

## **Exploring Intergenerational Social Mobility in Argentina**

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### **Abstract**

This paper estimates intergenerational mobility degree in Argentina looking for mobility differences between teenagers and young adults. Based on a new data base, the Survey of Employment and Education of Youth (*CEDLAS-INDEC*) it is obtained non biased mobility estimations for children older than teenagers. The estimations unveil quite less intergenerational mobility for young adults regarding teenagers, a result that is robust for several specifications of the model. It is also find that young adult immobility is not uniform across parents' educative level. There are also gender differences of mobility.

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### **3.1 Introduction**

As it is already known, giving a sound judgment of social fairness requires not only knowing the degree of income inequality and its evolution over time, but also having a truthful measure of social mobility. Having a high mobility degree, the progress prospect for the less favored lays on a combination of effort, ability and luck; and indeed the poor are not severely bounded by their initial condition in life. Hence, regardless of the income inequality of a society, the latter would not be unfair as it would be bringing equal opportunities to everybody. Specifically, with equality of opportunity between the haves and the have-nots, family background like parents' education and households' income will not be relevant in determining a child's future socioeconomic level. In Roemer's words, childhood circumstances will not impinge upon their success in later life.

Although there is a wide empirical evidence showing that Latin America is still one of the most unequal regions of the world (IPES 2008, Perry et al. 2005; De Ferranti et al. 2004; Bourguignon, Ferreira and Leite 2002), systematic quantitative analysis in social mobility across generations is rather scant in Latin America. The strong data requirement of those estimations is, undoubtedly, a paramount obstacle for the researchers. To overcome the lack of appropriated longitudinal data, some researchers have attempted to measure intergenerational mobility in Latin American countries using cross sectional surveys (e.g., Behrman, Birdsall and Székely 1998; Dahan and Gaviria 2001; Andersen 2001 and Conconi et al. 2007). Focusing on young children who still co-reside with their parents, their strategy consists on estimating the scope to which family background determines schooling outcomes of children. This methodology has the relevant advantage of allowing comparisons on social mobility

among Latin American countries, since using standardized data sets from household surveys; it is assured that differences in mobility between countries will not be reflecting differences in data structures, measurement or statistical approach.

All in all, the strategy of those papers strongly focuses in teenager's school attainment, telling practically nothing about young adults' mobility for which the proportion of individuals that live on their own greatly increases. In terms of social mobility, it seems safe to say that young adults who leave home relatively early may differ significantly from those who leave home later. This approach of the papers just mentioned focuses in young children to avoid potential biases associated with the inclusion of young adults that still co-reside with their parents (Andersen 2001). Nevertheless, if family background affects differently the marginal decisions of education of young people beyond the adolescence, stopping to look at schooling achievements around twenty years old, tells only part of the intergenerational mobility story. Hence, those results have a caveat as they apply only to young people.

The aim of this paper is to investigate the degree of social mobility in Argentina, exploring differences in the estimations when using different data bases including young adults, besides teenagers. For this purpose it is used the Survey of Employment and Education of Youth (*Encuesta de Educación y Empleo de los Jóvenes, EEEJ*) collected by the *Instituto Nacional de Estadística y Censos (INDEC)* and the *Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS)* of Argentina. This is a new and original source of information on labor and educational issues. The (*EEEJ*) was carried out in the Greater Buenos Aires Area, Argentina, to young men and women between 15 and 30 years old, who have already been interviewed by the Permanent Household Survey (*Encuesta Permanente de Hogares, EPH*). This paper contributes to the ongoing discussion about the suitable data for the

measurement of social mobility in developing countries, where the absence of long panel data prevents the researcher to study intergenerational income mobility in a straight way. The paper exploits the fact that this new survey includes several retrospective recall questions that provide information about individual family background. Hence, although it is a cross section sample to, this new survey allows exploring measurement differences in social mobility between teenagers and young adults, without the common biases that arise when using household surveys. Besides, given that for Argentina there are very few works studying intergenerational mobility (see Fernandez 2006 and FIEL 2008) this paper contributes to the analyses and evaluation of the equality of opportunities in Argentina.

The remainder of the paper is organized as follows. Section 3.2 describes the methodology used to estimate social mobility. Section 3.3 describes the data used for this project. Section 3.4 summarizes the main results. Section 3.5 explores mobility patterns for young adults, finally section 6 concludes.

## **3.2 Methodology**

### **3.2.1 Schooling and social mobility**

The intergenerational transmission of social status is a complex process that involves many links among family incomes, home investments in children's human capital, family tastes, children abilities, schooling attainment and future incomes of children later life (Becker and Tomes 1979, 1986; Behrman, Birdsall and Székely 1998; Han and Mulligan 2001; Bowles and Gintis 2002). In a context of perfect capital markets and without unobserved differences between low and high income households, there would be no differences in schooling investments associated with

income, once controlling for any observed differences in household characteristics. Under this scenario, educational accomplishment of children would be independent of their households' socioeconomic characteristics, so intergenerational mobility would be high. Instead, if household income and unobserved innate ability of children were positively correlated, there would be associations between household income and investments in schooling. The causal role of household income on child's schooling appears also with imperfect capital markets.

