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WHAT DETERMINES UPPER SECONDARY SCHOOL PARTICIPATION? - INTERGENERATIONAL EFFECTS OF EDUCATION OUTCOMES IN ALBANIA

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Abstract

Educational attainment is considered an intergenerational transmission mechanism. The link between schooling of children and their parents could be due to unobserved inherited characteristics, and/or, through the additional household income associated with higher levels of education or parental support. We empirically observe the choice of young Albanians 15 to 18 years old whether or not to enrol in school through a Probit model using cross section data from LSMS 2002. A number of policy issues are addressed. First, we can identify which teenagers are more likely to enter post-compulsory schooling. Second, we can examine to what extent parents' background affect decisions of their children to enter upper secondary education, and what is the role of the schooling system in reducing or magnifying such relationships. Drawing on these findings, our analysis concludes with the development of policy recommendations to target the movement towards higher participation in upper secondary school.

Keywords: schooling participation, socio-economic background.

1. Introduction

In this paper we focus on the determinants of the categorical decision of the upper secondary school age young persons to participate in post-compulsory school or not. Moreover, we concentrate on the variables that determine the strength of the intergenerational transmission mechanism in Albania. It has generally proved difficult to determine whether intergenerational mechanisms works through the inherited genetic factors or environmental factors (Chevalier et al., 2005). The link between schooling of children and their parents could be due to unobserved inherited characteristics, and/or, through the additional household income associated with higher levels of education or parental support. The degree of the association of children's participation in schooling with parental socioeconomic background, referred to as intergenerational

mobility, is determined by the transmission of the socioeconomic status from parent to child. Similarly, it measures the correlation between parent's position in the earnings distribution and that of his or her children (Dearden et al., 1997).

We use the term schooling participation to describe post-compulsory educational decisions including the decision of teenagers to continue their education at the upper secondary level. We observe the choice of young persons 15 to 18 years old whether or not to enrol in school is examined through a Probit model. We use cross section data from LSMS 2002, which contains information on parents and children, and the education and incomes of their parents, as well as other regional variables. A number of policy issues are addressed. First, we can identify which teenagers are more likely to enter post-compulsory schooling. Second, we can examine to what extent parents' background affect decisions of their children to enter upper secondary education, and what is the role of the schooling system in reducing or magnifying such relationships.

This paper is organised as follows. In the next section we provide evidence on the determinants of schooling participation as found in the corresponding literature. Similar empirical studies to ours on Albanian young participation in schooling are critically reviewed in Section 3. Section 4 introduces the methodology applied for estimating schooling participation in Albania and the data to be used. Our empirical findings are reported in Section 5. Concluding remarks are presented in Section 6.

2. Determinants of schooling participation - literature review

An increasing body of the literature has explored the determinants of schooling participation of teenagers, with the main focus on the intergenerational transmission mechanism. While many studies provide evidence for the developed economies, there are still only a few dealing with the transition countries, among which are Pastore (2005) and Hazans et al. (2006). For example, the bulk of the British literature focuses on the participation decision made at the end of compulsory schooling (Pissarides, 1981; Rice, 1987; Micklewright, 1989; Whitfield and Wilson, 1991; Chevalier and Lanot, 2001; Clark, 2002; Chevalier et al., 2005) or analyses the determinants of the highest qualification obtained (Blanden and Gregg, 2004). The US literature deals with participation decisions made at various age (Behrman et al., 1989; Kane, 1994; Cameron and Heckman, 1998; Belzil and Hansen, 1999; Behrman and Rosenzweig, 2002, Haan and Plug, 2006; Oreopulos et al., 2006). Researchers have shown much interest in the role of public education system and the influence of reforms on (reducing or magnifying) intergenerational mobility in general, as in Iyigun (1999) for USA, Baumgartner and Steiner (2006) for Germany, Pekkarinen et al. (2006) for Finland, Checchi and Flabbi (2007) for Germany and Italy. Family capital and parents' decisions are found to affect students' achievement in test scores (math and reading) (Blau, 1999; Parcel and Dufur, 2001), and students performance (Bratti and Stafolani, 2002). Other studies focus on intergenerational transmission persistence, generating a dependent relationship of children's outcomes on parent's outcomes (Dearden et al., 1997, Bjцrklund et al., 2006; Machin, 2006; Blanden et al., 2007). Moreover, several choice decisions between the labour market and schooling participation have been empirically developed in Andrews and Bradley (1997), Davia (2004), Pastore (2005), where the young are allowed to choose between schooling and labour market and other alternatives within these systems. In this section we examine in more depth the effect of different parental background factors and other associated determinants of schooling participation of their children found in the above mentioned studies, and derive our own expectations for the chosen variables in our empirical analysis.

