decision-making process within the household, implying a modification of intra-household duties and responsibilities and possibly inducing children of migrants to spend less time in school related activities, thereby increasing the probability of dropping out and delaying school progression.

Focusing on Albania, Pihlainen (2010) tests the hypothesis that households receiving remittances from abroad spend more money on their children's education than others. The study showed that this is not always the case in Albania. In many cases, remittance-receiving households divert resources away from education into consumption for poverty-alleviation purposes. Thus long-run investments in human capital are undermined by consumption needs. Remittance-receiving households actually spend less on education than their counterparts. According to De la Garza (2010), who considers different educational indicators, the effect of migration in general and remittances in particular on educational outcomes seems to be mixed. Furthermore, Miluka & Dabalen (2008) explore the effects of international migration, in particular the effect of remittances on education, and show that in the case of Albania, such sources of income have a weak impact on human capital. According to Miluka & Dabalen, the reason might be that the disruptive effects on the family structure can change the leadership of the family, giving more power to older males who are less educated and less prone to understand the importance of human capital investment regarding their grandchildren.

Other studies, e.g., Mangiavacchi & Verme (2009), show that there are negative effects on educational outcomes for primary school children and adolescents in Albania; whereas King (2005) argues that remittances are only partial compensation for the family members left behind.

Overall, despite the tremendous level of migration and relatively high level of remittances, the existing evidence on Albania regarding the effect of parental migration and remittances on children's schooling remains uncertain.

b. Macedonia

Macedonia has undergone radical socio-economic and political transformations. These affected and continue to influence migration processes, particularly net migration among the population. All parts of the country have become characterised by growing migration, a

phenomenon that has been present in the country since the 1960s. More villages have disappeared as a result of migration (Government of Macedonia, 2010), with migration being a particularly dominant strategy in the north-western part of the country.

Migration has been a major determinant of demographic change in Macedonia. Macedonia is a migration area characterised by an intense exodus of the population to other countries, mainly to the EU. Emigration flows have had different intensities in different time periods, but migration has generally been direct towards western European countries. The most intense wave of this type of migration occurred during the 1960s and 1970s. Since the 1960s, hundreds of thousands of individuals have left their homes to seek their livelihoods in western European countries (Government of Macedonia, 2010).

Macedonia's migrants usually leave as young working age adults and remain in their destinations for a long period of time (5-10 years) (Uzunov, 2011). The emigrants are often young married males who depart to earn money abroad. Regarding their educational attainment, the majority of emigrants have low or medium levels of education at the time of departure. There has also been a very slight rural bias among emigrants – slightly more individuals from Macedonia's rural areas tend to go abroad and remain. All ethnic groups experience emigration, but there is a disproportionate level of migration among the Albanian, Roma and Turkish ethnic groups. This may well be an effect of poverty, which also slightly disproportionately affects these ethnic groups (which, on average, also exhibit lower levels of education) (Uzunov, 2011). The total number of Macedonian citizens residing abroad is estimated to be more than 300,000 persons who migrated from Macedonia over the last 50 years, representing 15% of the total population (Government of Macedonia, 2010). More recent statistics confirm that the current stock of migrants abroad is 447.139, or a quarter of the population (Uzunov, 2011; World Bank, 2013).

The widespread increase in migration eventually resulted in a dramatic increase in the flow of remittances to Macedonia. Remittances have represented a considerable percentage of Macedonia's GDP over the past two decades. There is a high percentage of remittance receiving households at the national level, and a substantial share of country's 2 billion USD (2012) trade deficit is financed by remittances.

Regarding the identified patterns of remittances, approximately a third of all Macedonian migrants send money home. Females remit less, while older migrants, migrants who have been

abroad longer and migrants with frequent contacts (at least once a week) with the family left behind remit more (Micevska-Scharf et al., 2010). Remittances in Macedonia are predominantly spent on consumption, thus most likely supporting poor households (Dietz, 2010).

In Macedonia, primary and secondary education is compulsory and free of charge. It is provided through a developed network of schools in urban and rural areas in the mother tongues of all ethnic groups living in Macedonia. Remittance recipients are believed to use a portion of those receipts to pay for daily expenses, on education and the rest for other products and services. However, reports on educational attainment in Macedonia are not promising, as the results of the most recent census (2002) show that approximately 50% of the population has not completed primary education. Moreover, grade repetition is considered common.

An analysis on the enrolment of pupils in primary education over a ten-year period shows that not all children who are supposed to be enrolled in education actually attend, and there is also a downward trend in the enrolment rates, with the gross enrolment ratio in primary education falling from 93% (2007) to 89% (2009). A downward trend has also been observed in primary school competition rates (World Bank, 2013). The vertical progress of a generation of pupils from their enrolment in grade 1 in primary education to the completion of secondary education indicates that over 30% of pupils are lost along the way: 11% drop-out by the end of primary education, an additional 11% at enrolment in secondary education and a further 9% by the end of secondary education. Some primary education dropouts can be attributed to demographic changes (migration of young families abroad), and some of the dropouts in secondary education may result from opportunities to complete secondary education abroad (State Statistical Office, 2013). Nonetheless, a significant number of pupils fail to complete primary education and still more fail to complete secondary education.

In the literature, few studies on Macedonia address the effects of migration and remittances on the family members left behind. Some studies such as Bexheti (2005), CRPM (2007), Dietz (2010), Markiewicz (2006), Micevska-Scharf et al. (2010), Roberts et al. (2008), and Uzunov (2011) have analysed the migration flows, determinants of remittances, the size of remittances and their importance to the economy, and the potential impact of the flows of remittances on unemployment, poverty, families and communities left behind. In particular, the CPRM (2007) argues that money transferred by migrants to their native towns or villages or spent and invested there during their short visits are of the utmost importance for post-transition

economies such as Macedonia. Micevska-Scharf et al. (2010) demonstrate that younger children have higher school attendance rates in families that do not receive remittances. Micevska-Scharf et al. argue that remittances may reduce the incentive for families to send their children to school in general and that remittance receipts do not seem to be associated with university attendance. Parental absence does not seem to be associated with differences in the school attendance rates of younger children. Micevska-Scharf et al. state that absent parents have a significant effect on increasing school attendance among older children.

In Macedonia's case, despite the number of studies on migration and remittances in general, the analysis of the effect of parental migration and remittances on children's schooling is at an early stage.

3. Theory

A growing international literature has sought to identify the impacts of international migration and remittances on developing or poor economies. The impact of international migration on migrants' households and communities of origin has received increasing scholarly attention in light of the potential role that it can play in children's welfare, particularly in improving the educational attainment of the children left behind.

One stream of the literature has argued that the educational outcomes of family members have increased due to the relaxation of liquidity constraints. By relaxing the household's liquidity constraints, remittances allow for investments in education. The opposing stream, while agreeing on the potential for remittance transfers to alleviate credit constraints, argues that the migration of a family member, i.e., the absence of a parent, may have negative effects on a child's schooling. The value of remittances with respect to their impact on relaxing credit constraints and providing insurance has been widely recognised in a growing body of literature connected with the 'new economics of migration' theory. From this perspective, the decision to migrate may be considered a joint household decision, with migration being one mechanism for diversifying risk and gaining access to capital, i.e., remittances (Stark & Levhari, 1982; Stark & Bloom, 1985). The migration decision is thus viewed as an active attempt by households to overcome market imperfections and enhance the households' ability to purchase inputs and invest in education. The expectation is that migration, and the resulting remittances, will relax

credit constraints and reduce households' exposure to income risk, leading to greater spending on variable inputs and greater investments in education.