Following Behrman, Gaviria and Székely (2001), measuring social mobility entails the estimation of a dynamic linear model linking a relevant socioeconomic indicator for entity  $i$  in period  $t$  ( $S_{it}$ ) with the value of that indicator in the previous period ( $S_{it-1}$ ) and a stochastic term ( $w_{it}$ ) that is independent of the previous period indicator and that is independently distributed across individuals and across periods:

$$S_{it} = \alpha + \beta S_{it-1} + w_{it}, \quad (3.1)$$

Applying linear model in equation (3.1) to the transmission of schooling from parents to children,  $S_{it}$  refers to the educational children achievement and  $S_{it-1}$  to the educational attainment of each parent or the educative level of the most educated parent. The standard interpretation of  $\beta$  suggest very limited intergenerational mobility when  $\beta$  is close to unity, while estimates of  $\beta$  close to zero suggest that schooling outcomes are not closely related across generations. In this simple model,  $\beta$  is interpreted as a measure of the extent to which family background affects children socioeconomic outcomes, and thus as a measure of (in)equality of opportunities. Even so, considering equality of opportunities as a synonymous of a zero intergenerational correlation could be misleading, particularly when considering public policies to enhance fairness (Corak 2006). Parents influence children through the genetic

transmission of ability, but also through their social connections, culture, beliefs and motivation.  $\beta$  close to zero would imply that all these sources of heritability are irrelevant. As Roemer (2004) points out, this is “a view that only a fraction of those who consider the issue would, upon reflection, endorse” (Roemer, 2004, p. 49).

### **3.2.2 Data requirements**

The estimation of intergenerational mobility is a challenging task due to the strong data requirements it entails. Actually, ideal data sets for intergenerational studies rarely exist even in developed countries (Corak 2006). This is because to analyze the linkage of earnings or incomes across generations requires a longstanding longitudinal survey that follows people from their early years when living in parental home to their adulthood. The survey must be also based upon a representative sample of individuals. Parents' incomes have to be a measure of their permanent income, not simply annual income for a limited number of years. In developing countries these requirements largely surpass the longitudinal existent data. Not only sample sizes are often too small but also the length of the surveys involves only a few waves of data. Besides, frequently household panel studies did not follow people that moved out of their original household or once the family split up. So the samples are not representative (Jenkins and Siedler 2007). So, it should not be surprising that very little is known about how much family background affects socioeconomic outcomes in Latin America, or about the extent of inequality of opportunities in the region as a whole as well as in particular countries.

Behrman, Birdsall and Székely (1998), Dahan and Gaviria (2001) and Andersen (2001) offer an alternative approach to measuring social mobility. These papers use standard household surveys information on parental and children's

schooling. The authors focus on young children still co-residing with parents overcoming that way the lack of appropriated longitudinal data. Two basic assumptions underlie their strategy. The first one is that schooling and future opportunities are highly correlated for young people. The second one is that equality of opportunity is a good indicator of social mobility.

This approach defines children's schooling gap as "the disparity between the years of education that a teenager or young adult would have completed had she entered school at normal school starting age and advanced one grade each year, on one hand, and the actual years of education, on the other hand" (Andersen 2001, p.8). This concept is a very simple indicator of future opportunities, very well suited principally for studying social mobility for teenagers or young adults. For example, a 17 year-old teenager who has completed 9 years of schooling will register a schooling gap of  $(17-9-6) = 2$  years, if he lives in a country where children are supposed to start school at age six. Hence, the schooling gap is defined as the average years of missing schooling time. Following Andersen (2001), the schooling gap has several advantages compared to measures based on earnings or years of education. First, income measures are notoriously inaccurate, highly dependent on season for large groups of the population, and generally difficult to compare across countries. Besides, there is the measurement error bias that arises when using reporting data on incomes. Second, years of education are not a good measure of educational attainment for young people, because many of them are still in school. It does not take into account differences in school quality, however, and that seems to be the main drawback.

However, there is a shortcoming under this approach since. Although it allows estimating intergenerational school mobility for teenagers still living in parental household, there still remains a very large group of children that are young adults and

could not be included in the analysis. Studying mobility for young adults using standard household surveys would involve substantial losses of information and probably biases as long as those who leave home relatively early, may differ significantly from those who leave home later, in terms of social mobility (Behrman, Gaviria and Székely 2001). Hence, restricting the sample to teenagers still co-residing with their parents solves the data problem in estimating social mobility, but it could be telling only part of the story. Using cross-section data would involve missing any important change in the connection between family background and socio economic performance beyond adolescence.

An alternative approach to overcome data restriction consists in using cross sectional surveys containing retrospective questions on parental background. In retrospective surveys, individuals are typically interviewed only once and they provide retrospective information using recall. It is quite evident that parental income information of that source will not be of great accuracy. However retrospective information on parental education and occupation can be obtained very precisely. This way it is possible to estimate mobility for young children and also for young adults as in Behrman, Gaviria and Székely (2001). This is also the strategy followed by FIEL (2008), which design and collect a specific survey on socioeconomic life conditions in Great Buenos Aires asking about family background. The advantage herein lies not only in the enlargement of the sample but mostly in the potentially different link between children schooling and parental background across the successive educational level achieved by the former. Educational persistence can be low for children at secondary level when secondary schooling has been expanded or when it becomes mandatory. In both cases many children whose parents hardly completed primary studies, will achieve secondary studies. But, meanwhile, since tertiary or university



studies have not been expanded, educational persistence could be large for individuals deciding to continue studying beyond secondary schooling. This advantage is more valuable given the close connection between education attainment and later incomes, and the fact that labor market demand for high-skilled workers has been steadily growing. Including young adults allows inspecting the intergenerational link for those who reached or would have reached tertiary studies or university.

The methodology used in this paper is grounded on the idea that when parents' education and household income are both important determinants of offspring's opportunities, social mobility would be low. Conversely, when the opportunities children faces are not strongly determined by family background, their social mobility would be high. So, this methodology recognizes a solid relationship between incomes and schooling. This is a sound hypothesis for Argentina where there is empirical evidence that returns to education increases with the schooling level and that the overall rate of return to an additional year of schooling is higher than the average for middle income countries (López Bóo 2007)<sup>i</sup>. Hence, with convex returns to schooling, stopping to look at educational mobility for children under the age of university studies could produce a misleading measurement of the real intergenerational mobility.