It has been found that factors put forward to explain participation trends fall into two broad categories: (i) those that vary at the individual or micro level, such as family background; (ii) those that vary at an aggregate level such as unemployment. At the microeconomic level, a large empirical literature predicts that family, socioeconomic background and student academic ability have a joint effect on aspirations for further schooling after the compulsory level. The former is assumed to affect tastes and attitudes towards alternative employment opportunities and further education (Rice, 1987) through the intergenerational

transmission mechanism effect. Consequently, two channels of the family background influence are identified. First a direct effect, professional families encourage their children to stay on in education. Second, the indirect ability effect, whereby higher ability children are more likely participate in post-compulsory schooling. Ability in this context is assumed to be transmitted by parents through endowments or a higher investment. We discuss next indicators of socioeconomic background, such as parental education, their occupation, employment status and income, as well as other indicators related to the distribution of family income and parental time dedicated to children.

According to Freeman (1986), perhaps the most important element missing from the basic model of the human capital is the role of the family in education. There is a powerful positive relation between one's family background, measured by family income, occupation or education of parents, and schooling. Youths with more advantaged backgrounds have higher participation rates in post-compulsory schooling than youths with less advantaged backgrounds. Evidence suggests that the determinants found in cross-section and time series analysis of schooling participation relate significantly to a variety of social and economic indicators of family background.

Parental social class and especially parents' professional success in the hierarchic job positions are crucial determinants of schooling participation. Willis and Rosen (1979) for the US, Rice (1987), Andrew and Bradlew (1997), Leslie and Drinkwater (1999) and Thomas and Weber (2005) for the UK for example, use parents' occupation to explain the staying-on school rates of teenagers. These studies generally find higher staying-on rates for children of professional parents, and lower rates for children of manual workers. Similar findings are produced by Micklewright (1989) who introduce the labour market status of parents in the estimations of the 16 year old British staying on at post-compulsory school. According to Micklewright's estimations, a manual background with parents who did not themselves stay on in post-compulsory schooling leads to a predicted probability of leaving school at the age of 16 of 33 percent if a boy and 27 percent if a girl, whilst for those with professional parents who themselves had post-compulsory schooling, the probabilities of leaving are negligible. Moreover, analysing participation of ethnic minorities in the UK (with data from 1991 UK Census), Leslie and Drinkwater (1999) emphasise importance of the socioeconomic factors which do not have an exclusively ethnic dimension.

According to Thomas and Weber (2005), parental class also captures the borrowing constraint effects directly via the relationship between income and the social class grouping. In addition parents' education can have a pure income effect on the demand for children's human capital. Parents' position in the earnings distribution is also determined by their education level. Both parent's education has been found to significantly affect schooling and college attainment of children in the US (Hossler and Stage, 1992; Behrman and Rosenzweig, 2002) and in the UK (Chevalier and Lanot, 2001; Thomas and Weber, 2005). According to Thomas and Weber (2005), parental post-compulsory schooling variables also capture the familiarity of parents with the requirements of post-compulsory schooling education and family tastes. Having invested in further education themselves, parents are more likely to be aware of the benefits and may provide extra encouragement to their children to succeed in education.

Many researchers suggest that effects of the parents are different for children of different gender. For example, Dearden et al. (1997) find, for a British cohort born in March 1958, that father's education is more important for sons' educational decisions, whilst mother's education is more important for daughters. The strong relationship maintains even for the adopted sons, Bj?rklund et al. (2006) find that adopted Swedish children's education and income are as strongly associated with their biological parents' education and income as with their adoptive parents. Father-son mean persistence is relatively large also in developing countries, as in case of Bangladesh (Asadullah, 2006). Other studies claim that the parental child association in education and earnings is stronger between the father and the child. For example, Gang and Zimmerman (2000) find for Germany that there is a statistically significant difference in favour of father's over mother's education. Meanwhile, Haan and Plug (2006) results from a US sample suggest that the mother's schooling has almost no impact on the schooling of her child, holding everything else (including unobserved ability factors of either mother or father) constant. Whilst, Black et al. (2005) find a small but significant

relationship between mother's education and her son's education but no causal relationship between mother's education and daughter's education for Norwegians 20-35 years old in 2000. They suggest that the prevailing correlations between parental and children's education are due primarily to selection, maybe generated by education reforms during the period of parents' schooling, and not to causation. With censored twin samples from US in 1983-1990 and using a correction method, Behrman and Rosenzweig (2002, 2005) find small maternal treatment effects that are very similar to Haan and Plug's. Although these results are in contradiction with widely held wisdom, Bj?rklund et al. (2006) come up with more evidence from the Swedish sample interviewed during 1962-1966, finding that the earnings association between father and child is much stronger than the association between mother and child.

Studies that employ parental educational attainment measures as well as labour market status also control for the effect of family income on decisions of children to participate in schooling. Family income should have a negative effect on the probability of leaving school at the minimum permissible age, working in particular through the discount rates with lower income households being constrained in their choices (Micklewright, 1989). Family income has been found to positively affect enrolment of Pakistani and Nicaraguan 5 to 14 years old children (Rosati and Rossi, 2003). Corak et al. (2004) also find a direct relationship between university attendance and family income for Canadian youths. However, they observe that this relation seems to decrease with an increase in the borrowing possibilities. Chevalier et al. (2005) find out a strong link between earnings of the parents and of the probability of post-compulsory schooling of their children in the UK. Children from poorer backgrounds are generally observed to have lower educational outcomes than other youths (Chevalier and Lanot, 2001). Studying the joint decisions on household membership and human capital accumulation of young Italians, Giannelli and Monfardini (2000) suggest that with imperfect capital markets, parents may loan or grant housing services to their adult children, thus allowing them to more easily engage in post-compulsory schooling.

