Fondazione Eni Enrico Mattei

Migrants' transfers and educational expenditure: empirical evidence from Albania

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Motivation

- After the collapse of the communist regime in 1991, the repressed desire of Albanians to explore the world exploded
- The sudden emigration from Albania constitutes one of the largest mass emigration among the transition countries
- Emigration from Albania is intense and largely economically driven, representing a survival strategy
- In Albania poverty is pervasive, with 25 percent of the population living in poverty and five percent in extreme poverty

Motivation

- Severe poverty has induced strong migration pressures. 40 percent of the people have some relatives settled outside the borders of the country and in 2005 there were over one million of Albanians abroad, representing 30 percent of the total population
- In 2007 worker's official transfers represented 27 percent of national GDP and showed a stable increase over time
- Little is known about the use of these transfers by Albanian families

Objective

- The objective of this paper is to investigate the link between remittances and education expenditure, in order to shed light on the effectiveness of private transfers in enhancing investment in education and stimulating a key sector such as schooling
- This is accomplished employing an Engel curve framework, which represents a valuable way to analyse consumer behaviour
- The variable private transfer is among the set of explanatory variables

Existing Literature

- The Engel curve type of framework for education consumption has been vastly used in the empirical literature, in particular to estimate the elasticity of income with respect to education, or to assess gender discrimination within the household
- Within an Engel curve framework, empirical papers that insert private transfers among the covariates are limited. These are Maitra and Ray (2003), Taylor and Mora (2006), Adams (2005), Yang (2008)

Methodology

- The expenditure function in education is modelled, where distinct types of income, namely private transfers and household income, are allowed to exert different impacts on education spending

$$e_i = f(C_i, NT_i, AT_i, IT_i, Z_i)$$

- e is schooling expenditure, C is total household expenditure (proxing for permanent household welfare), NT represents transfers from Albania, AT transfers from abroad, IT institutional transfers and Z is a vector of family and regional characteristics

Methodology

- Permanent income and transitory income may have separate effects on education consumption (Alderman, 1996; Cameron and Worswick, 2001)
- Heterogeneity in interests or bargaining powers among different members within the households, in line with “collective” models of household decision-making (Bourguignon and Chiappori, 1992)
  - the owner of the income may affect the pattern of consumption
  - remittances can have a different allocation than other sources of income, due to the specific use attached by migrants to this form of transfers

Methodology

- The censored nature of the dependent variable is addressed
- The estimation procedures include:
  - the censored Tobit model (Tobin, 1958)
  - the parametric two-step Heckman procedure (Heckman, 1979)
  - the semi-parametric two-step procedure proposed by Newey (Newey, 1999)
  - quantile analysis
- The potential endogeneity of total household consumption is controlled for

A glance to the schooling sector in Albania

- Albania, compared to most transition countries, is at the bottom in terms of educational attainment, with an average school attainment of 8.5 years
- Since the transition, gross enrolment rates have declined in all levels of education, except for secondary general
- A dramatic decline is registered for the vocational enrolment rate, from 55.3 percent in 1990 to 8.1 in 2002
- Not only demand side but also supply side factors are responsible for such decline in participation

A glance to the schooling sector in Albania

- Deterioration in the quality of education
  - Low government spending: gradual fall in the share of national income spent on education and in the real educational spending per student
  - Migration: many rural schools have closed, augmenting the hours of travelling back and forth from home to school. Urban schools have to host an increasing number of newly settled families, and without an increase in capacity, the classes happen to be overcrowded
  - Teacher motivation and qualification is low as a consequence of low salaries and lack of training. 90 percent of pre-school, 50 percent of basic school and five percent of high school teachers did not have higher education. Many qualified teachers have left the education system for higher paying jobs

Data Set

- Albanian Living Standard Measurement Survey (ALSMS), 2002
- Information at household and individual level
- Information on household expenditure on several aggregate components, including education
- Transfers from movers (in-good or in-cash; from internal movers vs international movers)

Data Description

- The variable education consumption is censored, with only 62 % of total households reporting positive spending
- The censoring is more relevant for households in the bottom income quintile
- At higher income quintiles, the spending in education rises

Quintile of household income	Expenditure in education	
	% of households with positive spending	Household monthly mean expenditure in education (leks)
1	47.0	336.7
2	58.9	536.7
3	63.6	718.8
4	66.0	1230.8
5	72.1	2179.3
Total	61.5	1000.4