To avoid the lack of longitudinal data sets in Argentina and surpass the limitation that arises by using cross-section data, the strategy used here consists in exploring intergenerational links using a survey collected from young men and women between 15 and 30 years old, already interviewed by the Permanent Household Survey, which provide some covariates regarding family background. The survey included retrospective questions on parental socioeconomic characteristics. Using this data set it is possible to measure the effects of family background schooling success of

teenagers co-residing with their parents, but in addition it is also possible to study the intergenerational link for young adults who still reside with their parents or has already left out, showing if there are differences among age groups. To compare teenagers' mobility with older groups, Andersen's definition of schooling gap is used for defining children's schooling performance.

### **3.3 Data**

Data for this study come from the Survey of Employment and Education of Youth (*Encuesta de Educación y Empleo de los Jóvenes* )(EEEJ) collected in June 2005 by *Instituto Nacional de Estadística y Censos (INDEC) and Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS)* of Argentina (INDEC-CEDLAS). This is a new and original source of information that focuses in young people labor and educational issues. This sample has never been used in any study before apart from Marchionni, Bet and Pacheco (2007) who present the basic information contained in the survey and some potentially valuable uses of the sample to estimate models about youngsters' insertion on the labor market. The survey was designed to collect a more complete and relevant information to study labor participation and labor experience of the youth. It provides additional data about the educational performance of the youth and the characteristics of the school -like private or public or single or double shift type- that they have attended or are currently attending. It also seeks to offer information about early job experiences of the youth and about their social environment and family background. Of particular interest for the present work is that the survey's respondents are asked about the educational level of their parents. This is very valuable as the household survey regularly collected in Argentina does not include any question about the family background of the respondents. The EEEJ was

carried out in the Greater Buenos Aires, Argentina, to 807 young men and women from 526 households, between 15 and 30 years old, who had been already interviewed by the Permanent Household Survey (*Encuesta Permanente de Hogares, EPH*). This strategy would allow linking both surveys, bringing a substantial improvement to the Survey of Employment and Education of Youth by adding the demographic, socioeconomic and labor information of all household's members. Unfortunately, at the moment this study has been done, there is no way to link both surveys as the necessary code to do the link for matching purposes has not been provided by *INDEC* (Marchionni, Bet and Pacheco 2007). At least, the *INDEC* has already added several households' variables in the *EEEJ* data base.

Table 3.1 shows that the three age groups are quite similar in size and a little less in gender composition. It also shows that about 95% of all teenagers live in parental home. Instead for young adults, the percentage of co-residing children drops to 73% for those between 20-25 years old and to 61% for the older group.

Table 3.1: Data Descriptive Statistics

Age Group	Total	% of Male	% of Female	% Still Living at Home
15-19	278	51	49	95
20-25	296	47	53	73
26-30	233	45	55	61
<b>Total Observations</b>	<b>807</b>	<b>375</b>	<b>432</b>	<b>587</b>

Note. This data come from the Survey of Employment and Education of Youth (*Encuesta de Educación y Empleo de los Jóvenes*) (*EEEJ*) collected by the Instituto Nacional de Estadística y Censos (*INDEC*) and Centro de Estudios Distributivos, Laborales y Sociales (*CEDLAS*) of Argentina (*INDEC-CEDLAS*) in June 2005.

Source. Own calculations based on *EEEJ*.

School gap, as defined in Andersen (2001), requires first calculating for each individual his years of schooling. In the survey, the respondent declares about the

highest level of schooling (e.g., primary, secondary)<sup>i</sup> that he is currently in or has been in. If he has completed it or not and the last grade he passed. With this information it is possible to calculate for each individual his years of schooling. In cases where some of these questions are not answered, the variable years of schooling can not be defined. However, in cases where children did not respond about the last grade that they have past, but they did declare that the highest level of education achieved was primary or secondary, it have been possible to calculate years of schooling for them. For example, if she declares to have completed secondary studies, she had attended 7 years of primary plus five of secondary; hence she would have had 12 years of schooling. In the rest of the educational levels it was not possible to calculate years of schooling due to the fact that the length of tertiary or university education studies is not fixed. Similarly, it was not possible to calculate schooling years for those children whose highest level reached was *Educación General Básica (EGB)*. This level includes nine years of basic education composed by three consecutive levels which are not distinguishable in the data<sup>ii</sup>. In addition, although the last year of preschool was not mandatory until 1993, attending one year of kindergarten was quite common before. Therefore here it is supposed that all children had attended it. Hence, in the above example, the whole schooling attainment would amount 13 years. Therefore, schooling gap is computed as the age at the moment of the interview minus years of schooling minus normal school starting age, the last set at five years corresponding to a child entering school to attend one year of kindergarten. For example, for a 15 year-old boy who has achieved eight grades of education nine year of schooling are computed; so taking the age of five for attending preschool implies one year of schooling gap. For people above 25, it is assumed that the maximum number of schooling years they may have achieved is 17. This entails assuming that on average

university studies length is no longer than four years. This assumption helps to avoid spurious schooling gap due to the age of the respondent.