For a given household income, the household composition determines the financial constraints facing the household when deciding whether or not to invest in the further education of a child. Family size may cause unequal access since parental expenditure per child is inversely associated with family size (Behrman et al., 1989). There is considerable evidence on the effect of siblings on schooling. Hanushek's (1992) empirical investigation confirms the trade-off between the number of children and their scholastic performance, through the direct effect of the family size on children's achievement in school. This may be essentially because parents' time and resources must be spread thinner with more children (Bommier and Lambert, 2004). Accordingly, larger families depress achievement which in turn reduces the incentives for teenagers to participate in further schooling as younger siblings compete for more attention. Other studies analyse birth order effects on schooling participation (Ejrnaes and P?rtner, 2004; Kantarevic and Mechoulan, 2005). The rationale is that older children may enter the labour market earlier due to possible resource constraints in the family, while younger children may be more likely to stay on in further schooling.

At an aggregate level, schooling participation decisions are found to be affected by the labour market conditions, most commonly measured by the local unemployment rate. However, the effect of the latter variable is twofold. As Whitfield and Wilson (1991) suggest, high youth unemployment might be supposed to generate a positive discouraged worker effect, perceived as a decrease in the opportunity costs of attending school. High adult unemployment on the other hand, might induce negative effects on schooling participation through the inability of parents to financially support their child in post-compulsory education, as well as through lower potential returns to education due to the lower probability of receiving a wage. As the former argument implies, the youth unemployment rate has been found to positively affect the 18-year-old age group entering universities for the first time (Pissarides, 1982). Leslie and Drinkwater (1999) estimate a bivariate censored Probit model, where the unemployment likelihood of a young adult (18-24 years old) is observed only if the individual has left full time education. The result is that individuals with a higher probability of unemployment are encouraged to stay on in full-time education. Whitfield and Wilson (1991) find a positive impact of the adult unemployment rate but a non-significant effect of the youth unemployment rate on the proportion of 16 years old individuals remaining in education. Andrew and Bradley (1997) also

find a positive effect of last period's district unemployment rate but a negative impact of current unemployment rate on the British 16 year old decisions to stay on in education. Clark (2002) finds that school-leavers are more likely to participate in further education when unemployment is high. He also finds that youth unemployment has a crucial bearing on participation, particularly for boys in the UK. In a complementary study, Davia's (2004) analysis of European youths suggests that they drop out of education if the immediate benefits from dropping out increase, for example if employment opportunities increase.

In addition to these family background and aggregate factors, peer group effects and school specific factors have also been found to affect schooling participation. For example, Thomas and Weber (2005) found that there was a positive peer group effect for 16 year old British; pupils who mixed with students whose fathers were of same social class or higher were more likely to stay-on school after compulsory. Lalive and Cataneo (2006) argue that individual schooling decisions and peer group schooling decisions may be related in important ways for at least two reasons. First, students may conform to the choices in their peer group because they expect to be popular with them. Second, students and their parents may learn from the choices of other, similar students. For example, Giorgi et al. (2007) investigate the choice of college major of Italian students showing that one is more likely to choose a major when many of her peers make the same choice. Goux and Maurin (2006) identify the causal impact of close neighbours' characteristics on children's outcome of French adolescents. They find that the probability of repeating a grade at the end of junior high-school increases strongly when other adolescents living in the same neighbourhood have already been held back a grade. It is important to note that because education choice is related to family circumstances, and families with similar circumstances tend to live in the same areas, then neglecting school and neighbourhood inputs could lead to systematically overstating the importance of family factors for children's educational attainment (Hanushek, 1992).

As mentioned in the beginning of this section, there is little literature on schooling participation determinants for the transition economies. We can only make reference to two analyses published, to our knowledge, up to now. Pastore (2005) focuses on the determinants of labour market participation of a sample of young (15-30) Poles, controlling for the sample selection bias caused by excluding those in education. He finds that the instrumental variables used in the selection equation (participation in post-compulsory schooling) - the local unemployment rate, expected lifetime earnings and the opportunity cost of education - have a statistically significant impact on the probability of being in education. In contrast with most previous studies in mature market Poles in high unemployment regions, prefer to search for a job, rather than continue studying. Hazans et al. (2006) concentrate on the ethnic and parental effects on schooling outcomes before and during the transition in the Baltic countries. They find a strong positive effect on the propensity to obtain tertiary education of parental education, both in Soviet era and in post-Soviet period. Transition to the market economy has weakened mother's education effect amongst the dominant national group, while the opposite is found to hold true for the national minorities.