Regarding empirical studies, the literature suggests that there is some support for the hypothesis that poverty forces households to keep their children away from school. The economic literature has suggested a number of explanations: poverty may force the households to keep their children away from school and instead send them to work; low quality schooling may lead the households to substitute work for schooling; and restrictions on capital markets may induce parents to reduce their investments in the human capital of their children (Jensen & Nielsen, 1997).

Other studies have shown that relaxing liquidity constraints leads to an increase in family members' educational outcomes of family members. Examples of this literature include Cox & Ureta (2003), who find that remittances reduce the likelihood of children leaving school, particularly in rural areas; Yang (2008), who finds greater child schooling in families where the migrants experience larger positive exchange rate shocks; and Lopez-Cordova (2005), who finds that families who receive more remittances have greater literacy levels and higher school attendance among 6 to 14-year-olds. Borraz (2005) found that children who live in remittance-receiving households complete more years of schooling than other children. Children residing live in households that receive remittances are more likely to increase their years of schooling.

Amuendo-Dorantes & Pozzo (2008) disentangle the effects of migration and remittances. They find that migration might negatively affect remaining household members due to a deterioration of the economic situation and as such reduce the likelihood of children being enrolled to school. However, as remittances begin to flow, they increase school attendance. Girls' school attendance in particular appears to increase due to the receipt of remittances, and secondary school-age children gain the most from the receipt of remittances by a household. In terms of educational performance, Elbadawy & Roushdy (2010) investigate a sample of children who live in remittance-receiving households, while accounting for gender differences and different cohorts, and find that remittances have a positive effect on the school attendance of boys but less of an effect for girls. The effect is particularly strong among boys nearing university enrolment age, while for girls this is true only for those aged from 15 to 17. The findings for boys suggest that remittances have a substantial effect on school attendance for the university-aged. There is also a mild effect on the school attendance of university-aged girls.

An important issue considered in the literature is parental absence and its impact on children's schooling. Parental absence due to migration may translate into less parental input into educational acquisition and may also require the remaining children to undertake housework or work outside the home to help overcome short-term labour and cash shortages. In a related work, Hanson & Woodruff (2003) note that migration may disrupt the household structure, removing children from the presence of guardians and role models, and require older children to take on additional household responsibilities. They also note that parental experience of negative labour market shocks may both induce migration and require children to work rather than spending time in school, leading to a spurious negative relationship between migration and years of schooling. The migration of the household head can disrupt family life and have a negative impact on children's school performance (Wahba, 1996). McKenzie & Rapoport (2006) observe significant reductions in educational attainment among children within households with migrants. Lucas (2005) argues that remittances from family members abroad, in particular parents, support additional education for children in the country of origin, but the absence of parents and consequent lack of oversight regarding children's school performance might attenuate educational outcomes.

Castaneda & Buck (2010) argue that there is often a trade-off between greater financial protection of children through remittances and increased child vulnerability due to a lack of physical, psychological or emotional protection, and this trade off might have important consequences for child development in the long run. Park et al. (2010) argue that paternal migration negatively affects child development, in particular that of boys, who are more likely to drop out of school than girls. Mansoor & Quillin (2007) find that the children of emigrants tend to receive less supervision, and in turn they lag behind in their education. The lack of parental supervision and influence may affect school performance; they also argue that extended family members may not able to adequately fill the role of the absent parent.

In contrast, Antman (2012) finds that the international migration of Mexican fathers to the USA positively affects the education attainment of girls, suggesting that migration in the early stage of a daughter's life - in spite of the absence - will likely increase her education level.

Other studies that not only examined the effect of migration on school enrolment but also considered educational attainment, e.g., McKenzie & Rapoport (2006), note that educational attainment improves significantly for girls, primarily due to the allocation of remittances to the

education of children from low education mothers, which is consistent with remittances allowing for the relaxation of credit constraints on educational investment at the lower end of the wealth and income distributions. Living in a migrant household significantly increases the likelihood of boys migrating at all school ages and of older (16 to 18-year-old) girls doing housework. This is an age when work is also an important form of human capital accumulation, and hence it appears that females in migrant households are losing out in terms of both schooling and work. Moreover, a mother's years of education have been shown to have a positive effect on school attendance, and children in areas that have historically had more schools are currently more likely to attend school. The above analysis demonstrates that children in migrant households are less likely to attend school and complete fewer total years of schooling than children in non-migrant households.

In their paper, Amuedo-Dorantes & Pozo (2010) provide evidence distinguishing between the presumably negative migration effect and the positive effect of remittances when examining the impact of remittance inflows on children's schooling. The authors observed variations in the impact of remittance receipt on children's school attendance depending on their age, gender and order of birth – characteristics suggested to be crucial in previous studies of human capital investments regarding children (e.g., Calero et al., 2009; Emerson and Portela Souza, 2008).

4. Descriptive statistics

For the purpose of the study, a survey was conducted through face-to-face interviews with mothers in Albania and Macedonia between June and September 2012. The target groups were spouses of migrants and non- migrants with children aged 6 - 15 years old.[1]

Given the objectives and the specificities of this research, the interviews were collected following a snowball sampling approach, allowing the sample to be gradually formed using

[1] Assessing the impact of migration on children left behind requires an understanding of the patterns of family members' migration and particularly migrated parents. As the father is most frequently the parent who migrated, leaving his children and wife behind, for the purposes of our analysis, we considered it more appropriate to interview mothers. The choice of interviewing women was because women were found in the position of the head of the household during the husbands' absence as a result of migration. Another reason for interviewing mothers was that regarding the type of education related (such as frequency or absence from the school, performance at school, education related expenses, etc.) and migration related questions included in the survey, mothers were better informed and more aware than the fathers, as the mothers are the primary caregivers of children.

information from one source to another, including respondents with and without migration experience or who formerly had family members abroad.

The questions addressed to the respondents were designed to examine children's school performance. For the purpose of analysing and capturing the potential impact of the migration of family members/parents and remittances on the educational outcomes of children left behind, the sample was drawn by considering two groups: mothers who have a family member abroad (particularly husbands) and mothers who do not have family member abroad, as the control group. The questionnaire was composed of four main themes: the first concerned the socio-demographic characteristics of the household member interviewed, including questions regarding family composition, and the characteristics of other household members who live in the same household. The second theme regarded employment and the standard of living (sources of income, costs of living and types of expenditure, and the allocation of income sources by main items). The third theme consisted of questions related to the migration experience of the family member living abroad for those respondents who reported that this was the case, including questions related to remittances (frequency of remittance receipt, amounts, reasons of remitting and use of remittances, etc.). The fourth theme concerned children's education performance, including direct questions on how migration might have affected children with family members abroad.

The survey included 193 and 95 interviewed mothers in Macedonia and Albania, respectively. The sample of children with or without family member(s) abroad at the time of the survey amounts to 437 children (from 193 households) in Macedonia and 177 children (from 95 households) in Albania. The fieldwork in Macedonia was conducted in the city of Skopje and rural areas. In Macedonia, 61% of interviews were conducted in the city of Skopje, and the rest covered rural areas (39%) in the vicinity of Skopje. In Albania, 63% of interviews were conducted in Tirana, and the rest covered other rural and urban areas in the central area of the country.[2]

[2] Because of limited resources, the survey was only conducted in regions that seem the most affected by migration. The samples are not representative of Albania and Macedonia as a whole. Moreover, Tirana and Skopje may not be optimal geographic areas for this type of impact measurement and not adequately representative of the overall territorial distribution to be generalisable to the impact at the national level. However, due to the difficulties encountered in targeting families experiencing migration, the snowball method was used when interviewing mothers who are willing to participate, targeting both urban and rural populations.