Data Description

- The percentage of transfer recipient families decreases at higher income quintiles
- There is not a clear link between the amount of the transfers and the welfare position of the households, though richer families receive larger external transfers than poorer ones
- Transfers from abroad reach a much wider fraction of households than internal remittances do
- Internal transfers are negligible in terms of size

Quintile of household income	Household receiving transfers from within Albania		Households receiving transfers from abroad	
	% of households receiving transfers	Mean annual transfer (leks)	% of households receiving transfers	Mean annual transfer (leks)
1	7.5	3997.8	20.3	24076.2
2	5.8	2020.5	20.3	28014.5
3	2.6	2555.6	18.5	27682.6
4	4.8	4296.9	19.8	46354.3
5	3.8	4009.4	15.2	42621.2
Total	4.9	3375.9	18.8	33752.1

Data Description

- Non-recipient families consume considerably more than recipient ones in education goods
- Among migrant families, recipients of external transfer spend more than recipients of internal transfer

Household receiving:	Household monthly mean expenditure in education (leks)
No Remittances	1055.4
Internal remittances only	691.9
External remittances only	837.7
Both types of remittances	711.4

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Censored Tobit

Dependent variable: education expenditure

Variables	Estimated coefficients	Marginal Effect
ln household expenditure	2031***	930.47
	(158.2)	
Internal transfers	-0.002	-0.001
	(0.002)	
International transfers	-0.0003	-0.0001
	(0.001)	
Transfers from institutions	0.001	0.0005
	(0.004)	
N	2,927	
Log-likelihood	-17520	
Fin and Schmidt Test	3489	

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Censored Tobit

- The positive and statistically significant coefficient of total expenditure highlights the important role that the budget constraint plays in a family's schooling decision
- The computed elasticity indicates that a one percent increase in the monthly household expenditure raises monthly expenditure in education by 0.9 percent, on average and ceteris paribus
- None of the transfer variables appears to influence the education expenditure
- The Fin and Schmidt test rejects the restrictions imposed by the censored Tobit model in favour of a more flexible specification, such as a separate probit and a truncated tobit

PARAMETRIC TWO-STEP PROCEDURE

- Identifying instruments for the selection effect:
  - population change
  - pre-school in community
  - connected to gas
  - quadratic of the family composition variable
- The first three serve as a proxy for local conditions and capture the quality of the community environment in terms of providing access to utility facilities. Lack of access to these services may indicate a zone of low population density which implies a long distance to school (Cox-Edwards and Ureta, 2003)
- The fourth is more *ad hoc*

PARAMETRIC TWO-STEP PROCEDURE

	Dependent variable: ln (education expenditure)	
Variables	Heckman	IV-Heckman
ln household expenditure	0.709***	1.147***
	(0.050)	(0.173)
Internal transfers	-8.43e-07	-1.16e-06*
	(6.76e-07)	(7.08e-07)
International transfers	2.23e-08	-8.41e-08
	(1.67e-07)	(1.70e-07)
Transfers from	3.22e-07	-5.45e-07
institutions	(1.18e-06)	(1.80e-06)
Mills	0.250**	0.325***
	(0.103)	(0.113)
Constant	-4.466***	-8.895***
	(0.792)	(1.796)
N	1801	1801
Instruments for selection		
Significance in levels equation	F(4,1,778)=0.14 P-Value: 0.97	Chi2(4)=1.18 P-Value: 0.89
Significance in probit equation	Chi2(4)=26.18 P-Value: 0.00	Chi2(4)= 29.02 P-Value: 0.000
Instruments for endogeneity		
Sargan Test		Chi2(9)= 4.97 P-Value: 0.84
F-test in linear projection		F(10, 1772)= 16.32 P-value=0.00
Wu-Hausman Test		F(1,1780)=8.59 P-Value: 0.003

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PARAMETRIC TWO-STEP PROCEDURE

- The inverse of the Mills ratio enters with a significant effect in the education equation
- The coefficient of household expenditure is positive and significant, confirming the role played by the budget constraint in spending behaviour, but the elasticity estimate is slightly lower compared to the Tobit model, being now 0.7
- None of the transfer variables exerts a significant impact on education expenditure
  - Incomes from different sources are not pooled together within the household, as the effect of remittances statistically differs from the effect of non-transfer income

PARAMETRIC TWO-STEP PROCEDURE

- Motivation for the null influence of private transfers:
  - Migrants impose conditions on the type of spending of remittances and this use does not include education. House purchases, improvement of the quality of dwellings, could be possible competing targets for the transfers send home
  - Movers are the more able and the more educated siblings and the ones left behind are the less likely to pursue a pathway that involves education
- The existing empirical evidence on the effect of migration on education is quite mixed