For parents' education, the Survey computes the highest level of education that they have really reached (e.g., none, primary, secondary) but does not specify how many years of education they have achieved. This is a shortage of the *EEEJ* and would potentially affect the regression coefficients. Hertz et al. (2007) found that regression coefficients were sensitive to these coding decisions. However, the interest of this paper is about measuring social mobility differences between teenagers and young adults and not to establish its overall degree. So, it seems that this deficit would not affect seriously the main purpose of the study. There are 74 records that do not recall their parents' level of education and 14 declared either their father or their mother have not education at all. Here, those zero values are treated as the true value, although some of them could have acquired some informal education. In addition, the survey also asks if this level of parents' education had been finished by the moment the respondent was attending the secondary school<sup>ii</sup>. Restricting the sample to those respondents whose fathers had already finished their education level by the moment the child was at school diminishes the sample in 40% and 36% when considering mothers. The survey does not ask if parents did end their studies after that. As mentioned above, *INDEC* added some information to the data base of the *EEEJ*. Among them there are several definitions of household's income. The per capita household income was included in the estimation of conditional education mobility. However, those income variables correspond to parents' home only for children who still co-reside with them. For those living by their own, those magnitudes are their contemporaneous incomes. Fortunately, the *EEEJ* includes a set of qualitative questions regarding which school the children attended or are still attending (e.g.,

whether it is public or private, single or double shift, teaches or not foreign languages). Those characteristics were analyzed to select the best proxy to household's income level when children attending primary school.

The Survey includes a question about the age that the individual got their first job. The data shows that in many cases this happened during the child's school age. This early entrance to the labor market might undoubtedly be relevant in explaining schooling gaps, so two additional controls were added. One of them is a dummy to detect whether she was once employed or not. The other control is a variable that registers the age of her first employment.

#### INSERT TABLE 3.2 ABOUT HERE

Table 3.2 shows that on average the group of young adults (20-25 years old) has achieved more schooling, but the teenage group presents a much lower schooling gap. For the latter average schooling gap is 1.08 grades, meaning that on the average a 16 year-old who should have completed 11 grades of schooling if he had started at age five (preschool level) and advanced one grade each subsequent year in fact has completed slightly less than ten grades. Meanwhile, on average a 20 year-old who could have completed fifteen grades of schooling, in fact has completed also slightly less than ten grades. Those data suggest that the average schooling gap is substantial for young adults. By gender, on average, female are slightly more educated than male and have less disparity between expected and actual years of education. Regarding educational level of parents, Table 3.2 shows that mothers have a higher level than fathers. Parent's average educational level is around 3.5, which denotes that they have achieved a level of education between primary and secondary level. Although it is not possible to do precise comparison between parents and children years of education, it

seems that the level of education does not differ so much between the two generations. However, the effective schooling level of parents would actually be below the level showed in Table 3.2. Respondents declared that around 36-40% of mothers and fathers had not completed the educative level computed in the survey when children were attending school, or at least children do not recall. Restricting the sample to those parents whose children recall for sure they had completed their level of education (e.g., complete primary, complete secondary) show averages level of education that are practically the same obtained with the full sample of parents. The Table also shows that the percentage of children that attended primary private schools range between 24% to almost 30%, denoting how major private school is in Argentina's educational system.

### **3.4 Estimation Results**

#### **3.4.1 Educational mobility**

In this section it is reported the results of applying the linear model in equation (3.1). Several different specifications are estimated and the results are shown in Tables 3.3 through 3.7. To detect differences in social mobility between teenagers and young adults, the model is estimated for each group separately besides for the whole sample. Estimations are shown to be robust to changes of the specification of the basic model, and the sign and the significance of the coefficients do not change when adding progressively explicative variables.

Table 3.3a shows the results for estimating model (3.1) using schooling gap as the independent variable and the parents' maximum educational level as covariate. This exercise allows to show unconditional mobility (Fields et al. 2007), that is, to

document the extent of generational convergence on educational level. This is relevant because children convergence on educational achievement is an indicator of equality of opportunities in the economy. The results show that mobility is large for teenagers ( $\beta_{15-19} = -0.24$ ) but not for young adults ( $\beta_{20-25} = -0.73$  and  $\beta_{26-30} = -0.91$ ), being all the coefficients statistically significant at a 5%. For example, for young adults older than 25, the findings point out that an improvement of one educative level for their most educated parent (e.g., from primary to secondary level) amounts a drop of almost a year in their schooling gap; for the youngest, the one level improvement of their most educated parent amounts a meager decrease of their schooling gap. Even so, since the schooling gap is quite different between teenagers and young adults, these differences in the absolute magnitudes of  $\beta$  do not necessarily mean there are relative differences on the family educational background influence over both groups. Considering that the schooling gap of the teenagers is about one year and about five for young adults (25-30), their respective  $\beta$  coefficient entails about a 20% decrease of the average educational gap. Taking those results jointly, it is apparent that parents' education level is quite decisive on the generational transmission of social status for the young adults who are taking marginal decisions on education and not for those for whom education is at the compulsory stage. It is also evident that parents' educational influence is proportionally the same between both groups once taking into account the average delay of their cohort.

It is possible that the fact that many parents had not completed their educational level by the moment the child attends to school affects the results obtained here. To see how robust are the results above obtained, Table 3.3b shows the results of estimating unconditional educational persistence using a smaller sub-sample of those records for which the children recalls that both parents had finished their educational



level by the time the children were at school. Despite the large drop of the sample size, the results are quite similar to those showed in Table 3.3a, corresponding to the full sample. Similar results are obtained with the whole sample when assigning a lower educative level to those parents whose children do not recall whether they had completed or not the educational level they had attend. The results are shown in Table 3.3c.