Tables 1 and 1 - A present the main characteristics of children with family members abroad residing in Albania and in Macedonia, respectively. *Tables 2 and 2 - A* present the characteristics of the sample of children without family members abroad residing in Albania and Macedonia, respectively. The key characteristics of the children, such as their education level and educational attainment, are presented from the perspective the parent, in addition to parental migration experience or family members abroad, the parents' current level of earnings and remittances in terms of the amount received and the sum allocated to the child's education.

With respect to children with family members abroad, *Table* 1 indicates that of the sample of 177 children in Albania, 77 have a family member abroad, and the corresponding figure for Macedonia is 179. The average age of children in both the Albanian and Macedonian samples is 11 years. In the Albanian sample, over 53% of the children are girls, while this share in the Macedonian sample is 50%. According to the results presented in *tables 1 and 1 - A*, 67% of the children in the Albanian sample resides in urban areas with 37% living in the capital city of Skopje, while the rest reside in rural areas. In the Albanian sample, children have at least one brother or sister, and in the Macedonian sample the minimum number of siblings is two. Regarding their education levels, children in the Albanian and Macedonian samples have on average 7 years of schooling, and their parents report that improving their children's education is very important. On average, children were absent from school for at least 5 days in the last three months in the Albanian sample and 4 days in the Macedonian sample. The time dedicated to homework on a daily basis is approximately 2.7 hours for children in the Albanian sample and 4 hours for children in the Macedonian sample. Parents in both countries reported being relatively satisfied with the educational attainment of their children and consider it highly likely that their children will continue to pursue further education. Controlling for Regarding the education level of the parents, which is controlled for in the analysis below, mothers and fathers have approximately 10 years of education in both the Albanian and Macedonian samples, corresponding with a medium level of education.

The data on the parents' migration experience show that mothers in Albania have an average at least 1 year of migration experience, ranging from no migration to 6 years abroad. In Macedonia, the mothers spent at least 3 months abroad, and migration experience ranges from no migration to 3 years abroad. Fathers in the full sample of Albania and Macedonia spent an average of 3 years abroad. Considering Albanian fathers alone, experience abroad ranges from

no experience to 15 years, while in Macedonia, it ranges from no experience to 20 years. Households with family members currently living abroad tend to have more years of migration experience, at around 9 years in Albania and 12 years in Macedonia, with a range from 2 to 17 years in Albania and from 1 to 35 years in Macedonia. Thus, generally, children live in families where the parents are present, while family members also have notable period of migration experience abroad. In terms of earnings on a monthly basis, mothers earn approximately 45.000 LEK (approximately 320 Euros) and fathers earn less, approximately 35.000 LEK (approximately 250 Euros). The average monthly income of mothers in the Macedonian sample amounts to approximately 310 Euros, while the average monthly earnings of the fathers are approximately 920 Euros. More than 63% of children in Albania receive remittances that amount to 300 Euros per month. Whereas Macedonian respondents report that 76% of children receive remittances at an amount of 630 Euros per month. In Albania, of the total remittances received, 16% is allocated to education related expenses.

Table 1 – Albanian children with at least one family member abroad

	Mean	Standard deviation	Min	Max
Age of the child	11	7.38	1	23
Gender: female	0.53	0.50	0	1
Urban area	0.68	0.47	0	1
Number of siblings	1	0.5	0	2
Education of the mother	10	3.76	0	14
Education of the father	9	4.78	0	14
Education of the child	7	5.13	1	17
Relevance of education	1.12	0.41	1	3

Satisfied with the education level of the child	1.66	0.70	1	3
Likelihood of pursuing further education	1.06	0.24	1	2
Days absent from school	5.29	1.68	3	9
Hours dedicated to homework	2.69	1.57	1	6
Mother's years of migration experience	1	2	0	6
Father's years of migration experience	3	5	0	15
Total years spent by family members abroad	9	5	2	17
Earnings of the father in LEK	35.000	15.000	10.000	80.000
Earnings of the mother, in LEK	43.000	15.000	10.000	85.000
Receive remittances	0.62	0.49	0	1
Amount of remittances, in Euros	300	200	100	800
Use of remittances for the child's education	0.17	0.38	0	1
Total number of observations	77			

Table 1 – A; Macedonian children with at least one family member abroad

	Mean	Standard deviation	Min	Max
Age of the child	10.54	5.07	1	26
Gender: female	0.5	0.50	0	1
Urban area	0.37	0.48	0	1
Number of siblings	1.64	0.85	0	3
Education of the mother	10.01	4.27	0	20
Education of the father	9.52	6.32	0	20
Education of the child	5.65	4.51	1	20
Relevance of education	1.08	0.35	1	3
Satisfied with the education level of the child	1.39	0.61	1	3
Likelihood of pursuing further education	1.01	0.11	1	2
Days absent from school	2.62	1.56	1	5
Hours dedicated to homework	4.06	0.85	1	7
Mother's years of migration experience	0.06	0.31	0	3
Father's years of migration experience	2.53	4.51	0	20
Total years spent by family members abroad	11.58	8.08	1	35
Earnings of the father in Euros	923.44	947.5	200	6100
Earnings of the mother in Euros	308.77	123.28	130	500
Receive remittances	0.76	0.43	0	1
Amount of remittances in Euros	632.60	1027.97	244	6100
Use of remittances for the child's education	2.07	2.63	0	1
Total number of observations	179			

Examining the statistics on children who do not have a family member abroad, *tables 2 and 2 - A* show that the average age of children is 10 years for the Albanian sample and 11 years in the Macedonian sample. In both countries, half are boys and half girls; less than two thirds of children in the Albanian sample reside in urban areas while 78% do so in the Macedonian sample, and number of siblings for children in both samples ranges from 1 to 3.

The education level of the children in the Albanian sample is on average to 8 years of schooling, and children in the Macedonian sample have an average of 6 years. Similar to the parents of children who have family members abroad, educational improvement is considered very important, the educational attainment of the child is considered satisfactory and the likelihood of pursuing further education is considered high in both countries. However, in the Albanian sample, and in contrast to the group of children who have family members abroad,

school absences are relatively less common, amounting only to 3 days per a month, and the amount of time dedicated to homework on a daily basis is slightly higher at approximately 2.9 hours. In the Macedonian sample, the average number of days absent from school is higher among the non-migrant children, amounting to 4 days compared to 3 days in the migrant households.

Controlling for the education level of the parents in the Albanian sample, the fathers and mothers are similar at approximately 10 years of schooling. This is also the case in the Macedonian sample, with 12 years of schooling for both mothers and fathers.

In terms of earnings in the Albanian sample, the similar education levels of the parents are also reflected in similar monthly salaries, at approximately 42,000 LEK (approximately 300 Euros). In the Macedonian sample, the average monthly earnings of the mothers from non-migrant households amounts to 325 Euros and the average monthly income of the fathers is 405 Euros.

