

Remittances matter: longitudinal evidence from Albania

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Using the LSMS panel data collected by the World Bank in Albania from 2002 to 2004, this article focuses on the determinants and financial implications of remittances sent by family members and adult children living abroad. Our econometric analysis draws on random and fixed effects discrete choice models. We find that the proportion of households receiving remittances is large. These transfers are negatively correlated with both the donor's and the recipient's level of education. Finally, remittances have a positive impact on economic indicators like satisfaction with current situation, adequateness of food consumption and number of affordable expenditures.

According to the World Bank (2008), remittances are rapidly increasing over time, from USD 119 billion in 1997 to USD 370 billion in 2007. The proportion of remittances to developing countries is also increasing, from 60% in 1997 (USD 71 billion) to 75% in 2007 (USD 280 billion). Eastern Europe and Central Asia have benefited from larger remittances, USD 50 billion in 2007, which is five times higher than the 1997 level. Interestingly, three countries in Eastern Europe are among the main recipients of remittances as a percentage of gross domestic product (GDP): Albania, Bosnia and Herzegovina, and Moldova.¹

While remittances are an important source of external financing for developing countries, they also provide significant resources for many recipient households.² For instance, Edwards and Ureta (2003) find that 15% of Salvadorian households benefit from remittances, which represent about 43% of their incomes. Given their magnitude, and *in fine* their potential effects on development, economists have paid growing attention to these transfers from abroad during the last 20 years. From a microeconomic perspective, previous studies on remittances have focused on the following two aspects.

On the one hand, some studies have attempted to understand why migrants remit to family members left in their country of origin. From a theoretical viewpoint, several motives have been suggested to explain these transfers (Rapoport and Docquier 2006). The first motive deals with altruism, meaning that migrants care for those left behind. According to the second motivation, there is an exchange when the migrants remit for services provided by the recipients (Lucas and Stark 1985). A third motive stems from familial interactions. This may take the form of an insurance contract that protects its members against shocks (Rosenzweig 1988) but remittances may also be a loan repayment for the costs of a migrant's education and emigration (Poirine 1997).

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On the other hand, some studies have focused on the implications of remittances for the recipients. The first issue deals with poverty alleviation. Adams (2004) finds that remittances have a significant impact on reducing the depth and severity of poverty in Guatemala.³ The second issue is how these transfers from abroad are spent or invested. Hildebrandt and McKenzie (2005) find that children living in recipient households have a lower mortality rate in Mexico. Edwards and Ureta (2003) find a positive impact of remittances on school attendance and retention in El Salvador. Remittances facilitate housing investment in Nigeria (Osili 2004) and generate investment among small enterprises in Mexico (Woodruff and Zenteno 2007). Finally, remittances are associated with a decrease in the labour force participation of women and men in Nicaragua (Funkhouser 1992).⁴

The purpose of our contribution is to present evidence on the implications of these transfers for the financial situation of transfer recipients living in Albania. Unlike countries in Latin America, for instance, studies on remittances in Eastern European countries remain scarce. Specifically, we draw on a rich data set collected by the World Bank among households over the period 2002–04 to document the pattern of remittances in that country. The Albanian Living Standard Measurement Study (LSMS hereafter) is a longitudinal survey, meaning that we are able to control for unobserved heterogeneity through the use of household fixed effects. Another feature of the data is that for 2003 we know some characteristics of respondents and all their adult children, living either in Albania or abroad, and information on remittances (if any) from the latter category of children. Finally, there are subjective questions on the financial situation of the households.

For various reasons, the case of Albania is a very relevant one. On the one hand, the country is an area of particularly high international migration flows. According to the World Bank (2008), the stock of emigrants expressed as percentage of population is estimated at 27.5%. On the other hand, Albania is characterised by an uncertainty in terms of income due to the transformation from the communist system towards a market economy. On *a priori* grounds, additional sources of income like remittances should thus have a strong impact on households.

We proceed in the following way in our empirical analysis. First we describe the pattern of remittances in Albania. We show that the bulk of these transfers is made by adult children and that remittances are mainly related to food and basic necessities. We then focus on the determinants of these transfers and study whether they are influenced by individual characteristics. Using random and fixed effects discrete choice models, we find that the probability of receiving a transfer is not really higher when the recipient is in a poor situation. Finally, we find evidence of a significantly positive effect of these transfers on the financial situation of the recipient households.

The remainder of this article is organised as follows. First we present the LSMS data. The pattern of remittances in Albania is then described. Next we investigate their determinants and then examine their implications for the financial situation of the recipient households. The final section concludes.

The LSMS Albanian data

We use data from the LSMS project conducted in Albania at the beginning of the 2000s. The survey was carried out by the Albanian Institute of Statistics with the technical and financial assistance of the World Bank.⁵ The LSMS project is an international effort

supported by the World Bank to improve the quality of household survey data for policy needs. It is thus a crucial tool in measuring poverty in developing countries.

Let us first describe the context of Albania along with the challenges during the transition. Following the collapse of communism, Albania has pursued strong reforms towards a market economy. After a period of erratic growth in the early 1990s, linked to transition and several political crises, the GDP has significantly increased (5.7% on average per year between 2000 and 2005). However, living standards in Albania remain among the lowest in Europe and about one quarter of the Albanian population lives below the poverty line. The human development index is lower than the average level observed in Eastern Europe, 0.784 compared with 0.802.

However, the proximity of attracting neighbouring countries like Italy and Greece offers some opportunities for migration. Albania emerged from a repressive political regime, when travel to foreign countries was totally restricted. Albania is now the largest emigration country in Europe (as a proportion of the population).⁶ According to the OECD database on immigrants and expatriates, around 64.4% of Albanian migrants live in Greece and 25.4% in Italy.⁷ As shown in Korovilas (1999), all these migrants have an important role in supporting the Albanian economy since a large proportion of their incomes is transferred back home. Remittances are larger than other aggregates like exports, foreign direct investment or official aid. Furthermore, these transfers from abroad are increasing over time, from USD 152 million in 1992 to USD 1071 million in 2007.

In this study we use the LSMS Albanian longitudinal data and consider three waves covering the period from 2002 to 2004. The 2002 LSMS survey is a nationally representative sample of households living in Albania. The sample was designed to be representative of urban and rural areas and was composed of 3600 households. Four questionnaires were used in order to collect information: a household questionnaire, a diary recording household consumption, a community questionnaire and a price questionnaire. The focus in the second and third waves was only on the first instrument, i.e. the household questionnaire.⁸ The sample sizes in 2003 and 2004 were approximately half of the original sample.

Let us now describe the main questions of interest for our study. Concerning remittances, information in the first wave (2002) is available in the transfers and social assistance module. The definition of the transfer variables includes both remittances and transfers from family members living in Albania. Nevertheless, as we know where the potential donors live (in Albania, Greece, Italy, United States etc.), we can isolate transfers from abroad. We also know the relationship between the donors and the head of the household (spouse, children, siblings etc.). The amount of these inflows, either in cash or in kind, are reported in the questionnaire and there is also some information on the main reasons why the donor has provided this assistance (for instance for food and basic necessities, investment, medical expenses etc.).

When turning to the second wave (2003), the corresponding information is available in the migration module, which is more detailed than in the first wave. In particular, there is an additional section on adult children living on their own, either in Albania or in a foreign country. For each adult child living abroad, we know whether the head of the household has received a remittance from this specific child and the corresponding amount (if any). The questionnaire also includes the main uses of the transfer. We also have more detailed questions on remittances received from specific family members living abroad like siblings, nephews, uncles etc. Finally, in 2004, the information is very similar to that found in 2002 since there is a module on remittances and other sources of income. We know the relationship between each person remitting to the household and the head, the location

of the donor and the amount given. Unfortunately, there is no information in 2004 on the main uses of remittances.

To assess the implications of remittances for recipient households, we use a set of questions related to the current financial situation that are included in the subjective module of the Albanian LSMS survey. The first is about subjective satisfaction: 'How satisfied are you with your current financial situation?'. Possible answers are 'fully satisfied', 'rather satisfied', 'less than satisfied' and 'not at all satisfied'. The second question is about the current level of food consumption: 'Would you consider the current level of food consumption of your family as...?'. Possible answers are 'more than adequate', 'just adequate' and 'less than adequate'. The last indicator is related to the existence of liquidity constraints: 'If you wanted to, could your household afford to...?'.⁹ Answers are given for each of the following items: 'have friends or family for a drink or meal at least once a month', 'pay for a week's annual holiday away from home', 'replace worn out furniture', 'buy new rather than second hand clothes', 'eat meat, chicken or fish at least every second day' and 'keep your house adequately warm'. We then construct an ordered indicator measuring the number of items that the household is able to afford. The range of this indicator is from 0 to 6, a low value meaning that the household is severely constrained.