INSERT TABLE 3.3 ABOUT HERE

Turning to conditional mobility, Table 3.4 shows the results of estimating a model (Model 1) with the same independent variable but using as covariates the educational level of both parents and the deciles of per capita household income, as family background. There are also added standard controls like sex and age. For the whole sample, the educational link between parents and children indicates high intergenerational mobility. Both coefficients are quite below 0.5, being statistically significant at the 1 percent level. In addition, the results indicate that schooling gap tend to diminish as family income is higher, being the coefficient statistically significant at 1 percent level. The age coefficient is positive and statistically significant at 1 percent level, denoting an enlargement in the years of missing education as older the youth. The gender dummy has a negative and significant effect in the mean schooling gap, suggesting that the expected performance of boys is higher than that of girls. Table 3.4 also shows the results for each group of children estimated separately. The estimates of the intergenerational link on education for both parents grow markedly from teenagers to young adults (26-30 years old). It is also noticeable that father's coefficient is neither statistically or economically significant for teenagers.

INSERT TABLE 3.4 ABOUT HERE

Following Behrman's approach, Table 3.5 shows the results of applying the linear model in equation (3.1) to the transmission of schooling from parents to children, where  $S_{it-1}$  refers to the educational attainment of the most educated parent and the rest of explanatory variables are the same of Table 3.4. The results in Table 3.5 are broadly similar to those former in Table 3.4, showing that the estimations are robust to changing the definition of the main independent variable. Here again differences are detected between groups in the absolute magnitude of the intergenerational link, but the relative influence of parent's educative level over each group of young is similar. For the whole sample, the gender dummy shows a negative and significant effect in the mean schooling gap. For each sample sub-group separately the effect of being a boy is still beneficial but it is not statistically significant for teenagers.

INSERT TABLE 3.5 ABOUT HERE

Regarding the effect of households' incomes on children's schooling performance, these results suggest that this is more important the older the youth group. But, as it is known, income is a variable largely prone to measurement error and due to the lack of a long panel it is not possible to get an estimation of permanent incomes by averaging household income across several years, as is usual in the empirical literature (e.g., Eide and Showalter 1999). Besides, and more important for the purpose of this study, for those who are no longer living with their parents, the income variable included by INDEC in the EEEJ data base refers to their own income, not to their parents' income. Hence, for young adults that do not co-reside any longer with their family, the income variable does not reveal family background at all. For all these reasons, it seems helpful to select a variable that reflects better the family's financial capacity for educating their children.

The survey asks several questions regarding the type of primary school the students had attended, which helps to reveal the socio-economic level of the family during children's early schooling age. Specifically, it asks about whether primary school they had attended was public or private, single or double shift, gender-exclusive or not and bilingual or not. All those characteristics could also reveal the quality of the school, but herein they are analysed in light of the differential cost that each pair of possibilities entails regarding public, one shift, not gender-exclusive, not bilingual primary school, which is free. Actually, the substantive difference is between public free primary school and private primary school, because in Argentina's educative system, the former is rarely other than single shift, all gender, and monolingual. So, it is selected primary type of school (public or private) as an indicator of parents' income level and the results of the estimations including it are shown in Table 3.6 (Model 3).

INSERT TABLE 3.6 ABOUT HERE

The negative sign for the estimated coefficient on "private primary school" implies that better family's economic background has a diminishing effect on schooling gap. The results show that this indicator of family background is strongly associated with the schooling gap of the young, suggesting that having attended a private primary school reduces about one year the average schooling gap of the whole sample. But there is considerable variation across age groups. For the older group (26-30) Table 3.6 shows that the estimated coefficient on "private primary school" amounts to more than one year and a half. This estimate largely doubles the teenager's, denoting that the economic position of the family affects more the schooling gap of those individuals that are beyond the age of educative compulsory level. Besides, in Table 3.6 (Model3) replacing incomes by a dummy for private

school enlarges the intergenerational transmission of schooling for the whole sample, making more pronounced the differences between teenagers' social mobility regarding young adults'. All those coefficients are still statistically significant at the one percent level. The gender effect is negative but it is statistically significant only for the whole sample and the young adults' (20-25) group.

Marchionni, Bet and Pacheco (2007) point out that, according to the students surveyed on the *EEEJ*, the competition between keeping on studying or starting to work is the main reason of dropping out of secondary school or never attending it. According to the authors more than 80 percent of the sample declared having had an employment. All of them were of age 18 or younger by the time they got their first job. Table 3.7 shows the negative impact of this early entrance to the labor market, which enlarged the schooling gap. It is also noticed that the effect on the schooling gap of having had to work at an early age is more pronounced on young adults.

INSERT TABLE 3.7 ABOUT HERE

### **3.4.2 Gender differences**

Tables 3.4 -3.7 had consistently shown that being a boy produces a drop on the school gap of the child. Considering that girls on average showed better educational performance than boys, both shown in the attained years of schooling as well as in the schooling gap, it is interesting to study gender differences more thoroughly. Tables 3.8a -3.9b show the estimated results of former Model 3.3 and Model 3.4, by gender.

Table 3.8a-3.8b shows that the influence of parent's educative level is greater on males than on females whether they were teenagers or young adults. On the contrary, family's economic background is utmost important to explain schooling gap

of females. Having attended private primary school reduces about one and a half year schooling gap for females. Notwithstanding, for young adults men (26-30) primary private school coefficient is greater than the female one.

INSERT TABLE 3.8 ABOUT HERE

Table 3.9a-3.9b shows the strong negative effect on the schooling gap for young adult males that have had to work early in their lives; the results indicate an enlargement of the gap in about seven years. For females, the employment coefficient is statistically significant only for teenagers at a significance level greater than five percent.