In the remainder of this paper we estimate the determinants of the schooling participation of young Albanians in early 2000. We follow the same logic of assessing the role of parental background and regional labour market conditions on these decisions, applied in the above mentioned estimations of limited dependent variables functions. Besides the gender issues discussed above, we add specifications that relate to the urban and rural differences in post-compulsory schooling participation which is generally missing in previous analyses.

3. Schooling participation determinants in Albania - evidence from previous analyses

Prior to discussing our own analysis of the determinants of schooling participation in Albania, we introduce and briefly discuss the existing evidence regarding Albanian youths' schooling decisions. Hazans and Trapeznikova (2006) and Picard and Wolff (2005) make use of the same data source as we do, (LSMS 2002) and the Population Census (2001), and estimate probability functions of post-compulsory schooling participation in Albania. Picard and Wolff (2005) explain schooling participation in Albania in the context of a

developing country framework. Although such an approach may be to some extent relevant given the country's characteristics, we should not ignore Albania's features of a transition economy. Picard and Wolff estimate the probability to have more than 8 years of schooling for a sample varying between ages of 16 and over, with a mean age of 33 years. This choice comprises "children" who have taken decisions on their schooling participation in very different periods (before and after 1990), without taking into account any of the large changes in the education, or the overall political and economic system. Most importantly, a structural break in participation rates at the outset of the emerging market economy at early 1990 is not reflected in their study. The strength of the intergenerational transmission mechanism of human capital may not be the same in egalitarian as in the market economic systems (Grawe and Mulligan, 2002). In this context, there is likely to be inefficient estimates of parental characteristics. Moreover, this structural break should be reinforced by the previous governments' egalitarian approach to income distribution. Another criticism of Picard and Wolff's analysis relates to the religious dummy variables deployed as determinants of post-compulsory participation. Although they find a positive, at 1 percent level of confidence, effect of the Orthodox religion dummy variable, this seems unlikely to be present during the earlier period since religion was outlawed from the early 1960s and therefore those over 30 years old could not express any religious beliefs.

Hazans and Trapeznikova (2006) analysis produces more appropriate estimations of the determinants of schooling participation in Albania. They provide different specifications for urban and rural areas, highlighting the regional disparities in schooling decisions. Gender issues however, are not emphasised. Moreover, they find, other things being equal, urban girls are significantly more likely than boys to participate. Among other independent variables, they use household (HH) characteristics related to the presence of grandparents, and the presence of a HH member who has lived abroad in the previous five years. Whilst the former variables are found not be significant, the latter positively affects schooling participation, at 5 percent level of confidence, only in rural areas. Community characteristics determined by the presence of pre- and upper secondary schools in the community, costs of commuting to school, percentage of teachers with a tertiary qualification and educational attainment of the district (percentage with upper secondary school qualification), and other schooling distance variables are mainly significant for rural areas. Otherwise, Hazans and Trapeznikova find that all the explanatory variables, as we explain below, have the same direction effect on the probability of a 14 to 19 year old Albanian to be enrolled in upper secondary school, being that in urban or rural area.

Given our criticisms of Picard and Wolff's analysis, our empirical approach follows the approach of Hazans and Trapeznikova. However, while we also assess urban-rural differences in schooling participation, we expect that the determinants of post-compulsory schooling may differ across gender groups, and so it is inappropriate to pool male and female data. In contrast to Hazans and Trapeznikova analysis, we also contribute to analysing determinants of tertiary education participation.

Notwithstanding our criticisms of their methodology we next summarise their main common findings to allow a later comparison with those of our own analysis. Their general findings are in line with the theoretical expectations discussed above, in that parental education has a significant positive effect on the probability of an individual pursuing post-compulsory schooling, and there is a negative effect of the number of siblings. Both studies use a series of variables to assess the relationship between the latter and schooling participation of an individual, accounting separately for younger and older brothers, and similarly for the sisters. While the number of younger sisters is significant at 5 percent level of confidence in both studies, the number of brothers, older and younger, is negative at 1 percent level of significance in Picard and Wolff. Further, both studies find that, other things being equal, children in rural areas are less likely to participate in post-compulsory schooling, and the presence of a secondary school in the community increases the likelihood of upper-secondary school participation. Finally, although gender effects in post-compulsory schooling are found to be significant in both studies, assessing higher female participation rates, in Hazans and Trapeznikova this holds true only in the urban areas.

4. Empirical approach and data description

In this section we introduce our empirical approach and the data we use for estimation. As in most similar studies, we apply categorical dependent variable models to estimate the determinants of schooling participation, as explained below.