We construct two different samples from the LSMS data. The first is a merged sample using the 2002, 2003 and 2004 waves, each household being tracked over time. We then get an unbalanced sample of 5539 observations, with respectively 1889 households in 2002, 1842 in 2003 and 1808 in 2004. The main interest of this sample is to study the receipt of transfers from all family members living outside Albania. As we have repeated information over time, we will be able to control for unobserved heterogeneity at the household level through the use of fixed effects. For these households, the survey provides detailed characteristics of their demographic and socio-economic situation, including age, marital status, number of persons in the household, education, health status, position in the labour market, religion and living in an urban area among others.

Our second sample focuses on adult children and concerns the 2003 wave. Indeed, the LSMS survey in 2003 includes a set of detailed questions on all adult children of the head, living either in Albania or abroad. As we also have information about their potential transfers to the household, we choose to construct a matched sample where each child (whatever the geographical location) is counted as one observation. This means that for a head with three adult children, our sample includes three child–parent pairs. This sample includes 2396 adult children, 1056 of them living in a foreign country. The main interest of this sample is to shed light on the intra-household allocation of transfers, since it indicates who is remitting among the various siblings. Also, we are able to control for the characteristics of both the parent and the child in our regressions. For each adult child, we have information about gender, age, marital status, level of education, whether they have migrated with family in foreign countries, whether they live in Albania and whether they have sent money to the household.

The pattern of remittances in Albania

We begin with a description of the pattern of remittances in Albania. The LSMS survey allows us to explore some basic questions about the characteristics of donors and recipients. Who remits? Who receives? Where do the remitting persons live? How much money is remitted? What is the main use of these remittances? In our empirical analysis we make a distinction between remittances from all persons (using the 2002–2003–2004

merged sample) and remittances from adult children (using the 2003 parent–child sample).

Let us first focus on the transfer rate. More than one household in four benefited from remittances over the three years, the average proportion of recipients being equal to 27.6%. However, there were differences over time. The transfer rate was similar in 2002 and 2004, 23.3% and 24.2%, but it rose to 35.1% in 2003. This is puzzling as there was no particular economic shock over the period, but there were differences in the labeling of the questions measuring transfers in the survey. In both 2002 and 2004 the head of the household was asked about any transfers received from other persons (and had then to say whether the transfer was made by a child, a parent, a sibling etc.), while in 2003 there were several questions indicating the receipt of a transfer for each category of potential senders (children, siblings, uncles etc.). So our results show that the measurement of remittances is highly sensitive to the design of the questionnaires.

As shown in Table 1, the bulk of remittances are made by adult children to the head of the household. Among all transfers made, the proportion of transfers sent by children was 62.6% in 2002, 59.7% in 2003 and 74.9% in 2004. Remittances are also frequently made by siblings, about one transfer in four.¹⁰ In Figure 1 we calculate the distribution of the total value of remittances by type of donor. Again, we find that much of the money was sent by adult children, around 53% of the total amount in 2002 and 77% in 2004. More money was sent by siblings in 2002 (about 30% of the total value) than in 2004 (about 10%).

We then perform the same calculations by donor's location using the 2002 and 2004 waves, the origin of the remittances not being available in 2003. We find a very similar pattern for both years. Among all transfers made, about 42% come from Greece, 40% from Italy, 10% from other European countries and the rest from other countries (mainly the United States). When considering the distribution of amounts, Figure 2 shows that Greece was the main origin of remittances to Albania in 2002 (about 40% of the total value) but Italy became the first country in 2004 (about 45% of the total value). We also show in Figure 2 the origin of the total amount of remittances from adult children using the 2003 wave. More than 70% of the remittances came from Greece and Italy and 20% were sent by adult children living in other European countries.

In the 2002 and 2003 questionnaires we also know the main use of remittances by the recipient households. Nevertheless, these answers have to be interpreted with caution as this is self-reported information. In Figure 3 we first show the proportion of transfers concerned with the different uses described in the survey. When considering all transfers (2002 wave), we find that 58% of the remittances are claimed to provide for food and basic necessities, less than 20% are related to investment, and about 15% to medical expenses.

There are some differences when we focus on transfers made by non-co-resident children only (2003 wave). Although most of the transfers are still related to food and basic necessities (more than 60%), we find that there are more remittances from children related to investment. Figure 4 indicates the distribution of the total amount of remittances by use of transfer. The main result is that, among adult children, remittances are much higher on average when they serve an investment purpose. They represent about 20% of all transfers made in frequency, but they amount to about 50% of all the money transferred.

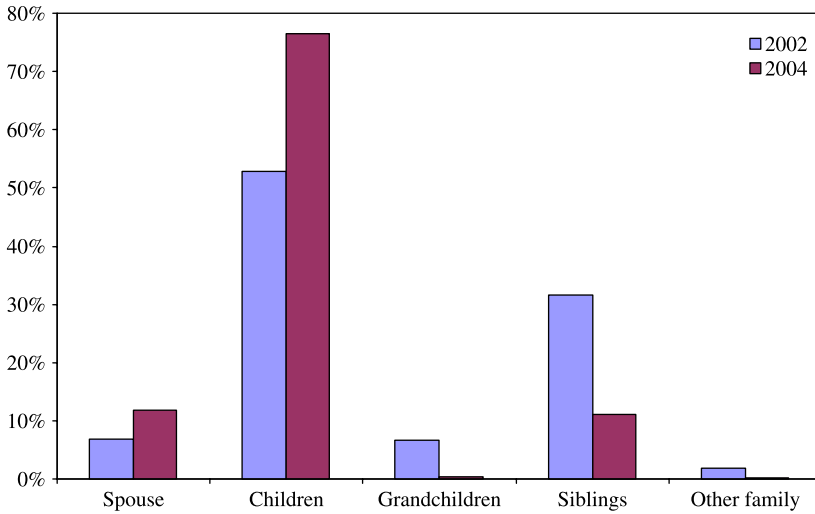
Finally, we describe the selected samples. Table 1 reports the household's characteristics depending on whether they receive a transfer from abroad or not. On average, recipients are slightly older than non-recipients (53 years old compared with 50 in 2002), they live less frequently in a couple, and their level of education is on average lower. For instance, 29.5% of the recipients have not completed primary school in 2002,

Table 1. Description of the samples.

Variables	2002		2003		2004		All
	No transfer	Transfer	No transfer	Transfer	No transfer	Transfer	
Household's characteristics							
Head's age	49.902	53.045	50.078	54.490	51.548	55.927	51.619
Head in couple	0.865	0.830	0.842	0.836	0.828	0.799	0.840
Number of persons in household	4.549	4.442	4.489	3.853	4.565	3.710	4.383
Education	0.216	0.295	0.199	0.300	0.208	0.310	0.234
Incomplete primary	0.365	0.381	0.383	0.352	0.369	0.386	0.371
Complete primary	0.126	0.104	0.123	0.118	0.127	0.110	0.122
Secondary school	0.178	0.150	0.180	0.141	0.175	0.139	0.168
Vocational	0.115	0.070	0.116	0.088	0.121	0.055	0.105
University	0.140	0.145	0.125	0.165	0.118	0.167	0.137
Head in poor health	0.636	0.551	0.642	0.610	0.652	0.543	0.624
Head has paid work	9.529	9.387	n.a.	n.a.	n.a.	n.a.	n.a.
Household income in 2002 (log)	0.776	0.705	0.784	0.725	0.774	0.735	0.762
Muslim	0.517	0.483	0.531	0.460	0.532	0.427	0.507
Urban area							
Remittances							
Mean value of remittances	0.0	177200	0.0	n.a.	0.0	112400	
Median value of remittances	0.0	100000	0.0	n.a.	0.0	80000	
Donor							
Spouse	-	4.9	-	n.a.	-	7.6	-
Children	-	62.6	-	59.7	-	74.9	-
Grandchildren	-	5.8	-	2.3	-	1.2	-
Siblings	-	24.4	-	27.3	-	14.9	-
Other family	-	2.3	-	10.8	-	1.5	-
Greece	-	42.7	-	n.a.	-	41.9	-
Italy	-	40.0	-	n.a.	-	39.2	-
Other Europe	-	9.6	-	n.a.	-	12.7	-
Other countries	-	7.7	-	n.a.	-	6.1	-
Number of observations	1448	441	1183	659	1370	438	5539
Proportion of donors	0.233		0.351		0.242		0.276

Note: n.a. means that the information is not available.