INSERT TABLE 3.9 ABOUT HERE

### **3.5 Intergenerational immobility patterns**

The results obtained above broadly suggest that, in absolute magnitudes, the transmission of educational level between parents and children is higher for young adults than for teenagers. It is also possible that the intergenerational persistence of education level between parents and their adult offspring varies with the educative level achieved by the parents. To supplement the understanding of young adults' low mobility, transition matrices are estimated to determine who moves where within a generation. To construct those matrices, schooling years for young adults were grouped in three levels and, in a similar way, former educational level for each parent was grouped in three levels too.

Table 3.10 presents non conditional transition matrices for young adults (20-30 years old) for the whole sample and also differentiating it by gender. Each element  $p_{kj}$  of the matrix provides an estimate of a child's non-conditional probability of being in

educational level  $k$  given that his parents' maximum educational level achieved was  $j$ . For example, the top left-hand element of the first matrix indicates that a child, whose father or his mother has achieved only primary schooling, has 24.8 percent probability of ending having this low level of education. The diagonal elements of each matrix represent the non conditional probabilities of a child staying in the same schooling level as their parents have.

INSERT TABLE 3.10 ABOUT HERE

The results show diminishing mobility from low to high schooling level and reveal that for children older than teenagers educational marginal decision depends largely on the level of education achieved by their parents. Elements in the lower triangle of the matrix represent the probabilities of a child achieving a higher level of education than their parents. It can be seen in the three matrices that a child raised in households where parents have achieved at most primary school, have a large probability of attend to secondary school, but a very low probability to attend university or tertiary studies. For those children whose family educational background is at the secondary level, the probability of attaining the same educational level of their parents is already the same of achieving university level. The elements in the upper triangle represent the non conditional probabilities of a child achieving a lower education level than their parent. Those probabilities are quite low in all the matrices.

The transition matrices for sons and daughters show different patterns of intergenerational persistence suggesting that there are different mechanisms of intergenerational educative transmission by gender. Mobility seems quite large for daughters whose parents have achieved a low level of education. Conversely, it appears that having low educated parents largely implies that their sons achieved a low educative level. Besides, a female child whose parents' maximum educative level

was secondary school has also greater probability of getting a university degree than a male one. But, intergenerational persistence is higher for daughters regarding sons, when parents have achieved university or tertiary degree.

Table 3.11 shows the results obtained by employing the multinomial probit model to assess the conditional probabilities of transition from the maximum parents' educational level to the child's. It is shown that, both children age and private primary school diminishes intergenerational educative persistence for low educational level (primary or less). This drop of the intergenerational link at the lowest educational level suggests that family's income is significant to explain the persistence of this low educative level.

INSERT TABLE 3.11 ABOUT HERE

Differentiating by children's gender, it is apparent that this effect is substantial for daughters but rather low for sons. Besides, conditioning on families economic background enlarges markedly the probability of obtaining a secondary degree for daughters from low educated families. These results suggest that girls from poor families would have less opportunities of climbing the social ladder than boys. Conditioning shows another interesting result. For those parents that achieved the maximum educative level, there is also a decline of persistence when adding controls. Although here the effect is quite small, this goes in the same direction suggesting that family background, specifically their level of incomes, plays a role in explaining intergenerational mobility. These results are quite different by gender. For male children, conditioning on family's income slightly enlarges intergenerational persistence of getting a university degree; for female, intergenerational persistence diminishes largely showing that family's income background indeed plays an important role on daughter's highest educative level success.

### 3.6 Concluding Comments

In this chapter, the exploration of differences in the degree of intergenerational mobility in Argentina between teenagers and young adults is a major contribution. A new data base, the Survey of Employment and Education of Youth (*Encuesta de Educación y Empleo de los Jóvenes,*) allows obtaining unbiased mobility estimations for young people older than teenagers. Applying several models of Behrman et al. dynamic linear model, it was estimated the scope to which family background determines schooling outcomes of children.

The estimations unveil quite less intergenerational mobility for young adults relative to teenagers, a result that is robust for several specifications of the model. These findings suggest that when deciding whether to continue studying or not beyond compulsory schooling, the young are strongly influenced by their parents' educative background. The results also show that generational convergence of young adults and teenagers is quite similar when taking into account the average schooling gap of each group. That is, belonging to a family where the highest educative level achieved by parents' increases by one level (for example from primary to secondary), diminishes the educative delay of any children in around 20%. But, while for teenagers this implies a very short delay, for young adults it involves more than a year. Discriminating by gender, the influence of parent's educative level seems greater on males than on females whether they were teenagers or young adults. On the contrary, it is evident the utmost importance of family's economic background on the schooling gap of females. It is also found that young adult immobility is not uniform across parents' educative level. Specifically it appears that immobility is quite large at higher



(university and tertiary) educative level. Besides, the findings show different patterns of intergenerational mobility by gender.

This result also gives a word of caution about studying intergenerational mobility by using only cross-section data, which allows estimating mobility for teenagers, but not for young adults. In light of these findings it appears that it is necessary to complement the diagnosis obtained from regular household surveys with other surveys that include retrospective information on parental background to overcome the former data restriction.

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TABLE 3.2  
MEAN ON PARENTAL AND RESPONDENTS' SCHOOLING  
CHARACTERISTICS

Respondent	Average Schooling	Average Schooling Gap	Father Average Education Level	Mother Average Education Level	Household's Average Income Decile	% Private Primary
Whole Sample	11.60	3.66	3.40	3.55	5.61	27.70
15-19	10.79	1.08	3.31	3.50	5.19	29.50
20-25	12.31	5.09	3.58	3.70	5.99	28.72
26-30	11.74	5.25	3.31	3.42	5.67	23.46
Male	11.37	3.81	3.52	3.66	5.68	25.80
Female	11.80	3.52	3.31	3.46	5.55	29.30

Note. This data come from the Survey of Employment and Education of Youth (Encuesta de Educación y Empleo de los Jóvenes) (EEEJ) collected by the Instituto Nacional de Estadística y Censos (INDEC) and Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS) of Argentina (INDEC-CEDLAS) in June 2005. Average schooling includes 1 grade of preschool. In the survey parent's education is collected by attainment level. An Average Education Level = 3 means parents have achieved around 9-10 years of school. Average schooling gap for respondents older than 25 is computed assuming 17 years of education as a top. Parent's education level is achieved assuming that all of them have completed the level.