4.1 Methodology

Following the traditional approach of schooling decisions analysis, in this chapter, our empirical analysis develops binary response models of the form:

$$P(Y = 1 \mid X) = G(X\beta) \equiv p(X) \quad \textbf{(1)}$$

where X is 1 x K, β is K x 1, (K being the number of explanatory variables), and we take the first element of X to be unity. Examples where X does not contain unity are rare in practice (Wooldridge, 2002, pp. 458). We use the index model specified in equation (1) because it restricts the way in which the response probability depends on X: $p(X)$ is a function of X only through the index $X\beta = \beta_1 + \beta_1 x_2 + \cdots + \beta_K x_K$, and the *Xs* represent the vector of different covariates described in detail in Table 1. The function *G* maps the index on to the response probability and it is expressed as follows:

$$G(z) \equiv \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\beta X} e^{-t^2/2} dt \quad \textbf{(2)}$$

where *G* is a cumulative distribution function, which can be derived more generally from an underlying latent variable model:

$$Y^* = X\beta + e,\ y = 1\ [Y^* > 0] \quad \textbf{(3)}$$

where e is a continuously distributed variable independent of X and the distribution of e is symmetric about zero (Wooldridge, 2002).

The regressors at our disposal for estimating schooling participation are a mixture of categorical and continuous. There are two broad categories, which relate to level of the individual and aggregation at which they are collected. These are: (i) household and (ii) local area of residence. Table 1 in the Appendices presents the variable definitions, description of the explanatory variables and benchmark categories. We explain in more detail expected effect of each in Section 4.2.

The models that we apply to estimate participation in post-compulsory schooling are of a Probit and Heckman Probit structure, and we explain them below. Different specifications are used for each gender, the rationale for which is as follows. Normally, as found in our literature review above, parental social status has been found to positively affect a child's participation in schooling, whereas family size and siblings' number have a negative effect. Empirical evidence suggests that the direction of these associations is maintained regardless of ethnic origin or area of residence. However, it has been argued that the scale of those effects may vary dependent on the gender of the child. Hence, we are interested in capturing boys and girls differences in determinants of schooling participation, and the specific gender associations of parents with their children. This reflects our previous analysis of the decision to participate in post-compulsory schooling where we commented on the likely impact of Albania's more patriarchal society. In order to capture any differences between urban and rural areas, we utilise a dummy urban variable with the rationale that this variable incorporates the factors identified in Section 4.2.

The Probit model of upper secondary schooling participation

The decision on whether to continue in upper secondary schooling or not at the end of compulsory schooling can be described by a dichotomous model on the 15 to 18 years old sample. For reasons stated in Section 4.1, about the choice of the Logit or Probit model, for the case when the dependent variable takes only two values, either 1 or 0, we apply the Probit model. The Probit model that we estimate is the special case of equation (1) with the index equation as in equation (2) and the unobserved latent variable to be estimated (Y^*) introduced earlier (in equation 3). The probability of a teenager participating in upper

secondary school is equal to 1 if $G(z)>0$ (or similarly $y_i = 1$ if $y_i^*>0$) and the 0 otherwise ($y_i = 0$ if $y_i^* \leq 0$) conditional on the explanatory variables explained in Section 4.2.

Table 1 Variable definition

Variable	Description	Remarks
Dependent variable:		
Enrolled in upper secondary	Young enrolled currently at upper secondary school	Dummy=1 if enrolled, 0 otherwise
Independent variables:		
Parental social status:		
Mother post-compulsory	Mother has completed post-compulsory schooling (upper secondary and/or tertiary)	Dummy=1 if graduated, 0 else
Father post-compulsory	Father has completed post-compulsory schooling (upper secondary and/or tertiary)	Dummy=1 if graduated, 0 else
Father upper secondary	Father has completed upper secondary schooling	Dummy=1 if graduated, 0 else
Father tertiary	Father has completed tertiary education	Dummy=1 if graduated, 0 else
Father employed	Father Employed (in any economic sector)	Dummy=1 if employed, 0 else
Mother employed	Mother Employed (in any economic sector)	Dummy=1 if employed, 0 else
Family characteristics:		
No. siblings less 14	Number of children 0-14 years old in the household	Continuous
No. siblings less 18	Number of children 0-18 years old in the household	Continuous
Family size	Number of individuals in the household	Continuous
Age15	Teenager of age 15 years old	Dummy=1 if 15, 0 else
Regional characteristics:		
Urban area	Household living in urban area	Dummy=1 if urban, 0 else
Unemployment rate	District aggregate unemployment rate	Continuous

4.2 Descriptive statistics

To carry out the estimations on the determinants of the probability of a young 15 to 18 year old to be enrolled in upper secondary school, data on two generations are required in a single data source. These are education of the individual children and the education and incomes of their parents and other family characteristics are required. LSMS 2002 contains such information and enables us to generate the necessary variables for our empirical investigation. In addition, aggregate data at the district and regional level are deployed to capture effects of the labour market on schooling participation, 'schooling quality' and peer effects.