Source: LSMS Albania (2002, 2003, 2004).

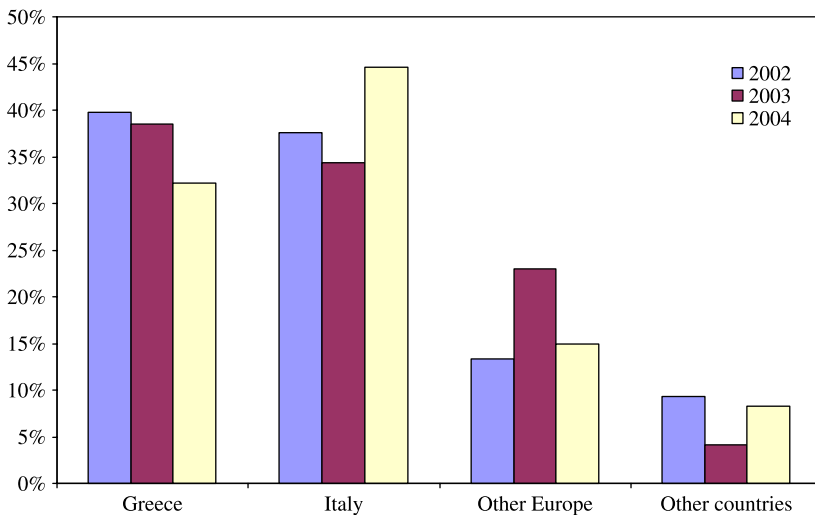


Source: LSMS Albania (2002, 2004).

Figure 1. Distribution of the total amount of remittances by type of donor.

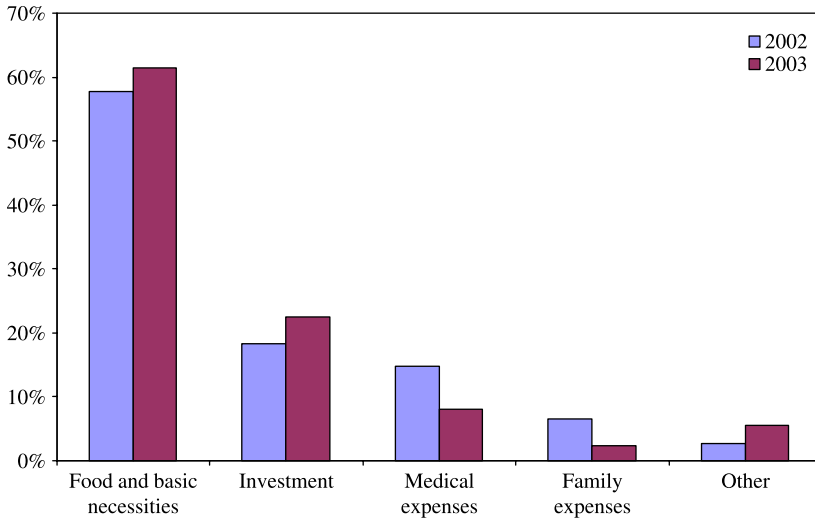
while the proportion is 21.6% among non-recipients. Recipients are also less likely to have paid work, 55.1% compared with 63.6% in 2002.¹¹ Another result is that recipients are poorer on average. Using the 2002 wave, we find that the household income of the recipients is 14.2% lower than that of non-recipients. Finally, we observe significant differences by religion and location. Recipients are less often Muslim and they live less frequently in an urban area.

We now turn to the sample of non-co-resident children in 2003, described in Table 2. The proportion of children living in Albania is 55.9% (1340/2396). There are significant



Source: LSMS Albania (2002, 2003, 2004).

Figure 2. Distribution of the total amount of remittances by location of donor.

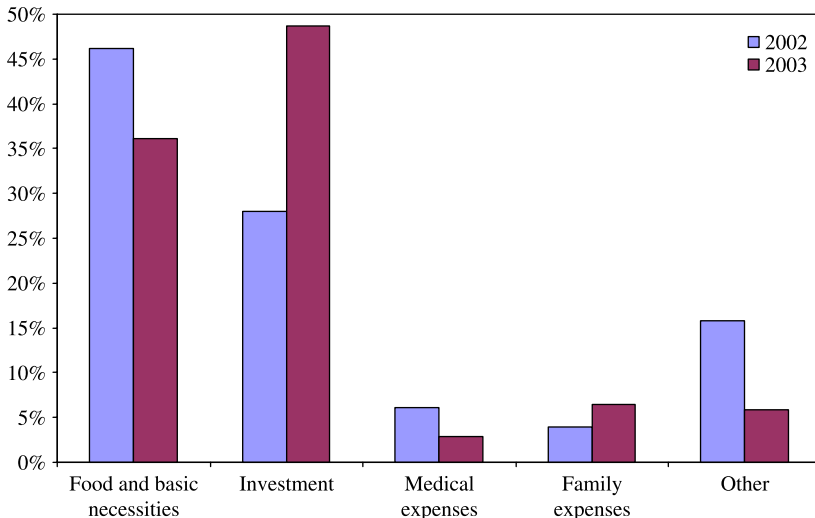


Source: LSMS Albania (2002, 2003).

Figure 3. Self-reported use of remittances.

differences in characteristics of children depending on their location. For instance, the proportion of daughters living in Albania is 64.2%, but 63.4% of emigrant children are sons. Emigrants are much younger than children living in Albania: 52.6% of the latter are above 35 years old, while the proportion is only 30.2% among those who have migrated. Children living outside Albania are more educated on average.¹² Finally, 12% of children living in Albania have migrated and returned.

When comparing remitters with non-remitters, we find that the proportion of men is much larger in the former group than in the latter (73.9% compared with 50.5%).



Source: LSMS Albania (2002, 2003).

Figure 4. Distribution of the total amount of remittances by use of transfer.

Table 2. Description of the 2003 sample of non-co-resident children.

Variables		Children living in Albania	Children living outside Albania		
			No remittances	Remittances	All
Child's characteristics					
Sex	Male	35.8	50.5	73.9	63.4
	Female	64.2	49.5	26.1	36.6
Age	Less than 26	12.8	32.7	28.8	30.6
	26–35	34.6	35.0	42.7	39.2
	36–45	32.2	21.8	21.1	21.4
	More than 45	20.4	10.5	7.4	8.8
Education	Primary school	58.2	42.1	54.2	48.8
	Secondary school	20.3	30.6	25.7	27.9
	Vocational	12.2	13.8	14.0	13.9
	University	9.3	13.4	6.0	9.4
Country	Albania	100.0	0.0	0.0	0.0
	Greece	0.0	40.0	44.0	42.2
	Italy	0.0	36.5	35.2	35.8
	Other Europe	0.0	16.4	15.2	15.7
	Other countries	0.0	7.1	5.5	6.3
Ever migrated and returned (%)		12.0	–	–	–
Age when leaving parental home		23.2	23.3	23.6	23.4
Number of years since moving abroad		–	5.0	5.4	5.2
Lives with a spouse abroad (%)		0.0	76.3	60.1	67.4
Lives with children abroad (%)		0.0	62.7	49.6	55.5
Remittances					
Donor (%)		–	0.0	100.0	54.8
Mean value of remittances		–	0.0	131500	72100
Median value of remittances		–	0.0	50000	10000
Number of observations		1340	477	579	1056

Source: LSMS Albania (2003).

Remitters are slightly older, 43% of them between 26 and 35 years old compared with 35% among non-remitters. Children sending money are more likely to have completed only primary school, while more highly educated children less often make remittances. Two other interesting results concern the migration profile. On the one hand, the average number of years since migration is roughly the same for the two groups of adult children (about five years). On the other hand, children who send money are less likely to live with a spouse or with their children abroad.