Table 2 - Albanian children with no family members abroad

	Mean	Standard deviation	Min	Max
Age of the child	9.98	6.81	1	23
Gender: female	0.53	0.50	0	1
Urban area	0.63	0.49	0	1
Number of siblings	1,32	0.85	0	3
Education of the mother	10.42	5.10	0	18
Education of the father	10.4	4.26	0	14
Education of the child	7.63	4.99	1	17
Relevance of education	1.08	0.34	1	3
Satisfied with the education level of the child	1.35	0.48	1	2

Likelihood of pursuing further education	1.09	0.35	1	3
Days absent from school	3.44	2.74	1	9
Hours dedicated to homework	2.88	1.51	1	6
Earnings of the father, in LEK	42.000	20.000	0	85.000
Earnings of the mother, in LEK	42.000	25.000	0	90.000
Total number of observations	100			

Table 2 – A; Macedonian children with no family members abroad

	Mean	Standard Deviation	Min	Max
Age of the child	10.94	5.04	1	27
Gender: female	0.52	0.50	0	1
Urban area	0.78	0.42	0	1
Number of siblings	1.5	0.8	0	3
Education of the mother	11.84	5.14	0	20
Education of the father	12.51	5.07	0	20
Education of the child	6.03	4.38	0	21
Relevance of education	1.05	0.27	1	3
Satisfied with the education level of the child	1.37	0.6	1	3
Likelihood of pursuing further education	1.01	0.11	1	2
Days absent from school	3.62	2.62	1	10
Hours dedicated to homework	4.22	1.18	1	7
Earnings of the father in Euros	405	205.48	162	1300
Earnings of the mother in Euros	33	191.4	73	1057
Total number of observations	258			

5. Methodology

This study examines the effect of parental migration and remittances on the educational attainment of the children left behind following the approach of Amuendo-Dorantes & Pozo (2007), Elbadawy & Roushdy (2009) and Antman (2012), who analyse the educational attainment of children as a function of remittances, the migration experience of the parent and a vector of individual, family and community characteristics. In this study, educational attainment is approximated by years of schooling and education level. The literature reports mixed results as to whether migration has a net positive or negative effect on children's education. One hypothesis is that the migration experience of family members abroad, particularly that of the father, who generally earns more working abroad than he could home, allows him to send remittances home. One direct effect of remittances might be to enable the household to allocate more of income to improving children's education, e.g., through additional, specialised courses or better schools, and contribute to the child attaining a higher level of education. Nevertheless, the absence of a parent, under particular family conditions, might force the child to devote additional time and efforts to family needs to compensate for the absent parent. Resolving this ambiguity is difficult because factors that influence parental migration decisions might also affect the child's educational attainment.

Furthermore, this study investigates the effect of migration and remittances on the education level of children, in particular children aged 6 - 15. The analysis aims to determine whether migration and/or remittances received affect the educational attainment of children with parents or family members abroad, controlling for a number of household and child characteristics. The distribution of children with and without family members' abroad shows that a substantial number of children fall have parents who are both migrants or other family members with migration experience. Therefore, the focus is to estimate the years of schooling of the child, while separately controlling for years of migration experience held by the mother and father, and distinguishing between any potential effect on boys and girls aged 6-15.

To control for the To capture the effect of remittances, it is possible to use information on the actual amount of remittances or information on the frequency with which remittances are allocated to the children's education. A major potential concern when using the actual amount of remittances for the child's education is response bias, which would make this variable subject to measurement error. Therefore, another variable was selected, namely that indicating family members who receive remittances and allocate part of them for the education of the children.

Empirical specification 1

The migration of one (or both) parent(s) or another family member might have different effects on the child's years of schooling, depending on the age of the child when the family member migrated and the number of years that the family member remained abroad. Thus, having a parent or family member who migrated before the child reached school age might play no role on the child's future education, in contrast to a child who was in school when the parent or family member was abroad. Controlling for family fixed effects makes it possible to estimate the effect of a parent or family member's migration experience on the years of schooling completed by children in the same family while accounting for gender differences. Thus, the following equation is estimated:

$$year\_edu_{if} = \alpha_i + \beta * X_{if} + \gamma * Y_f + \varepsilon_{if}$$

Where:

- $year\_edu_{if}$ is the dependent variable denoting the years of schooling of child (i) in family (f)
- X_{if} is a vector of exogenous child characteristics, such as the following: age, gender, rural or urban status, the number of siblings in the household, age of the child when the father and/or the mother migrated, a dummy taking the value of one if the child was in the age category 6-15
- Y_f includes family and migration related indicators, father's and/or mother's migration experience (in years), the educational level of the parents, and the frequency of receiving and allocating remittances to the education of the children. [3]
- ε_{if} is the disturbance term.

In this specification, an attempt has been made to distinguish between the effect of the migration and remittances of one or both parents on the child's years of schooling, while distinguishing between boys and girls and the age of the child when the migration experience of the parents occurred. This specification is estimated by running a fixed effect model in which the parents' migration experience (in years) and education level are allowed to have different effects on siblings of different ages within the same family. The estimation results of this specification for Albania and Macedonia are presented in *tables 3-5* and *tables 3A-5A,* respectively.

[3] The choice of explanatory variables follows the suggestions of the literature concerning the main determinants of and mechanisms by which migration and remittances affect child schooling, as discussed in section three.

Empirical specification 2

In addition to the effect of the parents' migration experience on the child's years of schooling, it is also relevant to capture its effect on the child's educational level. As that the first 9 years of schooling are compulsory in Albania and secondary education is compulsory in Macedonia, migration is expected to have a stronger effect on higher levels of schooling such as secondary and tertiary education, where students can decide whether to pursue further education. Thus in the second specification, an attempt is made to control for the effect of migration and remittances on the educational level of the child, distinguishing among primary I education (1-4 years of education), primary II education (4-9 years of education), secondary education (10-12 years of education) and tertiary education (above 12 years of education). In this context, an ordered, categorical dependent variable can be constructed, taking value 1 if the child has fewer than 5 years of education; value 2 if the child has above 5 and below 10 years of education; value 3 if the child's years of education are above 9 and below 13; and value 4 if the child has more than 12 years of education. Operationalising the child's education level as an ordered categorical variable makes it possible to evaluate the effects of child characteristics and parents' migration experience. Using an ordered probit model makes it possible to capture the effect that migration experience and remittances have on children at different education levels. Thus, the equation for the education level, which is categorical and takes ordered, ascending values of 1 through 4, is as follows:

$$EL_i = \begin{cases} 1 \quad if \quad year\_edu_i \leq 5 \\ 2 \quad if \quad 5 < year\_edu_i \leq 9 \\ 3 \quad if \quad 9 < year\_edu_i \leq 12 \\ 4 \quad if \quad year\_edu_i > 12 \end{cases}$$

The education level is determined in the following way:

$$EL_i = x_i' * \beta_i + M_i * \gamma_i + R_i * \delta_i + \varepsilon_i$$

The explanatory variables consist of:

- x_i', which includes child characteristics such as age, gender, number of siblings, living in urban or rural areas, and parental education levels
- M_i, which includes the parents' migration experience such as mother's and father's years of migration and years of migration squared (to check for the concavity or convexity of the length of migration experience)
- R_i, which is related to the use of remittances, such as allocating received remittances to the education of the child.

The estimation results of the ordered probit model for Albania and Macedonia are presented in Table 6 and Table 6 – A, respectively.