The LSMS education module has data for each member of the household on the highest grade completed in school and the highest level of diploma obtained. However, we concentrate our analysis of schooling participation only on the school age population. There are a number of reasons for our particular choice. The data base on which we construct our estimations comprises one particular cross-section, namely all young people who reached the end of compulsory (upper secondary) schooling in 2001 and were between 15 and 18 years old in 2002. There are several reasons for making our choice regarding these age group. First, 15 to 18 is the eligible age interval for being registered in upper secondary school. Second, although some may have been registered in upper secondary months before reaching the age of 15 (in the second half of 2001), by the time the survey was conducted they would have reached the age of 15. The third reason relates to technical issues. We could have used even older group ages and control determinants for them to have participated in (and completed) post-compulsory schooling. However, it would be less easy to identify family backgrounds of older cohorts in our dataset of LSMS 2002 for children who are no longer living with their parents. Fourth, theoretically we claim that decisions taken in 2001 (for the school year 2001-2002) would better mirror the intergenerational transmission mechanisms effects in the middle of the transition period.

Using parents' characteristics as determinants of participation in education is made at the cost of losing those students who are living independently either on their own, in partnership with others, or in some other arrangement. However, this problem may be of less concern in our case. Given the country's social

characteristics, young Albanians are more likely to live with parents than apart. Less than 5 percent of the sample lack information on parents, or miss some other information, for those still in compulsory (the 15-18 year old group); we dropped these cases.[7] In the following we explain the variables for estimation reporting their mean value and standard deviation.

Our dependent variable for the both models is drawn from a single question (No. 8/B) of the LSMS 2002 in the fourth module regarding Education:

- Are you enrolled in school in the current school year?

To identify the level of schooling the individual is registered for, we use another question (No. 14/B) asking:

- What level of school are you registered in?

We are not able to distinguish among the 15-18 year old group whether those registered are currently attending school or not. Although there is a corresponding question in the module (9/B), 475 individuals have answered as being currently attending school, and 517 have not answered (or their answer is missing). In survey data individuals often neglect to answer questions. This may happen particularly, if information is already elicited from other similar questions. We check to control by the question (4B/10) asking for the reasons of non attending school regularly. Since answers are missing, presumably all of our sample individuals currently enrolled are attending school and considered as participating. Table 2 reports mean and standard deviations of the variables we utilise in the empirical estimation. About half of the sons and daughters' sample are enrolled in upper secondary schooling.

Table 2 Descriptive statistics of the 15-18 years old sample

Variables	Females		Males	
	Mean	S.D.	Mean	S.D.
Enrolled currently	0.47	0.50	0.48	0.50
Explanatory variables:				
Number of children 0-14 years old	1.28	1.23	1.10	1.17
Father upper secondary	0.35	0.48	0.34	0.47
Father tertiary	0.10	0.29	0.12	0.33
Father post-compulsory	0.44	0.50	0.46	0.50
Mother post-compulsory	0.34	0.47	0.37	0.48
Father employed	0.79	0.41	0.82	0.39
Mother employed	0.62	0.49	0.59	0.49
Unemployment rate in the district	22.78	5.21	23.21	5.21
Urban area	0.45	0.45	0.47	0.45
Age15	0.26	0.44	0.47	0.50
Number of observations	527		465	

Note: We use terms males and females, sons and daughters, and boys and girls interchangeably.

Mother's and the father's education were measured using the same category scale ranging between compulsory or less, and completion of upper secondary or more, though given the low mean of the tertiary education variable for mothers,[8] we only assign three schooling levels to fathers. The labour market status of parents identifies whether the parent has a job, implying that parent is employed in any of the economic sector, including agriculture. We expect these variables of parents' background to positively affect schooling

7) Missing observations represent less than 1 percent of the sample, hence listwise deletion may apply and cause no selection bias (see Cameron and Trivedi, 2005 for cases when applicable).

8) There were only six mothers with tertiary education for females, and thirteen for males.

participation of their child. Table 2 indicates that sons compare slightly better than daughters regarding their parental background, apart from the labour market status of mothers.

As an additional variable of the parent-child association in schooling decisions we would have applied an income variable. However, the income data is available only for about three-quarters of the sample, and are missing for the other cases because the parents refused to provide the information required. Even when present, there is a major problem with this variable. Income here includes the incomes from all the household members, i.e. even those from school-age children who work are included. Since one possible outcome is that children not in school may be working, the income variable would not be a good proxy. Hence, we are not able to include a parental income measure in our analysis.

We would have expected that the absence of the market for student loans in Albania would strengthen the dependence of education participation on family income. Although the income variable is absent from our analysis, as Hanushek (1992) suggests, the demographic family variables proxy the income share allocated to each child. Hence, the number of younger siblings may negatively affect the probability that a teenager participates in post-compulsory schooling. The larger the family and the number of young children within the family, the smaller the income share to each of the family members. We expect young individuals, especially males, generally to enter the labour force at the end of compulsory schooling if living in poorer families. Table 2 indicates that number of younger siblings is, at the mean, larger for females than males. Being especially interested in the schooling decisions at the age between compulsory and post-compulsory schooling, we employ a dummy variable for 15 year olds, and observe whether their participation is significantly distinct from the other cohorts of 16, 17 and 18 year olds.[9)]

Local labour market conditions are proxied by the adult district unemployment rate. Regional differences in employment opportunities may be expected to influence the schooling investment decision, as described earlier, in two ways; either through opportunity costs and/or labour market expectations. At the persisting relatively high unemployment rates prevailing in Albania (Gjipali, 2007), we would expect a negative net discouragement effect on post-compulsory schooling investment, due to the expectation of continuing poor prospects in the labour market. Whether the household lives in an urban or rural area is deemed important in determining the incentives for the young for continuing in further schooling, since we argue that there are more opportunities for employment for graduates in urban areas. The aim is mainly to capture the schooling effects on household decisions. Slightly less than half of each gender sample lives in urban areas.