Source. Own calculations based on *EEEJ*.

TABLE 3.3  
EDUCATIONAL MOBILITY  
PANEL A: ALL INDIVIDUALS

SchoolingGap	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.634** (0.0650)	-0.236** (0.0610)	-0.728** (0.0955)	-0.907** (0.1091)
Cohort-annual observations:	682	251	247	184
Adjusted R squared:	0.121	0.052	0.188	0.271

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

PANEL B: INDIVIDUAL WHO'S PARENTS COMPLETED SOME  
EDUCATIONAL LEVEL

SchoolingGap	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.581** (0.0897)	-0.239** (0.0767)	-0.676** (0.1238)	-1.030** (0.1711)
Cohort-annual observations:	294	99	119	76
Adjusted R squared:	0.122	0.081	0.196	0.319

Note. The sample includes only the records for which educative level for parents was achieved before children attend media school.

\*\* p<0.05

\* 0.05<p<0.10

PANEL C: ALL INDIVIDUAL WITH PARENTS' EDUCATIONAL LEVEL  
REESTIMATED

SchoolingGap	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.599** (0.0643)	-0.230** (0.0596)	-0.720** (0.0927)	-0.907** (0.1112)
Cohort-annual observations:	682	251	247	184
Adjusted R squared:	0.112	0.052	0.297	0.263

Note. Education level for parents whose children do not recall if they had completed the level they attended is reduced one level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.4  
INTERGENERATIONAL MOBILITY BY PARENT'S LEVEL OF EDUCATION

SchoolingGap	Model 1			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Father Schooling Level	-0.207** (0.0898)	0.007 (0.0882)	-0.266* (0.1518)	-0.489** (0.1752)
Mother Schooling Level	-0.262** (0.0916)	-0.278** (0.0887)	-0.173 (0.1492)	-0.315 (0.1903)
Sex	-0.638** (0.2391)	-0.062 (0.2248)	-1.018** (0.4113)	-0.927* (0.4745)
Age	0.455** (0.0263)	0.351** (0.0814)	0.914** (0.1148)	0.329* (0.1671)
Household Income Decile	-0.199** (0.0506)	-0.022 (0.0538)	-0.341** (0.0863)	-0.384** (0.0895)
Cohort-annual observations:	492	190	172	130
Adjusted R squared:	0.444	0.151	0.399	0.377

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.5  
INTERGENERATIONAL MOBILITY BY PARENT'S MAXIMUM LEVEL OF  
EDUCATION

SchoolingGap	Model 2			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.387** (0.0742)	-0.221** (0.0775)	-0.322** (0.1318)	-0.692** (0.1287)
Sex	-0.623** (0.2365)	-0.0514 (0.2268)	-1.082** (0.4101)	-0.858* (0.4607)
Age	0.453** (0.0260)	0.379** (0.0820)	0.888** (0.1150)	0.303* (0.1622)
Household Income Decile	-0.213** (0.0489)	-0.053 (0.0519)	-0.349** (0.0863)	-0.410** (0.0849)
Cohort-annual observations:	499	193	173	133
Adjusted R squared:	0.447	0.148	0.394	0.395

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.6  
ECONOMIC FAMILY BACKGROUND AND MOBILITY

SchoolingGap	Model 3			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.488** (0.0546)	-0.169** (0.0618)	-0.687** (0.0839)	-0.779** (0.1127)
Sex	-0.541** (0.1958)	-0.165 (0.1984)	-1.032** (0.3244)	-0.436 (0.4052)
Age	0.402** (0.0211)	0.376 (0.0708)	0.814** (0.0911)	0.254* (0.1396)
Private Primary School	-0.928** (0.2279)	-0.683** (0.2300)	-0.976** (0.3636)	-1.639** (0.5068)
Cohort-annual observations:	682	251	247	184
Adjusted R squared:	0.442	0.174	0.415	0.323

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.7  
INTERGENERATIONAL MOBILITY AND EARLY ENTRANCE IN LABOR  
MARKET

SchoolingGap	Model 4			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.425** (0.0552)	-0.147** (0.0622)	-0.624** (0.0845)	-0.620** (0.1119)
Sex	-0.371* (0.1964)	-0.078 (0.1996)	-0.866** (0.3280)	-0.179 (0.3904)
Age	0.419** (0.0240)	0.394 (0.0793)	0.868** (0.0907)	0.281** (0.1338)
Private Primary School	-0.835** (0.2248)	-0.667** (0.2278)	-0.889** (0.3575)	-1.330** (0.4863)
Employment	3.260** (0.6703)	2.349** (0.9155)	3.262** (1.297)	3.453** (1.5329)
Age First Employment	-0.189** (0.0381)	-0.139** (0.0601)	-0.224** (0.0665)	-0.277** (0.0581)
Cohort-annual observations:	682	251	247	184
Adjusted R squared:	0.460	0.178	0.440	0.396

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.8  
INTERGENERATIONAL MOBILITY BY GENDER  
PANEL A: MALES

SchoolingGap	Model 3			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.530** (0.0794)	-0.292** (0.914)	-0.757** (0.1278)	-0.707** (0.1569)
Age	0.416** (0.0321)	0.345** (0.1043)	0.716** (0.1463)	0.078 (0.1906)
Private Primary School	-0.448 (0.3491)	0.444 (0.3348)	-0.523 (0.5763)	-1.726** (0.8288)
Cohort-annual observations:	317	117	118	82
Adjusted R squared:	0.421	0.165	0.323	0.316