6. Estimation results

Estimation results for Albania

a. *The effect of parents' migration experience and remittances on schooling in Albania*

The aim is to analyse the effect of parental migration experience on children's years of schooling, while controlling for the effect of the length of the parent or parents' stay abroad and use of remittances for the children's education. According to the survey results, 57% of children in Albania have a parent or a family member with migration experience abroad. Thus, the representative sample of children and their years of schooling might be significantly affected by migration by one or both parents. As it refers to the child's years of schooling, the dependent variable in the first specification can be considered continuous and is specified in the second as categorical and of increasing order. The estimation results are presented for the entire sample of children and separately for boys and girls, respectively, in *tables 3 - 5*.

A comparison of the results of the first specification (fixed effect model), which separately considers the migration experience of the mother, that of the father and the joint migration experience of the parents, presented in *Table 1* reveals the following: migration by the father is likely to have a negative initial effect on child's years of schooling (but this effect does not seem to be significant), but as the length of the migration increases, the effects on years of schooling become positive and significant. Similarly, the estimation results concerning the effect of remittances appear to be positive and significant, suggesting that remittances play a positive role in the child's years of schooling. In addition, children that have a father who has completed secondary education seem to be positively affected, while no effect is found for children whose

fathers have only completed primary education. Regarding the determinants related to child characteristics, children aged 6-15 are generally more positively affected compared to those above this age category. The number of siblings appears to have a negative effect on years of schooling, suggesting that there might be some important differences between siblings and migration by the father might affect them differently.

Table 3: The effect of parents' migration experience and remittances on schooling in Albania

	FE[4] Father migration	FE Mother migration	FE Both parents migration
Female	-0.253	-0.183	0.0316
	(0.471)	(0.312)	(0.167)
Child aged 6-15 years	5.140*	4.588+	4.737*
	(0.943)	(1.511)	(1.028)
Siblings	-1.893+	-1.730+	-2.005*
	(0.553)	(0.434)	(0.276)
Living in urban area	0.709	0.574	0.544
	(1.243)	(1.107)	(1.367)
Father migrated when the child was below 15 years	30.20		38.41
	(14.93)		(15.02)
Years of the father on migration	-7.390		-9.001+
	(2.555)		(2.399)
Years of the father on migration squared	0.359+		0.430*
	(0.107)		(0.0977)

[4] Family fixed effect model have been estimated for the entire sample and separately for boys and girls.

Mother education primary	0.0327	1.174*	1.173
	(0.663)	(0.190)	(0.540)
Mother education secondary	-0.390	0.0838	-0.120
	(0.168)	(0.477)	(0.308)
Father education primary	0.230	-1.310	-1.054
	(0.199)	(0.628)	(0.608)
Father education secondary	2.733+	2.356	2.587*
	(0.780)	(1.051)	(0.435)
Families that receive remittances	1.447*	0.301	1.499*
	(0.244)	(0.457)	(0.271)
Mother migrated when the child was below 15 years		0.243	1.496
		(2.669)	(2.130)
Years of the mother on migration		2.091	2.083
		(1.532)	(1.744)
Years of the mother on migration squared		-0.390	-0.439
		(0.299)	(0.342)
_cons	5.905*	5.887+	6.048+
	(1.143)	(1.687)	(1.566)
N	111	111	111
R^2	0.333	0.281	0.368

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In contrast, the estimation results when only considering the migration experience of the mother indicate that such experience has no effect on the child's years of schooling (*Table 3, column 2*). Finally, when considering the migration experience of both parents, *Table 3* confirms that only fathers' migration experience significantly affects the child's years of schooling. Moreover, the negative sign associated with the father's years abroad and the positive sign associated with the squared value of the father's years abroad confirms the presence of convexity. This finding suggests that while migration by the father may initially have negative effects on the child's years of schooling, the effect becomes positive for longer stays abroad. This result might also relate to the positive effect of remittances on the child's years of schooling, implying in the short term that migration by the father might have a particularly negative effect on the child's education; however, for longer stays abroad, the experience of migration accompanied by the allocation of remittances to the child's education might improve the education levels of children left behind.[5]

The separate estimation results for boys and girls are presented in *Tables 4 and 5* and confirm that these negative effects only apply to girls, indicating that there are important differences in terms of gender of the child and how the father's migration experience affects their level of schooling. While having a migrant father significantly affects girls' years of schooling, no significant effect is found for the boys. Moreover, the effect of remittances is only positive and significant for girls. Moreover, being below the age of 15 when the father migrated seems to only have a positive and slightly significant effect for girls. These results suggest that girls are the primary beneficiaries of their fathers' migration experience, and compared to their siblings, girls whose fathers migrated when they were below age 15 have the potential to benefit from migration experience and remittances to a greater extent. This finding is in line with previous studies, such as Hanson & Woodruff (2003) and Antman (2012), which have shown that a positive effect of paternal migration on educational attainment for girls may be due to, first, a shift in bargaining power from men to women, resulting from the men's migration, and second, because particularly well educated and employed mothers tend to allocate more income to improve girls' education.

[5] Another interpretation might be the long run commitment of the parents to financing the further education of their children.

Table 4: The effect of parents´ migration experience and remittances on schooling of girls in Albania

	FE Father migration	FE Mother migration	FE Both parents migration
Children aged 6-15 years	4.790	4.174+	4.364
	(1.764)	(1.344)	(2.249)
Siblings	-1.744**	-1.321*	-1.672
	(0.174)	(0.194)	(0.815)
Living in urban area	2.005	1.110	1.693
	(0.875)	(0.924)	(0.826)
Father migrated when the child was below 15 years	42.20+		45.85+
	(11.15)		(13.10)
Years of the father on migration	-8.899+		-9.454+
	(2.158)		(2.221)
Years of the father on migration squared	0.400+		0.418+
	(0.104)		(0.108)
Mother primary education	-0.274	-2.580	-1.024
	(4.890)	(4.327)	(3.932)
Mother secondary education	0.494	0.487	1.040
	(0.622)	(1.015)	(2.076)
Father primary education	1.475	3.437	2.321
	(3.167)	(1.627)	(1.436)

Father secondary education	3.314*	3.208*	2.886*
	(0.460)	(0.577)	(0.593)
Families that receive remittances	2.416**	1.583+	2.479***
	(0.163)	(0.429)	(0.0392)
Mother migrated when the child was below 15 years		2.203	3.609
		(6.092)	(7.569)
Years of the mother on migration		-1.463	-0.425
		(1.108)	(2.588)
Years of the mother on migration squared		0.195	-0.0273
		(0.147)	(0.372)
_cons	3.549*	3.944	3.818
	(0.380)	(1.509)	(1.593)
N	59	59	59
R^2	0.370	0.279	0.380

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: The effect of parents' migration experience and remittances on schooling of boys in Albania

	FE Father migration	FE Mother migration	FE Both parents migration
Children aged 6-15 years	5.475	5.104	4.894
	(2.249)	(3.056)	(2.468)

Siblings	-1.756+	-1.748+	-1.704+
	(0.417)	(0.484)	(0.493)
Living in urban area	-0.136	-0.0742	-0.339
	(1.777)	(1.422)	(2.060)
Father migrated when the child was below 15 years	21.62		31.10
	(23.92)		(21.25)
Years of the father on migration	-6.445		-8.600
	(4.884)		(4.956)
Years of the father on migration squared	0.336		0.439
	(0.226)		(0.242)
Mother primary education	0.456	2.138	1.208*
	(0.711)	(1.767)	(0.164)
Mother secondary education	-0.976	-0.452	-1.232
	(0.720)	(0.182)	(1.670)
Father primary education	0.270	-2.547	-0.841
	(0.637)	(3.271)	(1.085)
Father secondary education	1.640	1.500	1.901+
	(1.367)	(1.672)	(0.597)
Families that receive remittances	0.367	-0.655	1.138
	(1.014)	(0.382)	(0.929)