The analysis developed here, due to data restrictions, lacks some variables related to institutional features: the expected direct cost of education (i.e. tuition fees) and the relative difficulties of accessing the next levels of the education system (entry exams or other screenings procedures). However, tuition fees are only applicable in the tertiary education system and were almost insignificant at the time of the survey. Entry exams to upper secondary schools are limited to entrants into technical schools for which demand exceeds supply (only in 2 to 3 schools in major cities, while our sample is representative of a much broader area, the whole country territory).

While family inputs to education are indeed extremely important, the differential impacts of schools and teachers receive more attention when viewed from a policy viewpoint. The characteristics of the schooling system are generally more easily manipulated than what goes on inside the family. The hypothesised effect of school type variable that we intend to use relates to teacher investment aspects. We referred to teachers' qualification as a measure school quality: the percentage of teachers with only upper secondary or a two-year high school of post-upper secondary in the total number of teachers in each district. If education is of poor quality, the financial incentives to join would be lower. The above measure is provided by the Albanian Ministry of Education at district level. However, maybe due to the low variance of this aggregate variable, we

9) Being interested also in the drop outs from the post-compulsory schooling, and considering whether participation changes with age, we deploy dummy variables for each age of 15, 16, 17 and 18 (3 dummies plus the benchmark category). However, since none of the dummies corresponding to ages 16, 17 and 18 was significant, we do not report estimations with them. The same applies for participation in tertiary education, regarding dummy variables for ages 19, 20, 21 and 22.

obtained insignificant coefficients and do not report the results with this variable. Instead, given the large differences in school quality between urban and rural areas (Gjipali, 2007), we believe that the urban dummy may also be a proxy for the missing school quality variables, as well as different employment opportunities and peer effects. Next, we present the empirical findings regarding estimations of both models.

5. Our empirical findings

In this section we present our empirical findings on the determinants of schooling participation incidence, meaning the probability that a young adult will be enrolled in post-compulsory schooling. As noted above, a Probit model is used for the 15 to 18 year old decisions, the results of which are reported below.

5.1 Upper secondary schooling determinants

The key concern in this section is what affects the decisions to participate in upper secondary schooling. The estimated coefficients of equation (3) are presented in Table 3. As can be seen, parental education exerts the most significant influence on the post-compulsory schooling participation of Albanian young adults. This association holds for both male and female children at 1 percent level of significance. However, schooling decisions of sons are not significantly affected by the employment status of parents, whereas for daughters, the mother's employment is significant only at 5 percent level of confidence. The number of siblings appears to significantly negatively affect only males participation in upper secondary. It may be that in the presence of a large number of younger brothers and sisters, young male teenagers leave school for work and supply additional income to their family. 15 year olds teenagers are more likely to be enrolled in upper secondary than their older counterparts. This may indicate possible drop-outs from school at a later age.

Table 3 Coefficients of Probit equation estimates of determinants to schooling participation

Explanatory variables	Female		Male	
	Coefficients	S.E.	Coefficients	S.E.
Constant	-0.82**	0.37	-0.49***	0.35
Number of siblings 0-14 years old	-0.03	0.06	-0.21	0.06
Father upper secondary	0.74***	0.16	0.41***	0.16
Father tertiary	2.00***	0.46	1.04***	0.29
Mother post-compulsory	0.58***	0.18	0.54***	0.17
Father employed	0.07	0.18	0.31*	0.18
Mother employed	0.32**	0.16	-0.06	0.15
Unemployment rate	-0.03**	0.01	-0.02	0.01
Urban area	1.36***	0.16	0.68***	0.17
Age15	0.32**	0.16	0.59***	0.17
Log Likelihood	-220.9		-235.04	
Prob > chi2	0		0	
Number of observations	527		465	
Mean dependent variable	0.474		0.484	

*, ** and ***, significant at 10, 5 and 1% of level of significance

The district unemployment rate has a negative impact on the likelihood of female teenagers enrolling in upper secondary school, though for males it is insignificant. It is apparent though, that the urban youth are more likely to attend upper secondary schools than their rural counterparts. We expected this result for several reasons, which are related to the role of the regional variable in capturing school quality and peer effects, as well as the greater work opportunities after completing school. This variable may also capture the

easier access to upper secondary schools that urban area children have compared to those in rural areas. Moreover, rural areas' schools have lower quality than in urban, as measured by the percentage of teachers with tertiary qualification, whilst, poverty in rural areas may lead to school non-attendance, as parents need their children for work at home (OECD, 2002).