The determinants of remittances

The role of the recipients' characteristics

Let us focus on the characteristics of the households who benefit from remittances. We begin with a cross-sectional econometric analysis using the 2002 wave, as there is an accurate measure of the household's income only for that year. Let $T_{i,02}^*$ be a latent variable measuring the propensity for household i to receive a transfer in 2002. This indicator $T_{i,02}^*$ is expected to depend on a set of characteristics $X_{i,02}$, a vector of coefficients β_{02} and a residual $\varepsilon_{i,02}$, so that $T_{i,02}^* = \beta'X_{i,02} + \varepsilon_{i,02}$. By definition, we do not observe the latent transfer variable $T_{i,02}^*$, but the data provide information on the observed counterpart $T_{i,02}$. We have $T_{i,02} = 1$ when $T_{i,02}^* > 0$ and $T_{i,02} = 0$ otherwise. Assuming that the

residual is normally distributed, the corresponding specification is a simple Probit model. A second dependent variable is the transfer amount, which is equal to 0 when the household does not receive a transfer, and the appropriate specification is a Tobit model.

Both the Probit and Tobit estimates for the 2002 wave are reported in Panel A of Table 3. The different covariates introduced in the regressions are related to the head and

Table 3. Determinants of remittances.

Variables	(1) Probit model		(2) Tobit model		
	coef	<i>t</i> -test (abs.)	coef	<i>t</i> -test (abs.)	
<i>A. 2002 Wave</i>					
Constant	-0.430	(1.51)	-6.647	(1.58)	
<i>Household's characteristics</i>					
Head's age	0.008***	(2.70)	0.114***	(2.73)	
Head in couple	-0.025	(0.25)	-0.280	(0.20)	
Number of persons in household	-0.017	(0.93)	-0.191	(0.71)	
Education	Complete primary	-0.030	(0.32)	-0.299	(0.22)
(Ref: Incomplete)	Secondary school	-0.157	(1.21)	-1.913	(1.01)
	Vocational	-0.183	(1.59)	-2.668	(1.59)
	University	-0.389***	(2.78)	-5.548***	(2.70)
Head in poor health	-0.220**	(2.17)	-3.271**	(2.21)	
Head has paid work	-0.133*	(1.67)	-2.024*	(1.74)	
Household income in 2002 (log)	-0.019	(0.91)	-0.279	(0.90)	
Muslim	-0.243***	(3.27)	-3.402***	(3.13)	
Urban area	-0.049	(0.65)	-0.907	(0.82)	
Number of observations	1882		1882		
Log likelihood	-996.8		-2428.6		
Variables	(1) Random effects Probit model		(2) Fixed effects Logit model		
	coef	<i>t</i> -test (abs.)	coef	<i>t</i> -test (abs.)	
<i>B. 2002, 2003 and 2004 Waves</i>					
Constant	-0.630**	(2.57)			
<i>Household's characteristics</i>					
Head's age	0.013***	(4.46)	0.026	(0.53)	
Head in couple	0.263***	(2.81)	0.505	(1.60)	
Number of persons in household	-0.147***	(8.03)	-0.167**	(2.45)	
Education	Complete primary	-0.109	(1.08)		
(Ref: Incomplete)	Secondary school	-0.162	(1.21)		
	Vocational	-0.288**	(2.39)		
	University	-0.597***	(4.18)		
Head in poor health	-0.019	(0.23)	0.195	(1.10)	
Head has paid work	-0.082	(1.17)	-0.089	(0.54)	
Muslim	-0.213***	(2.68)			
Urban area	-0.254***	(3.36)			
Number of observations	5538		2105		
Number of families	1889		705		
Log likelihood	-2911.9		-765.3		

Note: Significance levels are 1% (***), 5% (**) and 10% (*).

Source: LSMS Albania (2002, 2003, 2004).

concern age, marital status, level of education, number of persons in the household, poor health, job status, household income, religion (being Muslim) and living in an urban area. It is important to note here that we are not able to control for the characteristics of the potential donors. The probability of receiving money is positively correlated with the age of the respondent. An explanation is that older respondents are more likely to have adult children living abroad, these children being the main providers of remittances in Albania.

Being married does not influence the probability of receiving money. The coefficient is also insignificant for the number of persons. A difficulty here is that we do not know how many family members live abroad. On the one hand, remittances should increase with the number of persons living in Albania. On the other hand, when there are more people living in the household, this may indicate that few family members have migrated and this reduces the opportunity to receive money from abroad. While the different educational dummies have a negative influence, the estimate becomes significant only for the university grade.

As shown in Table 3, the probability of being helped is lower when the donor has a paid job, although this effect is only significant at the 10% level. As this means that the head benefits from a regular source of income, this result is more consistent with altruism. A negative effect of the household's income on transfer receipts is expected with that motive (Rapoport and Docquier 2006). Unfortunately, this is not really the case with the LSMS data. Although we find a negative relationship between the transfer value and the recipient's income, the estimate is absolutely not significant at conventional levels. So it cannot be claimed that the donors take great account of the recipients economic situation before sending money. Another result against an altruistic motive is that the transfer is reduced when the head is in poor health.¹³ Finally, Muslim respondents are less likely to benefit from remittances, while there is no difference between households living in rural and urban locations.

As we have repeated information on both transfers and households' characteristics (2002, 2003, 2004), we are able to control for unobserved heterogeneity at the household level. The model we estimate may be expressed as $T_{i,t}^* = \beta' X_{i,t} + \delta_i + \varepsilon_{i,t}$, where i and t as subscripts indicate respectively the respondent and the year of survey, and δ_i is an unobserved individual effect. These perturbations are assumed to be normally distributed, with mean 0 and variance σ_δ^2 , and the error terms $\varepsilon_{i,t}$ are also assumed to be normally distributed with unitary variance. On the assumption that the covariates are uncorrelated with the individual effects, the corresponding model is a random effects Probit model, which is estimated using Gaussian quadrature techniques (Butler and Moffitt 1982).

As shown in Panel B of Table 3 (column 1), the probability of receipt is again an increasing function of the head's age. Transfers are also more likely when the head lives in a couple and when there are few persons living in the household. These covariates were not significant when considering the 2002 wave only. At the same time, being in poor health and having a job are no longer significant in the regression. In fact, the main result of interest is that more highly educated respondents are less likely to receive remittances. A difficulty here is that we are not able to include the household's income in the list of covariates, which prevents us from testing the relevance of the altruistic model. Also, transfers are less likely to be received by respondents living in an urban area.

As a final step, we assume that the household unobserved effects are correlated with the different covariates. The appropriate specification is the fixed effects Logit model described in Chamberlain (1980). The sample is then restricted to respondents who have received a transfer during at least one year but not over the whole period. All the characteristics of the respondent invariant over time (like education or religion) are

dropped from the regression. The sample is then restricted to 705 respondents. As shown in Panel B of Table 3 (column 3), we find that the number of persons living in the household has a negative effect on the probability of being helped, while the other covariates are not significant. This casts doubt on an altruistic motive as the donor should take into account the situation of the recipient (meaning that remittances should depend on health and job status for instance).

Who is sending remittances among children?

In the above regressions we were only able to control for the characteristics of the recipients of the transfers as we had no description of the different donors in the LSMS survey. This is undoubtedly a shortcoming as the transfer is expected to depend on both the donor's and the recipient's characteristics under either altruism or exchange.¹⁴ In what follows, we restrict our attention to the different transfers made by adult children to their parents in 2003 using the matched parent–child sample.

As there are several children in many families, we are now able to control for unobserved heterogeneity at the family level. We denote respectively by subscripts j and i the child and the parent. Drawing on a latent variable specification, the probability for a child to send money is expressed as $T_{j,i}^* = \beta'X_{j,i} + \theta_i + \varepsilon_{j,i}$, where θ_i is an unobserved family effect and $\varepsilon_{j,i}$ a random perturbation. The family fixed effect is expected to pick up all the factors related to the parents that have previously influenced the migration of the children. We use the following covariates for the children: sex, age, birth order, having a spouse or children living abroad, level of education and duration of the migration. The selected parental characteristics are age, marital situation, number of adult children living outside the household, number of persons in the household, level of education, being in poor health, having paid work, religion and rural/urban status.

Assuming that the family fixed effects are uncorrelated with the explanatory variables, the appropriate specification is a random effects Probit model. The sample comprises 1056 parent–child pairs (585 families) and the corresponding estimates are in column 1 of Table 4. Daughters living abroad are less likely to remit than sons (at the 1% level). The probability of making a transfer is an increasing function of the donor's age. Younger children are presumably less able to send money because of a less secure situation in the destination country. This would be consistent with the fact that the likelihood of remitting is also increasing with the duration of migration. Another interpretation of this result is that Albanian migrants keep a strong attachment to their country of origin.