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

PANEL B: FEMALES

SchoolingGap	Model 3			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.439** (0.0758)	-0.060 (0.0840)	-0.557** (0.1103)	-0.872** (0.1627)
Age	0.396** (0.0282)	0.417** (0.0965)	0.915** (0.1109)	0.434** (0.2032)
Private Primary School	-1.336** (0.3011)	-0.913** (0.3157)	-1.549** (0.4580)	-1.557** (0.6511)
Cohort-annual observations:	365	134	129	102
Adjusted R squared:	0.461	0.168	0.515	0.327

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.



TABLE 3.9  
INTERGENERATIONAL MOBILITY AND EARLY ENTRANCE IN LABOR  
MARKET BY GENDER  
PANEL A: MALES

SchoolingGap	Model 4			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.439** (0.0803)	-0.259** (0.0942)	-0.622** (0.1293)	-0.556** (0.1438)
Age	0.402** (0.0362)	0.341** (0.1158)	0.663** (0.1433)	0.023 (0.1705)
Private Primary School	-0.383 (0.3416)	-0.462 (0.3340)	-0.202 (0.5614)	-1.510** (0.7412)
Employment	4.486** (1.0424)	2.162* (1.2113)	7.564** (2.2979)	- -
Age First Employment	-0.223** (0.0605)	-0.127 (0.0808)	0.348** (0.1110)	-0.389 (0.0850)
Cohort-annual observations:	317	117	118	82
Adjusted R squared:	0.450	0.175	0.374	0.455

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

PANEL B: FEMALES

SchoolingGap	Model 4			
	Whole Sample	Teen-Agers	Young Adults(20-25)	Young Adults(26-30)
Maxschoolparents	-0.391** (0.0764)	-0.048 (0.0841)	-0.517** (0.1089)	-0.700** (0.1682)
Age	0.435** (0.0.323)	0.463** (0.1116)	1.008** (0.1126)	0.510** (0.2015)
Private Primary School	-1.271** (0.2989)	-0.867** (0.3153)	-1.577** (0.4438)	-1.263* (0.6460)
Employment	2.234 (0.8699)	2.550* (1.4319)	1.472 (1.4967)	2.337 (1.8475)
Age First Employment	-0.155** (0.0490)	-0.155* (0.0927)	-0.164** (0.0787)	-0.223** (0.0794)
Cohort-annual observations:	365	134	129	102
Adjusted R squared:	0.474	0.176	0.547	0.372

Note. Education level for parents is achieved assuming that all of them have completed the level.

\*\* p<0.05

\* 0.05<p<0.10

Source. Own calculations based on *EEEJ*.

TABLE 3.10  
 TRANSITION MATRICES (YOUNG ADULTS 20-30 YEARS OLD)  
 NON CONDITIONAL PROBABILITIES OF CHILD'S SCHOOLING LEVEL  
 GIVEN PARENTS SCHOOLING LEVEL

Children	Parents		
	Primary	Secondary	University
Primary	24.8	5.0	0.0
Secondary	57.0	47.5	17.2
University	18.2	47.5	82.8
	100.0	100.0	100.0

  

Male Children	Parents		
	Primary	Secondary	University
Primary	58.6	5.6	0.0
Secondary	56.0	54.9	18.7
University	15.4	39.4	81.3
	100.0	100.0	100.0

  

Female Children	Parents		
	Primary	Secondary	University
Primary	22.0	4.5	0.0
Secondary	57.7	41.6	15.7
University	20.3	53.9	84.3
	100.0	100.0	100.0

Note. Primary includes preschool, primary and *EGB*; Secondary includes secondary and *polimodal*; university includes tertiary, university and post grades.

Source. Own calculations based on *EEEJ*.

TABLE 3.11  
 TRANSITION MATRICES (YOUNG ADULTS 20-30 YEARS OLD)  
 CONDITIONAL PROBABILITIES OF CHILD'S SCHOOLING LEVEL GIVEN  
 PARENTS SCHOOLING LEVEL

Children	Parents		
	Primary	Secondary	University
Primary	14.0	3.0	0.0
Secondary	64.5	52.8	19.6
University	21.5	44.0	80.3
	100.0	100.0	100.0

Male Children	Parents		
	Primary	Secondary	University
Primary	55.1	17.9	0.0
Secondary	27.9	39.4	10.8
University	16.9	42.6	89.1
	100.0	100.0	100.0

Female Children	Parents		
	Primary	Secondary	University
Primary	1.4	2.7	0.0
Secondary	84.3	47.3	33.1
University	14.3	50.0	66.8
	100.0	100.0	100.0

Note. Primary includes preschool, primary and *EGB*; Secondary includes secondary and *polimodal*; university includes tertiary, university and post grades.

Source. Own calculations based on *EEEJ*.

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<sup>i</sup> It also matters for Latina American Countries, where schooling returns are flat during basic and secondary cycles, increasing after completion of secondary education and materializing their full return only after completion of tertiary education in some cases (De Ferranty et al. 2006).

<sup>ii</sup> At the moment the *EEEJ* was collected, there were two educational systems in Greater Buenos Aires. In *Ciudad de Buenos Aires (CBA)* children attended seven years of primary and

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five of secondary. In *Partidos del Gran Buenos Aires*, the new educational system was in force including nine years of *Educación General Básica (EGB)* divided into three stages of three years each, and three years of *Polimodal*.