Mother migrated when the child was below 15 years		0.0720 (0.845)	1.530 (1.962)
Years of the mother on migration		3.277+ (1.105)	2.722+ (0.645)
Years of the mother on migration squared		-0.591 (0.270)	-0.592 (0.229)
_cons	7.179 (2.656)	6.812 (2.837)	7.155 (2.880)
N	52	52	52
R^2	0.351	0.342	0.423

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

b. *The effect of parents´ migration experience and remittances on education levels in Albania*

The estimation results of the ordered probit model (*Table 6*), where the ordered and increasing dependent variable is the child's education level, capture important differences. First, the number of siblings seems to have a negative relationship with the education level. The coefficient of the variable for living in rural areas, while having a positive sign, is insignificant. Being below the age of 15 when the father migrated is highly likely to have a positive effect on the child's education level, while no effect is found if the mother migrated when the child was below 15. The number of years the father spent abroad indicates the existence of a convex relationship, suggesting that longer stays abroad by the father have a positive effect on the child's level of education. By contrast, the years the mother spent abroad, especially long stays, negatively affect the child's education level, suggesting that while longer periods of absence by the father might have a positive effect on the child's education level, the absence of the mother has a detrimental effect. In addition, remittances appear to have a positive effect on the child's education level. These findings demonstrate the importance of considering both between parental migration in

general and the length of stays abroad. While the long term absence of the father will be accompanied by positive effects on the child's education level, which might also be due to the effect of remittances received and allocated to the education of the child, the absence of the mother negatively affects the child's education level.

In terms of gender differences and variations in the effects on boys and girls, the results show that there are important distinctions. For the girls, the likelihood of attaining a higher level of education appears to only be positively affected by remittances. In contrast, for boys remittances appear to have a positive effect, but this is not statistically significant. Moreover, the results regarding the years of migration experience held by the parents are confirmed for boys but not for girls. These results indicate that the absence of the father abroad might in the long term contribute to the attainment of a high level of education, whereas the absence of the mother is more likely to negatively affect the probability of attaining a high level of education. However, in terms of gender, the effects seem to be strongly significant for boys but not for the girls. The results obtained by Giannelli and Mangiavacchi (2010) are similar in this regard. They observe a negative impact on school attendance for children left behind in Albania due to parental migration. However, while Zoller (1995) argues that the negative impact of paternal migration, particularly in the short run, has to be attributed to the absence of the disciplinarian role that fathers used to play, Cortes (2010) shows that the absence of the mother as the main care-giver, apart from its negative emotional effects on the child, also negatively affects the child's education level to a greater extent than the father's absence.

Table 6: The effect of parents´ migration experience and remittances on education level in Albania

	Ordered probit All sample	Ordered probit Girls	Ordered probit Boys
Female	-0.142 (0.235)		
Children aged 6-15 years	0.961** (0.293)	0.825+ (0.442)	1.128* (0.496)
Siblings	-0.464* (0.187)	-0.231 (0.269)	-0.700* (0.326)

Living in urban area	0.146 (0.293)	0.430 (0.473)	-0.0622 (0.461)
Mother migrated when the child was below 15 years	0.512 (0.658)	2.493 (1.911)	0.576 (0.697)
Father migrated when the child was below 15 years	13.26* (5.382)	17.92 (12.16)	55.72*** (7.453)
Years of the father on migration	-2.879** (0.981)	-3.279 (2.081)	-12.11*** (1.538)
Years of the father on migration squared	0.132** (0.0427)	0.135 (0.0876)	0.560*** (0.0713)
Years of the mother on migration	0.479 (0.360)	-0.353 (1.015)	0.415 (0.321)
Years of the mother on migration squared	-0.109+ (0.0605)	-0.00377 (0.145)	-0.159** (0.0552)
Mother education primary	0.177 (0.525)	-1.712 (1.852)	0.948 (0.650)
Mother secondary education	0.0707 (0.304)	0.403 (0.548)	-0.145 (0.448)
Father primary education	-0.386 (0.579)	1.601 (1.782)	0.777 (0.965)

Father secondary education	0.554+ (0.287)	0.624 (0.470)	0.289 (0.438)
Families that receive remittances	0.550* (0.279)	0.676+ (0.404)	0.599 (0.534)
cut1 _cons	-0.275 (0.383)	0.582 (0.598)	-0.902 (0.733)
cut2 _cons	0.811* (0.375)	1.658** (0.617)	0.350 (0.692)
cut3 _cons	1.133** (0.363)	1.969** (0.627)	0.725 (0.646)
Logliklihood	-121.78	-60.58	-54.29
N	111	59	52

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Estimation results for Macedonia

a. The effect of parents' migration experience and remittances on schooling in Macedonia

As the results showed, 40% of the children in the Macedonian survey have a parent or a family member with migration experience abroad. The first specification (fixed effect model) separately considers the migration experience of the mother, that of the father and their joint migration experience. The estimation results for Macedonia presented in *Table 3 - A* show that the migration of the father is likely to initially have a negative effect on the child's years of schooling, but this effect is not significant. The estimation results concerning the effect of remittances show that while remittances have a positive effect on years of schooling, this effect is no statistically significant. Children from Macedonia who have fathers with secondary education seem to be positively affected, while no effect is found for children whose fathers have only completed primary education. Regarding the determinants related to child characteristics,

the results showed that children aged 6-15 are generally to a greater extent negatively affected compared to those above this age category. The number of siblings appears to have a positive effect on children's years of schooling. This suggests that there are no meaningful differences among the siblings in a given household and the migration of their father does not affect them differently.

The estimation results that only consider the migration experience of the mother indicate that her migration experience does not have a significant effect on her child's years of schooling. The estimation results for the migration experience of both parents confirm that only the fathers' long term migration experience affects the child's years of schooling. Similar to the results obtained for Albania, long term migration on the part of the father positively affects the child's years of schooling, but no significant effect is found for the mother's migration experience. Additionally, children of fathers who have completed secondary education appear to have more years of schooling.

Regarding the effect of remittances, an in contrast to the results for Albania, they do not play a significant role in the years of schooling a child completes. Moreover, children aged 6-15 seem to be more negatively affected than other age categories, and this might partly explain the high level of dropouts and predominance of children who have only completed primary education, despite secondary education being compulsory.

The effect of the number of siblings on the child's education level also differs from the Albanian case. While the effect appears to be negative and significant in Albania, of the effect is found to be positive in Macedonia.

A potential interpretation is that in Macedonia, a larger number of siblings might have a supportive rather than detrimental effect on the education of the children due to greater solidarity within the household; older brothers and sisters might contribute by providing care and support for younger siblings and occupy the former role of the absent parent. Antman (2010) suggests that younger siblings are more likely to be affected by parental migration than older children, as the latter group, who are older when their parents migrate, are less likely to be enrolled in school or less likely to return if they drop out.