An important covariate in our context is education. According to our estimates, more highly educated children (especially when they have studied at university) are less likely to send money to their parents. According to the loan repayment motive, migrants are considered as borrowers and they have to send money to reimburse their family, which has supported emigration costs and investment in human capital. A positive correlation between remittances and the migrant's education level is thus expected, meaning that the negative effect of the donor's education evidenced in Albania allows us to rule out that motivation. A last finding is the lower probability of remittances for children who live either with their spouse or with their children in the destination country. Such migrants are clearly less likely to return to the country of origin and they also have fewer resources to send to their parents.

A striking feature is that the characteristics of the parents hardly affect the probability of receiving money. However, with respect to the results discussed above in Table 3, it should be noted that we now only focus on the transfers made by adult children to their

Table 4. Determinants of remittances from adult children in 2003.

Variables	(1) Random effects Probit model		(2) Random effects Tobit model		(3) Fixed effects Logit model	
	coef	t-test (abs.)	coef	t-test (abs.)	coef	t-test (abs.)
Constant	0.684	(0.86)	9.404***	(4.18)		
<i>Child's characteristics (donor)</i>						
Female	-0.720***	(4.94)	-3.571***	(7.69)	-1.780***	(4.72)
Age	0.045**	(2.54)	0.138***	(2.61)	0.128*	(1.84)
Birth order	0.150**	(2.27)	0.429**	(2.01)	0.336	(1.55)
Lives with a spouse abroad	-0.721***	(3.48)	-2.477***	(3.83)	-0.690	(1.35)
Lives with children abroad	-0.354*	(1.79)	-1.788***	(2.85)	-1.485***	(2.80)
Education	-0.302*	(1.82)	-1.217**	(2.31)	-0.896*	(1.87)
(Ref: Primary)	-0.272	(1.40)	-0.754	(1.22)	-0.800	(1.58)
Secondary school	-0.616**	(2.29)	-2.251***	(2.60)	-1.168	(1.42)
Vocational	0.070***	(3.35)	0.305***	(4.83)	0.142**	(2.46)
University						
Duration of migration						
<i>Household's characteristics (recipient)</i>						
Head's age	-0.013	(0.87)	-0.064	(1.45)		
Head in couple	0.152	(0.68)	0.383	(0.61)		
Number of adult children living outside household	-0.091	(1.48)	-0.105	(0.58)		
Number of persons in household	-0.052	(1.06)	-0.199	(1.42)		
Education	0.230	(1.10)	0.666	(1.15)		
(Ref: Incomplete)	0.519	(1.49)	1.883*	(1.89)		
Secondary school	0.066	(0.24)	0.377	(0.48)		
Vocational	-0.288	(0.85)	-1.039	(1.08)		
University	0.090	(0.44)	0.092	(0.16)		
Head in poor health	-0.102	(0.49)	-0.684	(1.16)		
Head has paid work	-0.720	(1.09)	-3.256*	(1.71)		
Household income in 2002 (log)	-0.104	(0.57)	-0.135	(0.26)		
Muslim	-0.515***	(2.67)	-1.449***	(2.64)		
Urban area						
Number of observations	1056		1056		359	
Number of families	585		585		118	
Log likelihood	-620.0		-2555.9		-84.3	

Note: Significance levels are respectively 1% (***), 5% (**) and 10% (*). Source: LSMS Albania (2003).

parents.¹⁵ As shown in Table 4, we find that parents living in an urban area are less likely to receive remittances. As there is no measure of the respondents' resources in 2003, we control for the level of household income in 2002 in the regression. While the corresponding coefficient is not significant with the Probit specification, we find a negative correlation between the amount of transfers and the recipient's income when estimating a random effects Tobit model (column 2, Table 4).

That less well-off parents receive more transfers from abroad is *a priori* more consistent with altruism than with exchange. Nevertheless, if children really take into account the well-being of their parents, then they should send more transfers to their parents when the latter do not have a job or are in poor health. This is clearly not the case according to the LSMS data, which suggests that children are not so strongly altruistic. At the same time, because they live in a distant country, it could be that children have an imperfect knowledge of the economic situation of their parents.

As a final step, using a fixed effects Logit model, we estimate the probability that a child sends money among families in which at least one adult child living abroad, but not all, makes a transfer. The number of observations is reduced to 359 (118 families). Parental characteristics are no longer included as they do not vary among the children of a given family. The corresponding estimates are reported in column 3 of Table 4. With respect to the random effects specification, we find very similar results although a few covariates are no longer significant.¹⁶ The probability of sending money is higher for daughters than for sons. It is reduced when the migrant child lives with children abroad, and it is increasing with time spent in the destination country. Also, there is still a negative correlation (albeit hardly significant) between remittances and education.

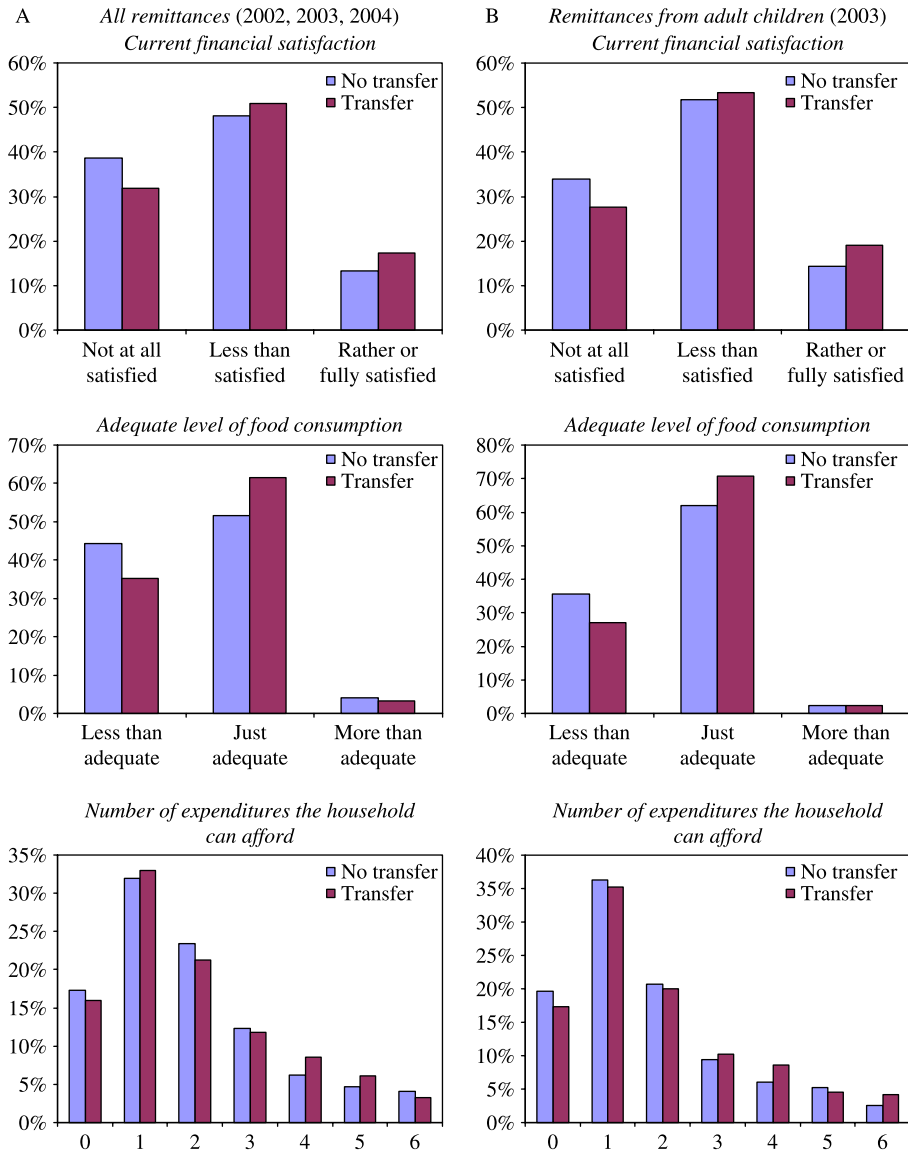
To summarise, our different results from panel data and parent–child matched samples do not provide unambiguous evidence in favour of a specific motive for remittances in Albania. This undoubtedly stems from several difficulties pointed out in the remittances literature (Rapoport and Docquier 2006). On the one hand, it is hard to discriminate between competing theories of remittances as different models lead to similar predictions. On the other hand, there may be some heterogeneity in the transfer motives within the population. Some migrants may send transfers because of altruism, while the transfers from other migrants may be part of an exchange. Furthermore, a given migrant may have several motives depending on who is the recipient.¹⁷

The effect of remittances on the recipient's financial situation

We now focus on the impact of these transfers on the recipients. Our analysis is based on three indicators related to subjective financial satisfaction, adequacy of the current level of food consumption and expenditures the household can afford. Figure 5 shows the relationship between these indicators and the receipt of a transfer.