PARAMETRIC TWO-STEP PROCEDURE

- To correct for endogeneity of total consumption, the instruments employed are:
  - type of household wall
  - presence of a bathroom in the house
  - quality of water
  - availability of a computer
  - dummy variables indicating whether the head worked abroad
  - and whether the head has a second occupation
- They are related to the dwelling conditions and durables- which capture the household's permanent wealth- or to the household head's employment (Case and Deaton, 1998; Handa, 1996; Kooreman, 2000 and Maitra and Ray, 2003)

PARAMETRIC TWO-STEP PROCEDURE

- The Wu-Hausman test rejects the the exogeneity of the household expenditure variable
- The coefficient of total household expenditure displays a large increase in magnitude when one corrects for endogeneity. The null hypothesis of unitary expenditure elasticity is upheld by the data
- The coefficients of internal transfer has a negative impact on education expenditure in the IV-Heckman procedure
- Disruptive effect of migration on the family's acquisition of human capital, because of parental absence or house work and other types of duties assigned to children to substitute for the absentees (McKenzie and Rapoport, 2006)
- The poor schooling situation undermines the incentive to invest in education. Migrant's families eventually dispose of alternative investments, ensuring higher return

Semiparametric Two-step Procedure

- The Heckman approach is sensitive to the departure from the assumed parametric distribution of normality. The Chesher and Irish test (1987) rejects the normality assumption required by the standard parametric procedure
- A non-parametric approximation term is used in place of the inverse of the Mills ratio term (Newey, 1999)

$$Z(\mathbf{z}_i'\boldsymbol{\gamma}) = (\mathbf{z}_i'\boldsymbol{\gamma})^{j-1}$$

- where (.) contains the score index of the first step probit selection estimation

Semiparametric Two-step Procedure

	Dependent variable: ln (education expenditure)
Variables	Polynomial of order two
ln household expenditure	1.076***
	(0.175)
Internal transfers	-1.11e-06*
	(6.39e-07)
International transfers	-6.60e-08
	(1.75e-07)
Transfers from	-7.26e-07
institutions	(2.22e-06)
Z1	-2.269***
	(0.605)
Z2	1.562***
	(0.493)
N	1801
Sargan	Chi2(9)=5.361 P-Val: 0.80
F-test in first stage	F(10,1771)=15.5 P-val: 0.00
Wu-Hausman	F(1,1779)=6.28 P-val: 0.01

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Semiparametric Two-step Procedure

- The estimated coefficients reported are robust to the way the selection term is included and no significant differences result in the coefficients within the parametric and the semi-parametric two-steps approach

Quantile Regression

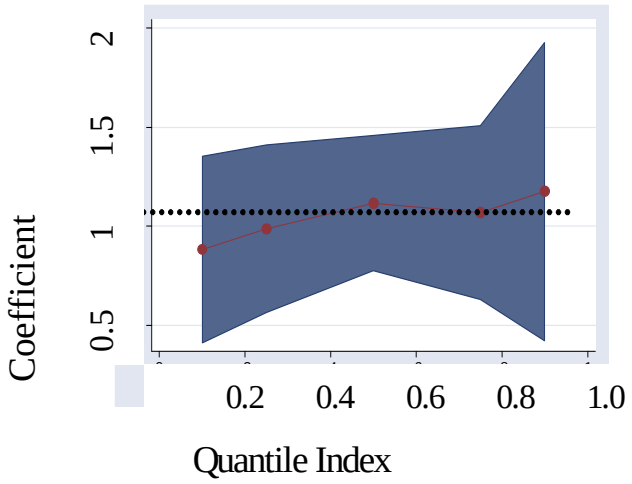
- To fully address the heterogeneity of the households, a quantile analysis is conducted
- The effect of the covariates on various quantiles of the conditional distribution of the education variable is modelled
- This allows to test whether the households with low education spending receive greater benefit from migrant remittances than high education spending ones
- The education equation is estimated conditional on a given specification and then calculated at five different quantiles: the 10th, the 25th, the 50th, the 75th and the 90th
- Buchinsky suggests the adoption of the non-parametric selection term, proposed for the mean regression by Newey (1999), to correct for the selectivity bias