Table 3 - A: The effect of parents´ migration experience and remittances on schooling in Macedonia

	Father migration	Mother migration	Both parents migration
Female	0.168	0.143	0.161
	(0.350)	(0.389)	(0.404)
Children aged 6-15 years	-7.847***	-7.815***	-7.760***
	(0.438)	(0.462)	(0.462)
Siblings	1.024**	1.107***	1.039**
	(0.0837)	(0.0838)	(0.0844)
Living in urban area	0.934	0.824	0.907
	(0.755)	(0.716)	(0.760)
Father migrated when the child was below 15 years	-0.273		-0.389
	(0.274)		(0.195)
Years of the father on migration	-0.174		-0.130
	(0.151)		(0.0972)
Years of the father on migration squared	0.0156		0.0135+
	(0.00731)		(0.00532)
Mother primary education	-0.0741	-0.0439	-0.134
	(0.434)	(0.415)	(0.419)
Mother secondary education	-0.691	-0.670	-0.790
	(0.489)	(0.436)	(0.453)
Father primary education	0.253	0.122	0.251
	(0.659)	(0.636)	(0.668)
Father secondary education	0.729+	0.712+	0.811+
	(0.303)	(0.242)	(0.283)
Families that receive remittances	0.297	0.180	0.311
	(0.503)	(0.334)	(0.507)
Mother migrated when the child was below 15 years		-1.796	-1.786
		(1.632)	(1.550)
			6.859
Years of the mother on migration		7.010	(4.914)
		(5.152)	
Years of the mother on migration squared		-2.207	-2.103
		(1.621)	(1.523)
_cons	9.671***	9.598***	9.598***
	(0.352)	(0.424)	(0.363)
N	381	381	381
R^2	0.642	0.641	0.648
adj. R^2	0.630	0.630	0.633
F	.	.	.

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The separate estimates for girls and boys showed that the father's migration and remittances do not have a significant effect on years of schooling.

Nevertheless, the positive sign associated with the years the spent mother abroad and the negative sign associated with its squared term confirm the concavity of its relationship with years of schooling. This finding suggests that the mother's migration abroad may initially have a positive effect on girls' years of schooling, but for longer stays abroad the effect becomes negative. Moreover, being below the age of 15 when the mother migrated only seems to have a significantly negative effect for girls.

Nevertheless, one interpretation might be that, in the short run, the positive effect found for maternal absence is reinforced by the finding that having more siblings in the household has a positive effect on children's years of schooling (siblings might partly compensate for the absence of a parent in the short run, but this is less likely to be the case in the long run).

Regarding the negative effect in the long run, the explanation is similar that offered by Cortes (2010), who argues that girls are particularly negatively emotionally and academically affected by the absence of their mothers.

Table 4 - A: The effect of parents´ migration experience and remittances on schooling of girls in Macedonia

	FE Father migration	FE Mother migration	FE Both parents migration
Children aged 6-15 years	-7.437** (0.768)	-7.530** (0.783)	-7.277** (0.795)
Siblings	1.039** (0.126)	1.056** (0.103)	1.053** (0.134)
Living in urban area	0.702 (0.987)	0.496 (0.930)	0.669 (1.026)
Father migrated when the child was below 15 years	-0.515 (0.937)		-0.800 (0.873)
Years of the father on migration	-0.218 (0.346)		-0.144 (0.276)
Years of the father on migration squared	0.0192 (0.0152)		0.0166 (0.0127)

Mother primary education	-0.196 (0.480)	-0.219 (0.462)	-0.228 (0.391)
Mother secondary education	-0.613 (0.806)	-0.630 (0.545)	-0.787 (0.606)
Father primary education	0.377 (0.937)	0.222 (0.816)	0.302 (0.817)
Father secondary education	0.466 (0.400)	0.493 (0.241)	0.603 (0.382)
Families that receive remittances	0.567 (0.661)	0.251 (0.427)	0.504 (0.478)
Mother migrated when the child was below 15 years		-4.184+ (1.757)	-4.477* (1.279)
Years of the mother on migration		17.71+ (5.675)	18.80* (5.281)
Years of the mother on migration squared		-6.373+ (2.441)	-6.831+ (2.337)
_cons	9.706*** (0.471)	9.890*** (0.656)	9.570*** (0.526)
N	194	194	194
R^2	0.607	0.619	0.630
adj. R^2	0.583	0.596	0.601
F	.	.	.

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 - A: The effect of parents´ migration experience and remittances on schooling of boys in Macedonia

	FE Father migration	FE Mother migration	FE Both parents migration
Children aged 6-15 years	-8.423*** (0.343)	-8.256*** (0.290)	-8.386*** (0.372)
Siblings	1.005* (0.197)	1.165** (0.192)	1.013* (0.199)
Living in urban area	1.254* (0.347)	1.224* (0.340)	1.247* (0.337)
Father migrated when the child was below 15 years	-0.168 (0.687)		-0.270 (1.182)

Years of the father on migration	-0.111 (0.0791)		-0.0778 (0.190)
Years of the father on migration squared	0.0126 (0.00691)		0.0109 (0.0143)
Mother primary education	0.243 (0.215)	0.309 (0.239)	0.210 (0.235)
Mother secondary education	-0.810+ (0.273)	-0.725+ (0.293)	-0.840+ (0.315)
Father primary education	-0.00170 (0.618)	-0.166 (0.525)	0.000790 (0.710)
Father secondary education	1.032 (0.457)	0.932 (0.429)	1.058 (0.517)
Families that receive remittances	0.0629 (0.443)	0.0817 (0.170)	0.0870 (0.574)
Mother migrated when the child was below 15 years		-0.591 (1.286)	-0.620 (1.694)
Years of the mother on migration		1.785 (0.940)	1.815+ (0.578)
Years of the mother on migration squared		-0.552+ (0.207)	-0.530** (0.0665)
_cons	9.845*** (0.445)	9.525*** (0.395)	9.815*** (0.439)
N R2 adj. R2 F	187 0.680 0.659 .	187 0.675 0.654 .	187 0.680 0.654 .

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

b. The effect of parents' migration experience and remittances on education levels in Macedonia

The results of the ordered probit model (*Table 6 - A*), where the dependent variable is the education level, which is ordered and increasing in value, capture important differences. Parental migration experience has a negative effect on the education levels of children aged 6 – 15. The number of siblings seems to have a positive effect on children's education levels. Living in urban areas has a positive sign, and its effect is significant for boys. The results for children below age 15 when a parent migrated showed that the mother's migration negatively affects girls but not boys.

In contrast to the results obtained for Albania, the years the father spends abroad have no significant effect on the education level of children in the Macedonian sample. Conversely, the years the mother spends abroad, especially in the longer term, negatively affect the education level of her children, suggesting that the absence of the mother as the main care-giver not only negatively affect a child's years of schooling but also his or her likelihood of completing a higher educational level. Moreover, remittances play no significant role in determining the children's education levels.

These findings suggest that in case of Macedonia, the effect of parental migration and consequently remittances might be such that they offset one another.

In terms of gender differences, the estimation results show that there are not important distinctions between boys and girls, apart the fact that being below age 15 when the mother migrated has a negative and significant effect on the education levels of girls but not of boys; living in urban rather than rural areas might be positively associated with boys' education levels, but no effect is found for girls. Nevertheless, the number of siblings has a positive effect on the education levels of girls and boys. The number of years the father spends abroad has a negative effect for girls and boys, but its squared term indicates that, in the longer term, paternal migration has a positive effect of the education levels of girls and boys. In this specification, the years the mother spends abroad only affect the education levels of girls. This effect initially seems to be positive, but in the longer term girls are negatively affected by the absence of their mother.