We first consider all the transfers received by the households over the 2002–04 period (Panel A). The proportion of respondents not at all satisfied amounts to 39% among the non-recipients, while it is 32% among those who have benefited from remittances. At the same time, those who have received a transfer are more likely to be satisfied (17% instead of 13%). In a similar way, recipients claim more often that their level of consumption is just or more than adequate than non-recipients (64% compared with 56%). Finally, those who receive remittances are less likely to be liquidity constrained.

Very similar results hold when we focus on the transfers made by adult children using the 2003 wave (Panel B, Figure 5). For the various indicators, we find that



Source: LSMS Albania (2002, 2003, 2004).

Figure 5. Receipt of remittances and financial situation.

respondents are in a better financial position when receiving remittances and the improvement of their situation is significant. For instance, 36% of the respondents who are not financially helped by their migrant children claim that their current level of food consumption is less than adequate, while the proportion is 27% among those who receive remittances. Albeit preliminary, these findings suggest that transfers provide a large contribution to the recipients' situation. We further investigate this issue using an econometric analysis.

Transfers from all migrants

We focus here on remittances sent by all migrants to the respondents and study the determinants of the financial situation using the longitudinal data over 2002–04. To explain the various outcomes, we introduce the following characteristics related to the respondent: gender, age, marital status, number of persons in the household, level of education, health status, having a job, religion and rural/urban status. We also introduce in the regression a dummy variable which is equal to 1 when the respondent receives a transfer from abroad and 0 otherwise. As our different indicators of financial situation are given by ordered variables, we turn to random effects ordered Probit models as we have repeated information over time for each respondent.

The different results are reported in Panel A of Table 5. For the three outcomes, we find a better financial situation for respondents living in a couple, with a higher level of education, being in good health and having a job. All these results are in accordance with expectations. For instance, a higher level of education is associated with a higher level of permanent income, meaning that respondents should have more resources to devote to their own consumption. While the number of persons in the household is negatively correlated with both satisfaction with financial situation and adequacy of the current level of food consumption, it does not significantly affect the number of expenditures the household can afford. A similar pattern is observed when the respondent lives in an urban area.¹⁸

The most interesting result is that the receipt of remittances makes respondents more satisfied with their current financial situation. The coefficient associated with the transfer dummy is positive and significant at the 1% level. A similar result holds for the adequacy of the current level of food consumption. However, there is no significant correlation between the receipt of remittances and the number of expenditures that the household can afford, although the coefficient remains positive. That the receipt of remittances improves satisfaction with current financial situation and consumption is consistent with our previous results according to which migrants are more likely to support households in a poor economic situation and needing financial support.

As the household unobserved effects may be correlated with the characteristics of the respondents, we have also estimated a fixed effects ordered Probit model. A difficulty here is that there is no direct approach to estimate such a model. We thus proceed in the following way: assuming that the ordered financial indicator F may take values from 1 to K , we estimate a set of conditional Logit models by grouping adjacent outcomes for the dependent variables F^k (with $k = 1, \dots, K$) such that $F^k = 1$ if $F > k$ and $F^k = 0$ otherwise. For each F^k , we get a consistent estimate β^k of β using the fixed effects Logit estimator.

We then rely on a classical minimum distance estimator to get a restricted estimator for β from the various β^k . Specifically, we solve $\min_{\delta} (\hat{\vartheta} - H\beta)' \hat{V}^{-1} (\hat{\vartheta} - H\beta)$, where \hat{V} is a weighting positive definite matrix and ϑ is the unrestricted vector $\vartheta = (\beta^1, \dots, \beta^{K-1})'$. The mapping from ϑ to β is linear, with $\vartheta = H\beta$. The solution is $\hat{\beta} = (H' \hat{V}^{-1} H)^{-1} (H' \hat{V}^{-1} \hat{\vartheta})$ and the asymptotic covariance matrix is given by $V(\hat{\beta}) = (H' \hat{V}^{-1} H)^{-1}$. Results from the fixed effects ordered Probit model are in Panel B of Table 5.¹⁹

In what follows, we restrict our attention to the role of remittances. For the three financial outcomes under consideration (current income satisfaction, consumption satisfaction and possible expenditures), we get a positive coefficient for the transfer dummy. So our findings suggest that remittances significantly improve the financial

Table 5. Determinants of financial situation, with exogenous remittances.

Characteristics of the head	(1A) Satisfaction with financial situation		(2A) Adequate level of food consumption		(3A) Expenditures the household can afford	
	coef	t-test (abs.)	coef	t-test (abs.)	coef	t-test (abs.)
<i>A. Random effects ordered Probit estimates</i>						
Female	0.198*	(1.94)	0.090	(0.90)	0.105	(0.87)
Age	0.026*	(1.89)	-0.001	(0.09)	0.035**	(2.12)
Age ² (/100)	-0.007	(0.57)	0.015	(1.17)	-0.020	(1.33)
In couple	0.422***	(4.22)	0.201**	(2.04)	0.231**	(2.01)
Number of persons in household	-0.032**	(2.07)	-0.028*	(1.84)	0.026	(1.35)
Education	0.157*	(1.78)	0.178**	(2.09)	0.164	(1.60)
(Ref: Incomplete)	0.534***	(4.62)	0.548***	(4.91)	0.779***	(5.79)
Secondary school	0.540***	(5.18)	0.451***	(4.49)	0.654***	(5.36)
Vocational	1.183***	(9.73)	1.143***	(9.73)	1.635***	(11.49)
University	-0.560***	(7.91)	-0.398***	(5.52)	-0.606***	(7.27)
Head in poor health	0.407***	(6.92)	0.348***	(5.81)	0.276***	(3.79)
Head has paid work	-0.116*	(1.70)	-0.097	(1.48)	-0.167**	(2.11)
Muslim	-0.172***	(2.68)	-0.216***	(3.47)	0.095	(1.28)
Urban area	0.194***	(4.01)	0.254***	(5.09)	0.070	(1.26)
Receipt of remittances		-4809.8		-4038.8		-5653.3
Log likelihood						
<i>B. Fixed effects ordered Probit estimates</i>						
Age	0.321**	(2.36)	0.539***	(3.62)	1.849***	(12.56)
Age ² (/100)	-0.145	(1.14)	-0.165	(1.20)	-0.066	(0.48)
Number of persons in household	0.103*	(1.92)	-0.040	(0.67)	-0.392***	(6.38)
Head in poor health	-0.408***	(2.84)	-0.222	(1.45)	-0.523***	(3.71)
Head has paid work	0.496***	(3.96)	0.524***	(3.66)	0.465***	(3.87)
Receipt of remittances	0.215**	(2.20)	0.528***	(4.70)	0.853***	(9.70)
<i>(1B) Satisfaction with financial situation</i>						
<i>(2B) Adequate level of food consumption</i>						
<i>(3B) Expenditures the household can afford</i>						

Note: (1A), (2A) and (3A) are random effects ordered Probit estimates, (1B), (2B) and (3B) are estimates from fixed effects ordered Probit models estimated using a classical minimum distance estimator. Significance levels are 1% (***), 5% (**) and 10% (*). Source: LSMS Albania (2002, 2003, 2004).

situation of the recipients. Nevertheless, as shown in Dimova and Wolff (2008), a difficulty here is that remittances are unlikely to be exogenous. Indeed, the migrant's decision to transfer resources to the family living in Albania is itself expected to depend on the recipient's economic status, meaning that the coefficient associated with the remittances dummy in the various ordered regressions is likely to be biased under the exogeneity assumption.

When using the longitudinal sample, we are only able to control for the respondent's characteristics in the ordered regressions. It thus seems unlikely that we can rely on an instrumental variable approach to correct the endogeneity bias. As the receipt of remittances is like a treatment (recipients being the treated group and non-recipients the control group), we consider an alternative strategy based on the propensity score matching estimator as this method is expected to reduce the bias in the estimation of treatment effects with observational data sets (Becker and Ichino 2002). For that purpose, the comparison of outcomes between recipients and non-recipients has to be performed using treated and control subjects who are as similar as possible. The pre-treatment characteristics of each respondent are summarised in a single-index variable, the so-called propensity score. The extent to which this bias is reduced depends on the quality of the control variables on which the propensity score is computed and the matching performed.²⁰

We proceed in the following way with the LSMS data. We first estimate a Probit model to explain the probability for each respondent to receive at least one transfer from abroad over 2002–04, i.e. the treatment T . The list of covariates X introduced in the regression includes age (with a quadratic profile), marital status, number of persons in the household, level of education (four dummies), being in poor health, work status, religion and urban/rural status. We then compute the propensity score $\Pr(T = 1|X) = E(T|X)$. Finally,

Table 6. Propensity score estimates of the effect of remittances on financial satisfaction.