The empirical results generated above are indicative of strong intergenerational transmission effects in Albania. Based on the estimated coefficients of the Probit model in Table 4, we produce the probabilities that a 15 year old participates in upper secondary school, at the corresponding family background characteristics as shown in the table, at the mean value of the district unemployment rate and mean number of younger siblings. These probability estimates, for both urban and rural areas residents, are reported in Table 4.

Table 4: Calculated probabilities of schooling participation for a 15 year old in urban area (at the mean values of unemployment rate in the district and number of children 0-14 years old in the family) based on Table 3 coefficient results

Situation	Urban		Rural	
	Female	Male	Female	Male
Parents not employed, less than compulsory	0.55	0.55	0.11	0.29
Parents not employed, PCG, Father upper secondary graduated	0.93	0.86	0.54	0.65
Parents not employed, PCG, Father tertiary graduated	1.00	0.97	0.91	0.85
Parents employed, less than compulsory	0.70	0.65	0.20	0.38
Parents employed, PCG, Father upper secondary graduated	0.97	0.91	0.69	0.74
Parents employed, PCG, Father tertiary graduated	1.00	0.97	0.96	0.90

PCG stands for Post-Compulsory School Graduate

The first two columns demonstrate the case of a juvenile from a household located in the urban area. The first row, for example, represents the case in which the father and mother are not employed and have only completed compulsory education or less, meaning the dummy variables of family background take the value 0. In such a case, the chance of a 15 year old to remaining in education after compulsory schooling is almost a half, if living in a urban area. It is though considerably less likely for rural area children with similar family characteristics, to participate in post-compulsory school. Overall, females in urban areas have higher probability than males to be in school at the age of 15, whereas in rural areas in every category, bar two, they have a lower participation rate. The results suggest that children of parents who are post-compulsory school graduates are much more likely to stay-on after compulsory than their counterparts with lower parental educational attainment. Moreover, estimations indicate that parental educational attainment exerts a stronger effect than their labour market status. For example, if both parents are employed and live in urban areas, the probability that their child participates in upper secondary increases by about 30 percentage points if both parents are post-compulsory (PC) graduates compared to parents who are not (compare rows four and five of the first two columns in Table 4). It is almost certain that if their father has a tertiary qualification, the children will be participating in upper secondary school (although 97 percent chance for sons). If parents are not employed but highly educated, the probability that children are enrolled in upper secondary is smaller if the father has only upper secondary qualification than in case of having a tertiary diploma, by 7 percentage points for females and 10 percentage points for males. Having a father with a university diploma enhances schooling participation opportunities also for teenagers in rural areas. There is a lower participation though, if parents do not have a post-compulsory qualification. Comparing parental background effects by children's gender, it appears that they are stronger for daughters in urban areas, but for sons in the rural areas. Although, if father is tertiary qualified, this increases females' participation into upper secondary school by more.

These findings are generally in line with those found in the previous studies of Picard and Wolff (2005) and Hazans and Trapeznikova (2006). However, we find that the effects of parental education on participation

in upper secondary schooling, are stronger than parental labour market status; the latter was not included in these previous studies. Whilst younger siblings in the family were previously found to negatively affect upper secondary schooling participation in Albania, we find that this is significant only for urban area residents.

6. Concluding remarks

In this paper we are concerned with the demand for education of young Albanians. We were able to empirically appraise family effects on the demand for schooling. The data set that we use allowed us to estimate the effects of determinants related to family and other socioeconomic background. Although we lacked schooling characteristics variables as determinants on schooling demand, using a regional dummy variable allowed us to capture differences of school quality which are mostly pronounced between urban and rural areas.

Our findings suggest that Albanian youths with more advantaged backgrounds participate in post-compulsory schooling at a higher rate than youths with less advantaged backgrounds. Parental education is the most important determinants of schooling participation, suggesting that parents with higher levels of education generally also attach a higher importance to the education of their children. This implies an intergenerational chain transmitting the attitude towards the formation of human capital from one generation to the next. According to Kirchsteiger and Sebald's (2006) theoretical considerations, if the willingness of the parents to finance the human capital formation of their children depends on the investments their parents have made into their education, an economy might exhibit multiple steady states. The economy might get trapped in a low education steady state, where a low education level of the parents leads to the neglect of their children's education, reproducing the low education level in the next generation. As Iyigun (1999) and Kirchsteiger and Sebald (2006) suggest, to overcome such a 'bad' steady state and for intergenerational mobility to increase during the process of development, the share of resources devoted to public education has to be large enough to offset the relative advantage of having parents with academic attainment. More public investment into human capital formation is needed for a transition from a steady state with low human capital levels to one with a higher human capital level, especially when the labour market provides relatively low incentives.

The primary objectives of each policy intervention should be either to alter the system of incentives facing youths and employers in the labour market, or to widen the range of post-compulsory school options, thereby reducing constraints and so offering young people a greater choice. The aim is to raise the quality of the education system and to increase the quantity of education as a means of stimulating Albanian economic and social development.

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