Quantile Regression

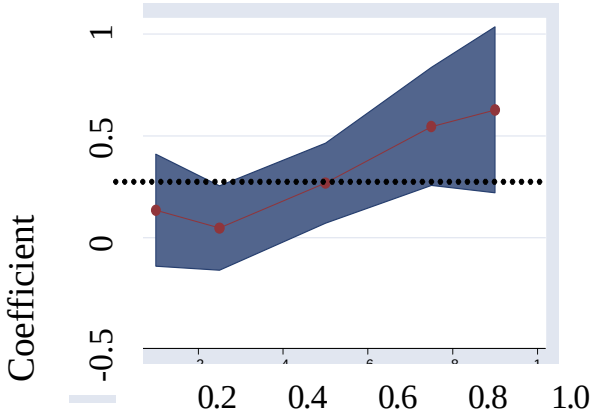
	Dependent variable: ln (education expenditure)						
Variables	2SLS	10	25	50	75	90	Interquantile (10-90)
ln (HH	1.076***	0.882***	0.987***	1.117***	1.069***	1.175***	0.293
Expenditure)	(0.180)	(0.240)	(0.216)	(0.174)	(0.224)	(0.384)	(0.410)
Vocational	0.375***	0.136	0.048	0.269***	0.547***	0.628***	0.492*
	(0.092)	(0.140)	(0.106)	(0.100)	(0.148)	(0.208)	(0.269)
Internal	-1.11e-06	-5.48e-09	-3.94e-07	-1.20e-06*	-1.73e-06	-3.36e-06**	-3.36e-06**
transfers	(7.14e-07)	(6.51e-07)	(5.21e-07)	(6.69e-07)	(1.44e-06)	(1.34e-06)	(1.41e-06)
Internaltional	-6.60e-08	-2.81e-08	-1.20e-07	-3.21e-07	-1.20e-08	2.03e-07	2.31e-07
transfers	(1.70e-07)	(2.07e-07)	(1.51e-07)	(2.33e-07)	(3.67e-07)	(2.65e-07)	(3.95e-07)
Transfers	-7.26e-07	-1.12e-06	-2.48e-06	-1.14e-07	1.48e-07	-1.59e-06	-4.68e-07
from Institut	(1.48e-06)	(3.38e-06)	(1.96e-06)	(2.41e-06)	(2.72e-06)	(2.60e-06)	(3.24e-06)
Z1	-2.269***	-1.314	-2.040**	-3.048***	-2.423***	-2.693*	-1.379
	(0.652)	(1.016)	(0.805)	(0.629)	(0.884)	(1.447)	(1.846)
Z2	1.562***	0.673	1.412**	2.387***	1.891**	1.663	0.99
	(0.533)	(0.778)	(0.664)	(0.488)	(0.742)	(1.111)	(1.397)
N	1801	1801	1801	1801	1801	1801	1801

Quantile Regression

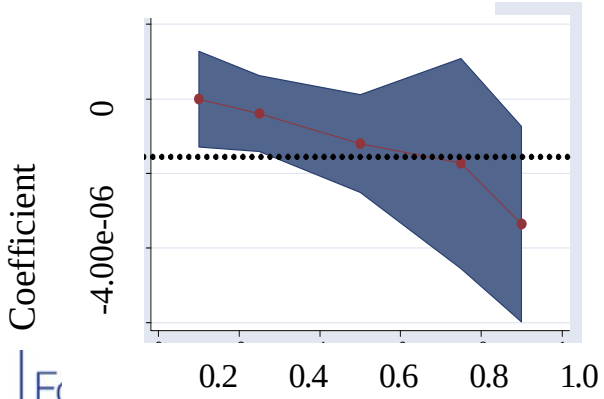
Total Consumption



Vocational Education



Transfers from Albania



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Quantile Regression

- The quantile coefficient of household total expenditure is fairly constant across all points of the distribution and in line with the mean estimate
- The impact of the vocational variable is more relevant for families in the upper part of the education expenditure distribution. This finding suggests that the education background of the head of the family is a major determinant of increasing spending in education above a certain expenditure level
- The negative impact of Albanian transfers on education expenditure mainly features in the households whose educational expenditures are in the highest part of the conditional distribution
  - only in the upper tail of the educational distribution, migrant and non-migrant families display a distinct consumption behaviour
  - the poor schooling situation in Albania creates a ceiling to the maximum level of optimal educational spending

Conclusion

- Community level characteristics play a crucial role in shaping the effectiveness of migration
- If migrant sending countries lack basic infrastructure or a sound economic ground is missed, it is unlikely than remittances alone can produce any investment enhancing mechanism
- Remittances are likely to widely impact on development in those environments where migrants do not have to serve simultaneously as workers, savers, investors as well as producers
- Improvement in school quality should be a primary target for Albania, so that migrant families can anticipate the future returns to education and higher incentives to invest in education are produced