Outcome	Treated	Controls	Difference	<i>t</i> -test (abs.)
<i>All remittances (2002–2003–2004)</i>				
Satisfaction with financial situation				
Unmatched	0.852	0.748	0.105	(5.12)
ATT	0.852	0.721	0.131	(6.11)
Adequate level of food consumption				
Unmatched	0.680	0.596	0.084	(4.97)
ATT	0.680	0.577	0.102	(5.96)
Expenditures the household can afford				
Unmatched	1.954	1.893	0.062	(1.09)
ATT	1.954	1.733	0.221	(3.63)
<i>Remittances from adult children (2003)</i>				
Satisfaction with financial situation				
Unmatched	0.914	0.804	0.109	(2.63)
ATT	0.918	0.796	0.122	(2.66)
Adequate level of food consumption				
Unmatched	0.753	0.667	0.086	(2.77)
ATT	0.752	0.647	0.106	(3.05)
Expenditures the household can afford				
Unmatched	1.877	1.717	0.160	(1.66)
ATT	1.892	1.554	0.338	(3.20)

Note: Significance levels are 1% (***) , 5% (**) and 10% (*).

Source: LSMS Albania (2002, 2003, 2004).

we estimate the causal effect of the receipt of transfers on the respondent's financial situation using a Kernel matching estimator (Heckman *et al.* 1998). The average effect of the treatment on the treated is given by $ATT = E(F_1 - F_0|T = 1)$, F_1 and F_0 being the outcomes in the situations of treatment (receipt of remittances) and no treatment respectively.²¹

We report in Table 6 the results of the propensity score analysis for the various financial outcomes. Let us focus on the matching estimates when all remittances over 2002–04 are taken into account. Under the exogeneity assumption (unmatched estimates), we find that the difference in satisfaction with financial situation between the treated and the control groups is equal to 0.105, but the ATT estimate amounts to 0.131 and is significant at the 1% level. Similar results are observed for the adequacy of the level of food consumption (the unmatched difference is 0.084 while the ATT estimate is 0.102) and for the number of expenditures the household can afford. The unmatched estimator is equal to 0.062 and not statistically significant, but it is more than three times higher (0.221) with the propensity score matching analysis and significant at the 1% level. Remittances have then a causal, positive effect on the financial situation of the recipients.

The case of remittances sent by adult children

We now extend our investigations to the case of remittances sent by adult children in 2003. As a preliminary step, we investigate the household characteristics that influence our three financial indicators (current income satisfaction, consumption satisfaction and possible expenditures) using standard ordered Probit models. The different explanatory variables are gender, age, marital status, number of persons in the household, level of education, being in poor health, having a job, religion and rural/urban status. We also include the exogenous receipt of remittances in the various regressions.

As shown in Panel A of Table 7, satisfaction with current financial situation is higher when the respondent is more highly educated, has a job and is in good health. Similar findings hold for the adequacy of food consumption and expenditures the household can afford. Our main result is the positive effect of the remittances dummy, which is significant at the 1% level for the three outcomes. Those who benefit from transfers sent by their adult children living abroad are more likely to be in a better off position. Note that this finding was expected, given the previous positive effect found for all transfers from abroad along with the crucial role of children in supporting Albanian households.

To control for the potential selection of poorer households in the programme (receipt of remittances), we first apply the propensity score matching analysis on the parent–child sample. When considering the unmatched sample, the differences between the treated and the control groups are respectively equal to 0.109 for satisfaction with current financial situation, 0.086 for adequacy of food consumption and 0.160 for number of potential expenditures (see Table 6). Once properly matched, the corresponding values for the ATT estimate are respectively equal to 0.122, 0.106 and 0.338, all significant at the 1% level.²² So the positive impact of remittances on living standard remains after we control for selection due to observable characteristics.

To assess the robustness of our findings, we turn to an IV strategy to take account of selection both on observables and unobservables. The idea is as follows. On the one hand, the household's economic situation is expected to depend on the respondent's characteristics and on the transfer variable. On the other hand, the (endogenous) transfer variable will be affected by both the respondent's and the donor's characteristics. This suggests that the child's characteristics can be used as instrumental variables as they will

Table 7. The impact of remittances from adult children on satisfaction.

Characteristics of the head	(1A) Satisfaction with financial situation		(2A) Adequate level of food consumption		(3A) Expenditures the household can afford	
	coef	t-test (abs.)	coef	t-test (abs.)	coef	t-test (abs.)
<i>A. With exogenous receipt of remittances</i>						
Female	-0.076	(0.39)	0.107	(0.50)	0.032	(0.15)
Age	-0.051	(1.37)	-0.036	(0.81)	0.046	(1.26)
Age ² (/100)	0.039	(1.34)	0.036	(1.04)	-0.036	(1.23)
In couple	0.109	(0.59)	0.360*	(1.74)	0.140	(0.67)
Number of persons in household	-0.021	(0.87)	-0.016	(0.54)	-0.004	(0.18)
Education	0.066	(0.66)	0.024	(0.22)	0.022	(0.24)
Complete primary	0.183	(0.96)	-0.075	(0.39)	0.469***	(2.92)
Secondary school	0.216*	(1.91)	0.219	(1.61)	0.150	(1.32)
Vocational	0.551***	(3.42)	0.782***	(4.14)	0.714***	(4.66)
University	-0.392***	(4.14)	-0.358***	(3.40)	-0.494***	(5.16)
Head in poor health	0.243***	(2.61)	0.295***	(2.78)	0.267***	(2.87)
Head has paid work	-0.238***	(2.89)	-0.132	(1.45)	-0.049	(0.63)
Muslim	-0.021	(0.24)	-0.149	(1.51)	0.251***	(2.92)
Urban area	0.233***	(3.13)	0.266***	(3.24)	0.214***	(3.17)
Receipt of remittances		-986.50		-677.34		-1634.01
Log likelihood						
Characteristics of the head	(1B) Satisfaction with financial situation		(2B) Adequate level of food consumption		(3B) Expenditures the household can afford	
	Coef	t-test (abs.)	coef	t-test (abs.)	coef	t-test (abs.)
<i>B. With endogenous receipt of remittances</i>						
Female	-0.066	(0.35)	0.113	(0.53)	0.031	(0.15)
Age	-0.045	(1.20)	-0.030	(0.67)	0.046	(1.26)
Age ² (/100)	0.034	(1.17)	0.031	(0.88)	-0.035	(1.22)
In couple	0.104	(0.57)	0.353*	(1.74)	0.142	(0.70)
Number of persons in household	-0.014	(0.59)	-0.010	(0.33)	-0.004	(0.18)

Education	0.041	(0.41)	0.001	(0.01)	0.019	(0.21)
(Ref: Incomplete)	0.149	(0.78)	-0.100	(0.53)	0.468***	(2.92)
Complete primary	0.224**	(1.99)	0.227*	(1.67)	0.151	(1.33)
Secondary school	0.573***	(3.47)	0.800***	(4.20)	0.715***	(4.67)
Vocational	-0.399***	(4.22)	-0.364***	(3.48)	-0.497***	(5.19)
University	0.257***	(2.72)	0.308***	(2.88)	0.270***	(2.92)
Head in poor health	-0.234***	(2.85)	-0.128	(1.41)	-0.052	(0.74)
Head has paid work	0.042	(0.46)	-0.088	(0.78)	0.252***	(2.92)
Muslim	0.569**	(2.44)	0.572**	(2.08)	0.224***	(3.11)
Urban area	-0.228	(1.49)	-0.207	(1.14)	-0.007	(0.44)
Receipt of remittances						
Coefficient of correlation						
Log likelihood	-1610.24		-1301.36		-2258.88	

Note: (1A), (2A) and (3A) are ordered Probit estimates, (1B), (2B) and (3B) are estimates from a simultaneous model comprising one ordered Probit equation for the financial outcome with endogenous receipt of remittances and one Probit equation for the receipt of remittances.
 Source: LSMS Albania (2003).

have a direct impact on the decision to send money to the parents, while they should not directly affect the household situation (but they should have an indirect effect through the transfer).