Table 6 - A: The effect of parents´ migration experience and remittances on education level in Macedonia

	Ordered probit All sample	Ordered probit Girls	Ordered probit Boys
Female	0.0267		
	(0.25)		
Children aged 6-15 years	-11.87***	-14.51***	-12.12***
	(-32.47)	(-21.62)	(-19.16)
Siblings	0.408***	0.434***	0.380***
	(5.32)	(3.66)	(3.60)
Living in urban area	0.342*	0.298	0.438*
	(2.58)	(1.51)	(2.36)
Mother migrated when the	-0.582	-1.492**	-0.126

child was below 15 years	(-1.34)	(-2.97)	(-0.19)
Father migrated when the child was below 15 years	-0.176 (-0.73)	-0.295 (-0.88)	-0.0560 (-0.13)
Years of the father on migration	-0.0431 (-0.68)	-0.0656 (-0.76)	-0.0462 (-0.43)
Years of the father on migration squared	0.00490 (1.42)	0.00656 (1.45)	0.00567 (0.92)
Years of the mother on migration	2.801* (2.04)	6.408** (2.97)	0.498 (0.59)
Years of the mother on migration squared	-0.846* (-2.01)	-1.598 (-1.54)	-0.119 (-0.48)
Mother primary education	-0.0285 (-0.17)	-0.110 (-0.43)	0.167 (0.69)
Mother secondary education	-0.308 (-1.80)	-0.332 (-1.39)	-0.289 (-1.15)
Father primary education	0.0341 (0.21)	0.0810 (0.34)	-0.0814 (-0.34)
Father secondary education	0.291* (2.21)	0.218 (1.19)	0.398* (2.04)
Families that receive remittances	0.110 (0.65)	0.274 (1.16)	-0.0282 (-0.11)
cut1 _cons	-12.23*** (-29.51)	-14.88*** (-21.25)	-12.44*** (-17.92)
cut2 _cons	-11.80*** (-28.37)	-14.56*** (-20.73)	-11.89*** (-17.09)
cut3 _cons	-11.42*** (-27.62)	-14.20*** (-20.24)	-11.50*** (-16.57)
N	381	194	187

Standard errors in parentheses
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7. Main findings and conclusions

In this study, we elaborated a methodological approach that allows us to measure the effects of parental migration and remittances on the years of schooling and education levels of children aged 6-15. In our setting, we first use family fixed effects to examine the effects on the children's years of schooling - considering boys and girls separately - and then estimate discrete

and ordered choice models to analyse the likelihood of completing higher levels of education due to the effects of migration and remittances.

In the case of Macedonia, the findings suggest that parental migration experience has an important effect on the educational attainment of the child, whereas remittances have an insignificant effect on the education status of children in Macedonia.

Specifically, the father's migration experience plays an important role in the education status of his children. The father's absence initially has a negative effect on his children's years of schooling. However, in the long run, the father's migration experience has a positive effect. This finding suggests that children whose fathers remain abroad longer tend to complete more years of schooling.

Regarding the effect of the mother's migration, in the long term the years the mother spends abroad negatively affect her children's education levels, especially the girls. This suggests that while the absence of the father for a longer period has a positive effect on the education level of the child, the absence of the mother has a negative effect.

The main conclusion for Macedonia is that while parental migration and the length of the parents' time abroad are important, the remittances sent to family members left behind have no significant impact on the education status of children. Micevska-Scharf et al. (2010) obtained similar findings. The absence of the father has a negative impact in the short-term, but his migration status in the longer term contributes to improved educational attainment of his children, i.e., the probability of completing a higher level of education, while in the longer run, the migration status of the mother has a negative impact on the probability that girls will complete a higher level of education.

For the Albanian sample, the results of confirm that the migration experience of the parents, and particularly that of the father, has an important effect on the years of schooling completed by the children left behind. Complementary to the migration experience of the parents, receiving remittances and allocating some of them to the children's education plays an important and positive role in children's years of schooling and education.

Furthermore, a child's educational attainment depends on household characteristics such as the number of siblings, the child's age when the parents migrated and the education levels of the parents. Parental migration and the effect of the father's migration experience appear to have

different effects on years of schooling or education level of the child than the mother's migration experience.

The hypothesis that the father's absence of might affect negatively the years of schooling completed by children left behind is only confirmed for the initial years of the migration experience, as the effect becomes positive for longer migration periods. Moreover, the results suggest that while the effect of the father's absence on the child's education might be positive for longer stays abroad, the corresponding effect for the mothers' absence is negative, implying that children left behind are exceptionally negatively affected by the absence of their mothers.

A potential explanation for this result is that the initial phase of the father or the mother's migration abroad and their absence from the home might negatively affect their children, especially girls, who might become involved in home-related tasks and devote less time to their studies. Another mechanism could be the that social costs of paternal or maternal absence due to migration – implying less attention, time and discipline devoted to the child - might have a detrimental effect on children's educational attainment. However, in the long run, the receipt of remittances from the father, first, might contribute to reducing the workload experienced by household members remaining at home and consequently also for the children, suggesting that more time and attention are at the disposal of the child, and second, an increased allocation of remittances to education related goods might improve the child's educational attainment.

Regarding maternal migration, apart the social costs, there may also be physiological costs that are further strengthened in the long run rather than offset because of special and stronger relationship that the children had with their mothers. With respect to the effect remittances, receiving remittances and allocating a part of them to the education of the child has an important and positive effect on children's years of schooling and education.

In terms of gender differences, the child's years of schooling and education level seem to be more positively affected for girls than boys. Antman (2012), who examined the effects of international parental migration obtained similar findings and demonstrated that girls' educational attainment increases to a greater extent than that of boys. Furthermore, Amuedo-Dorantes and Pozo (2010) provide evidence of a positive effect of remittances girls' schooling.

A potential explanation for such an effect is the interpretation provided by McKenzie & Rapoport (2006), who argue that educational attainment is primarily significantly improved for girls because remittances allow for the relaxation of credit constraints on educational investment,

particularly at the lower end of the income distribution. In contrast, remittances might significantly increase their chances that boys will themselves migrate at all school ages. Furthermore, Antman (2012) argues that remittances appear to affect the educational attainment of girls to a greater extent than boys, first, because the relaxation of credit constraints due to paternal migration and the receipt of remittances might shift the decision making power toward mothers at home, and second, the mother might decide to increase the allocation of additional income toward girls relative to boys with the aim of further improving the education of girls.

Regarding the education levels of boys and girls, and similar to Elbadawy & Roushdy (2010), we find that paternal migration has a positive effect on boys but not girls, and this effect is particularly strong among boys who are approaching university enrolment.

In conclusion, the mixed results obtained with respect to years of schooling and the completion of educational levels suggest that the mechanisms by which migration and remittances affect the education of children left behind are highly complex and as such depend on other determinants that are not directly observable.

The primary implication for policy makers is that providing a more gender-balanced education supply would reduce gender inequalities in terms of years of schooling and completed education levels. Furthermore, remittances contribute to increasing the allocation of income to education related goods, which would most likely improve the education of children in the long run. Nevertheless, the disruptive short run effect of parental absence exists, and hence government interventions should include the introduction of more family-friendly policies that could contribute to offsetting the negative direct effects of parental migration and any potential negative effect on the children's welfare, particularly in terms of their education and human capital formation, which is one of the key drivers of economic growth.

Country comparison of the effects of migration and remittances on children's education

	Albania	**Macedonia**
Effect of migration	Important	Important
Effect of remittances	Important	Insignificant
Effect by gender	More effects on girls' schooling than that of boys	No significant difference between girls and boys

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