Given the available information in the LSMS data, the different instruments pertaining to the children are gender, age, birth order, living with a spouse, living with children, education and years spent abroad. Nevertheless, it could be argued that some of these variables are themselves influenced by the permanent economic situation of the parents. For instance, the educational level of the child is expected to be strongly correlated with the parental level of education, and more highly educated parents should be less concerned about financial problems. A simple way to deal with this issue consists in excluding from the list of instruments the characteristics of the children that are more deeply influenced by the parental background, in particular education and years spent abroad. Characteristics of the children like gender, age or birth order should clearly not be correlated with the current parental economic situation.

We proceed in the following way: as a preliminary step, we rely on IV linear models, meaning that we treat both the dependent and endogenous variables as continuous.²³ Under exogeneity, the transfer variable is equal to 0.144 in the financial satisfaction equation (with a t -test of 3.69). This coefficient is equal to 0.453 ($t = 3.12$) when the transfer is expressed as a function of all the children's characteristics and to 0.466 ($t = 2.95$) when both education and duration of migration are excluded from the list of instruments (as these covariates could be correlated with the parent's situation). In both cases, we perform an overidentification test of our instruments. The values of the Sargan statistic are respectively equal to 1.96 and 1.46 (with respectively eight and four degrees of freedom), suggesting that our exclusion restrictions are appropriate.

We find very similar results for adequacy of food consumption, the joint null hypothesis that the instruments are valid being again satisfied. The coefficient of the transfer variable is equal to 0.095 under exogeneity ($t = 3.18$) and it is about 0.3 once endogeneity is taken into account (with both sets of instruments). The results are a little bit less convincing with our indicator pertaining to the number of expenditures the household can afford. The coefficient associated with remittances is equal to 0.330 ($t = 3.75$) under exogeneity and is twice as high (0.702, with $t = 2.02$) when the child's gender, age and birth order are used as instruments. However, the coefficient is not significant (0.446, with $t = 1.40$) when the child's education and duration of migration are added as control variables.

It should be noted that the above estimates have to be seen as approximations since the endogenous transfer variable is binary and the three dependent variables are ordered. We have thus estimated simultaneous, recursive models comprising one ordered Probit equation related to the economic outcome of the household and one Probit equation related to the receipt of remittances. The crucial issue here is that we assume a bivariate normal distribution for the residuals of each equation. The corresponding log-likelihood function includes terms that are bivariate normally distributed and the model is estimated by a full information maximum likelihood method.

As shown in Panel B of Table 7, we again find a positive impact of the transfer variable on the various economic indicators under consideration.²⁴ Both for satisfaction with current situation and adequacy of food consumption, the endogenous transfer estimate from the recursive model is about twice as high as under the exogeneity assumption. Conversely, the transfer coefficient in the number of affordable expenditures equation does not really change when we estimate the simultaneous model. In all equations, the receipt of remittances is significant at the 1% level. So our different

findings using selection techniques both on observables and unobservables appear robust. They show that in Albania remittances from adult children have a causal effect on the economic situation of their recipients. That the receipt of transfers improves the adequacy of food consumption or the number of affordable expenditures confirms that remittances are mostly related to the most basic needs of the households living in Albania.

Conclusion

The purpose of this article was to present evidence on the pattern of remittances in Albania. For that purpose, we have used the longitudinal data collected over the period 2002–04 by the World Bank. A particular feature of the data set is that we were able to construct a matched sample using the 2003 wave, with characteristics on both the adult children and their parents living in Albania. We rely on random and fixed effects discrete choice models to study both the determinants of remittances sent by family members and adult children living abroad and their implications for the living standard of the recipients.

Our main conclusions are as follows. First, the proportion of households living in Albania and receiving remittances is large (more than 20%) and these transfers are mainly devoted to basic needs. Second, while transfers are negatively correlated with both the donor's and the recipient's level of education, remittances do not really depend on the current situation of the recipient. Finally, transfers from abroad have a positive impact on economic indicators like satisfaction with current situation, adequacy of food consumption and number of affordable expenditures.

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Notes

1. In nominal terms, the main recipients of remittances are India, Mexico and China. As a share of GDP, the main recipients are smaller countries like Albania, where remittances amount to more than 15% of GDP (in 2006). Since a significant part of remittances is sent through informal channels, the true amount of remittances is in fact much larger. The World Bank (2008) suggests that remittances sent through informal channels could add at least 50% to the official estimate.
2. Remittances are more than twice as large as official aid and for some countries they exceed the volume of foreign direct investment (Ratha 2005). For instance, remittances to Albania are estimated at USD 1359 million in 2006, while foreign direct investment is estimated at USD 325 million.
3. Results are less clear concerning the effect of remittances on income inequality. See for instance Adams (1992) and Taylor and Wyatt (1996).
4. Yang (2008) highlights a depressing effect of remittances on labour supply of children in the Philippines.
5. For further information on the Albanian LSMS survey see the documentation of the World Bank available from: <http://www.worldbank.org/lsms/index.htm>.
6. According to the World Bank (2008), there are 860,485 international migrants; the Albanian population numbers 3 million inhabitants.
7. Conversely, only 6.3% of Albanian migrants live in the United States.
8. The diary for household consumption, the community questionnaire and the price questionnaire were not repeated in 2003 and 2004. Significant efforts have been made to reduce the length and complexity of the 2002 LSMS round. The second and third waves of the panel are a reduced

version of the 2002 LSMS survey with some additional elements required for the panel, like details of people moving into and out of the household.

9. This information about potential constraints is only available in the 2003 and 2004 waves.
10. An interesting result of Table 1 is that in 2003 the proportion of transfers made by other family members was much higher than in 2002 and 2004 (10.8% compared with 2.3% and 1.5%). As previously discussed, this difference stems from the fact that there were more detailed questions on other family senders in 2003.
11. Very similar results are observed in 2003 and 2004 for educational level and job status. For instance, the proportion of heads having a job is 54.3% among recipients and 65.2% among non-recipients in 2004. A difference between the 2002 and 2003/2004 waves is related to health. Both in 2003 and 2004 recipients are more likely to be in poor health than non-recipients (16.5% compared with 12.5% in 2003 and 16.7% compared with 11.8% in 2004).
12. The proportion of children having completed more than primary education is equal to 51.2% among those who live outside but 41.8% among those who live in Albania.
13. We get very similar effects of the different covariates on both the probability of receiving a transfer and on the amount of remittances.
14. For instance, controlling only for the recipient's level of education without having information on the donor's socio-economic status is likely to lead to biased results. See the further discussion in Altonji *et al.* (1997).
15. The use of matched samples remains scarce in the literature on remittances, an interesting exception being Osili (2007). As we introduce both the characteristics of the child and the parent in the regression, we have also estimated the random effects Probit model with the parental variables only. Again, we do not find that the characteristics of the parent influence the receipt of a transfer.
16. But recall that the number of observations is greatly reduced when estimating the conditional Logit model.
17. For instance, a migrant may send remittances to poor parents because of altruism and to siblings as part of an exchange if the latter supervise the various investments made by the migrant in the origin country.
18. This result may be more surprising as poverty is essentially rural in Albania. An explanation is that in rural areas households may rely on subsistence agricultural activities to meet their own needs.
19. Again, the education variable is no longer in the regression as it does not vary over time.
20. There is no bias when the exposure to treatment can be considered to be purely random among respondents who have the same value of the propensity score. However, this does not eliminate the bias generated by unobservable factors.
21. When implementing the propensity score matching analysis, we check the relevance of the balancing property, i.e. the means of each explanatory variable should not differ between treated and control units after the matching. Results from the various Probit regressions estimated to compute the propensity score are available upon request.
22. Note that we get very similar results when considering either all the transfers from abroad or only transfers from adult children. For instance, the ATT estimate is equal to 0.122 when using the 2003 parent-child sample, while it amounts to 0.131 when considering the longitudinal sample with all transfers. The difference is larger when considering the number of expenditures the household can afford, the ATT estimate being higher with remittances from adult children.
23. As the endogenous transfer variable is binary, we choose not to report these estimates for the sake of space. All the IV linear estimates are available upon request.
24. In our presentation we focus only on the determinants of the household economic situation. Detailed results of the recursive models (included estimates related to the transfer receipt) are available upon request. Note that we get very similar results when the set of instruments includes all the characteristics of the children or when the child's education and duration of migration are excluded.

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